Analyzing the Impact of Anchoring Bias on People in Economics Through Examples

Wen Qi

School of Finance, City University of Macau, Macau

F22090106921.cityu.mo

Abstract. Anchoring bias is a cognitive bias observed when individuals overly depend on the first piece of information they receive, known as the "anchor," when making decisions or estimations. Despite receiving new information, people frequently do not adjust their initial judgments sufficiently, resulting in biased conclusions. This bias has been extensively studied since its identification by Amos Tversky and Daniel Kahneman in the early 1970s. In the context of finance, anchoring bias impacts investment choices and assessments of asset values, potentially leading to suboptimal investment strategies and misjudgments about fair market values. For instance, if an item is initially priced high and then discounted, consumers may perceive the discount as a good deal, irrespective of the item's intrinsic value. Even in macroeconomic forecasts, anchoring bias is evident as analysts incorporate additional relevant information beyond just anchoring on past data, suggesting a complex decision-making process. Understanding anchoring bias is essential as it aids in developing strategies to mitigate its negative impacts, improving decision-making processes. It also contributes to the creation of more accurate pricing models and market forecasts, enhancing financial advice and market efficiency. Research into anchoring bias offers insights into how initial information can distort thinking and lead to irrational decisions, providing valuable knowledge for policymakers, businesses, educators, and individuals aiming to make more informed decisions.

Keywords: Anchoring bias; Psychology; Behavioral economics.

1. Introduction

Anchoring bias is a key concept in cognitive and social psychology, referring to the tendency of individuals to place excessive weight on the first piece of information they encounter (the "anchor") when making decisions or estimating values. This can result in biased judgments, as people often fail to adequately adjust their perceptions even when subsequent information indicates that the initial data is inaccurate or irrelevant.

when anchoring bias happens, people use a starting point, called the anchor, when making decisions. As new information comes in, people adjust from this starting point, but their final decision is often still influenced by the original anchor.

If an item is initially priced at $500 and then reduced to $300, consumers might perceive this as a good deal because they use the higher "anchored" price as a reference point.

In the realm of financial decision-making, anchoring bias plays a significant role. When individuals make investment choices or evaluate the value of financial assets, they often rely on the first piece of information they come across as a reference point or "anchor." This anchor could be a past price, a recommended price, or any other initial figure that shapes subsequent evaluations and decisions. In finance, anchoring bias can lead to suboptimal investment strategies and incorrect assessments of the fair market value of stocks, bonds, and other securities.

Studying anchoring bias is important because it helps us understand how cognitive biases impact financial markets and individual investors' behaviors. By recognizing the influence of anchoring, financial professionals and researchers can develop strategies to mitigate its negative effects and improve decision-making processes. Understanding anchoring also aids in the development of more accurate pricing models and market forecasts, contributing to better financial advice and more efficient market operations.

For example, in the realm of online shopping, the anchoring effect plays a significant role in shaping consumer behavior. Consider the case of an item listed with a "suggested retail price" (SRP)

or "manufacturer's suggested retail price" (MSRP). Consumers often use this figure as a reference point for the value of the product. If the SRP is set high, then any discount from that level makes the deal seem more attractive, regardless of whether the SRP was inflated to begin with. A real-world example of this phenomenon can be seen on websites like Amazon, where products may be listed with a high original price followed by a discounted price, making the final price seem like a great bargain.

In financial markets, anchoring can lead investors to make suboptimal decisions. For instance, if an investor buys a stock at a certain price, they might anchor their expectations to that purchase price. When the stock fluctuates in value, they may be reluctant to sell at a loss, even if it would be a rational choice based on new market information. This behavior can be observed during market downturns, when some investors hold onto losing positions too long, hoping to break even rather than accepting a smaller loss early on.

In political contexts, anchoring can shape public opinion. For example, during election campaigns, candidates' initial statements or campaign promises can become a reference point for voters' expectations.

Research on anchoring bias can help people understand how this initial information distorts their thinking and leads to irrational decision-making. By revealing the mechanism behind this bias, researchers can develop strategies to mitigate its impact. This knowledge is valuable not only for decision makers but also for enterprises, educators and individuals seeking to make more informed decisions.

The study of anchoring bias is rooted in the understanding that initial pieces of information can disproportionately influence decision-making. This phenomenon has significant implications for various fields, including economics and real estate. The research by Lambson, McQueen, and Slade provides compelling evidence of the anchoring effect's presence in the real estate market, specifically in the context of out-of-state buyers purchasing apartment complexes in the Phoenix metropolitan area [1].

During the period examined (1991 to 2001), the researchers analyzed a dataset of nearly 3,000 apartment transactions, of which about half involved out-of-state buyers. The dataset includes a variety of variables, such as property size, age, amenities like covered parking, clubhouses, and laundry facilities, as well as atypical motivational variables like whether the buyer is a REIT or involved in a 1031 tax-deferred exchange. After excluding observations with missing data and those with questionable price information, 2,854 observations remained for analysis. they found that these buyers paid a statistically significant and economically meaningful premium, averaging around 5.61% more than in-state buyers. This translates to a significant amount for typical transactions, highlighting the substantial impact of anchoring bias on real estate transactions.

The anchoring effect in real estate is particularly pronounced when buyers are accustomed to higher real estate prices in their home state and enter the Phoenix market with a biased belief system. Such buyers may set a higher reservation price when shopping for an apartment complex, believing they have found an undervalued property and thus shortening their search. This can lead to overpayment, as the initial price anchor influences the final transaction price.

Understanding anchoring bias is crucial for both buyers and sellers, as it can help mitigate its effects and lead to more informed decision-making. For instance, knowing that out-of-state buyers may be more susceptible to anchoring can help sellers set realistic listing prices and assist buyers in conducting thorough market research before making offers.

Among the research on anchoring, Tversky et al., and Epley et al explain it from the perspective of insufficient adjustment, summarizing this mechanism as the "anchoring-adjustment heuristic model [2]." However, the process of insufficient adjustment has been questioned in later studies. Mussweiler et al disputed the critical role of the adjustment process in generating the anchoring effect, arguing that even without an adjustment process, the anchoring effect still occurs [3]. Many recent studies have proposed the "selective accessibility model" to explain the mechanism behind the formation of anchoring effects [4]. This view suggests that people assume the size of the anchor is a

reasonable value by default and then seek various reasons to justify this belief. In this process, they are often influenced by confirmation bias and availability bias.

This paper is an overview paper, using the research method of case analysis, through the analysis of previous research cases, summarizes the impact of anchoring deviation on buyers in economics.

2. The Influence of Door Numbers on Property Appraisals

A study by Burak Ünveren and Kazım Baycar provides a unique historical perspective on anchoring bias by examining the 1875 land registry survey in Istanbul [5]. The researchers aimed to determine whether real estate appraisals from this survey were systematically influenced by irrelevant information, a hallmark of anchoring bias—a cognitive bias where people rely too heavily on the first piece of information they receive. Given that these appraisals were pivotal in setting property taxes, the presence of anchoring bias could have had significant legal and financial implications.

The 1875 survey was launched to settle property ownership disputes and enhance tax revenues from real estate. Surveyors had three main tasks: assessing property values and setting taxes, documenting the physical characteristics of the properties, and updating door numbers. The researchers hypothesized that these tasks might introduce systematic errors, specifically anchoring, into the property valuations.

By analyzing the 1875 survey data, the researchers investigated the relationship between property valuations and door numbers. After controlling for factors such as rental prices, size, location, number of rooms, building materials, and type of structure, they found a statistically significant positive correlation between property valuations and door numbers. For example, two adjacent rental houses with identical physical attributes and equivalent rental prices would likely receive different appraised values based solely on the difference in their door numbers, with the property having a higher door number being valued higher.

To ensure that door numbers were not merely serving as proxies for other unobserved variables influencing market value, such as the age of the building or its location, the researchers used rental prices as a proxy for market value and adjusted for it in their regression analysis. They also conducted a visual analysis using 1904 street maps of Istanbul created by Goad E. Charles and applied statistical methods to test for correlations between door numbers and potential unmeasured variables. Both the visual inspection and statistical tests failed to reveal any significant associations between door numbers and factors like building age or location value.

The researchers concluded that a 100% increase in the door number, holding all other factors constant, resulted in a 10-25% increase in the appraised value. This finding suggests that the impact of door numbers on real estate appraisals lacks any logical, economic, or structural basis. The researchers interpret this as incidental anchoring, indicating that unrelated data influenced judgments without any explicit instructions linking value and door numbers. This aligns with experimental findings on incidental anchoring in real estate appraisals, where appraisers' assessments were affected by the last three digits of their phone numbers.

This study contributes to the literature by providing the first empirical evidence of incidental anchoring in a real-world context. Initially described by Wilson et al. as "basic anchoring," this phenomenon shows that psychological biases affecting asset valuation are not limited to modern settings but have existed throughout human history. The research also highlights the challenges of identifying cognitive biases using real-world data, as opposed to the controlled environments of experimental studies.

3. Anchoring Bias in Recall Data from Smallholder Farmers

An additional application highlighting anchoring bias within the realm of economics stems from the research conducted by Susan Godlonton, Manuel A. Hernández, and Mike Murphy. Their study focused on the anchoring effect in recall data gathered from small-scale farmers in Central America

over a span of three years [6]. The primary objective was to assess if participants relied on their most recently provided figures as a mental shortcut when remembering past data while accounting for the values they had previously reported.

The investigation utilized a distinctive longitudinal survey dataset, encompassing smallholder farmers from four Central American nations: El Salvador, Guatemala, Honduras, and Nicaragua. This dataset comprised responses from 554 individuals who were beneficiaries of a specific project, with surveys conducted annually over a three-year timeframe. The survey captured details about the respondents' socio-economic traits, family structure, income and employment status, asset ownership, spending habits, and quality of life metrics.

To gauge the presence of anchoring bias, the researchers juxtaposed the recalled figures for income, wages, and working hours against the actual reports made at the time. It emerged that the recalled figures tended to gravitate towards the most recently reported numbers. Notably, this bias was more evident in cases of negative shifts in tangible metrics such as income and working hours, as well as in positive shifts in intangible metrics like personal satisfaction and overall well-being.

The extent of the anchoring bias was measured by the discrepancy between the recalled data and the contemporaneous records. For example, the anchoring bias for monthly household income varied from 2.6% (for two-year-old recalls) to 9.8% (for one-year-old recalls) relative to the current report. In terms of monthly per capita household income, the anchoring bias fluctuated from 2.2% (for two-year-old recalls) to 11.3% (for one-year-old recalls) compared to the current report.

These outcomes indicate that anchoring bias poses a considerable challenge in recall data, especially when individuals are required to remember information spanning extended periods. The observed anchoring bias emphasizes the necessity for prudence when utilizing recall data in economic studies and highlights the critical role of gathering concurrent data to corroborate recall-based responses.

4. Anchoring Bias in Macroeconomic Forecasting

The last application exploring anchoring bias within the realm of economic forecasts stems from the research conducted by Dieter Hess and Sebastian Orbe [7]. Their study delved into the anchoring bias present in macroeconomic survey forecasts, revealing that although this bias was statistically significant, correcting for it did not enhance forecast accuracy. By breaking down the anchoring bias test statistic, the authors uncovered that the test had its own biases. Specifically, the test overlooked the potential that macroeconomic analysts might utilize a broader set of information than what the test accounted for, leading to skewed outcomes.

The study involved analyzing 23 distinct macroeconomic indicators, such as Consumer Confidence (CC), Initial Claims (IC), and Nonfarm Payrolls (NFP). It was found that anchoring bias was statistically significant in around two-thirds of these cases. For example, in the case of factory orders, the anchoring bias coefficient stood at about 0.04, indicating that analysts attributed roughly 4% weight to the previous month's data and 96% to the unbiased forecast. Conversely, for consumer confidence (CC), the coefficient suggested that both the unbiased estimate and the latest actual data were given nearly equal weight, implying that analysts relied on an average of historical data rather than a singular point as an anchor.

To delve deeper into the extra information that analysts factored in beyond historical data, the authors examined the residuals of the forecasts, serving as a proxy for the additional information element. They discovered that specific indicators, such as the Conference Board Consumer Confidence (CC), the Institute for Supply Management (ISM), and Nonfarm Payrolls (NFP), played a particularly crucial role. For example, the CC indicator helped explain the additional information component in 9 out of the 23 cases. Overall, the additional macroeconomic data explained between 7.0% (Consumer Price Index, CPI) and 81% (Personal Consumption Expenditures, PCE) of the variance in the additional information component.

These findings underscore the significance of incorporating a broad spectrum of information when generating macroeconomic forecasts. The anchoring bias seems to stem from the utilization of supplementary pertinent information that extends beyond mere reliance on past data. This indicates that anchoring bias is not just a cognitive flaw, but a manifestation of the intricate decision-making processes analysts employs when predicting macroeconomic indicators.

5. Future prospects of anchoring effect

Anchoring bias is a cognitive bias that significantly influences decision-making across various domains. This bias occurs when individuals overly rely on the first piece of information they receive (the "anchor") when making judgments or estimations. Even when new information becomes available, people often fail to adjust their views sufficiently, leading to biased judgments.

The initial price of a product can significantly influence consumers' perceptions of value. Consumers tend to use the initial price as a reference point, which can lead to irrational purchasing decisions.: If an item is initially priced high and then goes on sale, consumers might perceive the sale price as a good deal, regardless of the actual value.Investors often rely on the first piece of information they encounter, such as the purchase price of a stock, as a reference point. This can lead to suboptimal investment strategies and misjudgments about the fair market value of securities.Two neighboring houses with similar features might be appraised differently due to differences in their door numbers, impacting legal and fiscal implications.

The study of anchoring bias can help people understand how the initial information distorts their thinking and leads to irrational decision-making. Researchers and practitioners can develop strategies to mitigate the negative impact of anchoring bias, so as to make more informed decisions. Understanding anchoring is also helpful in developing more accurate pricing models and market forecasts, more effective market operations and better financial advice.

6. Conclusion

Anchoring bias, where initial information disproportionately influences decisions, affects various domains, including consumer behavior, investment choices, and macroeconomic forecasting. Studies reveal that this bias can lead to irrational purchasing decisions, suboptimal investment strategies, and skewed macroeconomic predictions. However, understanding anchoring bias can aid in creating more accurate pricing models, improving market forecasts, and guiding better financial advice, recognizing the role of comprehensive information sets in decision-making processes is crucial for mitigating the negative impacts of anchoring bias.

Additionally, while the paper mentions the anchoring-adjustment heuristic model and the selective accessibility model, it does not critically evaluate these theories or discuss any alternative frameworks. Future research could focus on the cross-cultural aspects of anchoring bias, the development of more effective strategies to counteract its effects, and exploring its implications in fields such as education, health care, and public policy. Moreover, longitudinal studies could provide insights into how anchoring bias evolves over time and whether repeated exposure to anchoring scenarios leads to improved adjustment abilities.

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