

FRUIT OR CANDY? EASE OF JUSTIFICATION AS A MODERATOR OF THE EFFECT OF ASSORTMENT SIZE ON CONSUMER CHOICE

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Abstract: Two studies demonstrate that, because choosing from larger variety is usually more difficult, people are likely to select options that are easier to justify; consequently, choosing from larger assortments often shifts the preference from self-indulgent to virtuous. However, when situational factors provide easily accessible reasons to indulge, these effects reverse, resulting in higher relative preference for hedonistic options. Subjects made both real-life (Experiment 1 – E1) and hypothetical choices (Experiment 2 – E2). Individuals' decisions were modified by assortment size and character of options in E1 while E2 also added accessible justifications (for choosing vices) created by subjects' prior altruistic decisions. Results show that variety partially moderates the effect of accessible justifications on option choice. Significant differences were found according to gender and study degree. The fact that none of the subjects was conscious of experimental manipulation suggests that individuals might not always be aware of what truly drives their decisions.

Key words: variety, decision making, justification, vice and virtue

When going out to eat or to the movies people often struggle to reach a final decision. Within these choices individuals are constantly faced with the dilemma of choosing between vices and virtues.

It has been shown that assortment size has an impact on whether consumers make a choice, but does it also influence the kind of options that are chosen?

When selecting lunch, one could choose between tasty but unhealthy options, or healthier but less gratifying alternatives (Sela, Berger, & Liu, 2009). So, could a larger menu really make us more prone to choose a salad? Conversely, is there a mechanism which might encourage the selection of more self-indulgent choices?

The present paper explores existing work on the influence of assortment size, character of options, and ease of justification in the consumer's decision-making process before providing findings in two experiments. In E1, individuals' decisions were modified by assortment size and character of options while E2 also adds accessible justifications (for choosing vices) created by subjects' prior altruistic decisions.

Variety and Decision-Making

The variety of alternatives shapes consumer choice in multiple ways. Prior research suggests that larger assortment size in-

creases satisfaction (Sela et al., 2009). However, while many of the earlier studies on variety argued that more options are better, many current researchers recently highlighted the downsides of “too much choice” (Berger, Draganska, & Simonson, 2007). This stream of research suggests that choice may become overwhelming and choosing from larger assortments increases choice difficulty and in some cases even regret (Berger et al., 2007).

Decision Difficulty

Iyengar and Lepper (2000) found empirical evidence for decision difficulty (choice overload) in a study in which the quality of essays decreased if the number of topics students could choose from increased. It is not only the motivation to choose which decreases when facing too many options, but also the overall satisfaction. Too many alternatives cause distress. As a result, decision making becomes hard, almost unbearable. This argument is later strengthened by Scheibehenne, Greifeneder and Todd (2010) in their meta-analytic review of choice overload (a collection of 50 published and unpublished studies), which explains that facing too many options to choose from ultimately decreases the motivation to choose any of them.

Necessary Preconditions of Choice Overload

Researchers who focused on choice overload in the past have commonly argued that negative effects do not always occur but rather depend on certain necessary preconditions. One of these important preconditions is lack of familiarity with, or prior preferences

for, items in the choice assortment (Iyengar & Lepper, 2000).

Additionally, Chernev (2003) found that consumers with clear prior preferences prefer to choose from larger assortments. The same author also showed that consumers' choice probability and satisfaction increased with the number of options to choose from, which is the opposite of choice overload. Similar results were presented by Mogilner, Rudnick and Iyengar (2008) where a negative relationship between assortment size and satisfaction was only found for those who were relatively less familiar with the choice domain.

For this reason, experiments on choice overload have typically used options participants were not very familiar with to prevent strong prior preferences for a specific option. If, however, the participants were familiar with some options, it might result in a highly selective search process that would allow them to ignore most of the assortment. This study also used unfamiliar options (relatively unknown brands of sweets in E1, and types of computers in E2) to eliminate this effect.

Character of Options and Decision-Making

Another relevant factor that plays a part in decision-making is the character of options. Many of the most significant choices that people make, are between vices and virtues (Zheng, 2006), which, according to Read, Loewenstein and Kalyanaraman (1999) “exchange small immediate rewards for large delayed costs”, and virtues, which “exchange small immediate costs for large delayed rewards” (p. 257). It is important to note that, virtues and vices are defined relative to

one another, based on the timing of their cost and benefits. According to Zheng (2006) the choice between vice and virtue can be described as choice between utilitarian and hedonic options. For any pair of items, a virtue provides more utility in the long run compared to its alternative, but less utility in the period shortly after it is received (Read et al., 1999).

In general, the costs of virtues are relatively small but are experienced early in the consumption sequence, while the costs of vices are larger but resurface later. Eating broccoli, jogging, and reading journal articles are virtues relative to such vices as French fries, watching television or playing video games (Kivetz & Zheng, 2006).

Broadly speaking, hedonic consumption is harder to justify, in part, because it is often associated with guilt (Kivetz & Simonson, 2002). However, if sufficient justification is present, this might be avoided (Giner-Sorolla, 2001). This framework suggests that consumers seek reasons to resolve conflict by justifying the options they select. In such cases, decision makers often focus their decision processes on the choice of good reasons rather than on the choice of good options (Simonson & Nowlis, 2000).

As the conflict and uncertainty associated with choice increases, the focus of consumers' reasoning processes may shift from desirability to justifiability. Options that provide convincing, justifiable arguments are therefore more likely to be chosen (Kivetz & Simonson, 2002).

This study uses the approach of the above-mentioned authors to support the argument behind the hypotheses that in the relationship between fun options vs. utilities, the "fun option" represents vices and the "utilitarian option" represents virtue.

Ease of Justification

One way of dealing with conflict created by larger variety is by justifying the selected options (Simonson & Nowlis, 2000). The ones easier to justify are thus more likely to be chosen (Kivetz & Simonson, 2002). This phenomenon, recognized as a *licensing effect* by Khan and Dhar (2005), is based on the character of a prior experience and can be observed in common everyday situations. Scheibehenne et al. (2010) proposed that licensing operates through an expression of intent to be virtuous, which reduces negative self-attributions associated with purchasing relative luxuries. A mere commitment to a virtuous act, such as volunteering, can activate a positive self-concept that subsequently licenses the choice of a self-indulgent option (Khan & Dhar, 2005).

Object of Study

The aim of the present study is to examine the process of decision making between "vices and virtues": healthy vs. unhealthy alternative (E1), and fun options vs. utilities (E2). The research looks to provide empirical evidence of this phenomenon using modified replicas of two different experiments (Khan & Dhar, 2005; Sela et al., 2009). Between-subjects experimental design was used in both experiments.

E1 is designed to test the hypothesis that because choosing from larger assortments is often more difficult, it leads to selecting options that are easier to justify (Kivetz & Zheng, 2006), whereas E2 examines whether the additional variable of *licensing* moderates the effect of assortment size on subjects choice.

The experiments are based on the findings of Sela et al. (2009) who argue that “under neutral or low justifiability conditions”, choosing from larger assortments will increase the share of utilitarian or virtuous options. However, when situational factors provide accessible reasons to indulge, choosing from larger assortments will have the opposite effect, increasing the share of vices or hedonic choices” (pp. 942-943). In this instance the selection of fun laptops is perceived as more hedonistic while the selection of laptop build for work is perceived as utilitarian.

In both cases, decisions are immediate, spontaneous, and not based on patterns of behavior; however in E2, the ultimate choice is intentionally modified by prior choice.

Methods

Experiment 1

Participants and Design

The experiment is a modified replica of a study which focused on variety and option choice conducted by Sela et al. (2009) at Stanford University. The original study had 2 options in the small assortment experiment (2 choices of fruit and 2 choices of sweets) and 6 options in the large assortment experiment. This study aimed to test if similar results would be achieved with a modified ratio of 1 and 5 options respectively (pushing the small assortment size to its extreme).

Similar to the original study, the experiment was conducted inconspicuously; thus, it did not allow for collection of data relative to age or study program of the 90 participants without raising awareness. In a between-subjects experimental design, the subjects

(social science undergraduates, attending a college annual festival) were provided with either small assortment or large number of options. Students could choose only one item, while their individual choices were unnoticeably recorded. The study used simple random sampling, as the variety of options participants were presented with (experimental condition) depended on their presence at a certain place (at the stand) and time (both large and small assortment was only present for a certain amount of time during which students could take part in the study).

Procedure

Upon arriving at the festival students received a voucher that read “free snack”, indicating that the students would receive some sort of bonus. An assistant of the experimenter then provided them with information concerning the location of the free snack stand. As they arrived at the stand, they handed over the voucher and the experimenter encouraged them to help themselves to one item. Two trays were mounted on the stand. Attached to each tray was a printed sign indicating, “Please help yourself to one item!” and “Free snack”. One tray contained five types of fruit (banana, pear, green apple, tangerine and orange) and the other five types of cookies and cakes.

In the second experimental condition, which followed shortly afterwards, the two trays contained only one option from each category. In both conditions the exact content of the larger and smaller assortments was constantly counterbalanced as options from the trays were consumed. The experimenter refilled the trays as the food was selected, encouraged students to pick a snack and inconspicuously noted the options con-

sumed from each tray. Using the voucher system ensured that every student took a snack only once, only from one condition (large or small variety), thus the between-subjects experimental design was not compromised.

Research Ethics

By placing the distribution of the independent variable(s) under the control of the researcher, an experiment, particularly when it involves human subjects, introduces potential ethical considerations, such as balancing benefit and harm, and informed consent.

It has already been mentioned that this study was conducted inconspicuously; therefore the participants were not asked to provide informed consent nor were they aware of the fact that their individual decisions were observed and recorded. The participants were intentionally deceived and provided with a cover up story. Moreover, it

was not possible to debrief the participants who already took place in the study because if they had been told about the study and its purpose, there was a possible danger they would have shared this knowledge with their peers, who had not yet participated in the study but might shortly afterwards. However, it was ensured that the identity of students remained anonymous, and since the experimenter was present at the stand, they knew someone was observing them, in contrast with the original study, where students were observed from afar.

Results

As predicted, the subjects preferred fruit over sweets when presented with a larger assortment. While 42.2% of them chose fruit from a smaller assortment, this number increased to 53.3% in a larger assortment (Figure 1), $\chi^2(1) = 1.11, p = .199, \phi = .11$.

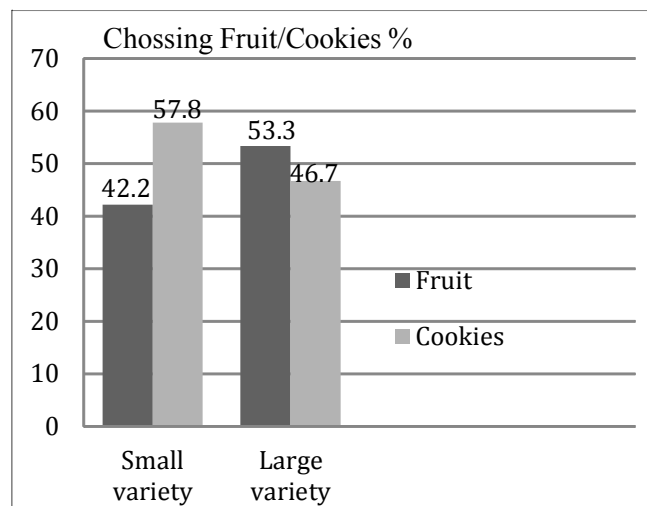


Figure 1 Selection of fruit/cookies in smaller and larger assortment

Experiment 1 provides preliminary support for prior theorizing. Choosing from a larger set led consumers to select options that should have been easier to justify. One might question, however, whether these results are due to the extra options available in the larger assortment condition. Increasing the available options in a category should lead consumers to be more likely to find an option that fits their preferences. For example, the probability one will find an option that will meet their preferences is higher when the assortment is larger.

Alternatively, one could argue that because each choice involves a trade-off between two salient goals (e.g., pleasure and good health), people balanced those goals within an option choice. This leads to a simple conclusion: consumers choosing from a smaller selection are not provided with as many choices as in a larger variety, therefore, they simply choose an option which is perceived as least disadvantageous. In contrast, in the larger assortment condition, individuals can choose from a variety of different options and the probability they will find an option that will meet their criteria is higher.

Although the original experiment conducted by Sela et al. (2009) partially addressed this issue by varying the specific content of the tray in the smaller variety condition throughout the experiment, this experiment made a bolder decision and chose to examine if the assortment size effect will also be present with a consistent content of smaller assortment, which did not change (vary) throughout the experiment. It might probably be the most crucial part of the modification, and also a possible reason that even though the sample size was larger, statistical and practical significances were smaller. The difference in the sample of 70 students in the

original study was 17% and the difference between groups in our study conducted using 90 students was 11%.

Another fact which might have played a role was the presence of the experimenter who observed the participants choices and, therefore, might have influenced a choice each individual made. However, based on the conclusions and findings of numerous authors, who claim that people are more likely to choose virtues or make more utilitarian decisions when they are being watched, this should only contribute to higher selection of fruit. Also, since the experimenter was present in both large and small variety, the higher preference for fruit would have been found in both conditions. However, in comparison to the results of the original study, a huge impact of this factor was not found. Nevertheless, if conducting a similar experiment in the future this must be taken into account as well.

The study has illustrated that larger assortment can lead consumers to choose healthier food. But while such choices are usually easier to justify, specific situational factors (prior choice) can provide justifications to indulge (Khan & Dhar, 2005; Kivetz & Zheng, 2006).

Although the results show that compared with a smaller assortment, larger variety slightly increased the proportion of a healthy alternative; the findings are not statistically significant. However, the level of the effect size suggests that, had the sample been larger, the influence of variety on the consumers' choice could have been substantial.

Since the findings are promising yet ambiguous, further inquiry is necessary. This would involve testing the presumption that licensing and variety would interact in their influence on choice.

Experiment 2

Experiment 2 proposes that even expressing a preference for a virtuous act leads to a boost in self-concept (self-image) that increases the willingness to subsequently choose items that might otherwise lead to negative self-attribution (Khan & Dhar, 2005). Specifically, it was hypothesized that the relative preference for a laptop designed for fun will be higher if individuals' past decisions provided a boost in their self-concept. This was created by a written expression of an altruistic intent.

Even though the presence of the boost was not explicitly measured, the presumption of its occurrence was based on prior research of Khan and Dhar (2005), which indicates that the mere intent to commit a virtuous act can activate this positive effect which, as a result, licenses the choice of more indulgent option. The same design (which also does not measure the presence of this effect) is also used in the original study of Sela et al. (2009).

Materials and Procedure

The experiment involved two tasks and a cover story. Following the same instruction as in Sela et al. (2009), participants were told that the first task was a survey about different decisions people face in everyday life. It required subjects in the high licensing condition to imagine volunteering three hours per week doing community service. They chose from descriptions of two such activities ("Teaching children in a homeless shelter" and "Improving the environment"). In contrast, subjects in the low licensing condition chose between two fun, self-centered

activities ("Playing video games" and "Watching television"). They were asked to state the reasons for their choice to ensure involvement in the task.

The other seemingly unrelated part of the study followed shortly afterwards – a survey designed to examine preferences of college students when buying a laptop. The subjects were randomly assigned to either low (4 laptops) or high assortment size (12 laptops) and presented with an array of items grouped in sets. One set was described as laptops "built for fun" and the other as "built for work".

The original description of Sela et al. (2009, p. 950) was used – translated into Slovak. The description of computers "built for fun" stated the following: "these laptops feature high-end graphics cards, top of the line speakers, and extra music and video software" (Sela et al., 2009, p. 950). Laptops in the other set described as "built for work" read: "these laptops are lightweight, have extended battery life, high-end security, and extra business and presentation software" (Sela et al., 2009, p. 950).

It is important to note that these descriptions were counterbalanced across participants with the same computer being labeled as fun for one group and work for another. For half the participants laptops in set A were described as fun and laptops in set B as work oriented, and for the other half the descriptions were reversed. This design made it possible to examine whether the effects of assortment size on choice persist even when the options themselves remain the same. The number of provided options was identical to the original experiment of Sela et al. (2009). In the smaller assortment condition, participants chose among four laptops, two fun oriented and two work oriented. In the larger

assortment condition, they chose among 12 laptops (six of each). Once the data were collected, participants were debriefed and asked to indicate what they thought might have affected their decision in the choice task. None of the students suspected that the licensing task in the first part of the experiment was related to their subsequent choice.

Results

The overall preference for work laptop by women was 76.8% ($n = 73$) compared to 56.5% ($n = 13$) among men, $\chi^2(1) = 3.87$, $p = .047$, $\phi = .18$.

Regardless of the experimental condition, only 65.5% ($n = 38$) of the Bachelor's degree students (age 19-21) chose work laptops compared to 80.0% ($n = 48$) of Master's de-

gree students (age 22 and older), $\chi^2(1) = 3.13$, $p = .059$, $\phi = .16$. Larger variety led to 85.2% ($n = 23$), preference of work laptop in the Master's degree group, compared to 66.7% ($n = 22$), in Bachelor's degree group, $\chi^2(1) = -2.716$, $p = .088$, $\phi = .21$.

The procedure of Hayes & Matthes (2009) was followed to perform moderation analysis, using SPSS macro MODPROBE to allow for analysis of logistic regression coefficients and interaction testing method.

Despite showing that the proportion of chosen laptops varied in smaller and larger assortments according to the licensing level (Figure 2), this effect was not statistically significant $b = 1.094$ ($SE = .960$), $p = .255$.

In the last part of the analysis, licensing and variety were reversed. The procedure tested whether the assortment size moderates the effect of licensing on subjects'

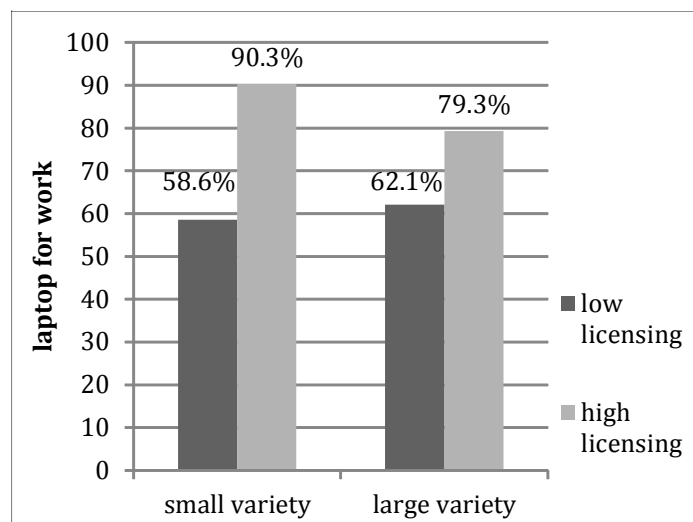


Figure 2 Assortment size as a moderator of licensing effect on choice

choice (Figure 3). Interaction of licensing x assortment size did not prove statistically significant, $p = .267$ (Figure 4). However, testing the conditional effect showed significant differences: in the small assortment, high licensing led to significantly higher preference for work laptops, $b = -1.885$ ($SE = .715$), $p = .008$, CI $[-3.29, -0.48]$, while in the large assortment high licensing led to less significant preference for work laptop, $b = -0.851$ ($SE = .597$), $p = .154$.

Discussion

The study demonstrated that assortment size changes the level of the licensing effect on choice: a larger set of alternatives significantly decreased the licensing effect on the subject's choice; licensing manipulation had

a higher overall effect than the assortment size alone. This phenomenon might be explained by the subjects concentrating on the analysis involved in choosing amongst a large assortment of computers, and minimizing the attention placed on licensing.

Despite the results being noteworthy, on the basis of the data on hand, it is not possible to reliably identify sufficient conditions that explain why variety partially moderates the effect of accessible justifications on option choice. Therefore, a further inquiry into the matter will be necessary.

Interestingly, age/degree played a considerable role in decision-making. Regardless of experimental conditions, the Master's degree students were more likely to choose work laptops, which could be explained by their mind set of soon having to enter the

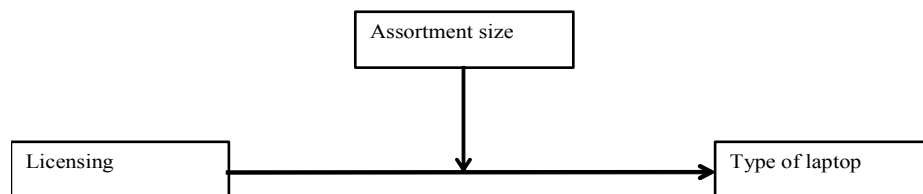


Figure 3 Conceptual diagram of moderate analysis

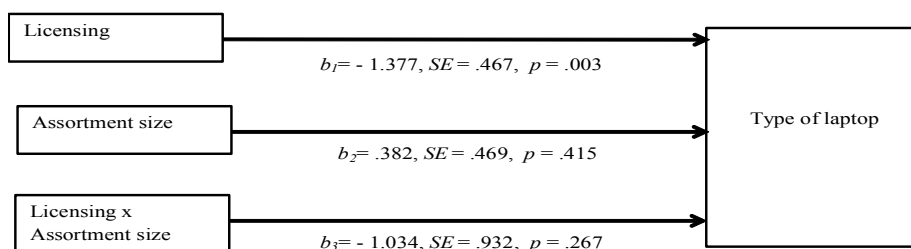


Figure 4 Statistical diagram of moderate analysis

labor market in which such a laptop might be more useful.

Significant gender differences are another source of interesting findings. Male students, in general, were more likely to choose a fun laptop compared to their female colleagues. Multiple authors have shown that, on average, women are more conscientious and studious (Tierney, 2008). Female choices might fall into the same category. This might seem like an unnecessary simplification, but the fact that the majority of the male students chose a fun laptop regardless of the degree of study suggests that some “male” component in the decision process might be considerable.

Finally, the assumption based on prior research of Sela et al. (2009), that subjects would not register any manipulation, was proved during careful debriefing.

Implications

The paper identifies a number of preconditions for future examination. The conclusion of Kivetz and Zheng (2006) that choosing for public rather than private consumption generally favors options that are higher on utilitarian aspects offers one possible direction of future research. Another might inquire whether the role of shame and guilt associated with purchasing specific products (condoms, cigarettes), undermines the effect of variety.

To sum up, the overall findings support the claim that people might not always be aware of what influences their choices, even in situations perceived as driven by 100% free will. Informing the public about what shapes their decisions is an essential condition for any debiasing effort.

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