

# Room for Opportunity: Resource Scarcity Increases Attractiveness of Range Marketing Offers

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Although marketing offers with flexible price options within a range of two endpoints (i.e., range offers) have been frequently used in various contexts, such as discount ranges, flexible pricing, and deal quotations, our understanding of how consumers react to this pricing strategy is rather limited. **The current research suggests that consumers' reaction to range marketing offers may depend on their general sense of scarcity.** Eight studies show that reminders of resource scarcity induce a promotion orientation among consumers, which consequently increases consumers' favorability toward range marketing offers. This effect is found to strengthen when the range of the offer becomes wider, and to weaken when the range offer cannot provide a better-than-reference outcome. These findings result in novel theoretical insights about the ways consumers react to range marketing offers. From a managerial perspective, this research offers tactics that companies can use to potentially increase the acceptance and effectiveness of range marketing offers.

**Keywords:** resource scarcity, promotion orientation, range marketing offers, reference point

Consumers often confront cues that emphasize the limited nature of products and resources, from the “sold

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out” labels on the store shelves to the “last minute sale” used in marketing promotion. Previous marketing research has traditionally treated resource scarcity as a factor inherent to the volume of a product or commodity (Lynn 1991). More recently, however, consumer research has expanded the scope beyond domain-specific scarcity in order to explore the psychological and behavioral consequences of the overall perception of resource scarcity on various consumption-related behaviors, such as aggression (Kristofferson et al. 2017), creativity (Mehta and Zhu 2016), food choice (Laran and Salerno 2013), product preference (Zhu and Ratner 2015), and prosocial behavior (Roux, Goldsmith, and Bonezzi 2015). Adding to this stream of research, the current work investigates a novel effect of resource scarcity, namely how the perception of resource scarcity leads to consumers' favorable attitude toward range marketing offers.

Range offers, a popular marketing strategy, have two endpoints (Ames and Mason 2015; Janiszewski and Lichtenstein 1999). This type of offer is pervasive in our

current consumption society and is frequently used in various marketing contexts, such as discount ranges (“Save X% to Y%”; Biswas and Burton 1993), quotations in a deal (“salary for this position ranges from \$X to \$Y” or “I’m looking to get \$X to \$Y for my house”; Ames and Mason 2015; Ames and Wazlawek 2014), and flexible pricing (“typically sells for somewhere between \$X and \$Y”; Haws and Bearden 2006). Range marketing offers are popular in service industries, such as hospitality, real estate, entertainment, online retail, electricity, and public transport, where the prices are usually demand-based and can vary over time and with changing consumers and/or circumstances (Fischler 2009).

In the current research, we examine whether a general sense of resource scarcity influences consumer attitudes toward range marketing offers. **We propose that the general sense of resource scarcity could enhance consumers’ favorability toward such offers. The theoretical reasoning behind this prediction is that reminders of resource scarcity will induce a heightened promotion orientation among consumers, and with this promotion orientation, they hope for potential better-than-reference outcomes** (Sengupta and Zhou 2007; Wang and Lee 2006; Zhou and Pham 2004). Since range offers, compared to single-point offers, provide a possibility of reaching better-than-reference outcomes (assuming the reference point is within the range), these offers will be perceived as more attractive among consumers with a sense of resource scarcity. Consistent with this underlying mechanism, we further predict that the proposed effect will strengthen when the range of the offer becomes wider (thus providing more opportunity for better-than-reference outcomes) and weaken when the range offer cannot provide any better-than-reference outcome (i.e., when all possible outcomes in the range are worse than the reference point).

Our hypotheses are supported by the eight studies detailed in the current article. The results from these studies provide relevant insights into how and why reminders of resource scarcity influence consumers’ attitudes toward range marketing offers. By being the first to investigate the relationship between resource scarcity and regulatory focus, we extend the marketing literature on the motivational impact of resource constraints (e.g., Cannon, Goldsmith, and Roux 2018; Kristofferson et al. 2017; Laran and Salerno 2013; Mehta and Zhu 2016; Zhu and Ratner 2015). In addition to revealing a novel marketing consequence of resource scarcity, the current research contributes to the pricing literature (Ames and Mason 2015; Cai, Bagchi, and Gauri 2016; Janiszewski and Lichtenstein 1999; Monga and Bagchi 2012) by providing insights on the sociopsychological factors shaping consumers’ attitudes toward range marketing offers and the underlying mechanism. From a managerial perspective, this research suggests potential tactics that companies can use to increase the acceptance and effectiveness of range marketing offers.

## CONSEQUENCES OF RESOURCE SCARCITY

Scarcity occurs when resources are insufficient to satisfy necessary needs (Mani et al. 2013; Mullainathan and Shafir 2013). In other words, a feeling of resource scarcity is activated when we want more than we have. As a pervasive aspect of human life (Booth 1984) and a fundamental concept in economics (Brock 1968), resource scarcity has attracted considerable attention across various disciplines, such as economics (Banerjee and Duflo 2007), political science (Grossman and Mendoza 2003), and social and consumer psychology (Kristofferson et al. 2017; Laran and Salerno 2013; Mehta and Zhu 2016; Roux et al. 2015; Sevilla and Redden 2014; Zhu and Ratner 2015).

Previous marketing research traditionally treats scarcity as a factor inherent to the volume of a product or commodity and consistently demonstrates that object-specific scarcity can lead to increased valuation and stronger desire for that object (Lynn 1991). As scarcity-related concerns may be activated by contextual cues in the environment, consumer psychologists have recently started to look at the overall perception of resource scarcity (e.g., Cannon, Goldsmith, and Roux 2018; Laran and Salerno 2013; Mehta and Zhu 2016; Zhu and Ratner 2015), including both situationally activated scarcity (Laran and Salerno 2013; Mehta and Zhu 2016) and historical experiences of resource deprivation (Griskevicius et al. 2013). For example, activating the overall concept of scarcity (vs. abundance) increases consumers’ level of arousal, which in turn leads to more polarized evaluations of items in the choice set (Zhu and Ratner 2015). Laran and Salerno (2013) show that people seek and consume more filling and high-calorie foods when they perceive that resources in the world are scarce. A constrained mind-set activated by the salience of scarcity could also reduce functional fixedness, which in turn enhances consumption creativity (Mehta and Zhu 2016).

**These findings provide evidence that the salience of resource scarcity can significantly affect consumers’ cognitive function.** Our understanding of the motivational outcomes of resource scarcity, however, is rather limited. In the current research, we propose that a general sense of resource scarcity can shift consumers’ regulatory focus. Specifically, we predict that perceptions of general resource scarcity stimulate a promotion orientation.

## RESOURCE SCARCITY AND PROMOTION ORIENTATION

Human beings have two basic motivational principles: approach pleasure and avoid pain (Higgins 1997, 1998). Dissecting these two principles, the theory of regulatory focus holds that individuals tend to exhibit two motivational

orientations: promotion orientation and prevention orientation (Higgins 1997, 1998; Higgins et al. 1994). **People with a promotion orientation typically perceive their goals as hopes and ideals; thus, they are sensitive to potential desirable outcomes and are inclined to approach them.** In contrast, those with a prevention orientation consider their goals as duties and obligations; therefore, they focus on the potential for undesirable outcomes and intend to avoid them (Idson, Liberman, and Higgins 2000; Molden, Lee, and Higgins 2008). Although sometimes these two orientations are considered as two ends of the same motivation continuum, more recent research suggests that these two orientations are orthogonal entities (Higgins 1997; Idson et al. 2000).

The promotion orientation affects consumer attitudes and behaviors in various domains, such as food choices (Sengupta and Zhou 2007), financial decision-making (Zhou and Pham 2004), and product evaluations (Wang and Lee 2006). One finding particularly relevant to the current research is that a promotion orientation shifts consumers' sensitivity from undesirable outcomes to desirable outcomes. A heightened promotion orientation produces an emphasis on desirable outcomes and ideal-related benefits. When facing a hedonically appealing temptation, consumers with a promotion orientation tend to put a disproportionate focus on the upside of consuming the temptation and thus are more likely to choose to indulge (Sengupta and Zhou 2007). Similarly, Zhou and Pham (2004) find that financial products appealing to a promotion orientation will be evaluated with a greater sensitivity to potential desirable outcomes and lesser sensitivity to undesirable outcomes.

**The current research proposes that reminders of resource scarcity activate a promotion orientation.** Several streams of past research are consistent with this proposition. Unsatisfied desires are considered to be the primary forces that motivate people to change (Evans 2001). The feeling of scarcity is undesirable and aversive, so people who fall into scarcity situations usually exhibit a desire to change their current state (Kristofferson et al. 2017; Roux et al. 2015). For example, instead of saving financial resources during recession, women spend more money on beauty products to improve their attractiveness in a scarce environment (Hill et al. 2012). Similarly, instead of conserving financial resources, consumers who feel a lack of resources pay more for products offering self-improvement benefits (Goldsmith, Tezer, and Roux 2017). This desire to change one's current state coincides with a promotional motivation, since people with a promotion orientation usually seek to make a change from the status quo to a more desirable state (Higgins 1997, 1998; Liberman et al. 1999).

In addition, resource scarcity represents a gap between the perceived or possessed level of resources one has and the desired level of resources one wants/needs to have (Cannon, Goldsmith, and Roux 2018). The optimal method

to reduce this discrepancy between perceived or possessed resource levels is obviously to increase one's possessions (Levontin, Ein-Gar, and Lee 2015; Roux et al. 2015). Thus, individuals experiencing a feeling of scarcity often substantiate a possession-expansion tendency by paying more attention to opportunities that can potentially lead to positive outcomes (Duclos, Wan, and Jiang 2013; Roux et al. 2015). For example, consumers who perceive resource scarcity act to increase their possessions and attain the desired end across domains, such as seeking unique products that others do not possess (Sharma and Alter 2012), accruing more financial gains (Duclos et al. 2013), and acquiring resources in other domains (Xu, Schwarz, and Wyer 2015). This is, again, consistent with a promotion orientation, which revolves around improvement and attainment (Shah, Higgins, and Friedman 1998).

Finally, a promotion orientation provides an efficient way to resolve the threatening scarcity situation. The opportunities in a scarcity environment never last long, because people compete with each other for the limited opportunities (Grossman and Mendoza 2003). In order to grab the opportunities, people need to be sensitive to the potential chances and prone to act quickly, consistent with the promotion orientation (Higgins, Kruglanski, and Pierro 2003). Considering these tendencies together, it seems reasonable to predict that reminders of resource scarcity will activate a promotion orientation.

## THE IMPACT OF RESOURCE SCARCITY ON CONSUMER ATTITUDE TOWARD RANGE MARKETING OFFERS

Range offers have been implemented frequently in various marketing strategies, such as price discounts (Biswas and Burton 1993; Cai et al. 2016), quotations in a deal (Ames and Mason 2015; Ames and Wazlawek 2014), and flexible pricing (Haws and Bearden 2006). For example, instead of pricing a car at \$7,500, a used-car seller can provide a range offer by saying, "I'm looking to get \$7,300 to \$7,700." Range offers can be categorized into three types based on differences in their location to a reference point: *normal (bracketing)* range offers span a point offer (e.g., asking for "\$7,300 to \$7,700" rather than a \$7,500 point offer); *bolstering* range offers feature more ambitious figures than the point offer (e.g., asking for "\$7,500 to \$7,900" rather than a \$7,500 point offer); and *back-down* range offers contain less ambitious figures than the point offer (e.g., asking for "\$7,100 to \$7,500" rather than a \$7,500 point offer).

Ames and Mason (2015) systematically examined the benefits of range offers and suggested that these offers differ from regular point offers by simultaneously containing two tandem anchors. Both endpoints of a range offer are considered as informative reference points and can be used



as signals for price expectations. Indeed, Ames and Mason (2015) found that range-offer recipients used both endpoints as signals to judge the offer maker's reservation price, and range offers (especially bolstering range offers) often yield both financial and relational benefits to sellers, compared to point offers.

In the current research, we argue that, compared to point offers, range offers provide consumers with potential room for both better-than-reference outcomes and worse-than-reference outcomes. Consumers intrinsically form valuations by comparing the outcome of their consumption with a reference level. The perceived desirability and undesirability of an offer are often not fixed, but contingent on the reference point that consumers used in that particular context (Putler 1992). Compared with point offers that result in the same outcome to all customers, range offers provide possibilities for consumers to obtain outcomes that can be either better or worse than their reference (which is usually the midpoint of the range; Ames and Mason 2015; Janiszewski and Lichtenstein 1999).

The salience of resource scarcity induces a promotion orientation among consumers, which is, by definition, the regulation toward ideal goals such as hopes and wishes (Higgins et al. 1994; Higgins, Shah, and Friedman 1997). This promotion orientation, once activated, could increase consumers' favorableness toward range marketing offers through different paths. For example, the promotion orientation could raise consumers' optimism of actually achieving positive outcomes (Bruininks and Malle 2005). Specifically, reminders of resource scarcity could lead consumers to believe that they could actually receive better-than-reference outcomes from range marketing offers, and this optimism makes range marketing offers more attractive to these consumers. Alternatively, a promotion orientation can increase consumers' favorableness toward range marketing offers through heightened feelings of hope. Different from optimism, which is the estimated likelihood of receiving positive outcomes (Bruininks and Malle 2005), hope is the general yearning for the absent goods (MacInnis and Chun 2007; McGee 1984), regardless of the specific likelihood of realizing them. Putting them together, we predict that reminders of resource scarcity should lead to higher favorability toward range offers, and this effect will be mediated by the promotion orientation heightened by resource scarcity. Stating these hypotheses formally:

**H1:** Reminders of resource scarcity lead consumers to exhibit more favorable attitudes toward range marketing offers.

**H2:** The effect of resource scarcity on consumers' attitudes toward range offers is mediated by a heightened promotion orientation.

The range of the offer itself is a multifaceted construct. The characteristics of an offer's range may influence

consumers' value perception from the offer, especially when consumers are reminded of the scarcity of resources. For example, range offers have two endpoints, and it has been argued that the distance between these two endpoints (i.e., the width of the range) does not yield much difference in consumer attitude toward the offer (Ames and Mason 2015; Janiszewski and Lichtenstein 1999). **This is because consumers usually assume that the reference point of a range is in its middle; thus, wide and narrow range offers will produce the same expected economic utility.** However, we predict in the current research that range width will influence the impact of resource scarcity on range offer evaluation. The wider the range, the greater the possibility for both better-than-reference and worse-than-reference outcomes (assuming the reference point is in the middle). Therefore, if the effect of resource scarcity on range offers results in increased favorability because consumers with heightened promotion orientation have a greater hope or optimism for potential better-than-reference outcomes from the range offer, this effect should strengthen when the range of the offer becomes wider. We state this hypothesis formally as follows:

**H3:** The effect of resource scarcity on consumer attitude toward range offers is strengthened when the range is wide compared to narrow.

Another important range characteristic that might have an impact on our proposed mechanism is the relative location of the range and its reference point. Ames and Mason (2015) suggested that the valuation of a range offer hinges on its location relative to the reference point. Although by default the reference point is assumed to be the midpoint of the range (Ames and Mason 2015; Janiszewski and Lichtenstein 1999), in many situations the reference point is provided or retrieved externally, such as former prices from the same seller, prices at competing stores, or the Manufacturer Suggested Retail Price (MSRP; Biswas and Blair 1991).

Range offers can be categorized into three types based on differences in their location to a given reference point (Ames and Mason 2015). Taking the offer makers' (i.e., sellers') perspective, for example, a bolstering range offer features more seller-beneficial figures than a point offer (e.g., asking for "\$4,000 to \$5,000" rather than a reference point of \$4,000); a back-down range offer contains less seller-beneficial figures than a point offer (e.g., asking for "\$3,000 to \$4,000" rather than a reference point of \$4,000); and a normal (bracketing) range offer simply spans a point offer (e.g., asking for "\$3,500 to \$4,500" rather than a reference point of \$4,000).

If the effect of resource scarcity on consumer attitude toward range marketing offers is really driven by the heightened promotion orientation and stimulates greater hope or optimism for better-than-reference outcomes under resource scarcity, the relative location of the range and its

reference point is likely to moderate this effect. Specifically, because under scarcity consumers have a promotion orientation and hope/expect for better-than-reference outcomes, our proposed effect should hold for both normal and back-down range offers because these two types of range offers provide consumers with opportunities to achieve better-than-reference outcomes. The proposed effect, however, should weaken or disappear when consumers face bolstering range offers, because this type of range offer eliminates consumers' possibility for receiving better-than-reference outcomes (i.e., all possible outcomes in the range are worse than the reference point for bolstering range offers). Put formally:

**H4:** Reminders of resource scarcity lead consumers to exhibit more favorable attitudes toward normal and back-down range offers. But the effect of resource scarcity on consumer attitude toward range offers is attenuated for bolstering range offers.

Eight studies test the effects of resource scarcity on consumer attitude toward range marketing offers. With both a hypothetical scenario and real behavior, studies 1a and 1b demonstrate that the perception of resource scarcity increases consumers' favorability toward range offers, but not their attitude toward point offers. Studies 2a, 2b, and 2c confirm the mediating role of promotion orientation underlying this effect. The last three studies explore the impact of range characteristics on the effect. The observed effect is strengthened when the range of the offer is wide (study 3) and weakened when the range offer cannot provide better-than-reference outcomes (studies 4a and 4b).

## STUDY 1A

Study 1a examines our basic hypothesis that resource scarcity influences consumer attitude toward range marketing offers. If reminders of resource scarcity heighten consumers' promotion orientation, we should expect them to prefer a range discount offer more than a point one, because the former provides a chance for consumers to achieve a better-than-reference outcome.

Past resource scarcity literature has demonstrated that different operationalizations of resource scarcity often yield similar psychological consequences (Laran and Salerno 2013; Roux et al. 2015; Zhu and Ratner 2015). Therefore, we expect that reminders of different types of resource scarcity operate similarly in activating consumers' promotion orientation and influencing consumers' evaluation of range marketing offers. To validate this assumption, we include three different resource scarcity conditions (i.e., natural resource scarcity, food scarcity, and money scarcity) in the current study.

## Method

Two hundred twenty-three Hong Kong undergraduates ( $M_{\text{age}} = 22.3$ ; 68.6% female) participated in this study for a nominal payment. Participants were randomly assigned to the conditions of a four-cell (resource scarcity: natural resource scarcity vs. food scarcity vs. money scarcity vs. baseline) between-subjects design.

We first manipulated participants' perceptions of resource scarcity through a picture evaluation task in which participants judged pictures in terms of their color and lighting (Griskevicius et al. 2013; Jiang, Chen, and Wyer 2014). Participants viewed 10 pictures featuring scenes related to natural-resource exhaustion (e.g., dried pond; the natural-resource scarcity condition), financial crisis (e.g., empty wallet; the money scarcity condition), food shortage (e.g., empty supermarket shelves; the food scarcity condition), or landscape (e.g., flowers; the baseline condition). As a manipulation check, after rating the pictures, participants indicated the extent to which they agree with the statements that "the resources are scarce," "we don't have enough resources," and "we live in a harsh environment" (1 = totally disagree, 9 = totally agree;  $\alpha = .86$ ; Roux et al. 2015).

Then, in a purportedly unrelated task, participants imagined that they wanted to go grocery shopping and found discount coupons for two local supermarkets in the newspaper. One supermarket offers 10% to 30% off (i.e., a range offer), whereas the other offers 20% off (i.e., a point offer). Participants saw both coupons simultaneously (see the web appendix), but the brands on the coupons were counterbalanced. Participants then indicated which supermarket they chose to visit.

## Results

Our resource scarcity manipulation had a significant effect on participants' perceived resource scarcity ( $F(3, 219) = 25.42, p < .001$ ). Compared to those in the baseline condition ( $M = 3.72, SD = 1.90$ ), participants in the natural-resource scarcity condition ( $M = 5.92, SD = 1.45; t(219) = 7.40, p < .001$ ), food scarcity condition ( $M = 5.90, SD = 1.26; t(219) = 7.20, p < .001$ ), and money scarcity condition ( $M = 5.79, SD = 1.66; t(219) = 6.86, p < .001$ ) all felt that the resources are more scarce. There was no significant difference in perceived resource scarcity across the three scarcity conditions ( $F_s < 1, NS$ ).

As we expected, resource scarcity had a significant impact on the participants' store choice ( $\chi^2(3) = 12.95, p = .005$ ). Participants in the natural-resource scarcity (62.7%;  $\chi^2(1) = 5.46, p = .020, OR = 2.45$ ), food scarcity (65.5%;  $\chi^2(1) = 6.68, p = .010, OR = 2.77$ ), and money scarcity (72.7%;  $\chi^2(1) = 11.37, p = .001, OR = 3.88$ ) conditions were all more likely to visit the store offering a range discount than were those in the baseline condition (40.7%).

Different operationalizations of scarcity, however, did not lead to a significant difference in participants' store choice ( $\chi^2(2) = 1.36, p = .506$ ).

## Discussion

Study 1 provides initial evidence that perceived resource scarcity influences consumers' attitude toward range marketing offers, by demonstrating that the perception of resource scarcity leads consumers to visit a store offering range discounts instead of one that offers a point discount. This observed effect seems to hold independently of resource domains, since different operationalizations of resource scarcity led to a similar effect on range-offer preference.

## STUDY 1B

We replicate the findings of study 1a with real behavioral consequences in study 1b. Specifically, we vary the payment scheme of a task, being either in a range or in a fixed format. We expect participants who perceive resource scarcity will have greater motivation and intention to take part in the task with a range payment than a fixed payment, because the former task provides opportunities to yield better-than-reference outcomes. In addition, in this study, we manipulated range versus point offers between subjects, to investigate whether the observed effect is driven by participants' evaluation of range offers or point offers.

## Method

Two hundred twenty-two US adult consumers participated in this experiment on Amazon Mechanical Turk (MTurk). Two participants indicated that they were heavily distracted during the study and thus were excluded from later data analyses (Dong and Zhong 2017; Oppenheimer, Meyvis, and Davidenko 2009), leaving 220 participants in the sample ( $M_{\text{age}} = 36.4$ ; 55.5% female). In this and later studies, exclusion of distracted participants did not significantly change the data pattern we report. Participants were randomly assigned to the four conditions of a 2 (resource scarcity: scarcity vs. baseline)  $\times$  2 (offer type: range offer vs. point offer) between-subjects design.

Participants were invited to complete a 5 minute task in exchange for US\$.20; this payment also serves as a reference point for our later bonus task payment. Within these 5 minutes, we manipulated participants' feeling of resource scarcity through a reading comprehension task that has been frequently used in the past resource scarcity literature (Hill et al. 2012; Wu, Zhu, and Ratner 2018). Specifically, participants were told that the purpose of this task was to understand how well people summarize main points from scientific articles. In the resource scarcity condition, participants read and summarized a fictitious research article

claiming that five natural resources (water, oil, natural gas, coal, and rare earth elements) would soon be mostly drained by the 7 billion people on the earth. In the baseline condition, participants read and summarized an article similar in length, style, and source, but describing the visual capacity of monkeys (see the [web appendix](#)). To validate this manipulation, we asked a separate group of 76 MTurk participants ( $M_{\text{age}} = 35.1$ ; 57.9% female) to complete the three manipulation-check items used in study 1a after the reading comprehension task. As expected, participants in the resource scarcity condition felt that the resources are more scarce ( $M = 7.08$ ,  $SD = 1.64$ ) than did those in the baseline condition ( $M = 4.17$ ,  $SD = 1.90$ ;  $F(1, 74) = 50.98, p < .001$ ).

After the reading comprehension task, we told participants that this task had ended and they would receive their US\$.20 payment. We then provided participants with an opportunity to join a 5 minute bonus task. In the range offer condition, participants were told that the additional payment from this bonus task would range from US\$.10 to US\$.30, depending on the number of participants who decided to join. In the point offer condition, however, the additional payment from the bonus task was fixed at US\$.20. Participants could decide whether they wanted to join this bonus task or not. Those who decided to join completed a filler video task and received either a fixed payment of US\$.20 (the point offer condition) or a randomly decided payment from US\$.10 to US\$.30 (the range offer condition).

## Results

A binary logistic regression showed only a significant interaction effect between resource scarcity and offer type ( $\beta = 2.38$ ,  $SE = 1.20$ ,  $Wald = 3.93, p = .048$ ;  $OR = 10.82$ ; see [figure 1](#)) on participants' decision to join the bonus task. As expected, when the bonus task provides a range payment, more participants in the scarcity condition (98.1%) joined the bonus task than did those in the baseline condition (76.9%;  $\chi^2(1) = 10.86, p = .001$ ;  $OR = 15.21$ ). However, the effect of resource scarcity on the decision to join the bonus task disappeared when the task payment was fixed: 89.1% of participants in the scarcity condition and 85.0% of participants in the baseline condition joined the task ( $\chi^2(1) = .42, p = .515$ ). Moreover, more participants joined the bonus task when it provided a range of payments (98.1%) than when the payment was fixed (89.1%;  $\chi^2(1) = 3.63, p = .057$ ) in the scarcity condition. This pattern, however, was not observed in the baseline condition (76.9% vs. 85.0%, respectively;  $\chi^2(1) = 1.19, p = .275$ ).

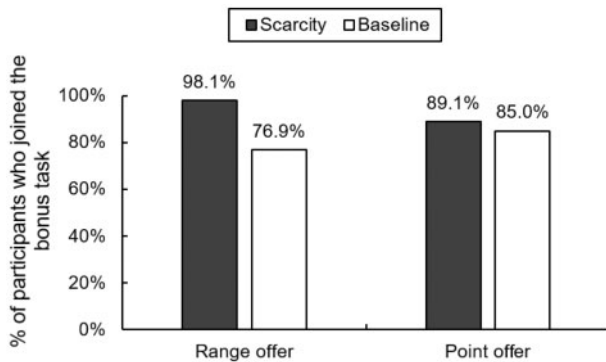
## Discussion

Taken together, the results from studies 1a and 1b provide convergent support for our hypothesis that the



FIGURE 1

MEAN PERCENTAGE OF PARTICIPANTS JOINING THE BONUS TASK AS A FUNCTION OF RESOURCE SCARCITY AND OFFER TYPE-STUDY 1B



perception of resource scarcity increases consumers' favorability toward range marketing offers. This effect holds across different operationalizations of scarcity manipulations and appears in different types of range marketing offers.

The null effect of resource scarcity on participants' attitude toward point marketing offers that we found in study 1b speaks against several alternative explanations. For example, one might argue that scarcity salience activates a general tendency to take offers, or a general motivation to earn monetary incentives; thus, scarcity-salient participants are more receptive to range offers than baseline participants are. However, these alternative explanations would predict that resource scarcity also increases the attractiveness of point offers. The current findings thus suggest that these alternative explanations are less likely to be the driving force of the effect observed.

## STUDY 2A

Study 2a examines the mediating role of promotion orientation in our proposed mechanism in a pricing context. As theorized earlier, we predict that the observed effect occurs because the perception of resource scarcity induces a promotion orientation among consumers, which in turn increases participants' favorability toward range price offers because this type of price offer provides a chance for participants to achieve better-than-reference outcomes (i.e., purchasing the product or service with a price lower than the reference price).

## Method

Two hundred fifty-one US adults from MTurk participated in the experiment for a nominal payment. Three

participants were excluded from further analyses because they indicated that they were distracted during the study (Dong and Zhong 2017; Oppenheimer et al. 2009). This left 248 participants in the final sample ( $M_{\text{age}} = 36.4$ ; 47.2% female). Participants were randomly assigned to one of the two conditions (resource scarcity vs. baseline).

To manipulate resource scarcity, we asked participants to first complete the same reading comprehension task as in study 1b. Then participants completed the 18-item regulatory focus scale developed by Lockwood, Jordan, and Kunda (2002), including nine items measuring promotion orientation (e.g., "I am more oriented toward achieving success than preventing failure";  $\alpha = .96$ ) and nine items measuring prevention orientation (e.g., "I am more oriented toward preventing losses than I am toward achieving gains";  $\alpha = .90$ ).

Finally, participants imagined that they planned to purchase a used vacuum cleaner with the provided knowledge that one in good condition normally costs US\$100. They saw an ad online for a used vacuum cleaner in which the seller said, "I am looking for US\$70 to US\$130 for this vacuum" (Ames and Mason 2015). Then participants indicated their attitude toward this range price offer by indicating to what extent: 1) they like this offer, 2) they think this offer is good, and 3) they are happy with this offer, all on nine-point scales (1 = not at all, 9 = very much;  $\alpha = .97$ ).

## Results

Participants in the resource scarcity condition showed more favorable attitudes toward the range price offer ( $M = 6.19$ ,  $SD = 2.09$ ) than did those in the baseline condition ( $M = 5.64$ ,  $SD = 2.02$ ;  $F(1, 246) = 4.34$ ,  $p = .038$ ,  $\eta_p^2 = .017$ ). Consistent with our expectation, participants in the resource scarcity condition also reported a higher promotion orientation ( $M = 7.21$ ,  $SD = 1.23$ ) compared to their counterparts in the baseline condition ( $M = 6.79$ ;  $SD = 1.68$ ;  $F(1, 246) = 5.26$ ,  $p = .023$ ). However, there was no significant difference in reported prevention orientation across scarcity and baseline conditions ( $M = 4.79$ ,  $SD = 1.53$  vs.  $M = 5.11$ ,  $SD = 1.86$ , respectively;  $F(1, 246) = 2.33$ ,  $p = .128$ ).

Mediation analyses confirmed that the effect of resource scarcity on attitude toward the range offer was mediated by participants' promotion orientation. The bootstrapping procedure (5,000 samples, PROCESS model 4; Hayes 2013) with resource scarcity as the independent variable, both promotion orientation and prevention orientation as the mediators, and attitude toward the range offer as the dependent variable yielded a 95% confidence interval for promotion orientation that excluded zero (.0218, .3794), suggesting a significant mediation effect. The 95% confidence interval for prevention orientation, however, included zero (−.1443, .0159), suggesting no significant mediation.

## Discussion

Study 2a demonstrated the mediational role of promotion orientation underlying the effect of resource scarcity on consumers' attitude toward range offers. The feeling of resource scarcity stimulates a promotion orientation but does not necessarily suppress the prevention orientation, and the heightened promotion orientation subsequently increases consumers' favorability toward range marketing offers because the range inherently provides possibilities to obtain outcomes that can be better than the reference. Consistent with this proposed underlying mechanism of promotion orientation, an additional study (see the [web appendix](#)) also showed that consumers who have a heightened promotion orientation exhibited more favorable attitudes toward range marketing offers regardless of their perception of resource scarcity.

## STUDY 2B

As we mentioned earlier, hope and optimism are two orthogonal constructs. Optimism is more attuned to the subjective likelihood of reaching desirable outcomes, while hope is the general yearning for the absent good (Averill, Catlin, and Chon 1990; Bruininks and Malle 2005). Given that both of these constructs could underlie our effect, we empirically test these two alternative accounts in study 2b to gain a more nuanced understanding of the underlying mechanism of our effect.

## Method

Four hundred US consumers participated in this study on MTurk for a nominal payment. Eleven participants were excluded from further analyses because they indicated that they were distracted during the study (Dong and Zhong 2017; Oppenheimer et al. 2009). This left 389 participants in the final sample ( $M_{\text{age}} = 36.1$ ; 50.6% female). Participants were randomly assigned to one of the two conditions (resource scarcity vs. baseline).

Participants first completed the same reading comprehension task to induce the feeling of resource scarcity that was used in studies 1b and 2a. They then finished the 18-item regulatory focus scale developed by Lockwood et al. (2002), including nine items measuring promotion orientation ( $\alpha = .95$ ) and nine items measuring prevention orientation ( $\alpha = .89$ ). Finally, in a purportedly unrelated task, participants imagined that they went to a shopping area to buy daily-consumed health supplies. There are two pharmacy stores, both of which were having sales promotions. One store offers an extra 20% to 40% off on all items (store A), whereas the other offers an extra 30% off on all items (store B). Participants saw information about both stores simultaneously (see the [web appendix](#)), but positions of the store promotions were counterbalanced. Participants

then chose one of the three options (visit store A, visit store B, or visit neither).

Participants also indicated their hope to get desirable outcomes ("how much discount you *hope* you will get on your entire purchase" and "how much discount you *wish* you will get on your entire purchase";  $r = .53$ ,  $p < .001$ ) and their optimism about getting desirable outcomes ("how much discount you *expect* you will get on your entire purchase" and "how much discount you *predict* you will get on your entire purchase";  $r = .61$ ,  $p < .001$ ) in a randomized order, on a scale from 20% to 40%. Confirming that hope and optimism are indeed two distinct constructs, a factor analysis with a varimax rotation revealed a two-factor structure of these four measures. The two hope measures were loaded highly on the first factor (loadings are .88 and .87, respectively), while the two optimism measures were loaded highly on the second factor (loadings are .89 and .90, respectively).

## Results

As expected, resource scarcity had a significant impact on the participants' store choice ( $\chi^2(2) = 22.07$ ,  $p < .001$ ). Participants in the scarcity condition (2.5%) and those in the baseline condition (1.6%,  $\chi^2(1) = .33$ ,  $p = .565$ ) did not differ in their likelihood of choosing not to visit any store. However, replicating results of the previous studies, more participants chose to visit the store with the range discount offer in the scarcity condition (52.0%) than in the baseline condition (29.2%;  $\chi^2(1) = 20.78$ ,  $p < .001$ , OR = 2.62).

Participants in the resource scarcity condition also reported a higher promotion orientation ( $M = 7.08$ ,  $SD = 1.44$ ) compared to their counterparts in the baseline condition ( $M = 6.67$ ,  $SD = 1.57$ ;  $F(1, 387) = 7.38$ ,  $p = .007$ ). There was no significant difference in reported prevention orientation across scarcity and baseline conditions ( $M = 4.74$ ,  $SD = 1.64$  vs.  $M = 4.83$ ,  $SD = 1.67$ , respectively;  $F(1, 387) = .28$ ,  $p = .596$ ).

Given that both hope and optimism are self-reported percentage data, we tested for data skewness and found that both the measures of hope (skewness = .10,  $SE = .12$ ) and optimism (skewness =  $-.72$ ,  $SE = .12$ ) were not significantly skewed (George and Mallery 2010). Then, we found that the participants in the resource scarcity condition reported a higher hope of getting a desirable outcome ( $M = 34.1\%$ ,  $SD = 5.2\%$ ) compared to their counterparts in the baseline condition ( $M = 31.5\%$ ,  $SD = 4.4\%$ ;  $F(1, 387) = 29.02$ ,  $p < .001$ ). But participants' optimism of actually getting a desirable outcome did not differ in the scarcity and baseline conditions ( $M = 30.1\%$ ,  $SD = 4.8\%$  vs.  $M = 30.7\%$ ,  $SD = 3.3\%$ , respectively;  $F(1, 387) = 2.32$ ,  $p = .129$ ).

Finally, we test the full mediation model by examining the following causal chain: resource scarcity  $\rightarrow$  promotion



orientation → hope → choice of visiting the store with the range discount offer. Bootstrapping analyses using 5,000 samples (PROCESS model 6; Hayes 2013) supported this sequential mediation model (95% CI: .0101, .1459). Alternative mediation models (e.g., with prevention orientation replacing promotion orientation, or optimism replacing hope, or exchanging the sequence of promotion orientation and hope; see the [web appendix](#)) did not show significant mediation.

## Discussion

The results from study 2b provide direct evidence for our underlying process that the general sense of resource scarcity induces a promotion orientation among consumers and increases their hope to get better-than-reference outcomes. Consequently, consumers in a scarcity condition showed more favorable attitudes toward range offers because this type of offer provides the opportunity to achieve better-than-reference outcomes. In addition, in line with previous research suggesting that hope and optimism are two independent constructs (Averill et al. 1990; Bruininks and Malle 2005), we find that the observed effect of resource scarcity on consumers' favorability toward range offers is driven by participants' hope, but not their optimism, of reaching better-than-reference outcomes.

## STUDY 2C

Study 2c provides additional evidence for our proposed underlying process by examining the role of attention in the observed effect. Previous hope literature has demonstrated a positive relationship between hope and attention to desirable information. For example, hopeful adolescents showed greater tendency to look at positive information than their low-hope peers, and this contributed to their heightened psychological well-being (Yeung, Ho, and Mak 2015). Thus, if the feeling of resource scarcity induces a promotion orientation and increases consumers' hope for favorable outcomes, we should expect that when consumers are presented with a range offer, they will focus more attention on potential better-than-reference (i.e., more desirable) outcomes than on potential worse-than-reference (i.e., less desirable) outcomes. We use the eye-tracking technique to test this possibility in this study. In addition, prior research has suggested that consumers tend to use the midpoint of the range offer as their default reference point (Ames and Mason 2015; Janiszewski and Lichtenstein 1999). We provide empirical validation for this argument in study 2c.

## Method

One hundred seven Hong Kong undergraduates ( $M_{\text{age}} = 22.6$ ; 64.5% female) participated in return for a nominal

payment. They were randomly assigned to either the resource scarcity or the baseline condition. This study was run in single-participant sessions. Participants completed all the tasks on a desktop computer, and their eye movements were measured unobtrusively during the study.

To manipulate resource scarcity, we first asked participants to complete the same reading comprehension task, followed by the same nine-item promotion orientation measure ( $\alpha = .93$ ) as in studies 2a and 2b. Then, after a short eye-tracker calibration task disguised as a visual ability test, participants saw a discount poster from a local store. The poster was presented on the 15-inch LCD monitor in full-color bitmaps with a resolution of  $1,366 \times 768$  pixels for 20 seconds. The poster relayed that the store discount varies from 10% off to 50% off and provided some sample products (counterbalanced) either with a 10% or 50% discount (see the [web appendix](#)). While participants were viewing the poster, we measured their eye movements through a Tobii Pro X3-120 eye tracker embedded below the computer screen. Their eye positions were sampled at 60 hertz with spatial resolution of less than .5 degree of visual angle.

After viewing the poster, participants were asked to indicate how much of a discount they predicted on average that consumers shopping at this local store would get. The response served as a measure of their default reference point. To further rule out optimism as an alternative explanation, participants also indicated how much of a discount they *predict* they would obtain. Finally, participants evaluated this range discount offer by answering the same three attitudinal questions used in study 2a ( $\alpha = .82$ ).

## Results

Replicating results of the previous studies, participants in the resource scarcity condition reported more favorable attitudes toward this range discount offer ( $M = 7.01$ ,  $SD = 1.93$ ) compared to their baseline counterparts ( $M = 5.41$ ,  $SD = 1.71$ ;  $F(1, 105) = 20.46$ ,  $p < .001$ ,  $\eta_p^2 = .163$ ). Participants in the resource scarcity condition also reported higher promotion orientation ( $M = 7.08$ ,  $SD = 1.01$ ) compared to their counterparts in the baseline condition ( $M = 6.20$ ,  $SD = .89$ ;  $F(1, 105) = 22.42$ ,  $p < .001$ ). As expected, bootstrapping procedures (5,000 samples, PROCESS model 4; Hayes 2013) with resource scarcity as the independent variable, promotion orientation as the mediator, and attitude toward the range offer as the dependent variable yielded a 95% confidence interval for promotion orientation that excluded zero (.5365, 1.7205), suggesting a significant mediation effect.

To analyze our eye-tracker data, we created two areas of interest (AOIs) on the poster with equal sizes (see the [web appendix](#)). One AOI captures participants' attention to the more desirable outcomes (i.e., on the area about 50% off products), whereas the other AOI captures participants'

attention to the less desirable outcomes (i.e., on the area about 10% off products). As an index of participants' comparative attention on the more desirable outcomes, we calculated the percentage of participants' total eye fixation duration in which they focused on that AOI on the poster. As expected, participants in the resource scarcity condition paid relatively more attention to the more desirable outcomes ( $M = 57.8\%$ ,  $SD = 17.2\%$ ) than did those in the baseline condition ( $M = 47.8\%$ ,  $SD = 16.0\%$ ;  $F(1, 105) = 9.68$ ,  $p = .002$ ). Again, we replaced participants' comparative attention on the more desirable outcomes as the dependent variable. Bootstrapping procedures (5,000 samples, PROCESS model 4; Hayes 2013) showed that the effect of resource scarcity on participants' comparative attention on the more desirable outcomes was significantly mediated by the heightened promotion orientation (95% CI: .0531, .1513).

Finally, we also found that participants in the scarcity and baseline conditions did not differ significantly in their optimism ( $M = 30.9\%$ ,  $SD = 7.7\%$  vs.  $M = 31.7\%$ ,  $SD = 11.0\%$ , respectively;  $F(1, 105) = .20$ ,  $p = .659$ ). And the default reference points that participants inferred based on the range ( $M = 31.4\%$ ,  $SD = 8.8\%$ ) were not statistically different from the midpoint of the range (i.e., 30%; one sample  $t$ -test  $p = .110$ ).

## Discussion

Consistent with our theorizing, in study 2c we found that consumers in a scarcity situation focused more attention on potential better-than-reference (i.e., more desirable) outcomes than on potential worse-than-reference (i.e., less desirable) outcomes. In addition, we found again that the observed effect of resource scarcity on consumers' evaluation of range offers is not driven by participants' optimism. Moreover, in line with previous research (Ames and Mason 2015; Janiszewski and Lichtenstein 1999), we demonstrate that by default consumers are likely to use the midpoint of the range as the reference point of their judgments.

## STUDY 3

Our previous studies suggested that reminders of resource scarcity increase consumers' favorability toward range marketing offers because the heightened promotion orientation induced by resource scarcity increases people's attention to potential better-than-reference outcomes (Sengupta and Zhou 2007). Following this logic, in a pricing context we expect a stronger effect of range price offers when the range involved is wide (as opposed to narrow). This is because consumers with a heightened promotion orientation will focus greater attention on better-than-reference outcomes (i.e., prices cheaper than the reference price) potentially resulting from the range price offer, and

a wide price range creates more such opportunities. We test this possibility in study 3.

## Method

Three hundred seventeen US adult consumers participated in this experiment on MTurk for a nominal payment. Three participants who claimed to be distracted during the study were excluded (Dong and Zhong 2017; Oppenheimer et al. 2009). This left 314 participants in the final sample ( $M_{\text{age}} = 36.0$ ; 52.5% female). Participants were randomly assigned to one of the four conditions under a 2 (resource scarcity: scarcity vs. baseline)  $\times$  2 (range width: narrow vs. wide) between-subjects factorial design.

To manipulate resource scarcity, we first asked participants to complete the same reading comprehension task as in previous studies. Afterward, participants imagined that they were in the process of buying an airline ticket between two cities in a foreign country, Canada. Participants then learned that the current price for such a ticket ranges from CAD110 to CAD130 (the narrow range condition) or from CAD90 to CAD150 (the wide range condition), depending on the time and date of the flight. As a reference price point, we told participants that the standard ticket price provided by this airline used to be CAD120 (i.e., the midpoint of the ranges). After reading this information, participants indicated their attitude toward this airline ticket opportunity by answering the same three attitudinal questions as were used in previous studies ( $\alpha = .97$ ).

## Results

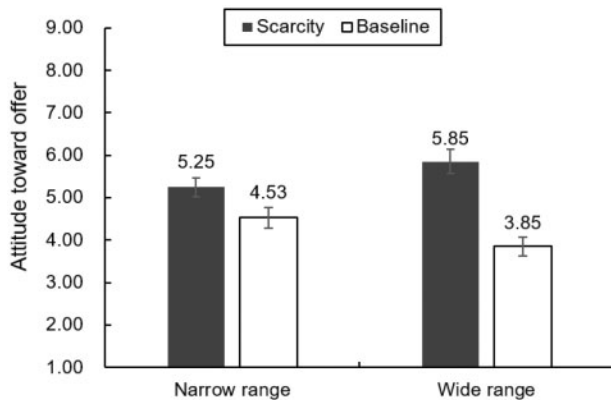
A  $2 \times 2$  ANOVA showed that resource scarcity had a significant main effect on attitude toward the range offer ( $F(1, 310) = 32.43$ ,  $p < .001$ ,  $\eta_p^2 = .095$ ). This main effect was qualified by a significant resource scarcity  $\times$  range width interaction ( $F(1, 310) = 7.16$ ,  $p = .008$ ,  $\eta_p^2 = .023$ ; see figure 2). Participants in the resource scarcity condition exhibited more positive attitudes toward the narrow range offer ( $M = 5.26$ ,  $SD = 1.94$ ) than did those in the baseline condition ( $M = 4.53$ ,  $SD = 2.16$ ;  $F(1, 310) = 4.67$ ,  $p = .032$ ,  $\eta_p^2 = .015$ ). Consistent with our expectation, this effect became more salient when the range of the offer became wider ( $M = 5.85$ ,  $SD = 2.35$  vs.  $M = 3.85$ ,  $SD = 2.03$ , respectively;  $F(1, 310) = 34.25$ ,  $p < .001$ ,  $\eta_p^2 = .099$ ).

## Discussion

Consistent with hypothesis 3, study 3 showed that the effect of resource scarcity on range offer evaluation was moderated by the width of the range. The effect is more salient when the range of the offer is wider. This is again consistent with our prediction that wider ranges provide more opportunities for potential better-than-reference

FIGURE 2

MEAN ATTITUDE TOWARD THE RANGE OFFER AS A FUNCTION OF RESOURCE SCARCITY AND RANGE WIDTH-STUDY 3



outcomes, and thus they appear more attractive to participants in the scarcity condition.

It should be noted that in the baseline condition, participants showed more positive attitudes toward the narrow range offer ( $M = 4.53$ ) than the wide one ( $M = 3.85$ ;  $F(1, 310) = 4.39$ ,  $p = .037$ ,  $\eta_p^2 = .014$ ). We speculate that this might be because consumers in general don't like wide range offers because they are perceived as involving more uncertainty and being more likely to be driven by marketers' manipulative intent (Kannan and Kopalle 2001) than narrow range offers.

## STUDY 4A

In studies 4a and 4b, we look at another characteristic of the range offer: the relative location of the range and its reference point. As hypothesized earlier (hypothesis 4), the effect of resource scarcity on range offer evaluation should disappear for bolstering range offers (i.e., when the maximum consumer benefit within range is equal to or worse than the reference point). This is likely to occur because in such a situation the buyer is deprived of the chance to get a better-than-reference outcome. By contrast, we expect that the effect of scarcity on range offer evaluation would be present for back-down range offers (i.e., when the minimum consumer benefit within the range is equal to or higher than the reference point) or for normal/bracketing range offers (i.e., when the reference point is in the middle of the range).

In study 4a, we explore this possibility in a salary offer context by varying the range systematically while keeping the reference point constant.

## Method

The study used a 2 (resource scarcity: scarcity vs. baseline)  $\times$  3 (range reference location: back-down range vs. normal/bracketing range vs. bolstering range) between-subjects factorial design. Five hundred forty-nine US adults participated in this experiment on MTurk for a small monetary incentive. Sixteen participants who claimed to be distracted during the study were excluded (Dong and Zhong 2017; Oppenheimer et al. 2009). This left 533 participants in the final sample ( $M_{age} = 36.1$ ; 48.6% female).

As in previous studies, we employed the same reading comprehension task to manipulate resource scarcity. Afterward, participants evaluated a range salary offer as a job candidate (adapted from Ames and Mason 2015). Specifically, participants were asked to imagine that they received a job offer; they were further told that similar jobs pay around US\$40,000 annually as a reference point. Then, in the normal/bracketing range condition, participants were told that the company they were interviewed by offered a salary range of US\$38,000 to US\$42,000, which has the reference offer in the middle. In the bolstering range condition, participants were told that the company offered a salary range of US\$36,000 to US\$40,000, which is equal to or lower than the reference offer. In the back-down range condition, participants were told that the company offered a salary range of US\$40,000 to US\$44,000, which is equal to or higher than the reference offer. Participants then indicated their attitude toward this job offer by answering the same three attitudinal questions used in previous studies ( $\alpha = .97$ ).

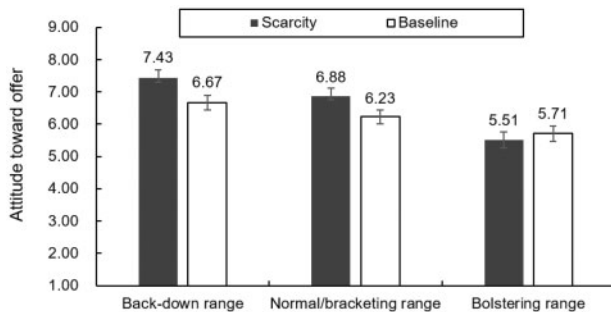
## Results

A 2  $\times$  3 ANOVA showed that resource scarcity had a significant main effect on attitude toward the range offer ( $F(1, 527) = 6.19$ ,  $p = .013$ ,  $\eta_p^2 = .012$ ), qualified by a significant resource scarcity  $\times$  range reference location interaction ( $F(2, 527) = 3.33$ ,  $p = .037$ ,  $\eta_p^2 = .012$ ; see figure 3). Replicating our previous results, participants in the resource scarcity condition exhibited more positive attitudes toward the normal/bracketing range offer ( $M = 6.88$ ,  $SD = 1.36$ ) than did those in the baseline condition ( $M = 6.23$ ,  $SD = 1.92$ ;  $F(1, 527) = 5.64$ ,  $p = .018$ ,  $\eta_p^2 = .011$ ). As expected, participants in the scarcity condition also viewed the back-down range offer more favorably ( $M = 7.43$ ,  $SD = 1.36$ ) than did those in the baseline condition ( $M = 6.67$ ,  $SD = 2.19$ ;  $F(1, 527) = 8.19$ ,  $p = .004$ ,  $\eta_p^2 = .015$ ). However, in the bolstering range conditions, there was no significant difference across scarcity and baseline conditions ( $M = 5.51$ ,  $SD = 2.20$  vs.  $M = 5.71$ ,  $SD = 2.09$ , respectively;  $F(1, 527) = .46$ ,  $p = .496$ ).



FIGURE 3

MEAN ATTITUDE TOWARD THE RANGE OFFER AS A  
FUNCTION OF RESOURCE SCARCITY AND RANGE  
REFERENCE LOCATION-STUDY 4A



## Discussion

The findings of study 4a shed light on the nature of range offers by showing that the location of the range and its reference serve as another moderator of the observed effect. Resource scarcity significantly increased consumers' favorability toward range offers when they were either normal/bracketing range offers or back-down range offers. This effect, however, disappeared with bolstering range offers. This is likely because bolstering range offers deprive consumers of the chance for a better-than-reference outcome, so this type of range offer does not look attractive to consumers who are reminded of resource scarcity.

## STUDY 4B

Study 4b manipulates the range reference location by varying the externally provided reference point systematically while keeping the range constant. Specifically, we looked at four situations: 1) when there is no externally provided reference point (i.e., a control condition), 2) when the externally provided reference point is the midpoint of the range offer (i.e., a normal/bracketing range), 3) when the externally provided reference point is worse than all possible values in the range offer (i.e., a back-down range), and 4) when the externally provided reference point is better than all possible values in the range offer (i.e., a bolstering range). We expect our effect to hold in the first three conditions; however, we predict that the effect will disappear for the bolstering range, because in that case there is no opportunity for consumers to achieve better-than-reference outcome from the range offer.

## Method

Four hundred eighty-five US consumers participated in this study on MTurk for a nominal payment. Nine

participants who claimed to be distracted during the study were excluded (Dong and Zhong 2017; Oppenheimer et al. 2009). This left 476 participants in the final sample ( $M_{age} = 37.5$ ; 52.3% female). Participants were randomly assigned to the conditions of a 2 (resource scarcity: scarcity vs. baseline)  $\times$  4 (range-reference location: back-down range vs. normal/bracketing range vs. bolstering range vs. control) between-subjects factorial design.

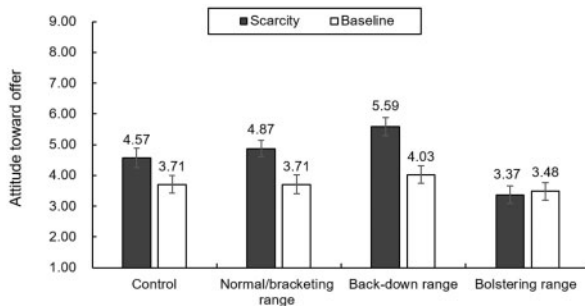
As in previous studies, we employed the same reading comprehension task to manipulate resource scarcity. Afterward, as a purportedly unrelated task, participants imagined they were scheduling a trip and indicated their attitudes toward a hotel price offer. All participants were told that the price for a standard room can range from US\$70 to US\$110 per night, depending on the demand and supply. In the control condition, no external reference point was provided. However, participants in the other three conditions were provided the room rate from the same time last year to serve as a reference point. In the normal/bracketing range condition, the previous room rate was US\$90, which is the midpoint of the range offer. In the back-down range condition, the previous room rate was US\$110, which is equal to or more expensive than all possible prices in the range. In the bolstering range condition, participants were told that the previous room rate was US\$70, which is equal to or cheaper than all possible prices in the range. Participants then indicated their attitude toward this hotel offer by answering the same three attitudinal questions used in previous studies ( $\alpha = .97$ ).

## Results

A  $2 \times 4$  ANOVA showed that resource scarcity ( $F(1, 468) = 17.70, p < .001$ ) and range reference location ( $F(3, 468) = 7.87, p < .001$ ) had significant main effects on attitude toward the range offer, qualified by a significant resource scarcity  $\times$  range reference location interaction ( $F(3, 468) = 3.03, p = .029, \eta_p^2 = .019$ ; see figure 4). As expected, participants in the resource scarcity condition exhibited more positive attitudes toward the range offer compared to their baseline counterparts in the control condition ( $M = 4.57, SD = 2.53$  vs.  $M = 3.71, SD = 2.21$ , respectively;  $F(1, 468) = 4.11, p = .043, \eta_p^2 = .009$ ), normal/bracketing range condition ( $M = 4.87, SD = 2.22$  vs.  $M = 3.71, SD = 2.10$ , respectively;  $F(1, 468) = 8.03, p = .005, \eta_p^2 = .017$ ), and back-down range condition ( $M = 5.59, SD = 2.43$  vs.  $M = 4.03, SD = 2.01$ , respectively;  $F(1, 468) = 14.17, p < .001, \eta_p^2 = .029$ ). However, in the bolstering range conditions, there was no significant difference across scarcity and baseline conditions ( $M = 3.37, SD = 2.19$  vs.  $M = 3.48, SD = 2.21$ , respectively;  $F(1, 468) = .07, p = .797$ ).

FIGURE 4

MEAN ATTITUDE TOWARD THE RANGE OFFER AS A  
FUNCTION OF RESOURCE SCARCITY AND RANGE  
REFERENCE LOCATION-STUDY 4B



## Discussion

Consistent with findings in study 4a, study 4b showed that our previously observed effect of resource scarcity on range offer evaluation is attenuated when the range offer cannot provide better-than-reference outcomes (i.e., in the bolstering range condition).

We found in study 2c that consumers by default use the midpoint of the range as their reference point. To further validate this possibility, we compared the range offer evaluations across the control (in which there was no externally provided reference point) and normal/bracketing range (in which the externally provided reference point is the midpoint of the range) conditions in this study. A  $2 \times 2$  ANOVA yielded neither a significant main effect of range reference location nor a significant interaction effect ( $ps > .607$ ), confirming that consumers indeed use the midpoint of the range as their reference point by default.

## GENERAL DISCUSSION

Given the scarcity of resources as a pervasive aspect of our lives, does a general sense of resource scarcity shape consumer attitudes toward the range marketing offers that companies propose? The current research addresses this question. Drawing from prior work, we propose and find that reminders of resource scarcity induce a promotion orientation among consumers, stimulating greater hope for potential better-than-reference outcomes, which consequently increases consumers' favorability toward range marketing offers. Across eight studies, we consistently demonstrate the impact of resource scarcity on range marketing offer evaluation, manifested as leading consumers to indicate more favorable attitudes toward range price offers (studies 2a, 2c, 3, and 4b) and range salary offers (study 4a); to show higher likelihood to visit a store with range discounts (studies 1a, 2b); and to be more likely to

actually complete a task with range payments (study 1b). Our proposed underlying mechanism is supported by the finding that the effect of resource scarcity on range offer favorability is mediated by the heightened promotion orientation and the increased hope for better-than-reference outcomes (studies 2a, 2b, and 2c). Moreover, this effect is strengthened when the range of the offer is wide (study 3), and weakened when the range offer cannot provide any better-than-reference outcome (studies 4a and 4b). A single-paper meta-analysis showed that the effect of resource scarcity on favorability toward range offers is robust across all the studies in this article (see the [web appendix](#)).

This research contributes to the growing literature on resource scarcity (Griskevicius et al. 2013; Kristofferson et al. 2017; Laran and Salerno 2013; Mehta and Zhu 2016; Mullainathan and Shafir 2013; Roux et al. 2015; Sevilla and Redden 2014; Zhu and Ratner 2015). While extant literature has examined the impact of resource scarcity on consumers' cognitive performance (Mani et al. 2013; Mehta and Zhu 2016), information processing (Mullainathan and Shafir 2013), and physiological and emotional responses (Kristofferson et al. 2017; Laran and Salerno 2013; Zhu and Ratner 2015), the current research enriches the repertoire of work addressing resource scarcity in the consumption domain by exploring a novel motivational consequence of resource scarcity. To our knowledge, the current research is the first to demonstrate that the general sense of resource scarcity stimulates a promotion orientation, which in turn leads to more favorable attitudes toward range marketing offers. Our results support this proposed underlying mechanism by showing that the positive effect of resource scarcity on range offer favorability depends on whether the range offer provides an opportunity to receive better-than-reference outcomes. When the range offer eliminates consumers' possibility for receiving better-than-reference outcomes, the observed effect is weakened or disappears. These findings open doors for future study of other motivational consequences of resource scarcity.

The current research also extends our understanding of range marketing offers from a consumer psychology perspective. Prior marketing research in this area has largely focused on how range marketing offers, as a marketing tactic, can increase the efficiency of a company's operation (Ames and Mason 2015; Biswas and Burton 1993). The current research examines how consumers' reaction to range marketing offers can be shaped by situationally activated psychological factors, such as the feeling of resource scarcity. Consistent with the recent tandem endpoints account proposed by Ames and Mason (2015), we show that both endpoints of range offers are informative and can be used as signals for outcome expectations. In addition, we demonstrate in the current research that the effect of resource scarcity on consumer attitude toward range marketing offers can be found across different types of range

offers (e.g., pricing, discount, salary, and payment offers). Following past literature in this area (Ames and Mason 2015; Janiszewski and Lichtenstein 1999), we argue that consumers perceive range offers differently from point offers, because the two endpoints in a range offer clearly signal the possibility of achieving better-than-reference and worse-than-reference outcomes. Therefore, the way consumers comprehend and interpret range offers is likely to be similar across different offer types, as long as the offer contains two endpoints. Further research is needed to test this postulation more systematically.

Although researchers have started to investigate the nature of range offers in marketing and consumption contexts (Ames and Mason 2015; Janiszewski and Lichtenstein 1999), our understanding of ranges and their characteristics remains limited. We show in the current research that range width and range reference location moderate the effect we observed. Specifically, we find that the wider the range, the more attractive the range offer is to promotion-oriented consumers (study 3). The attractiveness of the range offer among these consumers also hinges on its location relative to the reference point. Range offers lose their attractiveness when better-than-reference outcomes are not possible (e.g., the bolstering range conditions in studies 4a and 4b). Moreover, we validated empirically that, consistent with previous research (Ames and Mason 2015; Janiszewski and Lichtenstein 1999), consumers tend to use the midpoint of the range offer as their default reference point (studies 2c and 4b). We hope these findings can stimulate future research toward a more nuanced understanding of the impact of various range characteristics on the valuation of range marketing offers.

The theoretical implications of our findings for the research on promotion orientation are also worth noting. Although the concept of promotion orientation has long been investigated in the marketing domain (Sengupta and Zhou 2007; Wang and Lee 2006; Zhou and Pham 2004), little research has examined how a promotion orientation drives consumers' reactions to companies' pricing strategies. The current research demonstrated that the promotion orientation induced by reminders of resource scarcity leads consumers to hope for potential desirable outcomes in their interaction with companies and other consumers. This is the reason why resource scarcity increases consumers' favorability toward range marketing offers.

Although in the current research we found it was the mere opportunity (hope), but not the perceived likelihood (optimism), to reach the desirable endpoint of a range marketing offer that made it more attractive for consumers under resource scarcity, there might be situations in which optimism will be more likely to play a role, other than the specific contexts tested in the current research. For example, given that the feeling of scarcity is aversive and motivates consumers to take actions and make changes, consumers who perceive resource scarcity may be

optimistic in situations where the reward or outcome can be revealed or achieved in a timelier manner. In those situations, scarcity-induced optimism may drive consumers to take more and quicker actions in order to resolve the threatening feeling of scarcity. Future research might further explore the roles of optimism and hope in consumers' reaction toward marketing strategies.

In the current research, we find that different operationalizations of resource scarcity (e.g., natural-resource scarcity, food scarcity, money scarcity, or general resource scarcity) lead to similar effects on range offer favorability, suggesting that the effect of resource scarcity on promotion orientation and consumer attitude toward range marketing offers that we observed is less likely to be driven by the perception of scarcity in any particular resource domain. This finding is consistent with some previous research suggesting that resource scarcity in different domains often triggers a similar scarcity mind-set and influences human behavior in similar ways (Mullainathan and Shafir 2013; Roux et al. 2015). It is important to note, however, that the current research focuses on the temporary state of resource scarcity induced, and so our findings may not hold in specific types of scarcity, such as the prolonged exposure to scarcity (i.e., deprivation history and social class) or scarcity accompanied by other threats (i.e., social crowding).

Although it is true that people under resource scarcity can save their limited resources to make the resources last longer, the more direct way to solve this problem is to achieve more resources, if there is a chance to do so. Thus, we predict that the primary motivation triggered by resource scarcity should be promotion orientation. The promotion orientation does not contradict the concept of protection or saving money. Promotion-focused consumers are more attracted to promotion-related products or services; this does not mean that they always spend more money to buy things. In fact, prevention-focused consumers show a greater purchase intention toward prevention-focused products than their promotion-focused counterparts (Lee and Aaker 2004). Therefore, we think our current findings do not necessarily contradict people's protection and money-saving tendency in difficult times.

In this article, we mostly looked at whether consumers under scarcity will be more likely to choose a store with range offers over one with fixed offers (studies 1a, 2b) or whether they will have a more positive attitude toward stores providing range offers (studies 2a, 2c, 3, and 4b). In other words, we focused on consumers' store choices/visits instead of their in-store purchase. Given our focus, we did not examine consumers' actual purchase in the stores. However, consumers' actual purchases may also depend on the operationalizations of range offers. In the real marketplace, the discount range (e.g., 10%–30% off purchase) can be operationalized by three different types of mechanism: 1) the actual range received by the consumer will be purely randomly decided, more or less like a surprise-



based promotion; 2) the actual range will be decided based on quantity of purchase (e.g., 10% off for purchases less than \$250, 20% off for purchases of \$250–\$500, and 30% off for purchases more than \$500); and 3) the actual range received by the consumer will be product-dependent (e.g., certain brands or product categories will be 50% off, while others will be 10% off). Future research may further explore consumers' actual purchase behavior in the range offer contexts and how their purchases are shaped by the perception of resource scarcity.

Our findings provide implementable managerial implications for marketers regarding how to utilize flexible pricing strategies for their products or services. Our results suggest that activating the perception of resource scarcity (e.g., by highlighting the scarce supply of the available items or reminding consumers of the harsh environment) is a potentially effective way to increase acceptance of range marketing offers. In addition, the current research suggests that promotion orientation can be activated independently to increase the attractiveness of range marketing offers. Companies utilizing range offers could consider doing that by inducing elated or dejected emotion (Roese, Hur, and Pennington 1999), highlighting a consumer's uniqueness (Lee, Aaker, and Gardner 2000), or leading people to represent their goals abstractly (Bullard and Manchanda 2017).

Note also that the range itself has multiple characteristics. The settings of the two endpoints of a range offer obviously influence consumers' value perception of it. For example, given the same range reference location, wider ranges (vs. narrower ranges) seem to be more appealing to consumers under resource scarcity. Companies thus can strategically customize the width of their range offers to fit customers from different economic backgrounds. In addition, as we found in studies 4a and 4b, the range offer loses its appeal when the best outcome of the range is equal to or less than the reference level (i.e., a bolstering range). Consumers may retrieve a reference level from various contexts, such as the seller's former price, prices at competing stores, and other prices in the same product category (Biswas and Blair 1991). To avoid reference levels that lower the appeal of range offers, companies may need to thoroughly investigate potential reference points that consumers could use or explicitly provide a reference point when using range offers as a pricing strategy.

## DATA COLLECTION INFORMATION

All the studies were designed jointly by the three authors. The first and second authors collected the data for studies 1a and 2c in the marketing behavioral lab at the Hong Kong Polytechnic University in summer 2017. The first and second authors also managed the data collection on MTurk for study 2a in spring 2016; for study 1b in

summer 2016; for study 3 in winter 2016; for study 4a in fall 2016; for study 4b in spring 2017; and for study 2b in spring 2018. All data were analyzed by the first two authors through discussion and consultation with the third author.

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