



REEVALUATING RATIONALITY: EXPLORING THE IMPACT OF BEHAVIOURAL ECONOMICS ON POLICY DESIGN AND IMPLEMENTATION

by

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Abstract

Traditional economic models have long operated under the premise of rational decision-making by individuals consequently overlooking the complex interplay of human psychology in decision-making processes. On the other hand, behavioural economics, takes into consideration heuristics, biases, as well as the effective use of nudges. This research paper explores the extent to which behavioural economics is able to challenge the long-standing assumption of rationality in the context of policy design and implementation. The aforementioned is facilitated by a comprehensive literature review of the foundations of rationality that presents itself in traditional economics and its models and theories, Following this, an introduction to behavioural economics is presented with a specific focus on highlighting its ability to acknowledge and further integrate psychological phenomena into economic analysis. The latter half of this paper delves into the practical application of behavioural economics in policy-making and implementation and also evaluates real-life examples wherein this framework has been effectively employed. The paper ultimately concludes that behavioural economics does challenge the assumption of rationality in policy design and implementation to a great extent, however, it does not represent a replacement for rationality altogether. Instead, policymakers may implement an integrated approach whereby the strengths of both principles are leveraged to achieve desired policy outcomes.

Key Words: *Behavioral Economics, Rationality, Heuristics, Biases, Nudge theory, Policy design, Policy implementation*

To what extent does behavioural economics challenge the assumption of rationality in policy design and implementation?

Introduction

Are rationality and reality mutually exclusive?

First introduced by Adam Smith, the traditional economics model proposes the theory of rational choice. The theory argues that all economic agents are rational. Rationality is assessed by the parameters of completeness and transitivity and represented by a utility function (Goodwin et al., 2018). As a result, the theory suggests that economic actors review the opportunity cost of choices and act logically to attain maximum gains and minimum losses (Kørnørv and Thissen, 2000). Underlying are several assumptions made by economists to help explain the behaviour of individuals and groups. These include the rational actors having a congruent and constant value system, and unlimited time and resources. Based on this premise, it is argued that economic agents efficiently make decisions to attain the highest utility (Green, 2002).

In “An Inquiry into the Nature and Causes of the Wealth of Nations,” (Ganti, 2023) Smith further introduces the concept of the Invisible Hand. This notion supports the idea that individuals acting in their self-interest leads to maximum social welfare. Self-interest can be defined as the maximisation of utility and thus supports the idea of rationality. Several models assume that policy-making involves the analysis of information supported by relevant evidence. This is in a manner exempt from any biases and such that it leads to the maximisation of social benefit. (McCaughey and Bruning, 2010) As a result, the Invisible Hand theory forms the base of policy-making and furthers the concept of self-interest concerning rationality.

Theoretically, rationality is the keystone of all economic models, especially policy-making. However, it often falls short in its real-world application. In the modern-day context, policymakers often find themselves as the mediators in a tug-of-war between rationality and reality. Policymaking entails additions or changes to approaches followed by individuals to obtain the greatest benefits to society. As a result, its effectiveness is judged on the subsequent actions of the target population. To ensure the potency of a particular policy, it is therefore integral to predict the behaviour of the audience. If viewed through the lens of rationality, most policies fail to be effective since individual and group behaviour largely falls outside the norms defined by classical economics models. Thus, policymakers are increasingly adopting the principles of behavioural economics: an interdisciplinary field which combines economics and psychology to explain economic decision-making. This school of thought contests rationality by providing alternate explanations for behaviour such as framing, heuristics, and biases.

Considering the aforementioned, this paper aims to answer the research question **‘To what extent does behavioural economics challenge the assumption of rationality in policy design and implementation?’** In doing so, the paper aims to explore how the assumption of universal rationality, particularly in the context of policy-making, falters in capturing the complexities of human behaviour, thereby necessitating the incorporation of behavioural economic principles to enhance the effectiveness of policy-making.

Literature Review

Building upon the foundations laid by eminent traditional economists such as Adam Smith, David Ricardo, and John Stuart Mill, the 20th century witnessed the dominance of the neo-classical model in economics. As articulated in Alfred Marshall's seminal work, 'Principles of Economics,' neo-classical theories posit that the economy comprises of two economic agents: households and firms, both driven by the pursuit of maximising their utility (Goodwin et al., 2018). The rational choice theory, as mentioned previously, assumes that these actors' decision-making process is grounded in logical reasoning and material self-interest, aiming to attain maximum benefits. In the case of consumers, rationality is characterised by the axioms of completeness and transitivity, suggesting that consumers, armed with complete information, possess clear preferences among goods and services that are transitive across different products. Similarly, the central objective of firms is profit maximisation in a free market (Green, 2002)

The behaviour of both actors suggests that rationality constitutes several key assumptions. These include time, certainty and consistency; the model is only applicable for a given period of time when the economic agent has complete information about the impending choice and has a consistent value system which does not hinder the decision-making process (Mas-Colell, Whinston and Green, 1995). Since rationality is largely the cornerstone of policy making, it can thus be said that these same assumptions underpin policy creation.

However, one fundamental assumption which is often discounted is that of human complexity which prevails in real-life applications of the model. As a result, several extensions of the model have been proposed to bridge the gap between rationality and reality specifically in the realm of policy design. As stated previously, the model is confined by a particular period and is, therefore, static. However, when creating policies, it is imperative to predict the behaviour of the target audience. As a result, dynamic iterations of the neoclassical model have emerged to not only account for utility maximisation in the present but also in the future. Additionally, the traditional model is extended to consider uncertainty. Here, the utility of a particular action is weighted with its probability. Using this framework, an actor is assumed to maximise their expected utility, considering all choices with their given likelihood of occurrence (Green, 2002).

Despite these extensions, the notion of rationality is still dependent on the idea of utility maximisation, consistency, and self-interest. Hence, it falls short of providing an explanation for asymmetric information in the market. This is because the rational choice theory by nature assumes that economic actors possess perfect information about the market when making any decisions, which is often not the case in the real world (Green, 2002). Additionally, the theory also sees limitations in the sphere of strategic behaviour. Rationally, all economic agents seek to maximise their utility. However, in competitive circumstances, these actors are pitted against others with the same objectives. Game Theory stipulates that all economic agents must reach a Nash equilibrium where the desired outcome may only be achieved by not deviating from the original strategy. This desired outcome, however, may not maximise utility (Gibbons, 1997). This behaviour is particularly applicable in policy making since it creates the framework for several competing international organisations. The above examples of the limitations of rationality illustrate how while expansive in theory, its real-world application is finite.

Although rooted in the works of Adam Smith, the neo-classical model may be reductionist in its approach. This is because while Smith did support rationality in the *Nature and Wealth of Nations*, in his prior publication, *The Theory of Moral Sentiments*, he characterises motivation through socio-cultural contexts which act as extraneous variables not accounted for by rationality (Goodwin et al., 2018). This suggests that economics from its inception was always intended to be a social science sensitive to human complexities. This notion is particularly relevant for policymakers since it shows how sole reliance on the assumptions underlying rationality may lead to ineffective policies.

Currently, much of welfare economics stands on the grounds of Pareto optimality which is backed by the notion of rationality (Investopedia, 2023). A Pareto Optimal outcome is said to occur when any further welfare maximisation for one party can only be at the cost of the other. As a result, the notion uses the idea of utility maximisation to form the basis of policies. Due to the distributional inefficiencies of this concept, it can further be concluded that rationality lacks applications in terms of equity and equality, which are often the pillars of policymaking (Green, 2002). In light of this, there have been several alternative approaches to policymaking which branch out into other social sciences including psychology, sociology, anthropology, etc. For instance, the 21st-century economic models often follow the notions of bounded rationality, behavioural economics, the influence of emotions, influential factors and altruism on economic decision-making. These approaches provide a more nuanced understanding of economic behaviour which will be explored further in the paper.

In conclusion, while the neo-classical and traditional models form the preliminary structure of policymaking, it is crucial to critically evaluate its underlying assumptions and consider alternative explanations which account for human complexity. By embracing multidisciplinary perspectives, policy-makers can adopt more comprehensive and robust approaches to tackle critical current issues.

Behavioural economics

Limitations of rationality often prevent it from accurately capturing reality, resulting in implausible explanations of economic behaviour. In this regard, both thin and thick variations of the rational actor theory fall short. This is either due to a lack of predictive power, or fallacies in the predictions. Contrastingly, behavioural economics relies on empirical evidence which explores human behaviour through an actualised lens (Korobkin and Ulen, 2000). Behavioural economics is an interdisciplinary approach which inculcates principles of various social sciences including psychology, sociology, anthropology, neuroscience, and biology to provide explanations for human behaviour (Goodwin et al., 2018). As a field, the early roots of behavioural economics are in the studies of uncertainty and risk conducted by Tversky and Kahneman. The two Israeli psychologists stated that “In making predictions and judgments under uncertainty, people do not appear to follow the calculus of chance or the statistical theory of prediction. They rely on a limited number of heuristics which sometimes yield reasonable judgments and sometimes lead to severe and systematic errors” (Kahneman and Tversky, 1973).

A heuristic is commonly described as a mental shortcut which is commonly employed by individuals when simplifying problems. By using the heuristic technique, it is expected that people are able to reach reasonable solutions and conclusions (not necessarily ‘rational’ ones) to complex problems (Chen, 2022). Heuristics tend to leave individuals prone to biases, leading them in the direction of exhibiting irrational economic behaviour. Therefore, a bias is defined as a systematic error in cognition which deviates from normative standards (Tragakes, 2020) - it contests notions such as utility maximisation, consistent value systems, and perfect information, thereby questioning the very grounds of rationality. Some relevant biases are discussed below:

In developing the prospect theory, Tversky and Kahneman demonstrated the impact that ‘framing’ can have on the choices made by individuals. Simply put, **framing bias** occurs when decisions are made based on the manner in which the information is presented as opposed to just on the facts themselves (Vipond, 2019). For instance, a toothpaste being described as 95% effective will be more desirable than one marketed as 5% ineffective. In the context of policy design, this bias indicates how the effectiveness of a policy relies not on rationality but on the perception of the target audience. As a result, crafting effective legislative measures entails framing what is likely to result in the most desirable outcome for the policymakers.

Another popular bias is the **default bias** which highlights the tendency of individuals to stay in the default choice by picking inaction over action as well as sticking to previously made decisions. As per the research, there are four main explanations for why this occurs; the choice to remain lazy instead of incurring a cognitive cost i.e. making a mental effort, the strong force of inertia keeping many in the status quo, the desire to stick to the default choice in order to avoid any possible losses that may be incurred as a result of behavioural changes, and the implicit perception of the default choice being the good choice. The default

bias can be taken advantage of in policy design and implementation to influence the target audience to make the desired choices (Shach and Zhao, 2018).

Consequentially, the unconscious application of these biases in economic decision-making leads to bounded rationality. Coined by Herbert Simon, the notion of bounded rationality suggests that due to the use of heuristics and biases, economic agents fail to attain utility maximisation. Instead, they engage in satisficing behaviour (Korobkin and Ulen, 2000). This implies that through their choices, actors attain alternative levels of satisfaction, instead of maximising their total benefit. Bounded rationality further contests the assumptions underlying the rational actor theory and highlights the importance of a multi-disciplinary approach to policy design.

The use of heuristics in economic decision-making allows us to produce satisfactory results within a limited time period and without having to access all the required information. However, aside from not resulting in the 'optimal' decision being made, heuristics can oftentimes lead to entirely incorrect decisions. To overcome this, in recent times, behavioural economists have greatly integrated nudges to help people from the irrational use of heuristics. A nudge is an intervention that maintains freedom of choice but steers people in a particular direction (Fusaro and Sperling-Magro, 2021). In order to do the aforementioned, nudges rely on shaping the presentation of choices to influence the behaviour of economic actors, rather than using financial incentives, legislative measures, or restricting choices. Economic agents' behaviour is heavily influenced by how choices are framed, rather than by pure facts or logic. Thus, the **nudge theory** has great implications for policymakers who can engage in choice architecture to frame choices in ways that elicit the desired responses from economic agents.

Ultimately, the incorporation of behavioural economic approaches to policymaking does not serve the purpose of replacing the rational actor theory in totality. Rather, it acts as a medium to compensate for the inadequacies of rationality with respect to reality (Korobkin and Ulen, 2000). Through the several biases and heuristics that have evolutionarily been engraved in the actions of economic agents, there has been an expansion in the divide between theoretical hypotheses and their real-world iterations. Behavioural economics, being a directly observable principle, offers nuanced explanations for economic decision-making that account for human complexity. As a result, its increasing relevance in the field of policy-making is justified and critical.

How behavioural economics can be applied in policy design

Policymaking, as stated by political scientist Deborah Stone, revolves around the 'struggle of ideas'. Ideas form the premise of most social conditions and are thus one of the most powerful facilitators of action. As mentioned previously, real-world economic decision-making is determined by human complexity. This complexity is characterised by the several cognitive biases mentioned above which suggest that economic agents are extremely susceptible to extraneous variables influencing their strategies. As a result, ideas take precedence over logic.

However, the influence of a notion is determined by its ability to transform a social condition into a social issue. This is only possible through framing. The framing bias allows policymakers to shape the interpretation of a social problem and present information in a way such that it can be perceived as critical. For instance, smoking can be discerned as a health hazard or a recreational activity. These altering frames can influence the subsequent policy design and the response of the public, thereby also evaluating the effectiveness of the policy. As a result, it can be said that framing bias is prevalent at all stages of policy-making.

The initial agenda framing not only outlines the various aspects of a social situation, but it stitches them together to create a convincing social issue worthy of addressing. This forms the premise of policy formulation wherein the frames used determine the solution set offered by policy-makers. This is because varying frames offer altering perspectives on social situations. For instance, viewing public health through a personal responsibility frame outlines the government's role as a provider of information to facilitate informed decision-making. Contrastingly, a social justice frame necessitates equitable healthcare services from the government. Thus, varying frames result in different policy outcomes. Furthermore, the framing bias also comes into play during policy implementation, as policymakers must ensure uniformity in framing among all members of the legislation to ensure effective policy execution. Divergent frames may lead to conflicts and ineffective responses from economic agents.

Although in theory, all economic agents, including policymakers are inherently rational, in reality, the framing bias dictates much of policymaking. As a result, it is more beneficial to build policies on the premise set by this bias instead of ignoring its existence. The latter is likely to result in ineffective policies and internal conflict arising due to varying frames, thereby invalidating the grounds of policy development.

Another increasingly applied principle of behavioural economics in policymaking is the nudge theory. As mentioned earlier, the nudge theory is a potent method for predictably influencing economic decision-making and therefore relies greatly on choice architecture which offers different types of choices, each nudging economic agents in a particular direction. The first type of choice architecture is *default choices*, where actors make decisions by default without active engagement - successfully taking advantage of the default bias. This method can incentivize agents to undertake tasks that maximize societal welfare, even if they may not receive substantial attention otherwise. For example, several countries have automatic organ donor systems, which nudge citizens toward organ donation by making it the default option, thereby reducing the likelihood of opting out and encouraging more organ donations. The second form of choice offered is *restricted choices*, characterized by specific limitations imposed by the government, such as age restrictions and speed limits. These nudges do not directly constrain consumer choices but guide them toward choices that maximize societal welfare. Finally, policymakers may offer *mandated choices* that require a decision to be made. The options remain the same, but the act of choosing is highlighted, maintaining the integrity of economic decision-making in a guided manner. Choice architecture and nudges have

faced criticism regarding their potentially manipulative implications. Consequently, when employing these behavioural economic strategies, policymakers must prioritize maximizing the benefits for all economic agents.

Economic agents face limitations not only due to cognitive biases but also due to their cognitive capacities as a whole. Economic decision-making is often complex, constraining actors' abilities to maximize utility, as posited by the rational actor theory. Cognitive psychology offers insights into optimizing information provision to accommodate limited mental capacities, aligning with notions of rationality and maximizing social welfare.

In conclusion, recognizing and addressing behavioural biases in policymaking allows for the efficient attainment of desired responses from target agents. These biases offer valuable insights into economic decision-making, facilitating predictions of behaviour and guiding policy formulation to achieve desired outcomes. By incorporating framing bias and behavioural economic principles like the nudge theory, policymakers can craft more effective and impactful policies that promote social welfare while also being sensitive to potential manipulative implications. Acknowledging the role of cognitive capacities in economic decision-making further contributes to the development of policies that are attuned to the rationality of economic agents, ultimately advancing the overall effectiveness of policymaking.

Evaluation of the application of behavioural economics in policy design

Despite being a relatively new principle, behavioural economics has noticed critical advancements in establishing a foothold in the field of policy-making. This section seeks to evaluate the effectiveness of behavioural economics, contextualised by reality through several current examples.

One of the most popular policies which extend beyond the framework set by rationality includes opt-out policies for organ donations. As mentioned previously, choice architecture offers varied iterations of options presented to economic actors, one of which is the default choice. In 1979, Spain introduced its 'presumed consent' policy which automatically considered citizens to be organ donors. By shifting the option from opt-in to opt-out, the policy leveraged the actors' tendency to comply with the default option (Johnson and Goldstein, 2003). Consecutively, Spanish policy-makers successfully increased the organ donation rate threefold; from 14.9 per million population in 1989 to 49.6 as of 2019 (Rudge, 2018). The support provided by the example above extends beyond choice architecture to the very foundation of behavioural economics. This is because as a principle, behavioural economics relies on empirical data to make calculated predictions. The presumed consent policy extracted insights from previously noticed inertia exhibited by economic actors. As a result, the grounds for the consecutive predictions eventually resulted in the effectiveness of the policy. Additionally, the opt-out policy further builds upon the actors' limited cognitive capacities. By simplifying the decision-making process, policy-makers reduced the cognitive burden endured by the Spanish citizens, thereby resulting in higher organ donation rates.

Opposition to this policy is built on two foundational arguments: ethics, and combined measures. Critics of the Spanish policy posit 'presumed consent' violates ethical guidelines such as informed consent and individual autonomy. This is because the default option shifts the power over the choice of organ donation from the citizens to the government. However, in Spain, families are always approached prior to the authorisation of organ donation to reinstate informed consent (Etheredge, 2021). As a result, this argument is only plausible in theory and notices alternative implications in reality. The second basis of opposition argues that Spain's rank as the country with the highest number of deceased donors, per million population, is attributed to its transplant network. In 1989, Spain established a national transplant organisation whose impact is far from negligible. Moreover, the network specialises in the early recognition of potential donors and mastering the art of attaining informed consent. However, this argument does not negate the influence of behavioural economics. Rather, it simply poses that principles from cognitive psychology must be combined with other policies in order to yield the greatest maximisation of utility (Etheredge, 2021).

Behavioural economic notions can be further extended to policymaking in the realm of health care. For instance, the 'SMS for Life' (Barrington et al., 2010) pilot study in rural Tanzania combined nudge theory with standard technology to mitigate the inadequate medical supplies of anti-malaria medicines. Prior to the research, it was established that the lack of awareness regarding the stock levels of the aforementioned drugs acted as a barrier to the effective management of malaria. As a result, on a weekly basis, SMS messages were employed to report accurate stock levels at the health facilities to the district management team. Results showed that the proportion of health facilities without any anti-malaria medicine reduced to 26% in week 21 as compared to the initial 78%. In some localities such as the Linda Rural district, stockouts were even eliminated after week 8. This study indicates that the text messages acted as nudges which incentivised the reduction of stock-outs of medical facilities. As a result, it capitalised on economic actors' tendency to respond to immediate reminders.

Criticism may be offered on the grounds of the reliance on technology and literacy to comprehend the text messages circulated. However, instead of negating the influence of behavioural economic measures, this opposing argument further encourages it. This is because it encourages policy-makers to delve deeper within the psyche of the target population, in this case, rural Tanzanian residents, to refine their predictions.

Overall, both examples cited provide evidence of the importance of behavioural economics not only from an individual standpoint but also in combination with other policy measures.

Conclusion

Although much of policymaking stands on the pillars of classical economic models, the notion of rationality is unable to encapsulate the complexity of economic decision-making. Alternatively, behavioural economic principles contest traditional theories, thereby enhancing the potency of policy design and implementation.

The rationality theory aims to maximise utility and social welfare based on underlying assumptions of completeness and coherence. However, to attain the aforementioned results, policymakers must be able to predict the behaviour of the target audience. The focal fallacies of these predictions lie in rationality's indifference towards behavioural biases such as framing and heuristics. Contrastingly, behavioural economics incorporates these cognitive errors into its principles and subsequently into policies including nudges and choice architecture. As highlighted by the real-world examples, behavioural economics implications in policy design yield greater outcomes in the implementation stage thereby improving the efficiency of the policies in question. However, as a school of thought which derives much of its theories from empirical evidence, it is constantly evolving through a trial-and-error approach. As a result, the greatest utility and social welfare can only be achieved as a product of behavioural economic principles and other policy measures.

Overall, behavioural economics challenges the assumption of rationality in policy design and implementation to a large extent. However, due to its own limitations, it is not a viable replacement for rationality. Rather, it serves the purpose of amplifying the effectiveness of policies by mitigating the fallacies of traditional models. Therefore, from a normative standpoint, policymakers should seek to combine the strengths of each principle to maximise results.

Bibliography

Barrington, J., Wereko-Brobby, O., Ward, P., Mwafongo, W. and Kungulwe, S. (2010). SMS for Life: a pilot project to improve anti-malarial drug supply management in rural Tanzania using standard technology. *Malaria Journal*, 9(1). doi:<https://doi.org/10.1186/1475-2875-9-298>.

Chen, J. (2022). *Heuristics*. [online] Investopedia. Available at: <https://www.investopedia.com/terms/h/heuristics.asp>.

Etheredge, H.R. (2021). Assessing Global Organ Donation Policies: Opt-In vs Opt-Out. *Risk Management and Healthcare Policy*, 14, pp.1985–1998. doi:<https://doi.org/10.2147/rmhp.s270234>.

Fusaro, R. and Sperling-Magro, J. (2021). *Much anew about 'nudging'* | McKinsey. [online] www.mckinsey.com. Available at: <https://www.mckinsey.com/capabilities/strategy-and-corporate-finance/our-insights/much-anew-about-nudging>.

Ganti, A. (2023). *Rational Choice Theory: What It Is in Economics, With Examples*. [online] Investopedia. Available at: <https://www.investopedia.com/terms/r/rational-choice-theory.asp#toc-understanding-rational-choice-theory>.

Gibbons, R. (1997). An Introduction to Applicable Game Theory. *Journal of Economic Perspectives*, 11(1), pp.127–149. doi:<https://doi.org/10.1257/jep.11.1.127>.

Goodwin, N., Harris, J.M., Nelson, J.A., Rajkarnikar, P.J., Roach, B. and Torras, M. (2018). *Microeconomics in Context*. Fourth ed. Routledge.

Green, S.L. (2002). *Rational Choice Theory: An Introduction*. [online] scholar.googleusercontent.com. Available at: https://scholar.googleusercontent.com/scholar?q=cache:5kdA2_oZEOIJ:scholar.google.com/+rational+choice+theory&hl=en&as_sdt=0.

Hofer, R. (2021). Theory in Social Policy Research: Rationality and Its Discontents. *Journal of Policy Practice and Research*, 2(4), pp.233–237. doi:<https://doi.org/10.1007/s42972-021-00045-y>.

Investopedia (2023). *Pareto Efficiency Definition*. [online] Investopedia. Available at: <https://www.investopedia.com/terms/p/pareto-efficiency.asp#:~:text=An%20economy%20is%20said%20to>.

Johnson, E.J. and Goldstein, D. (2003). Do Defaults Save Lives? *Science*, [online] 302(5649), pp.1338–1339. doi:<https://doi.org/10.1126/science.1091721>.

Kahneman, D. and Tversky, A. (1973). On the psychology of prediction. *Psychological Review*, 80(4), pp.237–251. doi:<https://doi.org/10.1037/h0034747>.

Korobkin, R.B. and Ulen, T.S. (2000). Law and Behavioral Science: Removing the Rationality Assumption from Law and Economics. *California Law Review*, 88(4), p.1051. doi:<https://doi.org/10.2307/3481255>.

Kørnø, L. and Thissen, W.A.H. (2000). Rationality in decision- and policy-making: implications for strategic environmental assessment. *Impact Assessment and Project Appraisal*, 18(3), pp.191–200. doi:<https://doi.org/10.3152/147154600781767402>.

Mas-Colell, A., Whinston, M. and Green, J. (1995). *Microeconomic Theory*. Oxford: Oxford University Press.

McCaughey, D. and Bruning, N.S. (2010). Rationality versus reality: the challenges of evidence-based decision making for health policy makers. *Implementation Science*, [online] 5(1). doi:<https://doi.org/10.1186/1748-5908-5-39>.

Rudge, C.J. (2018). Organ donation: opting in or opting out? *British Journal of General Practice*, [online] 68(667), pp.62–63. doi:<https://doi.org/10.3399/bjgp18x694445>.

Shach, R. and Zhao, L. (2018). *By The Power Of Default: Using Behavioral Economics To Change Behavior*. [online] Centene Center. Available at: <https://www.centenecenter.wustl.edu/by-the-power-of-default-using-behavioral-economics-to-change-behavior/>.

Tragakes, E. (2020). *Economics for the IB Diploma Coursebook*. 3rd ed. Cambridge University Press.

Vipond, T. (2019). *Framing Bias*. [online] Corporate Finance Institute. Available at: <https://corporatefinanceinstitute.com/resources/capital-markets/framing-bias/>.

