

Nudge: Guiding People through the Fog of Choice

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Abstract: Economics is always a knowledge of choice weighting different options and judging predictable results. However, people are not able to make so-called optimum choices as effortless as they should in economic theories, not even economists. In this study, we briefly discuss behavioral reasons why we, *homo sapiens*, cannot be omnipotent *homo economicus* handling everything carefully and skillfully. Therefore, based on these common factors, changes in choice architecture, so-called nudges, are applied to adjust people's decision. Specifically, nudge methods are described in several distinct aspects with related cases. Fortunately, practitioners with an official background have taken advantages of nudges in reviewing and modifying existent

1. Introduction

In the modern world, economic activities consist of too much choice making with which individuals have to be confronted. For instance, customers select products and services contenting themselves; producers invest in products and industry maximizing profits with limited funds and service providers rack their brains affording all wool and yard wide services. Economics once converted decision makers into economic men and unified goals of choice into the maximization of utility. Admittedly, such simplification is indeed what people pursue, and to some extent, it is the normality of making choice. However, as socio-economic development becomes more and more complicated and scholars explore it more and more deeply, counterexamples seem to remind the original assumptions and simplifications to be reconsidered.

First of all, because mundane people have limited energy and so many choice questions, their judgments often heavily depend on experience, so-called rule of thumb, different from rational people. Amos Tversky and Daniel Kahneman (1974) summarised three heuristics and relative biases – anchoring, availability and representativeness. Anchoring occurs when individuals make judgement considering more initial information, in other words judge things on the basis of anchor. The bias is naturally derived from the interpreting information added to the initial, the anchor. Suppose someone is going to update a smartphone to the latest generation, the price of old one is an important comparison with that of the latest. This is why anchoring is frequently used in marketing and business negotiations. Availability heuristics also provides a shortcut where examples immediately coming up in one's mind dominate subsequent thinking

without exploiting comprehensive knowledge. More proactively streamlining the thinking process, representative heuristics attempts to summarise past experience and rules of personal understanding so as to directly classify things according to the degree of similarity. Secondly, a preference of current situation is stubborn on minds, status of quo bias dubbed by William Samuelson and Richard Zeckhauser (1988). Loss aversion and sunk cost fallacy (excessive care about sunk costs) become obstacles in front of better changes and form bias. Third interference is tempting options which take much effort to avoid, otherwise leads to negative outcomes. Finally, people usually set themselves up as an "auto-pilot" mode, following the temptation or group's choices to save energy of thinking. At the same time any negligible bias may take charge.

2. Literature review

Neoclassical economics usually assumes that decisions made in economic activities are the most rational considering all the information. However, Camerer and Loewenstein (2004) and Kahneman (2011) introduced the assumption of bounded rationality based on psychology. And a new branch of behavioral economics gradually developed as behavioral economics. Kahneman (2003) proposed the dual-process theory that people's brains choose between intuitive thinking and rational thinking when they operate. Compared with the slow, rule-based and laborious rational system, the Reflective System, the Automatic System is fast, effortless and relies on associations. The Automatic System is responsible for ingredients of judgment and choice whereas filled with habits, experiences, and stereotypes. Nowadays behavioral economics has become one of the most active and popular economic frontier fields in modern economics. Nudge theory is based on behavioral economics and a dual-process theory and argues that "choice architecture can preserve freedom of choice while also nudging people in directions that will improve their lives." (Thaler and Sunstein, 2008). Unlike the prospect theory revealing how people measure risk with cognitive limitations (Kahneman and Tversky, 1979), the nudge pays more attention to heuristics behind behaviors and ways in which they influence the thinking and behavior of people. Since then, nudge research has been carried out in many areas: Hunt Allcott (2011) proved that the experimental group family who received the Home Energy Report letters within two years significantly reduced the use of energy, and it is necessary to note that the letters not only included the energy use of individual households but compared that among similar neighbors; experiments conducted by Stämpfli, Stöckli, Brunner (2017) showed that outside "dieting cues", such as thin, human-like sculptures, are effective in healthy food choices; Boram Lee Ian Fraser, Ian Fillis (2017) encouraged potential donors to support non-profit organizations (such as galleries) with nudge methods. In addition, Dennis Hummel and Alexander Maedche (2019) analysed the existing 100 empirical nudging studies in a quantitative way and systematically evaluated the effectiveness.

3. Implements of Nudge

Regardless of the whimsy of the relevant experiments and arguments, the emphasis of the nudging is nothing more than the directional influence of choice alteration aiming for better lives. There are some efficient techniques for choice architecture.

Treating intuition carefully is one of the methods. It is aimed at built-in rules or common sense to which people have become accustomed. Challenging them always increase the burden of choice, and, contrariwise following without confusion will improve choice environments. In the line chart, the abscissa should demonstrate increasing index from left to right; a side of door with the handle indicate it should be pulled; the reds and yellows stimulate an appetite also give a feeling of vitality, but the blues, blacks and purples make food not esculent. On the other side

of the coin, stubborn intuition sometimes plays a large role. Orangina, a beverage brand, used to introduce an upside down can where head-down brand trademarks and other descriptive texts intuitively imply consumers to mix the drink with maximum flavor. The three-dimensional speed bump drawn on the road also takes advantage of the human visual illusion in order to spontaneously slow them down.

Providing fault-tolerant space is necessary since it is inevitable that mistakes will occur to us. In recent years, the new Android phones have updated to the Type-C port achieving wired transmission. Its oblong reversible shape is distinct from the previous generation, which solves the problem of having to check which side is up when users are plugging it in. Some ATMs dispense cash only after the card taken out, which avoids the intentional behavior of forgetting to recycle the card after a cash withdrawal.

Exhibiting adequate and clear information ensure that there is no misunderstanding. The first is the effectiveness of objective information disclosure. Much terminology appears in public and sales fields. Ordinary customers, such as my parents, therefore, find it hard to choose without specific knowledge. Some practitioners are role models, such as lawyers and doctors, and they pay attention to summarizing and conveying more substantive content in plain language. There are many choices required subsequent to the first, so effective feedback is also an important type of information. The oil storage situation of the automobile fuel tank will be directly displayed on the instrument panel. When smartphones take photos, no one feel surprised about a simulated shutter sound and instant pause on the screen because they are giving feedbacks that the shooting is complete.

Constructing complex choices reduce cognitive burden. More common is the "elimination by aspects". Firstly, propose the most important attributes and set a limit level, then eliminate the options that are not in above scope, subsequently consider the next attribute to proceed step by step until a unique option or a small range appears. With the development of data science, the so-called "collaborative filtering " is frequently used in the online world. Personal historical preferences are extracted from online behaviors and similar commodities are suggested to customers.

4. Attracting trainee teachers to rural and remote areas

Attracting and retaining talent to service and work in rural and remote(R&R) areas have been a challenge for both the public and private sectors worldwide. Although they generously offer many fiscal benefits such as salary incentives and tuition subsidies, money is only one of the motivators. A series of trials were run in an attempt to nudge trainee teachers to apply for teaching placements in R&R areas. Such policy experiments were conducted with the New South Wales (NSW) Department of Education, three universities and the NSW Department of Premier and Cabinet's own nudge unit, set up a few years ago with assistance from the Behavioral Insight Team (BIT).

Initially, NSW Department of Education surveyed 230 trainee teachers and learnt that they generally hope to take this opportunity for improving career prospects and accumulating practical experience. They are willing to support upcoming trainee teachers with own stories. Subsequently, behavioral barriers and triggers are identified. Because the choice of placement must be full of uncertainty e.g. the school itself, the mentor teacher, the course plan etc., the investigation and study of the above matters are highly necessary but time-consuming. In addition, trainee teachers are more inclined to keep their life arrangements such as the commute (status quo bias), even facing seductive salary. Under above-mentioned resistance and obstacles, the availability heuristic is active during the selection process. It is so effortless to select familiar areas and schools in the school list as narrowed scope for next screening. Finally,

placement software has direct impact on trainee teachers' decisions through default setting. A list of schools shown on the software cause choice overload pushing trainee teachers into familiarity bias trap. On the list, schools are shown in the order of physical closeness to operators' home and R&R schools are not even shown. The software automatically defaults secondary school trainee teachers to a placement at the school nearest to their home.

The nudge unit proceeded a randomized controlled trial with three different interventions:

1. Timely and personalized information delivery

In mid-2017, together with the university of Wollongong, the nudge team made R&R school more eye-catching and sent treatment subjects personalised postcards and emails. Two days before the end of the selection, they received reminder text message. As a result, three times more R&R applications from treatment group than those from control group (12.6% versus 4.2% of all applications).

2. Information acquisition simplification (including influential sources)

In August 2017, cooperating with the Macquarie University nudge unit provided more detailed information about R&R schools on email, including the school's official website link and local travel information pages. There are even opportunities for traveling together to find out more. These emails used influential messengers, trainee teachers who previously worked in R&R areas. At the end, 9.8% subjects in the treatment group as opposed to none in the control group.

3. Peer-placements

In March 2018, nudge team conducted an intervention at the University of Western Sydney, spotting possibility applying with friends in customized text messages and emails. Although the effect was not significant, only 1.7 times the control group subjects chose R&R areas, it deserves continuous exploration.

So far, everyone knows that it is not all about money but above trials achieve tangible effects in reality. Some of trainee teachers have started their teaching program at the NSW R&R areas and more have changed bias and been ready for making free choice.

5. Conclusion

Nudge is based on individuals in real life and is explored and utilized in common scenario. Seemingly inconspicuous characteristics may be the key point from perspectives of human behavior. This article gives examples of many areas suggesting nudging is everywhere, even though we do not often realise it. Whether it is a good or a bad choice system, choice architecture still exists and greatly influence our choices. In public policies, we hope to use the power of nudge bringing social and economic benefits and making contributions to a better quality of life without restricting people's choices.

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