

Mechanism and Hints Behind the Anchoring Effect in Sales, Auction, and Willingness to Pay

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Abstract: The anchoring effect, a cognitive bias, has substantial implications in various fields, including behavioural economics. It influences individuals' assessments and choices by anchoring them to specific initial values and causing insufficient adjustments. This article explores the anchoring effect's mechanisms and its impact on B2B sales, auctions, and willingness to pay. It also offers guidance for business owners, price-setters, and auctioneers to leverage the anchoring effect to their advantage. In B2B sales, results indicate that when salespeople are informed of higher reference discounts, they tend to offer significantly higher discounts to new customers, which leads to conservatism and cause a systematic distortion in various economic contexts. This demonstrates the positive impact of reference discounts on pricing decisions, driven by a tendency to avoid risk. Auction item sequences influencing bidding outcomes. Auctions featuring more valuable items first yield higher revenues, as buyers anchor their expectations to the initial prices. Sellers can strategically position items to maximize profits, particularly when the initial auction prices are set lower than market expectations. Studies also reveal that Lower anchoring prices may decrease willingness to pay (WTP) while higher initial reference points can lead to higher WTP. Additionally, the use of "up to" in advertising discounts can positively affect WTP due to an asymmetry effect.

Keywords: Anchoring effect, Pricing, willingness to pay, pricing sequence, asymmetry effect

1. Introduction

Previous study in 2011 by Kahneman on thinking fast and slow showed the mechanisms behind the anchoring effect and divided it into two main features, initial value, and inevitable insufficient adjustment [1]. He pointed out its substantial influence in behavioural economics and other field, which is that anchoring makes people's estimation biased in a specific direction and unable to adjust to the most appropriate level. A small case from Le Boeuf and Shafir in 2006 helps explain the bias, inadequate adjustment creates friction between frustrated parents and teenagers who take pleasure in playing loud music within their living space [2]. Teenagers who try to lower the volume of extremely loud music in response to a parent's request for a "reasonable" level might struggle to distance themselves adequately from the initial loudness reference. Since the loud noise anchor comes to mind, the child starts from here and moves in a proper direction but probably halts halfway afraid of uncertainty [2]. So how is the anchoring effect reflected in real-world practice? What issues are caused by this bias? What are the insights for business owners, price takers, and setters?

Two existing explanations for it refer to uncertainty and cognitive error [1]. In the B2B sales area, Biswas and Blair in 1991 noted the important role of reference prices (anchor) in customer's internal price assessment which is correlated to their memory and rationality [3]. Hong et al in 2015 pointed out the growing importance of auctions in many economic situations, from individual decision-maker to public sales [4]. Besides, a low-price tag is often used in selling to attract customers in pricing, yet instead, it backfires and has a negative impact on their willingness to pay.

The following study aims to use three real-world applications to provide insights into the anchoring effect. Application one focuses on the anchoring effect in B2B sales. Reference points and anchors in B2B sales influence the future discounts provided to clients. This application cited a statistical method to analyze the anchoring influence on sales and demonstrate conservatism generated by anchoring which happened in the stock market. As the preceding application talks about anchoring and reference discount, application two tries to find out how anchoring works in auction sequence and previous outcome. It also provides some hints for auctioneers to increase profits. And what pricing strategy should merchant apply to make their business attractive? Application three tries to figure out how the anchors affect WTP and hint for the merchant. The asymmetry effect mechanism in anchoring is also discussed.

2. Heuristic definition

Anchoring effect is a psychological bias wherein an individual's assessments or choices are affected by a specific initial value. When people adjust away from it, their adjustment is usually insufficient. Tversky and Kahneman in 1974 indicated the definition: In many situations, people make estimates by starting from an initial value that is adjusted to yield the final answer [5]. The initial value, or starting point, may be suggested by the formulation of the problem, or it may be the result of a partial computation. In either case, adjustments are typically insufficient. That is, different starting points yield different estimates, which are biased toward the initial values. We call this phenomenon anchoring. The anchoring effect influences people's decision-making and economic behaviour. This psychological mechanism can be found in fine-art auctions, pricing, negotiation, the stock market, or anywhere else, which makes people far more susceptible than many of us would prefer [1]. Much evidence exists regarding the significance of past actions when making present or future choices.

3. Application 1: B2B sales

3.1. Methodology

The first B2B sales application shed light on how the previous anchor influences the current and future discount provided to new customers, from salesmen's perspectives. Bergers et al designed an experiment to find this out. The experiment uses *ceteris paribus* to choose a sample [6]. Only the salesman who had a right to decide the discount participated in the experiment and there were no self-interest or monetary incentives to give discounts [6]. 86 B2B salespeople were recruited in total, which refers to the sample volume. Additionally, 59.3% of the participants were aged between 25 and 34 [6]. Almost all of them have graduated from college. 97.7% of them had been full-time employees and earned around \$70000 per year [6]. Participants were divided equally and randomly into 3 groups. Group one was noticed of no news and group two and three were noticed of 8% reference discount and 26% reference discount respectively [6]. Each participant was asked how much discount they would offer to new clients. It shows that in software B2B sales, salesmen have comparatively more discount choices than in the classic industry [7].

3.2. Results

In the descriptive analysis, the highest mean (25.55) of the provided discount appears in group 3 (noticed of higher reference discount). In the meantime, the mean of groups 1 and 2 are at 3.07 and 7.93 respectively. Both groups' results are far from 0. The group informed of the low reference discount gave a 4.86% higher discount to new customers than the group without additional information. Salesmen in the group noticed that higher reference discounts give around 17.6% higher discounts to customers than group 2. The results demonstrate the positive impact of reference discounts on the pricing for new customers.

3.3. Discussion

In accordance with B2B experiment results, reference discount shows a positive relationship between previous discounts and discount amount for new customers. The amount of reference discount acts as an anchor which is also the initial value. Whereas offered discount is often insufficient. When there is no reference discount informed, the discount offered to a new customer tends to be relatively modest. This suggests that reference discounts play a role in augmenting the discounts provided. The current discount amount is anchored and leads to a systematic distortion in the direction of the reference discount, which means that there is a tendency for salesmen to set closer to the initial value [6]. The reason it points to salesmen trying to avoid risks, for example, a change in discount may need a company to alter the tag on any price presentation platform which generates extra costs. The risk of losing customers and facing potential loss is also one of the main reasons. Companies and salesmen would not be willing to change the price due to the menu costs unless the previous amount is no longer available [8]. Besides, increasing the use of reference discounts may lead to a substantial decrease in profits or even deficits [9]. Hence, the secondary adjustment will be insufficient with the unreasonable preceding discount provided. It is important to supervise and control the reliance on reference discounts continuously and cautiously. For Saler, setting a higher price anchor to consumers to increase the sequential price which aims at creating more room for discount is one of the good ways to enhance sales and profit [4].

3.4. Relavance

The Economic behaviour above can be categorized as conservatism. Anchor leads to conservatism in many economic scenarios. When the initial value is presented to households, they may intend to keep their original judgment rather than consider more new information that may be different from the anchor. Tversky and Kahneman also mentioned that when individuals are asked to assess the possibility of an event, they frequently need to factor in both the inherent probability based on general statistics and simultaneously consider evidence relevant to the specific situation [5]. An example of a household's property selling supports this. Some owners set overstated property prices much higher than average reference prices which implies their unwillingness to lose their homes [10]. It can relate to early experiences and previous financial decision habits, that is, a sense of mental loss or an act of greed. The intention of behaving conservatively to earn more from price differences accounts for higher prices. Moreover, the relation between anchor and conservatism is reflected in the stock market. Referring to the research from Hirota and Sunder in 2007, for long-term investors, stock prices gradually adjust backward to the equilibrium level determined by the fundamental values even when the prices are affected by speculators and other investors [11]. The anchor (dividend and fundamental value) leads to conservative financial behavior because investors intend to hold the stock to gain more profit from dividends and long-term investment. But for short-term speculative investors, stock prices are volatile upward or downward. The indeterminate price bubbles may appear, and backward induction fails because of losing the influence of the dividend that generates the anchoring effect.

Rather than being influenced by investors' expectations regarding dividends, prices are predominantly shaped by unfixed anticipations of future price movement, or we can say not being overly conservative [11]. As a result, the stock price level and its trajectory become uncertain. However, the magnitude of an investor's conservatism can also be affected by 'heterogenous information' or 'unusual rationality' of the investors or various dividend payment mechanisms which may result in backward adjustment difficulty [11].

4. Application 2: Auctions

If auction items' starting prices are in a sequence of £100000, £80000, £50000, and £10000, what may happen to the bidding outcome? And what if the sequence is £10000, £50000, £80000, £100000? Hong et al in 2015 anticipate that the revenue generated during a specific auction week, relative to the total estimated value, will be higher when the house featuring more valuable items conducts its auction first [4]. They found that in weeks where the initial house showcases relatively expensive paintings compared to the other house, the average sale is 8% higher. It refers to an approximately 21% rise in the sales premium. The result remains robust in 52 weeks and keeps being significant [4]. Additionally, the auction house with relatively expensive paintings going first improves the likelihood of a painting being sold by around 11%. Therefore, it is suggested that the item auctioned sequence impacts auction revenue [12]. Viglia et al mentioned in 2016: "Participants' reference price was influenced most by the first price in the sequence, which created an anchor [13]."

With the analysis above, there are insights from sellers about how to strategically position or place auctioned items to create more profits. For example, when the initial auction for a common-value item is priced lower than the normal bid. Subsequential auctions will also be lower [4]. In a declining auction sequence, these behaviors level up the seller's revenue by increasing buyers' expectations and so lead to their overestimation of value, which refers to insufficient adjustment. Or we can say declining sequence increases buyers' prospects of a deal. Therefore, to avoid being anchored by the sequence, it's better not to bid after the first high bid of a common value item [4].

In another study about auctions, the anchoring effect is found in previous successful bidding results and extra notification of past average bidding prices, which matched the influence in application 1. An experiment conducted by Holst and Hermann in 2015 talked about the influence of the anchoring effect within offline agricultural auctions [14]. Another study about art auctions also finds the presence of an anchoring effect. Holst and Hermann selected 4 different auction ways, which aim at eliminating the possibility that experiment takers are influenced by the bidding situation [14]. All the experiment takers were provided with enough money to bid and were divided into 2 groups. Each has 5 members. Group 1 was informed of nothing, and Group 2 was informed of past auction average winning bids. Each group held open and closed-sealed auctions respectively. Four envelopes with £10 in two of them were auctioned [14]. Note that anchor refers to the extra exogenous previous average winning bid and previous winning bid. According to the results, the coefficient of the previous successful bid was significant. It implied that the first successful bid outcome affects the subsequential bids. So, higher prior bidding outcomes increase continuous bids [14]. As for the exogenous factor of the previous average bid, bidders were affected by past average bidding outcomes and showed more willingness to bid below the initial value due to the unwillingness to outbid higher than the anchor.

5. Application 3: willingness to pay

The substantial influence of the anchoring effect also appears in people's willingness to pay or to accept. An exploratorium study designed by [1] discovered that when volunteers were asked about their willingness to support the protection of Pacific coast seabirds, if they were asked to donate \$5

first, their average willingness to donate was \$20. If the initial anchoring request was higher (\$400), participants would show extra willingness to accept (\$143) [1]. Tanford et al indicate in 2018 that in online hotel booking, when travel providers' lower anchoring price advertisement cannot attract consumers, instead of increasing WTP, it can reduce their willingness to purchase [15]. Tanford explained it that promoting a lower price might have the unintended consequence of decreasing the amount individuals are ready to spend [15]. On the other hand, pricing tactics incorporating a higher initial reference point could boost willingness to pay, enabling operators to command a higher rate [15]. Adaval and Wyer in 2011 also noted the reason for the cases above when people find a reliable value, they may not be willing to consider another value. Because of this, if people have considered a relatively high anchor, they will be stimulated to give a higher final answer, which causes insufficient adjustment by consumers (The premise is that the first reliable valuer is at the high end of an appropriate range) [16]. However, the influence of anchoring will be reduced if the budget targets are overly incompatible with the ceiling price (high anchor) instead of the minimum price (low anchor [15]. Therefore, another hint is discovered for price-setters. Tanford stated that individuals are inclined to offer a higher payment for lodging options that have a fixed average price compared to those with a price range [15]. Besides, providing a variety of price options or an average result in less noticeable anchoring effects, yet the willingness to pay tends to be influenced towards the lower end of the price range [15]. Tanford indicates that this refers to an asymmetric effect which relates to the limitation of the charges after the merchant offers a low anchor--people tend to adjust from a high starting point but their adjustment from a low anchor is often insufficient [15]. Therefore, there are insights for merchants. Due to insufficient adjustment generated by the asymmetry effect, merchants better use advertisement words "up to" for advertising discounts instead of "starting from" which can decrease willingness to pay. However, an insufficient amount of "up to" discount can reduce consumers' willingness to pay which requires further research.

6. Conclusion

This research provides future research on the operational mechanisms of the anchoring effect and introduces other biases and phenomena caused by it. The outcomes support the results of previous studies. In both three applications, the anchoring effect is discovered and eventually leads to insufficient adjustment. Different anchors cause conservative actions which contribute to the bias and influence the judgment of decision-makers. The bias is discovered among salesmen, price-takers, investors, sellers, auctioneers, etc. Salesmen got anchored due to uncertain risks which refers to conservatism. Insights from these suggested salesmen to increase their first anchor that can increase the company's revenue. Long-term investors are limited by dividend profit and cannot do the backward adjustment sufficiently which accounts for conservatism as well. Declining auction sequence which causes price-takers overestimation induces them to bid higher and produces more revenue for auctioneers. In addition, the way of advertising using the words "up to" increases people's willingness to pay by utilizing the asymmetry effect. This study is limited because of ignores some variables. In Application 1, the portfolio reference discount is not considered. Experience difference possessed by various salesmen is not included, as experienced salesmen depend less on previous discounts. In the case of online hotel booking, more data-based analysis about customers' acceptable budget ranges is required.

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