

**UNVEILING INDIVIDUAL BIASES THAT SHAPE THEIR ASSESSMENT OF
PROBABILITIES: ESSAYS ON PROBABILISTIC PRICE PROMOTIONS**

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ABSTRACT

Probabilistic promotional programs are increasingly common in contemporary marketplaces (Mazar et al., 2017; Lee et al., 2019). With the growing use of gamification in pricing and promotions, firms frequently engage consumers through mechanisms such as scratch-and-save, spin-the-wheel, and lucky-draw discounts, where reward outcomes are determined by random events (Yeoman et al., 2017; Laran & Tsiros, 2013). Prior research has demonstrated several advantages of such programs. Probabilistic discounts have been shown to increase consumer spending and engagement (Goldsmith & Amir, 2010), while also helping firms preserve the internal reference price of their offerings by avoiding consumers from getting used to the discounts (Alavi et al., 2015). Consumers have often shown preference for uncertain promotions of lesser value compared to fixed discounts of higher value (Attari et al., 2022). Probabilistic price promotions are akin to gambling as they are often associated with similar feeling of excitement, arousal and novelty that come along with gambling (Coventry & Brown, 1993; Choi et al., 2010)

Given these benefits, it is no surprise that firms are tempted to adopt probabilistic promotions extensively in recent years. Despite their widespread use, relatively less is known about how consumers form expectations in probabilistic promotional contexts. Although outcomes in probabilistic promotions are objectively identical for all eligible consumers, expectations are rarely formed in a purely rational manner (Tversky & Kahneman, 1974; Budescu et al., 1995)

Consumers often rely on subjective cues when evaluating uncertain situations (Hong et al., 2024; Reczek et al., 2014). It, becomes, therefore, essential for managers to understand how expectations are shaped in these contexts, as inflated or misalignment between the consumer's expectations and the outcome generated can lead to dissatisfaction, perceptions of unfairness, and negative evaluations for the firm (Tang et al., 2022; Li et al., 2022).

Consumers routinely exert effort in shopping and consumption, by travelling some distance for the purchase, waiting in a queue, or investing time to complete task. In addition, many promotional programs require consumers to meet explicit performance criteria, such as spending above a threshold (e.g., shopping for more than ₹10,000) or achieving a qualifying rank or score to be eligible for favours from the firm. This dissertation examines whether and how such effort and performance cues systematically influence consumers' expectations from probabilistic promotional programs, even if they are objectively unrelated to the reward

outcomes.

Across two essays, this thesis examines two distinct but related sources of expectation distortion in probabilistic promotions, that is, the effort exerted during the purchase process and performance in a task. Specifically, the two essays test whether exerting greater effort or performing better than the required threshold systematically biases consumers to expect favourable outcomes from probabilistic setting, despite knowing that their effort or performance do not impact the objective outcome.

Both essays converge on a common psychological mechanism. We examine and identify perceived entitlement to show that the distortion is not a misinterpretation of the randomness of the outcome process, but driven by motivation of deservingness owing to the higher effort or superior performance (Feather, 1999).

The first essay examines the role of effort and introduces the Earned Luck Effect. When individuals put in effort, they perceive it as a form of cost that they have borne (Smith, 1776), and evaluate outcomes on the basis of what they receive in return compared to the cost (Adam, 1965). Lay belief strongly reinforces the idea that if one puts in more effort, they are likely to get a better outcome. While this holds for situations where the outcome is causally influenced by the exerted effort (Morales, 2005; Kruger et al., 2004), this essay shows that this logic is extended even to situations where the effort doesn't directly affect the chance of success. Specifically, we show that consumers who exert greater effort in the purchase process expect more favourable outcomes from probabilistic promotions, even when the firm has no control over the same. This feeling is driven by an inflated sense of entitlement towards better treatment from the firm, after exerting more effort (Haws & Bearden 2006, Boyd & Bhat, 1998). We further identify ways to debias from the earned luck effect. Particularly we show that when individuals feel that they do not have the control over the reward mechanism, they decouple their expectation from the exerted effort (Langer, 1975). Similarly, in the presence of an explicit criteria, the exerted effort becomes instrumental to the achievement and the entitlement is driven largely by the completion of the criterion rather than the effort (Cusimano et al., 2025). Together, these findings demonstrate that effort-based entitlement systematically distorts expectations even when outcomes are explicitly random.

The second essay shifts focus from input cue in the form effort to outcome cue in the form of performance. It examines how consumers interpret probabilistic rewards after meeting performance-based eligibility criteria. Many promotional programs require consumers to meet minimum thresholds - such as spending a certain amount or achieving a qualifying score - to become eligible for a probabilistic reward (Wansink et al., 1998, Cheng & Ross, 2023). Objectively, eligibility is binary, that is, one either qualify or do not. However, this essay demonstrates that consumers do not treat eligibility as a simple cut-off. Instead, consumers who exceed the qualifying threshold by a larger margin form systematically higher expectations of probabilistic rewards than those who barely qualify (Suls et al., 2002). This phenomenon is conceptualized as the Threshold Surplus Bias. Even though rewards are allocated randomly and chance of an outcome is similar for all the qualifying participants, consumers erroneously associate superior performance with better likelihood of favourable outcomes. Importantly, this inference does not imply that consumers expect rewards beyond the stated maximum; rather, they believe better performance increases their likelihood of receiving the highest available outcome within the fixed reward range. This expectation distortion arises due to the perception of higher entitlement inferred from surplus performance, where exceeding the threshold by a greater margin is interpreted as evidence of greater merit or investment (Boyd & Bhat, 1998; Feather, 1999; 2003). The essay further identifies boundary conditions that shape this effect. We first show that perceived inevitability of performance attenuates the TSB, such that when superior performance feels inevitable and not driven by ones investment, the bias flattens (Tracy & Robins,2007). Second, when individuals use external aid; they fail to associate their achievement to themselves and thus, lack the entitlement towards superior rewards (Weiner, 1985; Kwon & Park, 2022).

Taken together, the two essays demonstrate that consumers systematically misapply effort and performance-based entitlement heuristics to probabilistic reward environments. Although effort and performance are objectively irrelevant once eligibility is achieved, they strongly influence how consumers interpret chance. This dissertation contributes to the literature on probabilistic promotions, subjective probability judgment, and entitlement by showing that expectation distortions arise not from misunderstanding probabilities, but from motivated interpretations of deservingness. Managerially, the findings highlight the importance of carefully designing and communicating probabilistic promotional programs, as mismanaged can have unfavourable outcome for the firm.

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