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Single Option Aversion

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Single option aversion is a context effect whereby consumers are unwilling to choose an attractive option when no competing options are included in the choice set. Consequently, an option may be chosen more often when competing options are added. This effect has unique practical and theoretical implications for consumer search.

[to cite]:

Daniel Mochon (2013) ,"Single Option Aversion", in NA - Advances in Consumer Research Volume 41, eds. Simona Botti and Aparna Labroo, Duluth, MN : Association for Consumer Research.

[url]:

<http://www.acrwebsite.org/volumes/1015590/volumes/v41/NA-41>

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Choice Architecture in Consumer Contexts

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Paper #1: Default Effects under Pay-What-You-Want: Evidence from the Field

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Paper #2: Modeling Scale Attraction Effects: An Application to Charitable Donations and Optimal Laddering

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Paper #3: Working out Consumption: Designing a Robust Information Intervention for Healthful Eating

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Paper #4: Single Option Aversion

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SESSION OVERVIEW

Consumers try to make optimal decisions and companies want those decisions to be optimally profitable. In pursuit of that optimization, companies carefully calibrate how to present information to consumers. Although rational economic theory suggests that it should not matter how the information is structured, work in social psychology and economics have found dramatic effects on consumer behavior. This session features research on key aspects and novel applications of choice architecture, bringing to light new means to substantially affect consumer decision making. Together, they seek to answer the question of how each part of the decision can be most effectively structured to maximize welfare for all parties.

One well-documented means of influencing choice is posting reference prices. In the first talk (Perfecto, Jung, Nelson, Gneezy, & Gneezy), Perfecto will discuss four large field data sets ($N = 124,193$) and two large-scale field experiments ($N = 4,119$) from online companies, which examine the efficacy of defaults and anchors in a pay-what-you-want setting. In this context of maximal consumer flexibility, Perfecto finds that reference prices do influence behavior, but not always as previous lab research would suggest.

Not only are certain choices (e.g., defaults) important in decisions, but their order of presentation is important as well. In the second talk (Lee & Feinberg), Lee will propose a model of attraction effects, applied to appeals scales in a donation context (e.g., several suggested donations and an “other” option). Lee’s 3.5-year quasi-experiment suggests that scale points do exert significant attraction effects, and that these effects vary across different donors. Lee’s model also has consequences for “laddering,” in which charities alter their requests depending on individuals’ donation histories.

Regardless of the order of choices, the information that accompanies them is critical in decision making. The third talk (Goswami & Urminsky) will show how posting the exercise equivalent (e.g., the number of minutes biking needed to burn the calories in the item) is more effective and helpful metric to consumers looking to eat healthily. One field study and two lab studies reveal that, compared to no information, including the exercise equivalent significantly reduces caloric consumption, whereas including calorie information yields only a negligible reduction.

Finally, the previous talks have examined situations in which there are many options. Mochon will begin the session by discussing the opposite problem: choice sets of one. With five studies, Mochon demonstrates people’s strong aversion to having only one option, aside from deferral. He shows that this effect is not due to the additional information a larger choice set provides, and that it disappears when the deferral option does not include further searching.

In summary, this session addresses some of the gaps and shortcomings in the choice architecture literature. The issues examined in this session have important implications for policy and societal well-being, as well as basic scientific understandings of how people make decisions. As a result, this session will appeal to researchers interested in the prosocial behavior, health psychology, judgment and decision making, as well as those interested in policy or charitable giving. This session speaks to the theme of making a difference in a number of ways: all four talks challenge the status quo in their respective literatures. Some, such as Perfecto and Lee do so methodologically, with novel methods testing the robustness of longstanding findings. Others, such as Mochon and Goswami, do so theoretically, by probing the boundaries of their respective fields.

Default Effects Under Pay-What-You-Want: Evidence from the Field

EXTENDED ABSTRACT

Pay-what-you-want pricing is a flexible pricing system which allows consumers to pay any price they want, typically including very small amounts or even \$0. A classically selfish consumer might be expected to pay the lowest price possible, exploiting the opportunity to acquire goods or services for free. However, real-world examples of online companies adopting pay-what-you-want indicate that people frequently choose to pay more than the minimum. In fact, we observe that customers are heavily influenced by suggestions offered (implicitly or explicitly) by the company. In this research, we investigate the power of these suggestions in the forms of reference prices and defaults under pay-what-you-want with a new level of precision.

Reference prices can be powerful in the context of pay-what-you-want. Some references can be implicit, such as when a company donates some of their profits to charity (Gneezy, Gneezy, Brown, & Nelson, 2010). Other references can be explicit prices: for example, when customers learn about the average price paid by others, that information eliminates the otherwise significant influence of anonymity (Gneezy, Gneezy, Reiner, & Nelson 2012). Such a reference price may contain information about what is “fair”, “appropriate”, or simply “common”. A plausible consumer approach might be to find such a reasonable cue and adjust (down) to a preferred amount. The weakest type of reference price is in the provision of a simple default. Research on default effects in various contexts suggests that a majority of people follow the default choices set by companies (Madrian & Shea, 2001; Thaler & Bernartzi, 2004; Johnson et al., 1993). By studying reference prices in the maximally flexible environment of pay-what-you-want, and by doing so through collaborating with three online companies, we can investigate the influence of reference price with precision.

To achieve this, we analyzed the sales data from three online companies: a board game company, a video game retailer, and an

ebook retailer. In Study 1, we analyzed data from the board game company's promotion of a small expansion set of cards under pay-what-you-want pricing (N=74,592). Customers saw an unexplained default price of \$5.00 on a sliding scale and told customers that it costs them \$3.00 to make and ship the cards. Both of these prices proved to have substantial effects on consumer behavior: 56.1% paid the default price of \$5, and 7.7% paid \$3, the cost to the company per product. 21.1% paid nothing, but the promotion was still quite profitable, earning over \$70,000.

Although the board game company allowed its customers to pay \$0, their product was physical and therefore difficult to pirate illegally, unlike other online goods (e.g., digital music). Perhaps the pull of piracy would overwhelm this success if the product were purely electronic or sold at a nonzero price. In Study 2, we looked at an ebook retailer that employs pay-what-you-want pricing and has both of these factors at play. The company sets a default price and each bundle features one to two additional, bonus books, which are unlocked by paying more than a set price. We find a similar pattern of payments across their four promotions (N=10,615): roughly 30% paid the default, 33% paid a lower reference price (the minimum price for bonus books), and 15% paid the minimum price (\$1).

These findings indicate that a substantial proportion of customers choose to pay a default price. Perhaps people think that the default or reference price are somewhat fair. How does a high default price perform when there are other competing reference prices? Also, what price do customers settle in the end if they are adjusting from a reference price? To answer these questions, in Study 3 we collaborated with an online video game store that sells a single computer game. Our field data set (N=44,042) includes the company's 35 pay-what-you-want promotions. The default price was \$5.00. The company also features two additional reference prices: \$1.00 and the current average price. If a customer pays \$1, they will have an access to a virtual video library to download games. When customers beat the moving average, they receive small bonus features such as game music and screensavers. Across 35 promotions, less than 3% paid the default price, 26.6% paid \$1, and 18.43% beat the average by paying \$0.01 more than the average. These results suggest that a high default price was overridden by the two other competing incentive-ridden reference prices. One of these, the moving average exposed a different peculiarity in human responses to the choice architecture: a strong magnetism towards round numbers.

We conducted two randomized field experiments in which we manipulated the default settings on the ebook retailer's site. In our first experiment (Study 4), we tested how the salience of charity as well as the default charity option influenced payments and purchase rates. We also manipulated the default price. In a 2x2x2 between-subjects design (N=3,214), we manipulated whether an option to donate to charity was put before or after the payment question, whether donating was opt-in or out, and whether the default price was \$12 or \$15. We found a large increase in donation rates when donating was opt-out (77.4% vs. 38.7%, $t(3212)=24.2$). However, much more surprising was the absence of an effect of default price on amount paid ($M=\$8.24$ vs. $M=\$8.31$, $t(3212)=0.49$). This wasn't because the defaults weren't influential, as customers were 12 times more likely to pay \$12 in the \$12 condition ($X^2=273.03$), and 5 times more likely to pay \$15 in the \$15 condition ($X^2=139.42$). The price defaults were very influential, but a higher default did not lead to a higher overall payment amount.

In our second field experiment with the ebook retailer (Study 5), we further investigated the consequences of a high reference price and the corresponding high default price. To test this, we ran a 2 (reference price: normal vs. high) x 2 (retail price: absent vs. salient)

between subjects design (N=906). The retail price (\$28.88) was about twice the other default price (\$14) and acted as the high reference price. Customers pay more when they see a higher default price ($M=\$11.63$ vs. $\$10.75$, $t(905)=-2.5$). They paid less ($M=\$10.78$), however, when they knew the retail value than when they did not ($M=\$11.60$, $t(905)=2.0$). Intuitively, the retail value should help them justify the default price and adjust down less from it. Yet, our results suggest that the retail price as a reference price helps customers to justify adjusting their price further down from it.

In summary, reference prices and defaults heavily influence consumer decisions under pay-what-you-want. People like paying in round numbers. More people choose to give and they pay more when the charity is opt-out. Depending on the other available reference prices, the high default price can produce higher payments.

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Modeling Scale Attraction Effects: An Application to Charitable Donations and Optimal Laddering

EXTENDED ABSTRACT

The charity industry is substantial (\$300B annually), expanding rapidly, and presently accounts for over 2% of US GDP. Intriguingly, individual, non-corporate giving comprises the lion's share of this total, nearly three-quarters in 2012. To obtain these individual-level donations, charities nearly universally present an "appeals scale" when contacting potential donors. In the charity sector, the appeals scale refers to a list of "scale points" (specific suggested amounts) and an "other" category, allowing the respondent to donate any amount not on the scale. Orthodox economic theory might therefore suggest that the points used on the scale "should be" irrelevant, since one can ignore them without penalty or effort. But it remains an empirical question whether, behaviorally, respondents are indeed influenced by these sorts of commonly-used scales and, if so, in what ways.

Choosing scale points well is an important decision for charities: overly high scale points can be ignored as being "outside my comfort zone", or even potentially alienate donors who feel they are being pressed for much more than they're prepared to give. Worse for the charity, overly low scale points may actually pull donations downward. Despite their widespread use, such scales seem to be designed in a one-off manner by individual charities, and to date there have been no formal models in marketing to help guide them, based on data they already possess. To that end, we develop a comprehensive model of scale attraction effects that describes in detail how each scale point 'pulls' a donor away from the latent, intended dona-

tion amount; and moreover, how the pulls of each of the points on the scale accumulate to influence the final, observed donation.

Our model is grounded in a variety of behavioral theories, mainly from the traditions of pro-social influence (Cialdini and Goldstein 2004), specific manipulations in charitable contexts (Weyant and Smith 1987, Shang and Croson 2009), the use of both internal and external referents (Mayhew and Winer 1992), assimilation-contrast (Schwarz and Bless 1992), as well as prior modeling work in charitable giving specifically (e.g., Diepen et al. 2009). This is accomplished in several stages. First, each potential donor is presumed to have some personal propensity to comply with a donation request that is either higher or lower than what they might have otherwise given; the “compliance degree” is 100% when the asked amount is the same as the intended amount (if one is asked for what one intended anyway, compliance should be perfect), and decreases with the distance between these. Second, the “pulling amount” captures how much influence is exerted by a scale point. The model intrinsically captures a “Goldilocks Effect” where asking for a bit more is likely to be successful, and asking for much more is unlikely to be, but the best course of action is somewhere in between; and we can then estimate this “optimal” ask point for each individual. Lastly, an “accumulated pulling amount” provides a number of possible mechanisms for the multiple scale points’ pulls to work together.

Using panel data from a unique 3.5 year quasi-experiment, we provide a joint account for both whether a donation is made (incidence) and, if so, its size (amount). This allows us to resolve, on a household basis, a conundrum present in all donation drives, as well as prior research: how are the act of asking for donations and the amount received statistically intertwined? The model incorporates heterogeneity across donors in scale attraction effects, and this is critical: otherwise, we would presume that every household is equally susceptible to scale attraction effects. Estimating a variety of models allows us to empirically choose, for the first time in a donation context, among previously-positated operationalizations of both internal and external reference effects.

Results suggest that scale points do exert substantial attraction effects, and moreover that these vary markedly across donors. In addition, there is a strong asymmetry in the size of pulling effects: donors are more easily persuaded to give less than more, roughly three times as much. Seasonal donation patterns are pronounced, and these too differ across the donor pool. A significantly negative error correlation (-0.387) between (latent) donation propensity and (observed) donation amount highlights the importance of accounting for unobserved correlation in these quantities, and that merely modeling donation amount alone would provide an insufficiently rich basis for charities to optimize their appeals. Regarding reference point theory, for these specific data, the “internal” referents were best captured by the average of all prior observed donation amounts; “external referents”, by including all five scale points, as opposed to a particular subset on which respondents might anchor.

One advantage of our method is the ability to conduct a “counterfactual” analysis, whereby possible appeals scale policies can be compared. We examine three of especial interest: finding an optimal request for each household, finding one for each donation “group” provided by the charity, and simply allowing people to continue at their habitual donation levels. Results suggest that, compared to “no appeal”, the “group appeal” is 24.4% better, and “individualized appeal” 27.1%, in terms of yearly expected donation amount. This in turn provides some preliminary guidance on “laddering”: how much charities should increase amounts subsequently requested of individual donors, based on their donation histories.

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Working out Consumption: Designing a Robust Information Intervention for Healthful Eating

EXENDED ABSTRACT

Providing consumers with calorie information has received a great deal of attention, as municipalities such as New York City have mandated greater disclosure and retailers (including Panera and McDonalds) now provide calorie information on their menu boards nationwide. However, tests of providing decision makers with information on the calorie content of food has yielded very mixed results (Bollinger, Leslie, & Sorensen, 2010; Elbel, Gyamfi, & Kersh, 2011; Loewenstein, 2011). Using the idea of channel factors (Leventhal, Singer, & Jones, 1965), we develop a low cost and robust mapping intervention (Thaler & Sunstein, 2008) which makes the welfare consequences of choices more easily evident to the decision maker.

In a field study conducted at the end of December and beginning of January, museum visitors (n=1127) were offered a choice of candy bars before completing an unrelated survey as a compensation for their time. The survey was about gift card preferences, and a few demographic questions were asked at the end. Visitors chose between four different candy bars whose calorie content ranged from 70 to 280 calories in increments of 70 calories (Snickers, 280; Hersheys, 210; Chips Ahoy, 140; M&Ms 70). Notably, the candy bars all disclose calories on their packaging. The museum patrons chose a candy bar from one of four boxes which either showed in large font (a) just the names of the candy bars, (b) the names and calorie information, (c) names with calories and “exercise equivalents” (e.g., number of minutes of running or biking required to burn the calories). Ordinal regression revealed that, compared to the no information disclosure condition, visitors consumed significantly fewer calories, on average, in the conditions where exercise equivalents were additionally made available (mean = 177 calories vs. 199 calories; Wald=9.4, p<.01). However, the reduction in calorie consumption was only marginally significant when calorie information alone were disclosed. The effect of exercise equivalents was robust across age, income, and gender.

The two waves of data collection in our field study provided an opportunity to contrast the effects of informational interventions with a natural experiment on goal-setting. Prior research has re-

ported that making New Year's resolutions facilitates success in goal pursuit (Norcross, Mrykalo and Blagys 2002). We find that nearly a third of our January sample made a New Year's resolution, and 80% of the resolutions were health and fitness related. In a separate initial question about general goals asked in both waves, we also find a higher rate of health goals in January than in December (73% vs. 65%, $p < .01$). However, despite the effect of New Year's on setting health goals, we find no main or interaction effect of December vs. January on the calories of the option chosen. Likewise, collapsing the December and January data, we find no direct or moderating effect of having a self-reported health goal. Participants with and without either health goals or New Year's resolutions were equally likely to take a high-calorie candy bar in the control condition, and were not differentially affected by the informational interventions.

In two additional hypothetical-choice studies we replicate the effect of the exercise equivalent information (although mere calorie information had similar effects in these studies) and find no effect of health goals or New Year's resolutions. We do find that the exercise equivalent intervention is more effective for those higher in food guilt (Cepeda-Benito, Gleaves, Williams, & Erath, 2001) or who score higher on restrained eating (Polivy, Herman, & Howard, 1988). To put it another way, higher guilt and restrained eating significantly predict lower calorie consumption when exercise equivalent information is present, but not otherwise.

Our studies provide strong evidence that providing exercise equivalents along with calorie disclosure is a robust and effective way to reduce calories in unplanned consumption opportunities. Our results highlight the need for informational interventions to be salient and interpretable, and demonstrate a surprising advantage in effectiveness of well-communicated informational interventions over spontaneous goal-setting.

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Single Option Aversion

EXENDED ABSTRACT

This work documents an effect labeled 'Single Option Aversion' where the choice share of an option increases (relative to deferral) when a competing attractive option is added to the choice set, contrary to the predictions of rational utility based models of search (Weitzman 1979), and recent work in consumer behavior on choice conflict and choice deferral (Dhar 1997; Iyengar and Lepper 2000; Tversky and Shafir 1992). A series of studies demonstrate this effect, and establish some of its boundary conditions.

Experiment 1A demonstrates the existence of single option aversion. In this study, participants were presented with a decision scenario where they were asked to imagine that they were looking to buy a DVD player. Participants in the *Sony* condition were shown a Sony DVD player, and were asked whether they would buy that option, or continue searching. Participants in the *Philips* condition saw a similar setup, except with a Philips player. Participants in the *Both* condition were presented with both options and the option to continue searching. Participants were reluctant to choose a DVD player when only one option was presented, as 9% chose to make the purchase in the Sony condition and 10% in the Philips condition. However, when both options were presented together, the choice shares of each of the alternatives significantly increased (32% chose the Sony and 34% chose the Philips; p 's $< .05$). Experiment 1B replicates this effect using the same design, but with real choices involving candy bars.

Experiment 2 demonstrates that single option aversion is not driven by the additional information available in the two option condition (e.g. Hsee et al. 1999; Moorthy et al. 1997). Rather, there is something psychologically unique about being presented with the choice between a single option and deferral. In this study, participants were asked to imagine that they were looking to purchase a camera. Three of the conditions replicated the conditions in Experiment 1. Participants were presented with either a Sony, a Canon or both of these cameras, and were asked whether they would pick one of the options available or continue searching. In the fourth condition, participants were presented with both cameras, and were asked to pick the one they preferred. Following this forced choice, they were presented with the camera they chose and were asked whether they would purchase that model, or continue searching. Thus participants in this 'single option plus comparison' condition had all of the information available in the 'both' condition, but ultimately had to make a choice from a choice set containing only one option. Replicating the prior studies, participants chose both the Canon and Sony cameras less often when presented alone than when presented together (p 's $< .01$). Importantly, participants were also less likely to pick these options in the 'single option plus comparison' condition (p 's $< .01$) than in the both condition. Thus, even holding the information constant, participants were reluctant to pick an option when the final choice set involved a single option. Interestingly, these results suggest that single option aversion doesn't just depend on the total number of options available, but also how these are partitioned. Temporarily isolating one of them can dramatically increase deferral.

Experiment 3 examines whether single option aversion occurs only when the deferral option involves further search, or whether consumers avoid single options regardless of what the deferral option is. In this study participants were asked to imagine that they

were looking to buy a new dishwasher. They were then randomly assigned to one of four conditions based on a 2X2 between subjects design. Half of the participants were presented with one option, while the other half were presented with two options. For half of the participants, the deferral option involved further search (as in the prior studies) while for the other half the deferral option involved not choosing any of the options presented. While single option aversion was replicated in the 'search' conditions, this effect was eliminated in the conditions where the deferral option did not involve search. Therefore single option aversion is moderated by the framing of the deferral option.

Experiment 4 tests whether single option aversion has any lasting effects on choice. It examines what choices participants who choose to defer in the single option condition make, once more options are added to the choice set. In this study, participants got to decide which charity received a \$1 donation. Participants in the single option condition were initially presented with the choice between donating their dollar to the American Red Cross or deferring to see what other charities were available. If they deferred, the Wounded Warrior Project was added to the choice set, and they had to decide whether to pick one of the two charities available or to continue searching. If they deferred again, a third charity was added to the choice set and they were forced to pick one of the three options. Participants in the two option condition were initially presented with both the American Red Cross and the Wounded Warrior Project, and if they chose to defer, the third option was added and they were forced to pick one of the three options. Replicating the prior studies, participants were less likely to donate their dollar to the American Red Cross when this was the only option presented than when it was presented with a competing option ($p < .05$). Importantly, participants in the single option

condition continued to be reluctant to pick an option even after the second charity had been added to the choice set. Indeed, participants in this condition were significantly less likely to donate their money (relative to those in the two options condition) to both the American Red Cross and the Wounded Warrior Project (p 's $< .05$), once this second option had been added to the choice set. Thus single option aversion can have lasting effects on choice. Once participants have been exposed to a single option and begin to search, they continue search even after more options are added.

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