

# Internal and External Reference Price Response in Brand Choice Models - A Semi-parametric Hierarchical Bayesian Approach

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## **Abstract**

Analyzing reference price (RP) response in brand choice models has a long tradition in marketing research. Here, the modeler assumes that choice is driven by deviations between observed prices and consumers' RP. In most previous research, a clear distinction was made between so-called internal and external RP response. Previous studies attempted to allow both response types simultaneously or to profile consumers regarding their RP response. However, none of these studies did fully account for asymmetric RP response (e.g., loss aversion) as well as complete consumer heterogeneity in both RP response types. Hence, we propose a brand choice model using a semi-parametric hierarchical Bayesian approach that allows for individual-level response to internal and external RP. Results show that both response types are identified in one model. Our approach reduces bias in asymmetric RP response for both internal and external RP and can therefore inform pricing strategies more effectively.

**Keywords:** *Reference price; Loss-aversion; Consumer heterogeneity*

**Track:** Pricing & Promotions