Is Extremeness Aversion Driven By Loss Aversion? Contrasting Reference Point Models of Durable Product Choice

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We investigate how consumers form reference point(s) when choosing from durable products. We find that consumers use a single reference point that is adjusted to the stimuli and choice set presented. Moreover, we present empirical evidence that extremeness aversion depends on the assortment size and works independently of loss aversion.

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Is Extremeness Aversion Driven by Loss Aversion?  
Contrasting Reference-Point Models of Durable Product Choice

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EXTENDED ABSTRACT

Prospect theory, which introduced the notions of loss aversion and reference-dependent choice (Kahneman and Tversky 1979; Tversky and Kahneman 1991), has gained wide acceptance among scholars in marketing, psychology, management science, and economics. However, as Bell and Lattin (2000, p. 187) note: “it is silent with respect to the origin of the reference points.” A great deal of research investigates reference-points in product choice scenarios and finds that the reference point tends to be some adaptive function of past information (Baucells, Weber, and Welfens 2011). However, these findings are almost exclusively based on choice studies of nondurable product categories, such as FMCG-goods (Niederle et al. 2009) or financial products (Baucells, Weber, and Welfens 2011). In comparison to nondurables, durable products have much longer interpurchase-cycles (Mazumdar, Raj, and Sinha 2005), often coupled with rapid technological progress that makes comparing attribute levels of new alternatives with the previously bought product impractical or impossible. Therefore, we need to understand which reference-point mechanisms appear feasible and most likely in the background of durable product choice.

Furthermore, it is well known that context-effects often influence consumer choice (Bettman, Luce, and Payne 1998). One robust context-effect is extremeness aversion, which refers to the tendency of consumers to avoid products with extreme attribute values, often leading to preference for the middle option(s) in choice sets (Simonson 1989; Simonson and Tversky 1992). Probably the most popular account offered to explain the extremeness aversion phenomenon has been loss aversion: individuals may evaluate the options of a choice set relative to the other options, resulting in the extreme values having the biggest disadvantages (Simonson and Tversky 1992). However, while conclusive in theory, we lack empirical evidence on whether loss aversion actually may cause extremeness aversion.

In this work, we pit various choice models that are based on different underlying reference-point theories against each other to shed light on how consumers form and utilize reference point(s) when choosing from durable products. Within this reference-point analysis framework, we further explore whether framing options as losses and gains accounts for extremeness aversion and whether any potential interplay of loss and extremeness aversion depends on the choice set size. To be able to incorporate individual-specific information, we study choice data from an experimental setting using two durable product categories: laptops and digital cameras. The number of options and positions of extreme products were systematically manipulated to provide a wide range of stimuli for potential loss and extremeness aversion. Following the choice tasks, participants rated the perceived overall quality, the product importance, as well as the individual attribute levels of each presented choice option, using the self-explicated approach (Kivetz, Netzer, and Srinivasan 2004).

Our base model (base) includes only partworth utilities of the attribute levels and product relevance (these variables are part of all models). The base model is benchmarked with various models that include additional parameters to accommodate reference-dependent choice. For instance, the context-dependent reference point model (CRP) employs the mean of the presented options as reference point based on adaptation-level theory (Helson 1964). Evidently, the reference point of the CRP-model varies for each choice set, but is the same for all individuals. In contrast, the expectations model (ERP) uses the same reference point, measured for each individual through the procedure suggested by Janiszewski and Lichtenstein (1999), for all choice sets. The two RP-models are contrasted with a model based on range-frequency theory (Parducci 1965). According to range-frequency theory (RFT), perceptions of stimuli depend on the distance of the range of options and the rank of the option within a set. Thus, the RFT-model represents a multiple reference-points model as RFT implies that consumers compare one option against all options in the contextual set (Niedrich, Sharma, and Wedell 2001).

Finally, we explore extensions of all models (base, RPs and RFT) by additionally including utility components that capture extremeness aversion (models: baseE, CRPE, ERPE, and RFTE). Using hierarchical Bayes, we estimate mixed logit models that allow the impact of context-dependent components (RFT, losses, gains, and extremeness aversion) and other parameters to differ for each individual (Train 2003).

The choice model results indicate that incorporating reference-dependence parameters leads to improvement in both fit and predictive validity, which can be even further increased through the inclusion of extremeness aversion variables. Overall, the CRPE-models outperform the other models for the two tested product categories. These findings suggest that consumers use a single reference point that is adjusted to the presented choice set and stimuli in each choice situation. This reference point mechanism provides strong support for the view that preferences are often constructed rather than recalled (Bettman, Luce, and Payne 1998).

For the CRPE-model, we find significant loss-parameters (taking a classical interpretation of the Bayesian estimates) as well as significant loss aversion for both quality and price for laptops and digital cameras. Moreover, the CRPE-models provide empirical evidence for extremeness aversion, which seems to strongly depend on the size of the assortment: sometimes individuals actually appear to prefer high-end extremes in smaller choice sets according to our data. This is consistent with the notion of the polarization effect that was observed in many choice scenarios involving price-quality trade-offs (Simonson and Tversky 1992). However, when increasing the number of options in the choice sets, we find significant extremeness aversion towards both low- and high-end alternatives. We would like to highlight that these findings on the extremeness aversion patterns were fairly similar across all tested models. This implies that extremeness aversion can be present even when fully accounting for loss aversion (i.e., loss- and gain-framing) and various context mechanisms. We interpret these findings as evidence that loss and extremeness aversion are two independent behavioral phenomena and conclude with a discussion of which other accounts might provide a better explanation of extremeness aversion behavior.

REFERENCES


