The evolution of behavioral economics

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Abstract:
Decisions can be impacted by various biases and misleading information. Classical economics, as suggested by Adam Smith, posits that everyone behaves rationally during economic activities to satisfy their best interest and utility. However, in reality, we may make decisions emotionally, whether ordering in a restaurant or investing in the stock market. In this context, behavioral economics began to emerge in the world of economics.
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In our daily lives, our decisions can be impacted by various biases and misleading information. Classical economics, as suggested by Adam Smith, posits that everyone behaves rationally during economic activities to satisfy their best interest and utility. However, in reality, we may make decisions emotionally, whether ordering in a restaurant or investing in the stock market. For example, why do people often avoid or delay investing in 401(k)s or exercising, even if they know doing those things would benefit them? Why do gamblers risk more after winning and losing, even though the odds remain the same, regardless of "streaks"?

By posing questions like these and identifying answers through experiments, behavioral economics considers people as human beings subject to emotion and impulsivity and influenced by their environments and circumstances (Witynski, Max). In this context, behavioral economics began to emerge in the world of economics. To provide a precise definition, 'Behavioral economics' is the catch-all term for studies of the behavior of individual decision-makers that appears, on the face of it, to be at odds with the behavior that would be predicted by mainstream economic models in which individuals act rationally to maximize their material gains (Wright, 2015). Behavioral economics encompasses several guiding principles that dictate the themes within the field. Framing, for instance, is the principle of how something is presented to an individual. This concept presents a cognitive bias in that an outcome may be determined based on the structure of how something has been presented. Another principle is loss aversion. Behavioral economics is rooted in the notion that people do not like losses. People are loss-averse to the point that an economic outcome of one negative financial value outweighs the emotional toll of the same financial value but positive. For example, some people feel that there are much stronger negative emotions associated with losing a $20 bill than finding a $20 one on the ground. Although heuristics is complicated, humans tend to make decisions using mental shortcuts instead of long, rational, optimal reasoning (Witynski, Max). These are just some of the biases and principles in behavioral economics that will contextualize my discussion of anchoring and its application in real-world business activities.

The problem with anchoring is that individuals base their initial ideas and responses on one piece of information and make changes driven by that starting point. This phenomenon doesn't only exist when given particular data and numbers in business activity but also when forming a first-hand impression. This means that the key problem of anchoring is that people focus on the starting point but ignore the subsequent procedures. A precise definition is that "In many situations, people make estimates by starting from an initial value that is adjusted to yield the final answer. 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. Different starting points yield different estimates, biased toward the initial values. We call this phenomenon anchoring" (Tversky & Kahneman, 1974).

So, why does anchoring matter so much in our daily lives? It's because anchoring is a human psychological nature that frequently exists in our daily lives. When judging stimuli along a continuum, it was noticed that the first and last stimuli were used to compare the other stimuli (this is also referred to as "end anchoring") (Sherif et al., 1958). Anchoring has been reported both in numerical estimation and non-numerical estimation. A typical bias in numerical estimation can be found in the estimation of complex calculations. Amos Tversky and Daniel Kahneman first theorized the anchoring and adjustment heuristic. In one of their first studies, participants were asked to compute, within 5 seconds, the product of the numbers one through eight, either as $1 \times 2 \times 3 \times 4 \times 5 \times 6 \times 7 \times 8$ or reversed as $8 \times 7 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1$. Because participants

did not have enough time to calculate the full answer, they had to estimate their first few multiplications. When these first multiplications gave a small answer – because the sequence started with small numbers – the median estimate was 512; when the sequence started with larger numbers, the median estimate was 2,250. (The correct answer is 40,320.) As for non-numerical estimation, a conjunctive event is the probability that all simple events occur successfully. Take gambling as an example: "drawing a red ball 7 times in a row, with replacement, from a bag containing 90% red and 10% white balls." In this case, the simple event draws a red ball, while the conjunctive event draws a red ball seven times in a row. How do we use anchoring to estimate conjunctive events? The probability of the simple event is the anchor, while the probability of the conjunctive event is lower, so we adjust downwards. People may focus only on the initial data, 90 percent, ignoring the subsequent procedures. As a result, insufficient adjustment leads to overestimating the probability of conjunctive events. Another situation is the disjunctive event, which is the probability that at least one out of n simple events occurs successfully. Take a similar example of gambling: "drawing a red ball at least once out of 7 attempts, with replacement, from a bag containing 10% red and 90% white balls." In this case, the simple event is drawing a red ball, but now the disjunctive event is drawing a red ball at least once out of 7 attempts. How do we use anchoring to estimate disjunctive events? The probability of the simple event is the anchor, while the probability of the disjunctive event is higher, so we adjust upwards. People may focus only on the initial data, 10 percent, ignoring the subsequent procedures. Consequently, insufficient adjustment leads to underestimation of the probability of disjunctive events. In this case, anchoring impacts our estimation of the chance of a particular event happening in our daily lives.

In real-world applications, anchoring can play an important role. When a seller holds a negotiation and a buyer about a good's price, both parties can use anchoring effectively to gain more interest. For instance, although negotiators can generally appraise an offer based on multiple characteristics, studies have shown that they tend to focus on only one aspect. In this way, a deliberate starting point can strongly affect the range of possible counteroffers (Tversky & Kahneman, 1992). The process of offer and counteroffer results in a mutually beneficial arrangement. However, multiple studies have shown that initial offers have a stronger influence on the outcome of negotiations than subsequent counteroffers (Kristensen & Garling, 1997). That is to say, in the negotiation process, anchoring serves to determine an accepted starting point for the subsequent negotiations. When one side states their first price offer, the (subjective) anchor is set. The counterbid (counter-anchor) is the second anchor (Stefanie & Peter, 2019). A study experiment showcases the power of anchoring by observing students and real-estate agents estimating the value of houses. Both groups were shown a house in this experiment and given different listing prices. After making their offer, each group was then asked to discuss what factors influenced their decisions. In the follow-up interviews, the real-estate agents denied being influenced by the initial price, but the results showed that both groups were equally influenced by that anchor (Northcraft & Neale, 1987). Moreover, anchoring not only serves as a significant rule in estimating the value of a good but also greatly impacts the estimation of the scale and precision of a good. The statement is that a given large-scale value leads to large-scale adjustments of the price offering in the next negotiation. In contrast, a given small-scale value leads to small-scale adjustments of the price offering in the next negotiation. In the experiment, participants read an initial price for a beach house and then gave the price they thought it was worth. When a general, seemingly nonspecific anchor (e.g., $800,000) is given, participants with a general anchor adjusted their estimated value to $751,867. In contrast, when a more precise and specific anchor (e.g., $799,800) is given, participants with a non-general anchor adjusted their estimated value to $784,671, adjusting the value more than those who were given a precise anchor ($751,867 vs $784,671) (Janiszewski & Uy, 2008). In other words, the theory can be expanded to everyday price negotiation by the seller and the buyer. When a good is listed with a general price of $20, customers are more likely to offer the price at $18 or $19, but when a non-precise price of $19.90 is given, consumers are more likely to offer the price in a smaller scale at $19.80 or $19.70.

In addition, aside from negotiations between sellers and buyers, anchoring also serves to help businesses earn more revenue. To provide a brief introduction, enterprises design and set anchor values for consumers to entice them to buy their products. When persuading consumers to purchase a particular product, sellers often influence consumers' price perception by anchoring a high reference price, which becomes an anchor value (Merb & Proeger, 2014). In most restaurant menus, different dishes are sorted according to the prices of products, from high to low (Yang & Chang, 2011). In this case, the highly expensive dishes are an anchoring point at the top of the menu. Consumers might expect that all the dishes are as expensive as the top ones when they see them, so they will be more willing to order the cheaper dishes in the middle and at the bottom, judging the general price to be cheaper than expected. As a result, customers'

willingness to order more dishes increases (Lazear et al., 2006). Another situation is when business owners use the decoy effect to influence a customer's choice of goods. To provide a precise definition, in marketing, the decoy effect (or attraction effect or asymmetric dominance effect) is the phenomenon whereby consumers will tend to have a specific change in preference between two options when also presented with a third option that is asymmetrically dominated (Huber et al., 1982). Take the example of sales of smartphones with different consideration sets: in the experiment, lower prices and higher storage are judged as good attributes. When set 1, A $400 300GB B $300 200GB, and set 2, A $400 300GB B $300 200GB C(decoy) $450 250GB are given, without C, different people may choose different options A and B based on different good attributes for its low price or larger storage. When C is given, the decoy C is more expensive than A and B but has more storage, albeit less than A, making A a dominant option with both better attributes than C, while B is partially better than C. This makes the share of A increase compared to the absence of C. Another comparison is set 1: A $400 300GB B $300 200GB, set 2: A $400 300GB B $300 200GB D(decoy) $350 150 GB. Without D, people may choose options A and B based on different good attributes for its low price or larger storage. When D is given, the decoy D is both smaller than A and B but has a lower price compared to A, making B act as a dominant option with both better attributes than D, while A is partially better than D. This makes the share of B increase compared to the absence of D. In other words, businesses can sell more of the goods they want to sell by deliberately setting a decoy third choice to make another product more appealing based on different good attributes. Still, for restaurants, when they want to sell set meals, prices of different meal components serve as anchoring; the set meal is cheaper than ordering separately. This makes the set meal attractive, increasing people's willingness to buy the set meal.

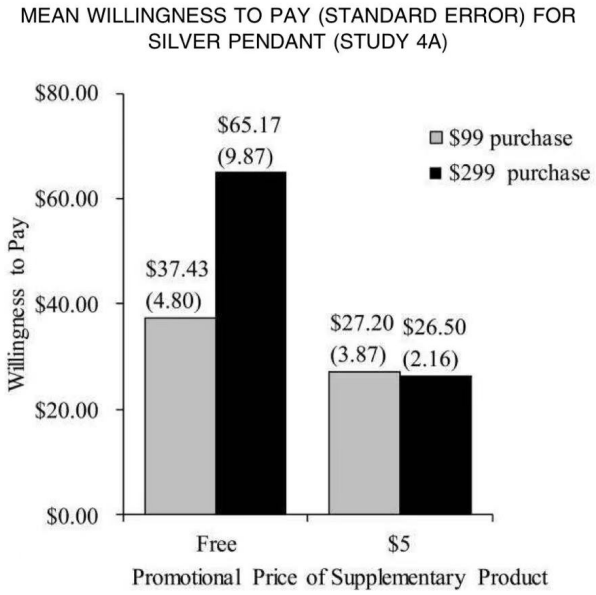
Anchoring effect can also be linked to the free offer strategy businesses use. A free offer is an effective strategy in sales promotion because it creates brand awareness and encourages customers to try the goods. Firstly, free offers of goods or services have been tested to prove that they effectively allow customers to try a product and create brand awareness for a new brand (Belch & Belch, 1998). It seems that people always enjoy the feeling of getting a product at no expense (Scott, 2006); therefore, a free offer can improve customers' perceptions of the goods and make them more willing to buy it (Hamm et al., 1969), and simply trying a brand can be effective on future decision making (O'Guinn et al., 2003).

Based on brand awareness, anchoring can be used to increase people's estimation of the value of a product with a free offer, thus demanding more in future sales after the free offer. Adaval and Wyer (2011) not only give a reference of a new price given but also inspire thoughts like features matched with the anchor (Strack & Mussweiler, 1997; Tversky & Kahneman, 1974). However, people may doubt whether a free offer of a product devalues the estimation of the product's value and quality. At the same time, it is more effective than a low-price promotion (Shampanier et al., 2007). When given an anchor value, the low-price offer, people may estimate based on the low-price offer (Strack & Mussweiler, 1997; Tversky & Kahneman, 1997). However, the treatment and perception of people's understanding are completely different between zero and nonzero numbers, resulting in a significant difference between small and zero numbers (Kahneman & Tversky, 1979; Palmeira, 2011; Shampanier et al., 2007). Chandran and Morwitz (2006) also agree that a free offer is more effective than an equal amount of discounting as customers' attention or concern about other factors of the products may be distracted. As a result, a free offer strategy is more effective in maintaining the expectations of customers than a low-price offer (Palmeira & Srivastava, 2013).

As studies suggest that people have more positive associations with free offers than low prices (Shampanier et al., 2007), it's arguable that customers may have a higher rate of promotion score and better quality estimation for the product being offered for free than at a low price. In the survey, 200 US people in the age range of 18-67, with a median age of 28 years old and 67% males, were recruited through Amazon's Mechanical Turk to participate in the survey of a $6 toothbrush being offered for free, $0.25, and $1. The results show a mean of 4.54 out of 5 for the free offer, respectively 0.29 and 0.42 points higher than $0.25 and $1 offers, while the results of quality estimation of the free offer are the lowest, at 4.69, lower than the $0.25's 5.08 and $1's 4.90. Customers probably are unaware that the promotion price can influence their product value estimation (Palmeira & Srivastava, 2013). However, the promotion itself is still effective in terms of scores.

Another argument is that the customers use different anchors to estimate the value when being shown a free offer product and a low-price promotion offer. Along with the paper studying the effect of price on willingness to pay (Adaval & Wyer, 2011), there is an anchoring process when people estimate the value of the supplementary product. Normally, when the price of the supplementary product and focal product are both given, the customer uses the promotional price of the supplementary product as an anchor because it is the most accessible and relevant

information. However, when the supplementary product is given away for free, the price of the focal product acts as an anchor to estimate the willingness to pay for the supplementary product. The low promotion price serves as an anchor during the promotion, but the value of the focal product becomes the anchor with a free offer (Raghubir, 2004). Palmeira and Srivastava's survey also asked 151 Australian residents' expectations of the value of a silver pendant for free or $5 after buying a minimum amount of $99 or $299 in a jewelry store. The results are as shown: the free offer again is more effective in terms of value estimation compared to low price ($37.43 and $27.2 for a $99 purchase, $65.17 and $26.50). However, as the argument suggests, people who buy the jewelry for $299 pay much more than those $99 buyers, implying the effectiveness of the anchoring effect of the focal product.



In the application, the free product can be thought to be linked with high-quality products and relatively more expensive ones in its category. Take another example of giving away wine for first-class passengers on a plane. In this case, the price and quality of the wine are thought to match the price of a first-class ticket. The reasoning is that the first-class ticket price creates an expensive impression, making high prices more accessible (Strack & Mussweiler, 1997). As customers have no price information about the product, the ticket price acts as an anchor value for customers to estimate the value of the wine. In this case, the supplementary product will not be devalued with a high anchor value product given.

In conclusion, anchoring matters significantly in our daily lives, impacting business activity, and businesses can use it along with the decoy effect, free offers, and negotiation between buyers and sellers.

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