

Applications of the Status Quo Bias in Consumer Rationality, Predictive Analytics, and Medicine

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Abstract: The status quo bias is a heuristic that indicates people are more likely to stick with the default option and not willing to make changes even if making the change is more beneficial when they are making choices, and the status quo bias gets more robust when there are more options, or the new choices appear to be more intricate. This heuristic dramatically influences people's behavior while making choices, so it's essential to know how it modifies people's choice-making strategy in different markets to eliminate possible errors and make more precise predictions. Based on previous research and studies, this article explains the basic concept of status quo bias and discusses three applications of status quo bias in three different fields. The first application discusses the connection between consumer rationality and the status quo, which indicates that knowing the effect of the status quo helps companies to know better the consumers' willingness to switch to alternative options. The second application indicates that the status quo bias makes people underestimate the interest rate change in bond markets. Finally, the third application shows that the status quo bias helps the governments to enact better policies to encourage more organ donors.

Keywords: consumer rationality, predictive analytics, medicine, status quo bias

1. Introduction

Status quo bias (SQB) means that decision makers have an over-preference for options that do not change the previous or current state, while ignorance bias means that decision makers have over-preference for options that do not require action. The SQB is known as a cognitive bias where people have a strong preference to their current state or things they have. Samuelson and Zeckhauser coined the term [1]. They use a typical expected utility maximization paradigm to show that consumer decisions will appear more inconsistent than predicted if the significance of the status quo effect is neglected in their study, which highlights the significance of the status quo effect. They claim that "Several experiments connected to decision-making reveal that individuals disproportionately adhere with the status quo" in their book SQB in Decision Making from 1988 [1]. Data on faculty members' retirement and health plan choices show the significance of the SQB in crucial choices because it goes against conventional wisdom and has a big impact on numerous economic behaviors. SQB is an important factor affecting investor decision-making, and existing research mainly uses prospect theory to explain it. Framing effects, investor sentiment, and information structure play important roles in investor SQB. Therefore, it is crucial to study the effect of this heuristic to increase economic

efficiency and help buyers and consumers make better economic decisions than without. Much research has focused on the link between SQB and apps. The following paragraphs evaluate previous studies about the status quo heuristic and contain three applications in different fields, and they put together some of the works from previous scholars in the fields described to shed light on the future studies related to the SQB and its applications. In terms of consumer behavior, with the development of live-streaming e-commerce, many consumers have shifted from shopping from traditional e-commerce platforms to now shopping from live-streaming e-commerce platforms. Under the background of the coexistence of traditional e-commerce platforms and live e-commerce platforms, consumers' willingness to transfer may hide huge risks and extraordinary opportunities for merchants. In terms of practice, this paper can help online medical practitioners better understand customers, analyze the resistance in the traditional and online replacement process based on the obstacles to the adoption of the online medical model, and provide a reference for the development of the service medical industry.

2. Literature Review

The term 'cognitive bias' was first introduced by Tversky and Kahneman and describes people's flawed decision-making strategies [2]. Kahneman and Tversky elaborate on the effectiveness of the status quo effect. This abnormal phenomenon is related to the reference point dependency when people make decisions [2]. One importance to be noticed is that the potential losses caused by this effect outweigh possible gains. Also, active decisions are perceived to cause more loss than inactive decisions [3,4]. These early attempts clarified a purpose for studying SQB. Research has been devoted to many fields, one of which is to prove the presence of the SQB when consumers make decisions or investment decisions [5,6]. According to Gubaydullina, Hein, and Spiwoks, the SQB significantly affects how well people predict interest rate movements in bond markets [7]. Johnson and Goldstein also conclude that SQB affects the rate of whether people choose to be organ donors [8]. Those three fields are significant and representative in this modern society. Most people are involved with them. By analyzing the three applications and putting the result together, a better explanation and understanding of the SQB can be obtained, and people can thus know and counteract better to eliminate and avoid the negative influence and consequences brought by this bias.

2.1. Application One - Status Quo Effect on Consumer Rationality

The status quo effect has been proven to affect consumer rationality significantly. Consumer rationality refers to how people make choices based on their preferences in an ideal presumption that they will always choose the alternative that they prefer the most and brings them the most utility, and the choice that is not the best is irrational. However, the truth is that people's economic rationality might be limited, consumer decisions might be biased, and the status quo effect might generate severe errors in the valuations of goods and services. Moreover, it contradicts the traditional economic theory that rational consumers maximize utility overall choices, so studying the status quo effect's application is vital to understand better and predict consumer valuation and behavior.

In the gas and electricity market, people are usually offered options with different service reliability (i.e., options with different duration and frequency of outages). Each option will have a corresponding price to its reliability (the more reliable, the fewer outages, and the more expensive). Therefore, consumers are presumed to have a reasonable willingness to accept (WTA) when they are to downgrade their service plans and willingness-to-pay (WTP) when upgrading their plans. The disparity between WTA and WTP is prominent when people are unfamiliar with the goods or services, but it declines and approaches zero when people value familiar goods and services.

Based on an analysis conducted by Hartman, Doane, and Woo, the SQB has a notable effect on people's behavior when making market decisions [5]. Customers' willingness to accept a further power outage in terms of money is represented by the WTA value, while their willingness to pay to prevent more power outages is shown by the WTP value. Each customer has six options that reflect varying service reliability levels, and one option was designated as their current service contract (their status quo). They calculated the compensating variations that made the customers indifferent between particular options and found that there was a huge gap in the compensations depending on whether they were currently in a status quo or not (i.e., \$1.89 compensation when they were not in a status quo compared to \$6.81 compensation when they were in a status quo). This article can conclude that consumers are irrationally reluctant to move out of a status quo and thus generate additional unnecessary hidden costs when selecting service plans.

Furthermore, in accordance with Korobkin, a study carried out by Robert D. et al. in 1980 illustrates the applications of the SQB connected to WTP and WTA in a particular status quo [9,10]. In the experiment, one-half of the subjects were aware that a factory has the right in law to emit and that they are currently emitting pollution into the air, and their willingness-to-pay to keep the factory from opening was \$4.75 per family per month. However, when told that they were currently in an unpolluted environment (status quo) and had the legal right to block the factory's operation, people would demand an average of \$24.47 per family per month to permit the operation. The result shows that people are highly susceptible to the status they are currently in, and thus, the decisions they make as consumers may not be rational enough.

The importance of studying the status quo effect is then shown in the range of consumer rationality and specifically selecting service plans. People will not always choose the plan that brings them the most economic utility due to SQB and the monetary amount they would accept or pay in the same situation. Therefore, plan makers should consider the SQB's effect besides just using the rational valuation of consumers and the WTA and WTP measures when formulating possible plans.

2.2. Application Two - The SQB in Predictive Analytics

Predictive analytics refers to using data, algorithms, and machine techniques to forecast future outcomes, and the goal is to predict what will happen in the future. The applications of predictive analytics are in many fields, and it is a tool to assist people in generating more positive achievements and avoiding losses in decision-making. For instance, predicting future interest rate movements is a crucial component of active portfolio management tactics in the bond market and aids people in improving their ability to make profit. However, the SQB is a cognitive prejudice, leading individuals' decisions or evaluations to approximate it; people's decisions and predictions are more susceptible to their current situations and may thus urge people to forecast deviated interest rate trends. In a study published in 2011 by Gubaydullina, Zulia, Hein, Oliver, Spiwoks, and Markus, the authors looked into the relationship between the SQB and projections of interest rate developments in twelve sample countries [7]. By utilizing the current situation as a reference point dependency, they analyze whether interest rate projections overestimate the flexibility of interest rates and are, as a result, too near to the reference point. They collected data on forecasted interest rates and real interest rates over the years from those twelve countries and used mathematical modeling to analyze the data. Comparison of the mean values, comparison of the medians, and comparison of the variance were used as three indications. They found that the median, mean, and standard deviation of predicted interest rate changes are dramatically lower than those of real interest rate change without any exception. The SQB characterizes such phenomena. Hence, the interest rate trends are underestimated systematically, which can be explained by the forecasters' preference towards the current status quo. This theory explains why analysts when making forecasts, orient themselves strongly to the current interest rate level, which is the reference point in the concept of the SQB. Therefore, analysts should be clear with

the concept of the SQB and implement counteractions such as focusing more on future possibilities rather than current circumstances.

2.3. Application Three - The SQB in Default Options

Medicine is an applied science that prevents, diagnoses, and treats physical and mental diseases; it also aims to protect human health and enhance human mental and physical strength, and it has always been one of the most important fields of research because it involves saving lives and improving the quality of lives. Studies have already exhibited that the SQB plays a role in the field of medicine and causes unnecessary loss. A seminal study by Johnson and Goldstein analyzes the impact of SQB and default options on organ donors in several countries [8]. People need to opt-out if they don't want to be organ donors in presumed-consent countries, and in explicit-consent countries, people need to register to be organ donors (different status quos). Considering the effect of the SQB, people always tend to stay in the existing state of affairs and take making changes as a loss, so they are more prone to stick with the default options depending on local policies when they do not have a strong preference for organ donation. Investigations conducted in a same group of people by Johnson and Goldstein [8]. 161 online participants were asked whether they would donate organs based on questions with varying default options. Result shows that people are more willing to be organ donors when they are in a presumed-consent state (82 out of 161) than they are in an explicit-consent state (42 out of 161), and the data collected in the presumed-consent state is much closer to the data collected in a neutral state (79 out of 161) when they have to choose with no default options. It is revealed that the results obtained from the presumed-consent state are closer to their true thoughts.

Moreover, the same conclusion has been obtained from a different set of data that represents the actual consent rate to become an organ donor in opt-in and opt-out countries. Thus, it can see that those data show that the SQB has a significant effect on organ donation, a fundamental course of study because it involves live-savings and it can distinctly affect people's choice on whether to become organ donors. The study of the SQB can help people in the medical field to better understand the importance of default options, people's thoughts, and behavior in organ donation, and enact more beneficial donation plans and wording strategies to achieve a higher rate of organ donation under the circumstance that the rate approaches closer to people's natural preference. In various decision-making situations, the status quo option is an option that decision makers cannot avoid, and decision makers often need to make a decision between maintaining the status quo or sticking to past decisions and choosing non-status quo options. The previous researches have presents that repeat past decisions in decision-making situations such as investment, management, consumption, insurance, and career choice, and show the SQB to varying degrees.

3. Conclusion

This paper introduces the concept of SQB from a practical perspective, which is constructed by three applications from different scenarios. The SQB plays a vital role in the decision-making process for the public. The injustice between merchandise and ordinary consumers can be intensified by the SQB. People are always influenced by the SQB when making economic decisions, so the consumers need to know and conquer this effect, they should learn to be neutral when judging a problem and making a decision, to save some money and utility. People in the bond market when making predictions tend to underestimate the interest rate, and thus, it is important for people to be clear about the effect of the SQB to forecast a more precise rate. Also, in the medical field, the organ donation rate has a close connection with the SQB, so policymakers can utilize this bias and turn more people into organ donors, which are closer to the intention of the public, to save lives. Other than the representative subjects described, the status quo bias also has vast influences in many more other aspects. This

writing has possible drawbacks. Only limited reference resources have been selected and referenced in those three designated fields. Also, no other studies were conducted except for theoretical analysis. Future studies could learn from this essay and conduct multi-aspect studies such as empirical study in more fields to find better connections between the SQB and its applications in reality. This paper attempts to introduce the SQB theory to explain the influence of inertia on users' willingness to continue to use, which not only expands the application field of the SQB theory, but also enriches related theoretical and empirical research.

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