

ARE NUDGES INFLUENTIAL IN REDUCING SOCIAL ISSUES IN PAKISTAN? INSIGHTS FROM SURVEY-BASED STUDY

Huma Ghulam^{*1}, Dr. Muhammad Azmat Hayat²

^{*1}Lecturer, Department of Economics, Division of Management and Administrative Science, University of Education, Lahore, ²Professor, School of Economics, University of the Punjab, Lahore.

^{*1}humaghulam@ue.edu.pk, ²azmathayat.eco@pu.edu.pk

Corresponding Author:*

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ABSTRACT

Research in behavioral economics is deliberately becoming the most trending for policy making in the last few years. Nudges get growing interest as an effective concept to alter people's decisions without significantly changing economic incentives or limiting options. People respond to monetary incentives but they also do respond to nudges, hence, this research is attempted to empirically evaluate the approval of six social nudges in the context of Pakistan. Different hypothetical scenarios are used to elicit attitudes towards different interventions because public and private organizations can nudge people to make better decisions. This study intended to use survey method of research and data is collected from capital cities of four provinces and federal capital of Pakistan through questionnaire. Structural Equation Model (SEM) is used to check whether trust in institutions, health and environmental concern, and people's happiness contribute for the acceptance of nudges. Results show that these variables are significant and have positive influence on the approval of social nudges related to smoking, safety, population growth, female education, corruption and obesity. Findings of this research study suggest that keeping in view the significance of trust in institutions, public and private interventions may be proved helpful to positively change the behaviour of people.

Keywords: Behavioural Economics, Nudge, Trust, Social Nudges, Structural Equation Model

INTRODUCTION

Particularly, the last few years have witnessed extensive research on behavioral economics. Behavioral economics basically analyses the decision making behind an economic outcome by incorporating the study of psychology. The book by Thaler and Sunstein written in 2008 "Improving Decision about Health, Wealth and Happiness" became the best seller of the year. After the publication of this book, the UK Government established a behavioral insight team with the aim to apply intuitions from academic research in psychology and behavioral economics to different public policies and services.

A nudge is a technique to change conduct of public without giving them monetary incentive or forcing penalties. Nudges are not commands rather it is a gentle push towards desired outcome. Therefore,

keeping the fruits in the line of sight is considered nudge, however, prohibition of cigarettes is not. Do people always make rational decisions and advance their own interests? Is there any possibility to change choices of people to enhance their utility? Economists believe that people respond and change their behaviour due to economic incentives. However, according to Thaler and Sunstein (2008), humans also respond to nudges. Economists focus mainly on incentives that if any good is taxed, the public will decrease its demand. However, if the same thing is now harder to purchase, its demand will decrease on the same price level but economist do not focus on these factors. People are influenced by monetary incentives, but they are also influenced by such nudges that alters human behaviour.

There are different types of nudges that can alter the behaviour of people without forbidding the freedom of choice. Such as digital nudging that includes graphic designs, specific content, wording or small features. People in this era are making decisions online. Demarque et al. (2015) and Mirsch et al. (2017) suggest that these types of nudges help users to make online decisions. GPS that guides us about location, different apps that notify about calories count, text reminders about an appointment with doctor, and these are all helpful to change behaviour of the people without any economic incentives.

People make better decisions in familiar situations, useful information and prompt feedback, for example choosing ice cream flavours. If people make online decisions, information helps to make good decisions such as reviews about the product may alter the behaviour of the people. A human does not always make rational decisions, some changes in their choice architecture could make their lives go better.

Henkel et al. (2019) find that status quo bias and priming nudges are useful. For many reasons, people prefer default options. For example, when people purchasing new phone, most of them go with the default option while setting ringtones. Private and public officials can influence the behaviour of the people by setting it as default option because most of the people go with default options.

Similarly, public and private institutions aim to change the behaviour of people using different types of nudges such as graphic warnings on all cigarettes pack to reduce smoking, road signals to reduce accidents, and public warnings. A study by Sunstein et al. (2019) finds that such nudge strategies have powerful impact and should be developed transparently and openly. Retirement plan are helpful to increase savings. Hence automatic enrollment in programs including health, education and savings change the behaviour of people.

Bartke et al. (2017) conducted a field experiment to test the influence of descriptive norms and concludes that we can use social norms to move people behaviour. Organizations may emphasize on what most people are doing. Because people follow others, for example, tax payments can increase by informing that most people pay tax on time. Behaviour of people can also be changed by informing them about

the nature and consequences of their own past choices.

Ease and convenience are also helpful to make decisions because people select such options that are more convenient for them. If organizations work to increase the ease and convenience for their products, they may alter the behaviour of people towards their products.

It is essential for researchers and policymakers to identify the public opinion about nudges that who dislike nudges, why the dislike it and what is the general public opinion about nudges. To my knowledge, this research is the first attempt to empirically investigate, the approval of social nudges in case of Pakistan. The authors of this research study aim to analyse the significance of important variables for the acceptance of nudges. The main focus of this study is around the trust in institutions. Health concern, environmental concern, and happiness of people also influence the approval of nudges. To meet the objectives, the data is collected through questionnaires from capital cities of four provinces and federal capital. Structural Equation Modeling (SEM) estimation technique is used to empirically analyze the factors that contribute for the acceptance of nudge policies. The results of this research offer fruitful insights to policy makers for designing nudges.

This research is structured into six sections. First section is the introductory section. Review of the literature is presented in section 2. Section 3 illustrates the theoretical background of nudge theory while section 4 provides the research design and methodology. Results are discussed in section 5 and lastly, conclusion and policy remarks are given in section 6.

LITERATURE REVIEW

In the last several years, nudges have become a much-discussed topic among researchers and policymakers alike. However, the research on this topic is still in infancy and there exist major research gap. In the coming pages, a review of existing literature is done to identify the key trends in research on this topic and to identify existing gap.

Altmann and Traxler (2014) investigate the impact of reminder messages on dental health prevention by a field experiment in Germany. The results show a powerful impact of text reminders. They see that the

number of patients has increased within a month after receiving a text reminder. This study shows that reminder messages are helpful to alter the behaviour of the people.

Ensaff et al. (2015) used a real world setting of a school canteen examine the potential of shifting adolescent's food choices towards plant-based foods. They designed a set of small changes to the choice architecture and implement these changes for six weeks. They compared the student's food choices for baseline, intervention and post intervention periods. This study found that selection designed food items significantly increased for the intervention and post intervention periods. The study revealed that choice architecture has influence in improving adolescent's daily food choices.

Bartke et al. (2017) conducted a field experiment at the train station in Germany to test the influence of descriptive norms on donation behavior. The sample consists of 263 participants. They found that descriptive norms significantly increase the charitable giving.

Demarque et al. (2015) studied the effective ways of presenting true descriptive norms information about sustainable consumption in a realistic online shopping environment. They conducted a survey in France, 122 undergraduate students from the University of Toulouse took part in this experiment. They found that descriptive norms were helpful to enhance the purchase of eco-labeled products even in online shopping environment.

Hagman et al. (2015) analysed people's attitude towards pro-self and pro-social nudges. 952 representatives from U.S. and Sweden were selected to check the individual differences in approval of different nudges. The results of the study showed that pro-social nudges had a lower approval rate than the pro-self-nudges. It also showed that the participants that had analytical thinking did not considered nudges to be intrusive to freedom of choice.

Reisch and Sunstein (2016) report the results of nationally representative online surveys in six European countries Germany, France, Denmark, Hungary, Italy and United Kingdom. They analyzed and investigated the effectiveness of 15 interventions. They categorized these nudges into five groups and found strong support for nudges in democratic nations. They also found that these

nudges were not more effective in Hungary and Denmark.

Rivers et al. (2017) studied the effect of a disposable bag levy in city of Toronto using the data from four waves of national Households and Environment Surveys (HES), conducted in Canada. They applied difference in difference approach with geographic and temporal control. This study found that economic nudging policy is highly effective in encouraging people who already used reusable bags to use them more frequently. They found that levy has increased the use of useable bags by 3.4% points. Hence the effects of policy for household with high socio-economic status were less.

Arno and Thomas (2016) analyzed the effectiveness of nudge strategy to guide healthier lifestyle choices in changing adults' dietary choices for healthier ones. They adopted a systematic review methodology to collect results from the recent nudge papers to determine whether nudge strategies were successful in changing adults' dietary choices for healthier ones. This paper concluded that nudge strategies were effective and suggests further research is needed in this area in more geographically and socio economically diverse countries.

Agarwal et al. (2017) set up a quasi-experiment using the "project carbon zero" campaign, an energy saving contest in Singapore. They nudged the school children; school students brought energy conservation messages home and influence the behavior of family and neighbors. They empirically tested the effectiveness of school children nudges and find that families living within 2 km from particular school reduced the use of electricity by 1.8% than other families living outside the 2 km school area during the contest.

Sudarshan (2017) conducted a field experiment to examine the changes in electricity consumption in response to different interventions. He calculated the electricity consumption changes. The electricity consumption of households reduces by 7% during the summer season. The results showed that nudges were helpful in changing energy behaviors in developing country population. There were some limitations and the effectiveness are not same for all. Schubert (2017) provided a review of most important contributions to the literature on pro-environmental nudges and saw that toolbox containing green nudges does had impact on pro-environmental behavior.

This paper also offered some important caveats that might help the practitioner come to an ethically informed assessment of nudges.

Kraak et al. (2017) evaluated the restaurant sector progress to promote healthy food environments for Americans using seven electronic databases from January 2006 to January 2017. They examined eight different nudge strategies to evaluate progress. This study suggested that chain and non-chain restaurants can apply comprehensive marketing mix and nudge strategies to promote healthy food choices for customers.

Mirsch et al. (2017) conducted a systematic review of the literature and give a comprehensive overview of relevant exemplary nudges and psychological effects in the physical and digital sphere. They suggested that the given insights were useful for researchers and practitioners that aimed to study or design interventions that helps users to make decisions on screens.

Henkel et al. (2020) conducted a randomized laboratory experiment with 120 participants. They investigated how pro-environmental behavior can be changed by using priming and status quo bias nudges. They found that these digital nudges were effective to change behavior towards more pro-environmental behavior. This study showed that status quo bias nudge is more effective than priming. They suggested that impactful research may offer solutions to control global warming.

Wang et al. (2019) designed a data privacy management framework according to the characteristics of banking data. They offered the customer strategy model of collaborative filtering algorithm and the confirmation of default data disclosure schemes based on nudge theory. Their experiments showed that this recommended framework fulfills the reality of banking data privacy management.

Reisch et al. (2017) examined the approval rate of health nudges in 6 European countries. Data was collected from 1000 participants in each country through questionnaire. The result showed that the countries approve many health nudges such as educational messages in movie theaters, calorie and warning labels, and store placement promoting healthier food, sweet-free supermarket cashiers and meat-free days in cafeterias. However, the approval rate was different across countries.

Jung and Mellers (2016) analysed different factors that influenced the attitude of U.S. citizens towards nudges in two studies. First study had a sample size of 250 individuals while second one included 800 participants. The results showed that people liked educational reminders better than the default nudges. Koumpias and Martinez-Vazquez (2019) examined the impact of mass media campaigns on income tax filling in Pakistan during September and October 2014 before 2013-14 tax filing deadline using the survey data collected on tax eligible individuals after the filling deadline. They found that income tax filing increased because of newspaper ads and TV advertisements.

Sunstein et al. (2019) investigates whether participants of different countries Belgium, Denmark, Germany, South Korea and US approved different nudges related to health, environmental and safety issues. For analysis, they used the national survey data conducted in 2017/2018. The study found correlation between trust in public institutions and approval of nudges. They suggested that nudge strategies were effective, and we should develop them transparently and openly.

Many governments started to conduct different field experiments to test the effectiveness of different interventions. Some studies find strong effects of nudges, and while others suggest that the influence of nudges depends upon different factors. Literature is limited on the effectiveness of nudges in case of Pakistan. More research work should be done in this area to test the effectiveness of nudge strategies to public policy and development. This study will fill the research gap by testing the effectiveness of nudge strategies related to environmental, consumer financial and social issues in case of Pakistan. The results will help policy makers and research practitioners to public policy and services.

THEORETICAL FRAMEWORK

Behavioural Economics and Nudge theory:

Behavioural economics shows how people really make choices, rather than how they think they make choices. Behavioral economists believe that people are habitually influenced by heuristics and cognitive biases, which may lead them to make suboptimal decisions. People's behaviour towards making decisions may be shaped by nudging them that concentrates on behavioural insights. According to

Horwitz (2016), in behavioural development economics, nudging is something about changing the environment in which people make choices. Nudge is defined by Thaler and Sunstein (2008), as an "aspect of the choice architecture that predictably alters people's behaviour without forbidding any options or significantly changing their economic incentives".

In the last few years, nudging has become more interested and effective policy tool to positively influence people's behaviour. Thaler and Sunstein (2014) explained ten nudges that helps to place things into positive direction such as social norms, default rules, increase in ease and convenience, simplification, reminders, graphics, warnings, disclosure, recommitment strategies, and informing people about the consequences of their own previous decisions. This theory has been tested in important policy areas like in healthcare (Wisdom et al., 2010), consumer decisions (Waqas et al., 2023; Nawaz et al., 2022), education (Ross, 2019) and many others.

RESEARCH DESIGN AND METHODOLOGY

Sampling

This study uses survey method of research in order to check the approval of hypothetical nudge policies in Pakistan. A well-structured questionnaire was developed and data was collected from 840 respondents. The sample of 840 was divided into the capital cities (Lahore, Karachi, Peshawar and Quetta) of four provinces (Punjab, Sindh, KPK, Balochistan) and Islamabad (capital city of Pakistan) according to their share in total population of Pakistan. Table 1 shows the sampling distribution of this survey.

Table 1
Sample Distribution

Province	Population	Percentage	Provincial Capitals	Sample
Punjab	109,989,655	54.26	Lahore	456
Sindh	47,854,510	23.61	Karachi	198
KPK	30,508,920	15.05	Peshawar	126
Balochistan	12,335,129	6.08	Quetta	51
Federal Capital	2,003,368	0.98	Islamabad	9

SURVEY INSTRUMENTS

A well-developed questionnaire asked participants to answer the social-demographic variables; the six hypothetical social nudges; questions measuring the trust (such as trust in government, trust in

environmental organizations, trust in electronic and print media and trust in people); happiness; environmental and individual health concern.

The six social nudges provoked with the question "Do you approve or disapprove the following hypothetical policy?" The answer is categorized into two options 'approve' or 'disapprove'. In order to measure the trust in institutions this study included the question from World Value Survey "How much do you trust in the following institutions?" A set of concerned institutions were listed such as the government, electronic and print media, and environmental organizations. To measure the trust in people, environmental concern, and health concern questions were taken from World Value Survey. Respondents were required to answer all these items on seven point likert scales. With respect to asked happiness of people this study asked "Taking all things together, would you say you are (i) Very happy, (ii) Rather happy, (iii) Not very happy or (iv) Not at all happy". This item is also taken from World Value Survey. Table 2 listed the survey items used by this research study.

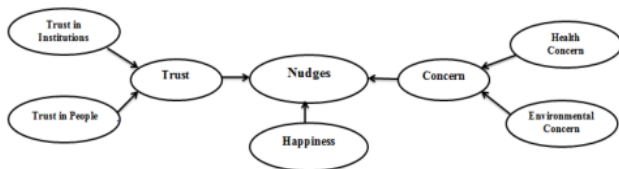
Table 2
Survey Instruments

Nudges: Do you 'approve' or 'disapprove' the following hypothetical/ actual policies.	Government policy consisting of mandatory display of warning messages on cigarette packs to discourage smoking. Government policy consisting of informative banners about the harms of using cell phone while driving to reduce accidents caused by distracted driving. Government policy consisting of TV advertisement about family size to reduce population growth. Government policy consisting of TV advertisement about importance of female education to encourage female school enrolment. Government policy consisting of motivational messages such as "Say no to corruption" in order to discourage corruption. Government policy consisting of calories labels at fast food restaurants (such as McDonald's and Burger King) to reduce the problem of obesity.
Trust in Institutions (World Value Survey)	"On a scale of 1 to 7: How much do you trust the following institutions? (1 indicates no trust at all and 7 indicates complete trust). o The government o Electronic and print media o Environmental Organizations"
Trust in People (World Value Survey)	"On a scale of 1 to 7: Would you say that most people can be trusted? (1 indicates no trust at all and 7 indicates complete trust)."
Environmental Concern (World Value Survey)	"On a scale of 1 to 7: How much are you concerned about the environment? (1 indicates almost no concerns and 7 indicates high concerns)."
Health Concern (World Value Survey)	"On a scale of 1 to 7: How much are you concerned about your personal future health status? (1 indicates almost no concerns and 7 indicates high concerns)."

METHODOLOGY

This study used the Structural Equation Model (SEM) to test and estimate the causal relationship between approval rate of nudge policies and a number of latent variables. SEM analysis is a multivariate technique that enables us to test the relationship between multiple variables at the same time. This model has two parts, one is measurement part which shows how the observed variables are related with latent variables and another part is structural part that specifies the casual relationships among the latent variables. The SEM framework that is used to evaluate the casual relationship between nudges and a number of latent variables is presented below:

Figure 1
SEM Framework



Following are the hypotheses that are tested in this study:

H1: Trust is positively related with the approval of nudge policies

H2: Concern is positively related with the approval of nudge policies

H3: Happiness is positively related with the approval of nudge policies

RESULTS AND DISCUSSIONS

The present study focuses on the empirical acceptance of six important social nudges in Pakistan that have not been tested earlier. The results of this study provide realistic insights into how behaviour of people varies with individual towards certain regulatory interventions. The main focus of particular empirical analysis is on important factors such as trust in institutions, health and environmental concern, and happiness that influence the acceptance of nudges.

The particular interest of this research lays in the proposition that trust in public institutions and trust in people is important to influence the acceptance of nudges. First hypothesis of SEM model is that trust is positively correlated with the approval of nudges.

Path coefficient of SEM analysis for this hypothesis is positive and significant at 0.016 which shows that this hypothesis is supported in the model. The table 3 shows the results of SEM analysis:

Table 3
Results of SEM analysis

Hypothesis	Path coefficient	Standard Error	P-Value	Hypothesis verification
H1: trust→nudges	0.016	0.008	0.059	Supported
H2: concern→nudges	0.007	0.004	0.097	Supported
H3: happiness→nudges	0.032	0.008	0.000	Supported

Second important factor that has influence on the approval of nudges is concern, measured from people's concern for their health and environment. Results also supported hypothesis no 2. Path coefficient is positive that is the indication for positive relationship between concern and acceptance of nudges. As expected hypothesis no 3 is also supported by the results of SEM framework. People's happiness found as a significant variable for the approval rate of nudges.

CONCLUSION AND POLICY IMPLICATIONS

In recent years, research interests revolve around formulating potential nudge strategies in the domains of safety, health and the environment, and policy makers are well aware about significance of using nudges. This research offers answer to question whether people like to be nudged in case of Pakistan. Being a developing nation, our country is facing several social issues that cannot be resolved due to limited resources. With the help of nudges government can enforce positive behaviour towards desired outcome without giving monetary incentives to people. According to Halpern et al. (2015), the use of nudges has been helpful to achieve desired social outcomes.

To empirically test the acceptance of six social nudges regarding smoking, safety, population growth, female education, corruption and obesity, a survey method is used. Data is collected from the capital cities of four provinces and federal capital through questionnaire. This study particularly focuses on trust in government institutions, health and environmental concern, and happiness of people as these are the key determinants for the approval of nudges. Trust in government institutions is a possible

mediator for the acceptance of nudges (Sunstein 2018).

The results of SEM model reveal significant insights. The results show that happiness also contribute significantly towards acceptance of nudges along with trust in institutions, and health and environmental concern. The results of this empirical study suggested that state interventions can target to positively change the behaviour of people without monetary incentives in different domains education, anti-obesity policies, safety regulations, consumer's decisions, environmental protection and many more. Keeping in view that trust in public institutions really matters for the approval of nudges, policymakers can help by designing more effective behaviourally informed nudges.

REFERENCES

- Agarwal, S., Rengarajan, S., Sing, T. F., & Yang, Y. (2017). Nudges from school children and electricity conservation: Evidence from the "Project Carbon Zero" campaign in Singapore. *Energy Economics*, 61, 29–41. <https://doi.org/10.1016/j.eneco.2016.10.014>
- Altmann, S., & Traxler, C. (2014). Nudges at the dentist. *European Economic Review*, 72, 19–38. <https://doi.org/10.1016/j.eurocorev.2014.07.007>
- Arno, A., & Thomas, S. (2016). The efficacy of nudge theory strategies in influencing adult dietary behaviour: A systematic review and meta-analysis. *BMC Public Health*, 16(1), 1–11. <https://doi.org/10.1186/s12889-016-3272-x>
- Bartke, S., Friedl, A., Gelhaar, F., & Reh, L. (2017). Social comparison nudges—Guessing the norm increases charitable giving. *Economics Letters*, 152, 73–75. <https://doi.org/10.1016/j.econlet.2016.12.023>
- Demarque, C., Charalambides, L., Hilton, D. J., & Waroquier, L. (2015). Nudging sustainable consumption: The use of descriptive norms to promote a minority behavior in a realistic online shopping environment. *Journal of Environmental Psychology*, 43, 166–174. <https://doi.org/10.1016/j.jenvp.2015.06.008>
- Ensaff, H., Homer, M., Sahota, P., Braybrook, D., Coan, S., & McLeod, H. (2015). Food choice architecture: An intervention in a secondary school and its impact on students' plant-based food choices. *Nutrients*, 7(6), 4426–4437. <https://doi.org/10.3390/nu7064426>
- Hagman, W., Andersson, D., Västfjäll, D., & Tinghög, G. (2015). Public Views on Policies Involving Nudges. *Review of Philosophy and Psychology*, 6(3), 439–453. <https://doi.org/10.1007/s13164-015-0263-2>
- Halpern, S. D., French, B., Small, D. S., Saulsgiver, K., Harhay, M. O., Audrain-McGovern, J., Loewenstein, G., Brennan, T. A., Asch, D. A., & Volpp, K. G. (2015). Randomized trial of four financial-incentive programs for smoking cessation. *New England Journal of Medicine*, 372(22), 2108–2117. <https://doi.org/10.1056/NEJMoa1414293>
- Henkel, C., Seidler, A. R., Kranz, J., & Fiedler, M. (2020). How to nudge pro-environmental behaviour: An experimental study. *27th European Conference on Information Systems - Information Systems for a Sharing Society, ECIS 2019, May*. <https://doi.org/10.14361/transcript.9783839425046.19>
- Horwitz, S. (2016). Behavioural economics: A virginia political economy perspective. *Economic Affairs*, 36(3), 273–281.
- Jung, J. Y., & Mellers, B. A. (2016). American attitudes toward nudges. *Judgment and Decision making*, 11(1), 62–74.
- Koumpias, A. M., & Martinez-Vazquez, J. (2019). The impact of media campaigns on tax filing: quasi-experimental evidence from Pakistan. *Journal of Asian Economics*, 63, 33–43. <https://doi.org/10.1016/j.asieco.2019.05.002>
- Kraak, V., Englund, T., Misyak, S., & Serrano, E. (2017). Progress evaluation for the restaurant industry assessed by a voluntary marketing-mix and choice-architecture framework that offers strategies to nudge American customers toward healthy food environments, 2006–2017. *International Journal of Environmental Research and Public Health*, 14(7), 20–35. <https://doi.org/10.3390/ijerph14070760>
- Mirsch, T., Lehrer, C., & Jung, R. (2017). Digital Nudging: Altering User Behavior in Digital Environments. *Proceedings of 13th International Conference on Wirtschaftsinformatik*, 634–648.

- [https://www.alexandria.unisg.ch/250315/1/Mirsch Lehrer Jung %202017%29_Digital Nudging - Altering User Behavior in Digital Environments.pdf](https://www.alexandria.unisg.ch/250315/1/Mirsch%20Lehrer%20Jung%20Digital%20Nudging%20Altering%20User%20Behavior%20in%20Digital%20Environments.pdf)
- Nawaz, S. M. N., Alvi, S., Rehman, A., & Riaz, T. (2022). How do beliefs and attitudes of people influence energy conservation behavior in Pakistan?. *Heliyon*, 8(10).
- Reisch, L. A., & Sunstein, C. R. (2016). Do europeans like nudges? *Judgment and Decision Making*, 11(4), 310–325. <https://doi.org/10.2139/ssrn.2739118>
- Reisch, L. A., Sunstein, C. R., & Gwozdz, W. (2017). Beyond carrots and sticks: Europeans support health nudges. *Food Policy*, 69, 1–10. <https://doi.org/10.1016/j.foodpol.2017.01.007>
- Rivers, N., Shenstone-Harris, S., & Young, N. (2017). Using nudges to reduce waste? The case of Toronto's plastic bag levy. *Journal of Environmental Management*, 188, 153–162. <https://doi.org/10.1016/j.jenvman.2016.12.009>
- Ross, S., Wood, M. A., Johns, D., Murphy, J., Baird, R., & Alford, B. (2022). Understanding Engagement With Forensic Smartphone Apps: The Service Design Engagement Model. *International Journal of Offender Therapy and Comparative Criminology*, 0306624X221106323.
- Schubert, C. (2017). Green nudges: Do they work? Are they ethical? *Ecological Economics*, 132, 329–342. <https://doi.org/10.1016/j.ecolecon.2016.11.009>
- Sudarshan, A. (2017). Nudges in the marketplace: The response of household electricity consumption to information and monetary incentives. *Journal of Economic Behavior and Organization*, 134(September 2015), 320–335. <https://doi.org/10.1016/j.jebo.2016.12.015>
- Sunstein, C. R. (2018). “Better off, as judged by themselves”: a comment on evaluating nudges. *International Review of Economics*, 65, 1–8.
- Sunstein, C. R., Reisch, L. A., & Kaiser, M. (2019). Trusting nudges? Lessons from an international survey. *Journal of European Public Policy*, 26(10), 1417–1443. <https://doi.org/10.1080/13501763.2018.1531912>
- Thaler, R. H., & Sunstein, C. R. (2008). Nudge: improving decisions about health. *Wealth, and Happiness*, 6, 14–38.
- Wang, H., Ma, S., Dai, H. N., Imran, M., & Wang, T. (2019). Blockchain-based data privacy management with Nudge theory in open banking. *Future Generation Computer Systems*, October. <https://doi.org/10.1016/j.future.2019.09.010>
- Waqas, M., Mian, S. J., & Nazir, N. (2023). The role of religious advertising and personal selling in enhancing mutual fund purchase intention and sales in Pakistan: a managerial perspective. *Journal of Islamic Marketing*, 14(1), 43–60.
- Wisdom, J., Downs, J. S., & Loewenstein, G. (2010). Promoting healthy choices: Information versus convenience. *American Economic Journal: Applied Economics*, 2(2), 164–178.