



Great Expectations?! Assortment Size, Expectations and Satisfaction*

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* The authors want to thank Jim Burroughs, Darren Dahl, Michael Tsiros and other participants of the MSI Young Scholars seminar and colleagues at Columbia University, Cal State Northridge, UC Berkeley, the Behavioral Decision Making Group at UCLA, the University of Chicago, New York University and the Wharton School for their comments and suggestions on earlier stages of this research. An earlier version of this project received an honorable mention from the MSI - JCP Research Competition on "Product Assortment and Variety-Seeking in Consumer Choice." Both authors contributed equally to this project.

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ABSTRACT

Recent research challenges the idea that greater choice is always desirable, showing that larger assortments can increase choice deferral and switching. The present research demonstrates that even when consumers *do* make a purchase, the same item may generate lower satisfaction when chosen from a larger as opposed to a smaller assortment. The authors explain this effect in terms of an expectation-disconfirmation mechanism. When assortments are small, consumers have low expectations about their ability to match their preferences. As assortment sizes increase, so do consumers' expectations of the degree of preference match they can achieve. Subsequently, consumers may experience greater *negative* expectation-disconfirmation or less *positive* expectation-disconfirmation when a chosen item came from a larger as opposed to a smaller set. Either less positive or more negative disconfirmation leads to lower choice satisfaction. Results from three studies support this expectation-based process and establish this mechanism in addition alternative explanations such as choice overload.

Keywords: Assortment Size, Expectation Disconfirmation, Satisfaction, Choice Overload, Information Overload

Imagine starting your first job and being able to afford the (used) car of your dreams. One of the authors of this paper found herself in such a situation a few years ago and started searching dealerships to find her ideal car. She would have been delighted had she found a match for her preferences in the small college town where she lived. Not having much success finding her desired car locally, she began searching the Internet for suitable options. Certainly, she thought, the Internet's nearly infinite reach would allow her to find not only her preferred model, but also the right color, interior, and engine. However, even given the internet's scope, she only found two cars that matched her two most important criteria. Though she happily bought one of them, she could not help feeling a little disappointed that, given the large assortment available online, she did not find an even closer match to her preferences.

Recently, researchers (e.g. Chernev 2003, Gourville and Soman 2005, Iyengar and Lepper 2000, Lehmann 1998) have demonstrated that large assortments may create adverse effects and have identified numerous drivers of these negative outcomes. For example, consumers may not choose *objectively* better-matching options from larger assortments in part because they do not find these options without access to sophisticated screening tools (Diehl, Kornish and Lynch 2003) or search inappropriately even in the presence of such tools (Diehl 2005). They may not even *subjectively* perceive options to be better when options come from a larger as opposed to smaller assortment (Benartzi and Thaler 2002). Large sets may also decrease consumers' confidence in having made a good decision (Chernev 2003). Furthermore, when consumers experience preference uncertainty (Dhar 1997) or feel overwhelmed (Iyengar and Lepper 2000) in the face of larger sets, they may defer choice altogether. Finally, consumers choosing from larger assortments may experience greater levels of post-decision regret, even when they made objectively good choices (Gourville and Soman 2005).

We contribute to this research by examining how *expectations* generated by varying assortment sizes may adversely influence consumers' satisfaction with their choices. As suggested by our anecdote, we posit that as assortment size increases, so do consumers' expectations about the ability of that assortment to provide a close match to their preferences. Subsequently, when consumers choose a product that falls short of their expectations, they may experience greater *negative* expectation-disconfirmation when the product came from a larger as opposed to a smaller set. Even when consumers find a better-than-expected preference match, we demonstrate that they experience less *positive* expectation-disconfirmation in a larger as opposed to a smaller set. In either case, since assortments of different sizes create different levels of disconfirmation, the same item will generate lower satisfaction when it was drawn from a larger as opposed to a smaller assortment. We also establish that our proposed expectation-disconfirmation mechanism acts independently and in addition to effects of information overload created by larger sets.

THEORETICAL BACKGROUND

Having many choices is deemed one of the paramount achievements of developed market economies. Manufacturers enlarge product lines in order to prevent competitors from gaining market share (Schmalensee 1978). Consumers value greater selection (e.g. Kahn 1995; McAlister and Pessemier 1983) and react negatively to restrictions imposed on their decisions (e.g. Fitzsimons 2000). However, building on past research, we suggest a somewhat more complex relationship between assortment size, expectations and satisfaction.

Satisfaction.

Satisfaction captures the post-decision evaluation of a product or experience (Oliver 1996). Such post-choice evaluations drive repeated choice and thus affect a company's long-term profitability (Newman and Werbel 1973). Importantly, we cannot assume that factors impacting switching (Chernev 2003) or choice deferral (e.g. Dhar 1997, Iyengar and Lepper 2000, Iyengar, Huberman and Jiang 2004) will necessarily be identical to those affecting satisfaction with a chosen option (e.g. Oliver 1996, Thompson, Hamilton, and Rust 2005). Therefore, demonstrating negative effects of larger assortments on satisfaction itself increases our understanding of the psychological processes and the managerial implications associated with larger assortments.

Consumer Expectations.

Satisfaction is intimately linked to expectations. Expectations are predictions about the future, the focus of which can range from general beliefs to specific product characteristics (Oliver 1996). In the present research, the expectations we are interested in are consumers' predictions about how closely they will be able to match their established preferences when choosing from a given set of options (Baumol and Ide 1956). As such, we will examine decision contexts where consumers have relatively well-formed preferences.

We argue that assortment size impacts consumers' expectations regarding their ability to match their existing preferences. This argument is based on past research demonstrating that consumers generally prefer choosing from larger, more varied assortments. Specifically, large assortments have been shown to alleviate consumers' concerns regarding uncertainty in their own future preferences (Simonson 1992) or anticipated satiation (Ratner, Kahn, and Kahneman 1999). At its root, such research suggests that consumers value larger assortments because they

expect to choose more advantageously (i.e., can shift their choices to meet future needs or to alleviate satiation) than they would in smaller sets. Economic models suggest that such intuitions are appropriate. In fact, consumers should achieve a better preference match when a larger number of available options is available (e.g. Hotelling 1929, Kuksov and Villas-Boas 2006).

What constitutes a “small” or “large” assortment is in the eye of the consumer and may be shaped by the newness of the product category and the overall development of the market. For example, in 1985 the average U.S. household received 18.4 TV channels. By 2006, however, households received 104.2 TV channels on average (Nielsen Media Research 2007). We believe that, regardless of the absolute size of the assortments in question, consumers will hold beliefs consistent with rational models. That is, consumers’ expectations of their ability to match their a priori preferences will be an increasing function of assortment size. Formally, we propose that:

H1: Larger as opposed to smaller assortments will heighten consumers’ expectations regarding their ability to match their preferences.

Expectation-Disconfirmation.

When expected and perceived product offerings do not match, consumers experience disconfirmation. Disconfirmation can be negative, as in the case of a worse than expected outcome, or positive, as in the case of a better than expected outcome. Subsequently, either less positive or more negative disconfirmation in larger as opposed to smaller sets should lower satisfaction with a given item.

Increasing assortment size can exert two counteracting effects on expectation-disconfirmation. First, as we have suggested above, larger assortments increase consumer expectations about matching their preferences. Because these a priori expectations are

heightened, larger assortments should increase the likelihood of negative expectation-disconfirmation. However, by virtue of containing more or more varied items, larger assortments may also increase the degree to which preferences can be matched, and should decrease the likelihood of negative disconfirmation. As such, assortment size may simultaneously be expected to *increase* and *decrease* the likelihood of negative expectation-disconfirmation.

However, prior research also has revealed a host of reasons why larger assortments may in fact not lead to a better preference match: larger assortments may not actually offer more variety (Hoch, Bradlow and Wansink 1999), the market may not supply the envisioned offering (Pratkanis and Farguhar 1992) or in the absence of sophisticated search tools consumers may not be able to find a better preference match even if it is available (Alba et al. 1999, Diehl et al. 2003). As such, we argue that as assortment size increases, the degree to which consumers realize better preference matches may not rise to the same extent as their expectations. Therefore, we predict that consumers will be less satisfied with options chosen from larger as opposed to smaller assortments due to greater negative disconfirmation.

However, another situation is also possible. In some cases, consumers achieve a better-than-expected match to their preferences. Still, we believe that a better-than-expected preference match will translate into lower overall satisfaction in the case of a larger compared to a smaller assortment. We have argued that larger sets raise expectations. Thus, even though choices from a large set may positively disconfirm those expectations to some extent, the degree of positive disconfirmation will be small given the relatively high initial set point. By contrast, we have argued that smaller assortments do not heighten expectations the way larger assortment do. Interestingly, in situations where retailers actively manage assortments by concentrating on product category leaders (e.g. Boatwright and Nunes 2001; Drèze, Hoch and Purk 1994) even

smaller assortments may afford the majority of consumers with a satisfactory preference match.

As such, a given option may generate greater positive disconfirmation, also referred to as “pleasant surprise” (Oliver 1996), when being chosen from a smaller as opposed to a larger set. Therefore, in situations of positive expectation-disconfirmation we predict that consumers will experience a *smaller* degree of positive disconfirmation when choosing from larger as opposed to smaller sets. Ultimately this difference in disconfirmation will lead consumers to lower satisfaction with their choices from the larger sets. Taken together, we therefore predict that:

H2: Consumers will be less satisfied with a given outcome when the option is selected from a larger as opposed to a smaller set.

H3: Consumers will experience either greater negative or less positive disconfirmation when a given item is selected from a larger as opposed to a smaller set.

H4: Greater negative or less positive expectation-disconfirmation will mediate the effect of larger versus smaller assortments on satisfaction with a chosen item.

Overload and Regret.

Prior research suggests two other mechanisms which may create lower levels of satisfaction in larger assortments. First, information overload can lower consumers’ likelihood of purchasing from larger assortments (e.g. Iyengar and Lepper 2000). Still, if consumers do select an option, could information overload also reduce satisfaction with the chosen item?

Judgments of product satisfaction may not just be influenced by the preference match afforded by the actual product (declarative information) but also by feelings that accompany the process of identifying the best preference match (meta-cognitive information, Menon and Raghurir 2003). Prior research has shown that task unrelated factors (e.g. font size) create

feelings of difficulty that can increase choice deferral (Novemsky, Dhar, Schwarz, and Simonson 2007). Similarly, task-related factors such as the size of the assortment may heighten feelings of difficulty and thus may affect satisfaction with the chosen option. We will explore whether expectation-disconfirmation still plays a role over and above these feelings.

Second, regret may decrease satisfaction with items chosen from larger as opposed to smaller sets. Gourville and Soman (2005) demonstrate that regret-based dissatisfaction is most prominent when assortments contain items with non-alignable attributes. In the present work our primary focus is on the relationship between expectations, overload and satisfaction. We use Gourville and Soman's work to design studies which empirically minimize the likelihood of regret as an alternate explanation, allowing us to focus more closely on our proposed mechanism. We also build on Gourville and Soman's work by highlighting cases where, even when regret is minimized, large assortments may decrease satisfaction with a chosen alternative.

In summary, we predict that choosing from larger as opposed to smaller assortments can leave consumers less satisfied due to their a priori expectations. We argue that larger assortments raise consumers' expectations of the preference match they will be able to achieve. As a result of this change in expectations, we predict that larger assortments decrease customer satisfaction relative to smaller assortments due to either less positive or more negative expectation-disconfirmation. Further, this effect of expectation-disconfirmation operates independently of but concurrently with effects of overload, and can be shown even in situations where the potential of regret to lower satisfaction is minimal.

We test these predictions in three experiments. Study 1 exposes participants to a single good option, showing that they are less satisfied with the same option when it was ostensibly selected from a larger as opposed to a smaller assortment. In this context, regret and overload are

unlikely to operate. Rather, we show that differences in satisfaction are explained by differential expectations and negative disconfirmation. Study 2 introduces the possibility of overload and observes its effect on satisfaction relative to the influence of expectations. When participants are exposed to the entire choice set, expectation-related effects impact satisfaction independently of and in addition to overload-related effects. Study 3 allows participants to freely search an assortment to find the best available preference match. This study shows that the ability to objectively better match one's preferences in a larger assortment does not eliminate the effect of assortment size on satisfaction, in this case via differences in positive disconfirmation. Furthermore, we show that such effects persist over and above search-induced overload.

STUDY 1

Study 1 establishes that larger assortments raise expectations of the best attainable preference match. Further, due to these expectations, we show that satisfaction with a given option is lower when that option is believed to have come from a larger as opposed to smaller assortment. Study 1 uses a principal agent methodology where neither overload nor regret can explain our results. We measure expectations as predicted quality of the best match in the set (for an alternative conceptualization and operationalization of expectations see the section "Types of Expectations Affected by Assortment Size" in the Web Appendix). In addition, we collect two types of measures to assess expectation-disconfirmation: a *calculated* expectation-disconfirmation measure and a *single-score* measure. We will assess the equivalence of these measures as suggested in a review by Oliver (1996, p. 108).

Importantly, this study allows us to trace each stage of our proposed process from a priori

expectations via expectation disconfirmation to satisfaction and thus tests hypotheses 1 through 4. A total of 120 undergraduate students participated in this study. Some participants provided only partial data; where data is available, these participants are included in the analysis.

Design and Procedure.

The study followed a two group between-subjects design, with size of the assortment from which the target option was ostensibly chosen manipulated at two levels (10, 100). Participants faced an ecologically valid principal-agent task from prior research (Diehl et al. 2003), where participants imagined selecting a birthday card for a male coworker. Participants read the following description of the coworker's preferences:

Imagine you need to get a birthday card for a male coworker to wish him happy birthday. You do not know him very well and thus are afraid of offending him by being too sarcastic or suggestive. Therefore you decide to send him a more generic card. You are looking for a card that is nice but not too personal and that would be considered tasteful by most people.

Turning to the next page they were told "You go to a small [large] card shop to find a card for your coworker. You browse their birthday section, which has about 10 [100] cards to choose from." They then expressed their expectations of the attainable preference match. On the next page participants saw a single card, identical for all participants, and were asked to imagine that they had selected that card for their coworker. The card presented was selected from a set of 250 available cards previously scored in terms of their fit with the coworker's preferences (for details of the scoring procedure see Diehl et al. 2003) and pre-tested to be a good fit for the task participants faced. They then responded to the satisfaction and expectation-disconfirmation questions as described below.

Following the collection of these focal measures including a manipulation check, we

exposed participants to a second, different birthday card and asked them to imagine *that they themselves* had received this card for their birthday. Evaluations of this card were used as covariates in the analysis, as they captured individual differences in participants' general evaluative tendencies.

Measures.

Manipulation Check. After completing the dependent measures, participants were asked their perceptions of the assortment size from which the card was drawn by completing the sentence, "This card came from a store with..." where 1 indicated "A very small selection" and 9 indicated a "very large selection".

Expected Match. In order to assess the level of expected preference match, participants responded to the statement "Imagine that a card scoring a "1" is a very poor match and a card scoring "9" is a perfect match for this person. How good a card do you think you actually will find at this store?"

Perceived Actual Match. We measured each participant's perception of actual preference match, by asking "Imagine that a card scoring a "1" is a very poor match and a card scoring "9" is a perfect match for this person. How good a match for your co-worker did you actually find at this store?"

Expectation-Disconfirmation. In this study, we assess expectation-disconfirmation using both a calculated (Oliver 1977) and a single-score disconfirmation measure (Swan and Trawick 1981). The calculated measure establishes the effect of assortment size on expectations and relates changes in expectations to satisfaction. The difference between participants' a priori measured expected match and their a posteriori measured perceived match constitutes our

calculated disconfirmation measure. We also collected a single-score disconfirmation measure modeled after Swan and Trawick (1981), asking respondents to rate the target card on a 9-point scale anchored at 1 (much worse than I expected) to 9 (much better than I expected).

Satisfaction. Participants indicated their satisfaction with the chosen card by answering the question “How satisfied would you be with this card?” on a scale from 1 (not at all satisfied) to 9 (extremely satisfied).

Covariate Card Evaluation. In order to account for individual differences, after completion of the study, we also asked participants to judge *another, different* birthday card, which was constant across participants. In this separate task participants were specifically asked to rate this card in terms of how much *they themselves* would like this new card (1 = not at all, 9 = very much) and also to judge its overall quality (1 = very bad, 9 = very good). As expected, these measures were not affected by the initial manipulation (F values < 1). Thus, these measures allow us to control for individual differences in card satisfaction judgments.

Analysis and Results

Manipulation check. Consistent with our manipulation, participants who were told their card was selected from a set of 100 cards felt that they had chosen from a significantly larger assortment than did participants who were told that their card was chosen from a set of 10 cards ($F(1, 118) = 38.23, p < .0001$). For all means see table 1.

Expectations. As predicted in hypothesis 1, participants' expectations of the level of preference match they would achieve was significantly higher when they were told that the card would come from the larger ($M = 6.32$) as opposed to the smaller ($M = 5.43$) set ($F(1, 116) = 14.57, p < .001$).

Perceived Actual Match. We also wanted to ensure that differences in satisfaction were not simply driven by different perceptions of the card itself. An ANOVA where assortment size was used to predict participants' ratings of actual match demonstrates that participants did not differ significantly in their perceptions of the actual match of the card ($F(1, 118) = 1.58, p > .2$).

Satisfaction. We estimated an ANCOVA with size as the independent variable and individual differences in the evaluation of the *covariate* card and in GPA as covariates (covariate evaluations and GPA *NS*). Assortment size had a marginally significant effect on satisfaction. As predicted in hypothesis 2, participants reported lower satisfaction in the larger as opposed to the smaller assortment condition ($F(1, 114) = 3.45, p = .06$).

Calculated Expectation-Disconfirmation. In order to test hypothesis 3, we then calculated the difference between a posteriori evaluations and a priori expectations, with negative numbers indicating negative disconfirmation. We then estimated an ANOVA where assortment size was used to predict expectation-disconfirmation. Size had a significant effect on calculated expectation-disconfirmation ($F(1, 116) = 8.85, p < .01$) such that a larger assortment lead to a bigger drop between expectations and evaluations, i.e. greater negative disconfirmation, compared to the smaller assortment.

Single-Score Expectation-Disconfirmation. Similar results emerged when the single-score measure of expectation-disconfirmation was analyzed. Recall that values below 5 indicate negative disconfirmation. Estimating the same ANOVA as for the calculated expectation-disconfirmation measure, the larger assortment lead to greater negative disconfirmation than the smaller assortment ($M_{\text{Large}} = 4.06, M_{\text{Small}} = 4.80, F(1, 118) = 5.22, p < .03$).

Mediation. We have shown that assortment size has a negative effect on satisfaction as well as on expectation-disconfirmation, whether measured using a difference score or a single

post-exposure item. Furthermore, calculated expectation-disconfirmation ($b = .57$, $F(1, 116) = 93.32$, $p < .0001$) as well as single-score expectation-disconfirmation ($b = .85$, $F(1, 118) = 132.48$, $p < .0001$) both had strong individual effects on satisfaction. We estimate two different mediation models, one for each expectation-disconfirmation measure, to check their equivalency in capturing the mediation process.

For the calculated disconfirmation measure both the Sobel test ($z = -2.23$, $p < .05$) as well as the estimated 95% confidence interval around the indirect effect of assortment size on satisfaction (-1.35 to -.30, Preacher and Hayes 2008) support mediation. Similarly with the single-score measure as a mediator, the Sobel test ($z = -2.23$, $p < .05$) and the 95% confidence interval of the indirect effect of assortment size (-1.28 to -.18) also suggest mediation.

Discussion Study 1

This study demonstrates that larger assortments can decrease satisfaction because consumers experience greater negative disconfirmation when the option is believed to have come from a larger as opposed to a smaller assortment. The design of study 1 establishes our proposed mechanism, clearly demonstrating that larger assortments may lead to lower satisfaction through negative disconfirmation in the larger set. Note that these effects cannot be driven by overload, since in both conditions participants evaluated only a single option. Further, the design of this study also minimizes the likelihood of regret being a major driver of satisfaction, as participants only imagined having chosen the target card but were not actually responsible for the choice.

In addition, this study contributes to our understanding of the underlying process by using different measures to capture expectations and expectation-disconfirmation. We show that larger assortments increase expectations. We also replicate prior research (e.g. Oliver 1996) by

demonstrating that the single-item disconfirmation measure and the calculated difference score similarly capture the disconfirmation process. Since these results support the validity of the single-score disconfirmation measure, we will use this measure in subsequent studies, as it can be measured post-exposure only and thus is less likely to interfere with the natural decision process (Ofir and Simonson 2007).

Taken together, these findings provide support for hypotheses 1-4. However, the procedure used here does not necessarily depict our proposed process in cases where overload may occur or when participants choose for themselves (Botti and Iyengar 2004). Therefore, in study 2 we replicate our findings in a situation where participants are exposed to assortments of different sizes and hence overload may occur and where participants make their own choice. In order to clearly depict our effects while limiting the interference of regret-based dissatisfaction (Gourville and Soman 2005), in this study we use products that are alignable in terms of product utility as well as their underlying attributes.

STUDY 2

We believe larger assortments can have a negative effect on satisfaction through both expectation-disconfirmation and overload. In order to tease apart these two mechanisms, study 2 varies the order in which overload and satisfaction are assessed. If the decision task creates feelings of overload, this negative meta-cognitive experience may bleed into the satisfaction judgment (e.g. Schwarz and Clore 1983). In such cases, satisfaction should be lower when overload is assessed following rather than preceding satisfaction judgments. If, however, the pattern of results stays the same regardless of the order in which participants respond, we may

further establish our mechanism as operating in parallel to overload.

Design and Procedure

Study 2 followed a 2 (assortment size) by 2 (question order) between-subjects design. Assortment size was manipulated as either small or large. We also manipulated whether we first assessed experienced overload before assessing participants' satisfaction with the chosen option or vice versa. 165 undergraduate students participated in this study in return for extra credit.

Participants were given a principal agent task of selecting a camcorder on behalf of a coworker who had predefined preferences. Participants first read an explanation of four attributes (weight, resolution, memory, zoom) relevant to this purchase. They then learned about the target's importance weights along these dimensions (Weight: 10, Resolution: 20, Memory: 40, Zoom: 30). Each camcorder's characteristics were depicted using sets of bars, with longer bars indicating higher values (i.e. higher weight, resolution, etc.).¹ We calculated each option's fit with the coworker's preferences by applying a multi-attribute model to the preference weights and product characteristics and normalizing maximum preference fit to 100. The 32 camcorders created for this study scored between 19.6 and 85.5 with a mean of 50. We used these scores to closely match catalog versions in terms of average fit and range of fit as described below. We also used these scores to assess whether there were any differences in how closely the chosen option objectively fit the coworker's preferences.

Participants first saw an example of how camcorders would be described in the catalog and then read the statement "You go to a store which has 8 [32] camcorders to choose from. We ask you to review the descriptions of these camcorders carefully and at your own pace."

Participants either saw a small catalog of 8 options or a large catalog of 32 options from a

fictitious store. Each catalog featured four products per page. We used four different versions of the small catalog, rotating through all 32 camcorders. Versions were closely matched in terms of minimum, maximum and average product fit (for the exact values used please see the section “Study 2 Catalogues” in the Web Appendix). The four small versions were combined in two counterbalanced orders to create two different versions of the large catalog. Participants looked through the entire catalog at their own pace before writing down their chosen model and subsequently responding to the dependent measures. Participants answered the dependent measures in one of two orders. One group answered the satisfaction questions first before proceeding to the questions assessing felt overload. This was the same order we used in study 1. The other group first indicated how overloaded they felt and then indicated their satisfaction with the chosen option. Each set of questions, assessing overload or satisfaction, was presented on a separate sheet. Instructions indicated that participants should answer these questions only with regard to their chosen option or their decision making experience respectively without taking other assessments into account (see Pham et al. 2001 for similar instructions). This was done to assure that participants separated their judgment of satisfaction as much as possible from their assessment of overload. Following these sets of questions, participants responded to the expectation-disconfirmation measure and the manipulation check.

Measures

Manipulation check. To establish the differential size of the two assortments, participants responded to the question “When initially given the task to pick a camcorder from Videocentral’s assortment, do you think the store should have included more kinds of camcorders?” using a 9-point scale anchored at “I felt that I had too few camcorders to choose from” (1) and “I felt that I

had too many camcorders to choose from” (9, Iyengar and Lepper 2000).

Satisfaction. Participants rated their satisfaction with their chosen camcorder on a 9-point scale with higher values indicating greater satisfaction. Participants also predicted their *coworker's* satisfaction by answering the question, “How confident are you that your coworker would be happy with your choice of camcorder,” where answers ranged from 1 (“not at all confident”) to 9 (“very confident”). This was done to ensure that participants had adopted and chosen consistently with the principal agent task rather than using their own idiosyncratic preferences to evaluate the options. Note that both items tap into consumers’ subjective satisfaction judgments either from the participant’s own or from the principal’s perspective. These satisfaction measures represent the higher-level judgments consumers derive from observation of a given quality level (e.g. Bettman 1974). Both measures were highly correlated ($r = .84$) and were averaged to create an index of overall satisfaction.

Overload. In line with prior research conceptualizing overload as both cognitive (Bettman, Johnson and Payne 1990, Huffman and Kahn 1998; Jacoby, Speller, and Kohn 1974; Malhotra 1982) and affective (Iyengar and Lepper 2000) in nature, we assess overload using a multi-item measure that spans these different dimensions. All responses were taken on 9-point scales anchored at “not at all” (1) and “very much” (9). Participants indicated to what extent they felt 1) overwhelmed, 2) confused in the decision process, and 3) how difficult it was for them to decide which camcorder to choose. All three measures were highly correlated ($\alpha = .85$) and a principal component analysis suggested a single factor that explained 79% of the variance. Thus the three different measures were averaged to form an index of overload.

Expectation-Disconfirmation. The single-item measure used in study 1 provided a direct measure of expectation-disconfirmation.

Analysis and Results

We estimated an ANOVA with size, order of question and the interaction of size by order of question as independent variables. We also control for the kind of catalog each participant saw, which was estimated as version (1, 2, 3, 4, 5, 6) nested within size (small, large).

Manipulation Check. Participants perceived the assortment to be significantly bigger when choosing from the larger as opposed to the smaller catalog ($M_{\text{Large}} = 6.24$, $M_{\text{Small}} = 5.01$, $F(1,157) = 23.85$, $p < .0001$). For all means see table 2.

Choice quality. The larger catalog always included the best out of 32 options and also provided a larger number of very good options (see Web Appendix). However, catalogs of all sizes were similar in average quality and range. In this situation, size did not have a significant effect on the absolute choice quality ($F(1, 157) = .01$, $p > .9$).²

Overload. We assessed overload in two ways. First, following Jacoby, Speller and Kohn (1974) we subtracted the absolute quality score of the chosen option from the maximum score in its respective catalog. This measure provides an objective indication of information overload. Analysis reveals that those having access to more good options deviated further from the best available option ($F(1,157) = 19.00$, $p < .0001$). This finding replicates prior research suggesting that access to more options creates information overload as evidenced by less optimal decisions (Malhotra 1982). Second, results from analyzing the subjective measure of overload mirror findings from the objective overload measure. The larger assortment triggered greater feelings of overload compared to the smaller assortment ($F(1,157) = 29.27$, $p < .0001$).

There was no interaction of size and question order ($F(1,157) = .58$, $p > .4$), however, question order did have a significant main effect on felt overload ($F(1,157) = 4.18$, $p < .05$).

Participants felt more overloaded when responding to overload measures *after* indicating their satisfaction ($M_{\text{Satisfaction-Overload}} = 4.48$), compared to when answering overload measures first ($M_{\text{Overload-Satisfaction}} = 3.88$).

Expectation-Disconfirmation. In this study all participants reported positive disconfirmation ($M = 6.78$, vs. midpoint: $t(165) = 16.64$, $p < .0001$). However, as predicted in hypothesis 3, we also find a significant effect of assortment size on expectation-disconfirmation with less positive disconfirmation occurring in the large compared to smaller assortments ($F(1,157) = 10.30$, $p < .01$).

Satisfaction. We estimated an ANCOVA predicting satisfaction controlling for the multi-attribute quality score of the chosen option. As one would expect quality of the chosen option had a positive, yet small, effect on satisfaction ($b = .03$, $F(1,156) = 2.91$, $p < .1$). More importantly and again consistent with hypothesis 2, participants were less satisfied with their chosen item when choosing from the large as opposed to the small assortments ($F(1,156) = 4.18$, $p < .05$). Question order ($F(1,156) = .69$, $p > .4$) did not have a significant main effect on satisfaction. Importantly, question order also did not interact with assortment size ($F(1,156) = 1.37$, $p > .2$), suggesting that asking about feelings of overload before or after assessing satisfaction did not alter the effect of assortment size on satisfaction.

Mediation. We showed above that assortment size had a significant effect on satisfaction, as well as on subjective overload and expectation-disconfirmation. Both expectation-disconfirmation ($b = .48$, $F(1,163) = 61.86$, $p < .0001$) and overload ($b = -.32$, $F(1,163) = 46.58$, $p < .0001$) by themselves also affect satisfaction. We added expectation-disconfirmation and subjective overload as potential mediators to the model estimated above. Both expectation-disconfirmation ($b = .41$, $F(1,154) = 45.15$, $p < .0001$) as well as overload ($b =$

- .27, $F(1,154) = 30.26, p < .0001$) are significant predictors in that model, while assortment size no longer is a significant predictor ($F(1,154) = 2.19, p > .14$). We simultaneously estimated the effect of assortment size on satisfaction through both overload and expectation-disconfirmation (Preacher and Hayes 2008). Estimates of the confidence intervals around the *indirect* effects of assortment size on satisfaction as mediated by overload (- .72; - .16) and expectation-disconfirmation (- .57; - .11) suggest that both variables jointly mediate the effect of assortment size on satisfaction.

Discussion Study 2

Study 2 replicates and extends study 1's findings in a setting where participants were exposed to an assortment of options and made their own decision. In this setting, participants experienced overload: choices deviated further from the best available option and exposure to a greater number of options was indeed perceived as more difficult, overwhelming and confusing. Importantly, measuring the extent to which participants felt overloaded before assessing satisfaction with the chosen option did not eliminate our previous findings. Even when participants had the opportunity to recognize and take overload into account when forming their satisfaction evaluations, they expressed lower satisfaction with their choice when it came from the larger as opposed to the smaller set. As such, we show that both expectation-disconfirmation and overload can play independent roles in determining consumers' satisfaction.

In this study participants experienced positive disconfirmation, presumably because the available options were of relatively good quality. However, because a priori expectations were higher in the larger sets, participants shopping from those sets experienced *less positive disconfirmation* than did individuals shopping from smaller sets. As a result, participants were

significantly less satisfied when choosing from the larger as opposed to the smaller set.

In order to more fully depict the relationship between expectations, assortment size and satisfaction, study 3 examines a number of additional factors. First, thus far, maximum item quality has remained essentially constant across small and large sets. In reality, however, many large assortments will offer a higher likelihood of matching one's preference. Therefore, study 3 examines our proposed effects when the large assortment allows participants to better match their preferences. Second, consistent with most prior research investigating choice overload (e.g. Iyengar and Lepper 2000, Chernev 2003, Gourville and Soman 2005), study 2 exposed consumers to the entire set. Such situations seem likely to create overload since participants have no opportunity to avoid exposure. However, in many real-life situations, consumers determine the number of options they are exposed to by deciding how much to search. This search experience can affect satisfaction (Diehl and Zauberger 2005). Therefore, study 3 allows consumers to manage overload by deciding how much to search.

STUDY 3

In study 3 we use a preferential choice task to build on the insights provided by the principal agent tasks used in studies 1 and 2. Our design first prompts participants to form their a priori preferences for a computer wallpaper. Subsequently, they freely search either a large or small assortment and make their own choice. Importantly, this study provides participants the possibility of making a better choice in the larger as opposed to the smaller set and enables them to manage their own overload through selective exposure.

Design and Procedure

Study 3 followed a two group between-subjects design with assortment size manipulated at two levels, pretested to constitute smaller and larger sets in this product category (60, 300). A total of 65 undergraduate students who stated that they owned a computer participated in this study in return for extra credit.

Participants were told that they would search for a wallpaper for their computer. Out of six provided categories (Abstract Designs, Animals, Nature, Travel, Sports & Entertainment, Vehicles) we first asked participants to indicate which category the wallpaper they were looking for would fall into. Participants also had the option of selecting an 'other' category which they subsequently defined. This procedure allowed us to assess the extent to which their choices ultimately matched their preferences. In order to further ensure that participants had well-formed preferences prior to browsing, we then asked them to briefly draw and describe the wallpaper they were looking for.

Next, participants were presented with the assortment of wallpapers. Wallpapers had been selected to cover a varied range of interests and to be of similar picture quality (i.e. similar resolution). Participants in the large assortment had access to 300 wallpapers equally distributed across the six categories mentioned above. For each participant in the small assortment condition, a unique assortment of 60 wallpapers was created by randomly drawing 10 wallpapers from each of the six categories. As such, for participants looking for a particular type of wallpaper, the assortment within that category contained 10 versus 50 wallpapers. Note that the smaller assortment was a random subset of the larger assortment and all options available in the small set were present in the large set. Thus, the larger assortment should objectively allow a better preference match by offering a wider range of options in each category.

Participants searched as many options as they wished and chose an option at their own pace. Options were listed by their category indicator and a number (e.g. Travel1). Participants clicked on this identifier to view a thumbnail picture of the specified option. Participants could then either go back to the assortment list or choose the option they currently were looking at. After making a selection, participants saw their chosen wallpaper in full screen display. This allowed participants to experience their chosen option the same way they would after installing it on their home computer. After viewing the picture, participants responded to the dependent measures and manipulation check. Participants later received their chosen wallpaper via e-mail.

Measures

Participants responded to the question “How satisfied are you with your chosen wallpaper?” by adjusting an unnumbered slider anchored at “not at all satisfied” and “extremely satisfied”. Slider position was later translated into a number between 0 and 100, with higher numbers indicating greater satisfaction. In line with prior research, in this study, we measure overload simply by asking participants “How difficult was it to decide which option to choose?” (e.g. Bettman et al. 1990, Iyengar and Lepper 2000). Participants adjusted an unnumbered slider anchored at “not very difficult” and “very difficult”. Again, slider position was translated into a number between 0 and 100 with higher numbers indicating greater decision difficulty. The single score expectation-disconfirmation measure used in studies 1 and 2 was collected here as well.

In order to verify that participants perceived the assortments to be differentially large, we administered the same manipulation check as in study 2. Further, the computer recorded how long participants spent searching and the number of unique and total options viewed.

Analysis and Results

Manipulation Check. The manipulation check verified that participants perceived the larger set as significantly bigger than the smaller set ($M_{\text{Large}} = 4.80$, $M_{\text{Small}} = 3.55$, $F(1,63) = 10.72$, $p < .01$). For all means see table 3.

Search. Assortment size did not have a significant effect on total search time ($F(1, 63) = 1.65$, $p > .2$) or total number of options seen ($F(1, 63) = 2.58$, $p > .11$) and only had a slight effect on the number of unique options seen ($F(1, 63) = 3.63$, $p < .07$). Further, time spent searching ($b = 2.41$, $F(1, 63) = 1.55$, $p > .2$), total number of options seen ($b = .13$, $F(1, 63) = 1.74$, $p > .19$), and unique options seen ($b = .08$, $F(1, 63) = .58$, $p > .4$) did not have a significant effect on overload.

Overload. We did not find a significant effect of assortment size on overload ($F(1,63) = .68$, $p > .4$). Still, we control for overload in the analysis to establish that expectation-disconfirmation has an effect on satisfaction over and above the effect of any overload experienced.

Category Match. Participants were somewhat more likely to choose from the category they had indicated initially when choosing from the large (61 %) as opposed to the small assortment (41%, $\chi^2 = 2.47$, $p = .12$). This finding provides some indication that the larger number of options in the larger assortment did, in fact, provide an opportunity to choose more advantageously than in the smaller assortment.

Satisfaction. To analyze satisfaction, we estimated an ANCOVA with assortment size as the independent measure and category match, overload and participants' SAT scores as covariates. Again supporting hypothesis 2, participants that chose an option from their preferred category ($M_{\text{Match}} = 80.89$) were slightly more satisfied than those choosing from a different

category ($M_{\text{No Match}} = 73.52$, $F(1,60) = 2.55$, $p < .12$). Overload did not have an effect on satisfaction with the chosen option ($F(1, 60) = 0$). Importantly, controlling for difficulty and the effect of category match, assortment size still had a significant effect on satisfaction ($F(1,60) = 5.63$, $p < .03$). Participants who chose from the larger assortment were less satisfied with their chosen option than those choosing from the smaller assortment, even though all options available in the small assortment were also present in the larger assortment.

Expectation-disconfirmation. To test hypothesis 3, the same ANCOVA was estimated for expectation-disconfirmation as was estimated for satisfaction. Consistent with Iyengar, Wells and Schwartz (2006) we find that higher SAT scores were associated with slightly more negative expectation-disconfirmation ($b = -.003$, $F(1,60) = 3.35$, $p < .08$). Category match had a slight but non-significant effect on expectation-disconfirmation, such that more positive disconfirmation occurred when participants did select an option from the category they had initially in mind ($M_{\text{No Match}} = 5.05$, $M_{\text{Match}} = 6.17$, $F(1,60) = 2.11$, $p > .15$). Importantly though, beyond these effects, the larger assortment created significantly less positive disconfirmation ($F(1,60) = 3.88$, $p < .05$) than did the smaller assortment.

Mediation. We already established that assortment size affects satisfaction as well as the potential mediator, expectation-disconfirmation. Expectation-disconfirmation on its own also has a significant effect on satisfaction ($b = 8.80$, $F(1,63) = 53.55$, $p < .0001$). Finally, when both assortment size and expectation-disconfirmation are used as predictors of satisfaction, size no longer is a significant predictor ($F(1,59) = 1.87$, $p > .17$), but expectation-disconfirmation still is ($F(1,59) = 48.46$, $p < .001$). The Sobel test ($z = -1.89$, $p = .05$) as well as estimating the confidence interval around the indirect effect of assortment size on satisfaction (-18.70; -.92 Preacher and Hayes 2008) further support the conclusion that the effect of assortment size on

satisfaction is mediated by expectation-disconfirmation as proposed by hypothesis 4.

Discussion Study 3

Study 3 replicates results found in previous studies using a preferential choice task where participants searched for and selected an option for their own use. Unlike study 2, the small assortment in this study was a random subset of the large assortment and thus participants choosing from the larger assortment had an objectively higher likelihood of matching their preferences. Interestingly though, we still find that larger assortments decrease satisfaction compared to smaller assortments. This is true despite the objective ability to achieve a closer preference match in expectation and despite the fact that participants in the larger assortment condition seem to stick with their initially preferred category slightly more than do participants in the small assortment condition. Furthermore, we show that this effect of expectation-disconfirmation exists over and above any overload created during search.

GENERAL DISCUSSION

Many retailers, particularly online, position themselves in terms of their assortment size, priding themselves as offering the largest selection in a particular category (e.g. Alba et al. 1997). A recent commercial for Autotrader.com exactly reflects this strategy. Showing a consumer getting in and out of one car after another, the narrator states:

“It’s the only place you can see almost three million cars. The largest selection of cars anywhere. And when you search from a selection this wide, no matter what you are looking for, on Autotrader.com, you find exactly the car you want. Just like that. So why go anywhere else?”

Our research suggests that highlighting the assumed relationship between a large assortment and consumers' expectations about preference match may have substantial downsides. Prior work has found that larger assortments can have adverse effects due to feelings of overload or anticipated regret, often leading to choice deferral. However, we show that even when consumers actually do make a choice, larger assortments may still have negative consequences. Our findings show that consumers may be less satisfied when choosing an option from a larger compared to a smaller assortment. Even though consumers may be afforded a better preference match from larger assortments, they may overestimate the extent to which they are able to choose more advantageously. Subsequently, either due to lower degrees of positive disconfirmation or higher degrees of negative disconfirmation in larger as opposed to smaller sets, these larger sets yield lower satisfaction with a given option than a smaller set would have. While larger assortments can certainly overwhelm people, we show that the proposed expectations-based mechanism operates over and above the effects of overload.

By demonstrating this effect and by explicating the underlying mechanism driving this effect, our research contributes to behavioral theory. We add to the growing research identifying potential negative effects of larger assortments by demonstrating that, contrary to established beliefs, consumers may not always be more satisfied with options chosen from larger assortments. Instead, larger assortments can decrease satisfaction with the chosen option. We establish the psychological mechanism that underlies these findings, identifying expectation-disconfirmation as an important driver. We further provide process evidence not only of our proposed expectation-disconfirmation mechanism but also of overload as a parallel process.

Further, our framework makes unique recommendations for marketing practice. While limiting the information provided (Iyengar, Huberman and Jiang 2004) or focusing consumers on

dimensions that are easily comparable (Gourville and Soman 2005) may reduce overload or regret, our findings suggest that such measures may not eliminate all damaging consequences of larger assortments. Instead, in line with recent research (Ofir and Simonson 2007) we argue that marketers need to carefully consider whether and how they evoke expectations without generating negative expectation-disconfirmation. It may be risky to highlight to consumers that they “can see almost three million cars”, as Autotrader.com does, since such an approach can raise expectations even further than they might be raised by merely experiencing the assortment, thus potentially exacerbating negative expectation-disconfirmation. Instead of highlighting the absolute size of their assortment, marketers positioned in terms of large assortments may want to rather highlight their market coverage. As such, rather than promising consumers a perfect match, retailers could assure consumers that they have access to everything the market offers. Such an approach may manage expectations and also reduce anticipated regret of missing out on options consumers may imagine being available elsewhere (Bülbul and Meyvis 2006).

Limitations and Future Research

Although we were able to demonstrate the importance of expectations with regard to larger assortments, a number of questions still remain unanswered. First, the present research focuses on the relationship between expectations and overload. As discussed above, related work by Gourville and Soman (2005) has focused on the relationship between regret and overload. In our experiments, we sought to empirically minimize the potential effects of regret. However, future work may explore the way in which expectations and regret are related.

Consistent with our theoretical framework, participants were less satisfied with an option chosen from larger as opposed to smaller assortments. However, satisfaction ratings in our

studies were consistently high. Further, in studies 2 and 3 less positive disconfirmation rather than greater negative disconfirmation in the larger sets mediated these effects. While our predictions were applicable to both negative and positive disconfirmation, experimentally participants seemed more likely to experience positive rather than negative disconfirmation. This may be due to a general positivity bias in this experimental setting, where participants may not have expected much from the researcher provided assortments.

However, these high levels of satisfaction may also be due to the composition of our choice sets. Specifically, our studies focused on situations where consumers could find an acceptable preference match in both smaller and larger assortments. For example in study 2, the best options in each set provided approximately an 80% match to the principal's preferences. In study 3, even though the smaller sets were randomly drawn from the large assortment, small assortments were made reasonably attractive by including wallpapers from a wide variety of categories and by offering at least 10 options per category. While we believe these small assortments to be realistic, in that retailers with smaller assortments will focus on the most popular items, future research should explore how the exact composition of the assortment affects satisfaction by leading to either positive or negative disconfirmation.

Another open question concerns the level of consciousness with which expectations are held. Oliver and Winer (1987) distinguish between active and passive expectations. The former are conscious predictions of the future that are central in the purchasing decision while the latter are generally held assumptions about the state of the world that may not be conscious until they are disconfirmed and hence become salient. In our studies, expectations about the consumer's ability to preference match most closely resemble passive expectations. In the Autotrader.com example, however, the marketer's claim seems to establish active expectations. Future research

would need to explore the impact of active expectations and whether they also lead to expectation-disconfirmation or whether experiences are instead assimilated. Whether assimilation or contrast occurs may depend on the source of these expectations. In all our studies not only were expectations passive, but they were also intrinsic to the participants. While such internally held expectations may create contrast between reality and expectations, expectations created by marketers may be treated as tentative hypotheses (Hoch and Ha 1986) and may not create expectation-disconfirmation when experiences or preferences are ambiguous.

The role of preference formation in this context also warrants further exploration. Consistent with our conceptualization, our studies all involved reasonably well-formed preferences, either by establishing a target consumer whom participants were shopping for (study 1, study 2), or because participants had formed preferences before searching through the assortment (study 3). As such, we focused primarily on the effect of assortment size on expectations of an established-preference match, given a set ideal point. Recent research has also suggested that various factors may influence consumers' expectations about the quality of the ideal product they may obtain (Chernev 2003, Ofir and Simonson 2007). That is, not only might larger assortments heighten expectations regarding the ability to match an established preference, but they may also influence consumers' beliefs regarding the nature of the ideal product that one might obtain from an assortment. Future work may more closely examine the effect of assortment size on this latter type of expectations. Relatedly, future research should also examine the role of assortment size in situations where preferences are constructed rather than formed a priori (Bettman, Luce and Payne 1998; Griffin and Broniarczyk 2009). In such situations, consumers do not hold expectations about specific configurations of the product, but expectations with regard to their overall level of satisfaction or their ability to avoid trade-offs

may still explain post-choice appraisals (Tversky and Shafir 1992).

Conclusions

Our research demonstrates that the negative effects of large assortments are not only restricted to situations when consumers lack cognitive resources to facilitate the choice process. In fact, though they may provide improvements relative to completely unaided experiences of large assortments, tools designed to reduce overload alone will not completely mitigate the potential negative effects of large assortments. Rather, our research suggests that as assortments continue their exponential growth, the management of expectations will need to be carefully balanced against consumers' hopes and aspirations. In exploring ways in which this balance can be achieved, future research may be able to identify ways of reclaiming the rationally-predicted and colloquially expected benefits of large assortments.

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FOOTNOTES

1. Note that for all attributes except for weight, higher values were preferred.
2. There was a significant, yet theoretically uninteresting main effect of catalog version ($F(1,157) = 3.61, p < .01$). Participants choose significantly better from one of the small catalog versions (catalog 2) than from any other small version ($F(1,157) = 10.62, p < .01$) and significantly worse from small catalog version 1 than from any other small version ($F(1,157) = 8.05, p < .01$). These effects were entirely a function of the best fit available in each catalog (see Web Appendix).

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TABLE 1

IMPACT OF ASSORTMENT SIZE ON EXPECTATIONS AND SATISFACTION IN THE
 ABSENCE OF OVERLOAD

	Large Assortment N=64	Small Assortment N=56
Perceived size of the assortment (Manipulation Check)	4.36	2.36
Expectations	6.32	5.43
Perceived actual match	4.53	5.03
Calculated expectation disconfirmation	-1.69	-.39
Single-Score expectation disconfirmation	4.06	4.80
Satisfaction	4.14	4.80

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TABLE 2

IMPACT OF ASSORTMENT SIZE ON OVERLOAD, EXPECTATIONS AND
 SATISFACTION AMID FORCED EXPOSURE

	Large Assortment N = 87	Small Assortment N = 78
Perceived size of the assortment (Manipulation Check)	6.24	5.01
Choice Quality	78.97	79.36
Overload (Objective)	6.53	1.97
Overload (Subjective)	4.90	3.40
Single-Score expectation disconfirmation	6.45	7.15
Satisfaction	7.40	7.81

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TABLE 3

IMPACT OF ASSORTMENT SIZE ON OVERLOAD, EXPECTATIONS AND
 SATISFACTION AMID FREE SEARCH

	Large Assortment N = 36	Small Assortment N = 29
Perceived Size of the assortment (Manipulation Check)	4.88	3.55
Total search time (in minutes)	3.53	2.92
Total number of options seen	61.64	46.55
Unique number of options seen	52.19	37.21
Overload (Subjective)	50.50	44.27
Category Match	61 %	41 %
Expectation-Disconfirmation (Single Score measure)	5.28	5.89
Satisfaction	71.25	84.97

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Great Expectations?! Assortment Size, Expectations and Satisfaction

Kristin Diehl and Cait Poynor

Web Appendix

TYPES OF EXPECTATIONS AFFECTED BY ASSORTMENT SIZE

The article examines the effect of assortment size on expectations, expectation-disconfirmation and satisfaction. In theory size of the assortment may affect two related yet conceptually distinct types of expectations: Expectations regarding the *extent* to which one is able to match ones preferences and expectations about the *likelihood* of obtaining that level of preference match. In the article we focus on the former type of level-based expectations, showing in study 1 that size of the assortment increases the expected level of preference match.

In that study we also assessed the expected *likelihood* of obtaining such a level of preference match by asking participants, “How likely do you think it is that you’ll find a card that good at this store?” on a scale ranging from 0% (No chance) to 100% (Perfect chance) in 10 percent increments. In addition to analyzing expectations of the level of preference match by itself, as reported in the article, we also multiplied these two measures ($r=.66, p < .0001$) to form an expectations index. Doing so allowed us to test whether larger assortments also increased this overall index that taps into both participants’ likelihood expectations as well as their expectations regarding the level of preference match.

Indeed the pattern of results for this expectation index was similar to that reported for expectations of the level of preference match alone. Combining level of preference match expectations and likelihood of obtaining that level, participants revealed higher expectations when told the card would come from the larger ($M = 4.52$) as opposed to the smaller set ($M = 3.43, F(1,116) = 12.62, p < .001$).

These findings further contribute to our understanding of the focal process by showing that assortment size increases expectations, whether such expectations pertain to the level of preference match obtainable or the probability of finding such a given level of preference match.

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STUDY 2 CATALOGS

	Camera ID	Camera Utility	Average Utility in Catalog	Minimum Utility in Catalog	Maximum Utility in Catalog
Catalog 1	2	19.63	49.93	19.63	79.00
	5	54.50			
	6	65.50			
	15	42.87			
	17	34.37			
	20	25.00			
	26	79.00			
	29	78.55			
Catalog 2	3	20.90	50.22	20.90	85.50
	11	56.00			
	18	39.00			
	19	75.00			
	21	85.50			
	22	60.00			
	27	23.37			
	30	42.00			
Catalog 3	1	23.51	50.08	21.50	80.00
	10	52.11			
	12	21.50			
	13	80.00			
	16	77.50			
	23	40.00			
	25	38.01			
	28	68.00			
Catalog 4	4	78.00	50.07	22.50	80.00
	7	22.68			
	8	65.00			
	9	22.50			
	14	55.62			
	24	30.29			
	31	46.45			
	32	80.00			
	Large Catalogs (all 32 options)	Order of small catalogs in large catalog			
Catalog 1, Catalog 2, Catalog 3, Catalog 4		50.07	19.63	85.50	
Catalog 4, Catalog 2, Catalog 1, Catalog 3					