

# BEHAVIOURAL NUDGES FOR PUBLIC POLICIES IN INDIA- OPPORTUNITIES AND CRITICISMS

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# PREFACE

**W**e, the Department of Commerce, University of Kerala, are delighted to present before you the proceedings of International Conference on “BEHAVIOURAL NUDGES FOR PUBLIC POLICIES IN INDIA- OPPORTUNITIES AND CRITICISMS”. The International Conference focuses on theory and provide additional knowledge and wisdom through scholarly work and discussions on the themes of Behavioural insights, nudging and choice architecture in India. It also highlights the opportunities and criticisms of nudge theory through empirical studies done in India. It serves as an essential platform for knowledge dissemination and aims to bring together research scholars, management professionals from industry, academia, business entrepreneurs, business leaders, and students under one platform. The E-Book of Conference Proceedings is a collection of 10 selected full papers which are classified into different sub-themes. The sub-themes are:

- ☑ Behavioural Nudges in Public policy
- ☑ Behavioural Nudges in Finance
- ☑ Digital nudging

We believe that the efforts of the researchers will find good ground with the readers all over the world. Further, this E-Book will successfully strike the right chord with the researchers, practitioners and academicians and encourage them to go for more innovative ways of aligning the systems and procedures to solve the industry and business problems.

# EDITORIAL COMMENTS

## *Power of Nudges*

Economic survey (2019) suggested that behavioural techniques can help to achieve desirable outcomes from subsidy programs and in turn reduce the effective costs of subsidy. The survey pinpoints the policy development for Homo Sapiens, not Homo Economicus, and quoted the necessity of leverage the Behavioural Economics of “Nudge”. Also, it outlines an ambitious agenda for behavioural change.

Human decisions are strongly biased by an automatic system of thinking (Kahneman, 2012) which would probably produce good results but sometimes took us to irrational choices. Governments are now interested in using behavioural insights via nudges to supplement or replace traditional policies to shape the behaviour of citizens (Benartzi et al., 2017). Nudge is an intervention, an aid, or a gentle reminder that enables persons to make better decisions (Thaler, R.H., & Sunstein, 2008). The ‘Nudge’ theory is predicated on the assumption that our decisions in everyday life are not entirely rational and influenced by behavioural biases. The supporters of this theory think that the way to drive people towards the right choice is to identify the psychological factors influencing their logical mind and use behavioural interventions or ‘nudges’ for better decision-making.

Sometimes nudges fail due to its short-term effects and may create confusion among the target audience (Sunstein, 2017). Nudges may prove ineffective when designed without a proper understanding of the situation, and it can be seen as the failure of the choice architect. Moreover, nudges also face the criticism of undermining the autonomy of individuals.

Editors,  
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**BEHAVIOURAL NUDGES FOR PUBLIC POLICIES  
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**ANALYSIS OF NUDGE TOOLS USED IN  
ADMINISTRATION OF VACCINATION  
PROGRAMME DURING PANDEMIC IN INDIA**

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## ABSTRACT

By the end of 2021, i.e., almost 2 years after Corona pandemic hit the world, India is one of the few countries that is able to implement its vaccination programme successfully. Albeit the vaccine hesitancy among some groups, India's goal to complete vaccinations by 2022 is a realistic goal now. This study attempts to analyse the nudge tools that were instrumental in inducing people to get vaccinated despite obvious hurdles and limitations. For identifying the regulatory nudges, the policies and measures are studied on the basis of a behavioural science tool. This tool is developed by Stephen Wendel known as CREATE (Cue, Reaction, Evaluation, Ability, Timing and Experience). Apart from that, several other events that nudged people are also stated in this study.

**Keywords:** *Nudge tools, Public policy, Mass vaccination*

## Introduction

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While regarding Covid-19 as a pandemic, the major challenge faced by world was developing an effective vaccine for preventing corona. Soon after the discovery of vaccine, world nations faced difficulty in its distribution and proper inoculation. Even when the vaccine was mobilised promptly and adequately, most Governments couldn't administer mass vaccinations among people due to vaccine hesitancy. This was not a debacle of just developing or under developed countries. Even people of developed countries were seen reluctant to comply with corona prevention and precaution measures and openly protested against Government policies with regard to pandemic.

Unlike other south-east nations, India successfully implemented lockdown measures at the beginning of pandemic in 2020. This was a crucial period for government and nation because it was an unprecedented phenomenon and gave little time for preparation. The risk in quick decision making was unavoidable. Despite many adversities, the nation, under the leadership of Prime Minister Narendra Modi, fought against the pandemic. Government mechanisms of health, defence, police and local administration were coordinated and performed



effectively in the lock down as well as during mass vaccination campaigns. The participation and coordination by citizens were fundamental in achieving this. As of 16 January 2022, a year after mass vaccination campaign, India stand tall with a record number of 156.76 crore doses.

## **Review of Literature**

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(Dai et al., 2021)<sup>3</sup> and failure to follow through on vaccination intentions<sup>3,4</sup> requires effective communication strategies<sup>3,4</sup>. Here we present two sequential randomized controlled trials to test the effect of behavioural interventions on the uptake of COVID-19 vaccines. We designed text-based reminders that make vaccination salient and easy, and delivered them to participants drawn from a healthcare system one day (first randomized controlled trial Found that behavioural nudges have impact in vaccination of people against covid-19 through Randomised control trials among patients of University of California, Los Angeles (UCLA). These nudges were instrumental in persuasion with 90 percent success rate and almost zero marginal cost. Nudges in the form of text-based reminders which also removed barriers in scheduling. The nature of nudging was such that the group felt that the vaccine belonged to them.

(Krawiec et al., 2021)Postulates that nudge interventions as well as boost interventions shall be used effectively for policy shaping. Government shall apply legal interventions, along with nudges or boosts – in proportion or not, for achieving public policy objectives. Traditional policy making tools can be supported by behavioural tools in certain situations while both shall remain independent in some other situations of regulatory interventions. A merge between psychology and law- nudge and rules for public policy making will make it easier for the people to interpret and follow such policies. An ill-understood policy in uncertain times could lead to non-compliance and perils. Such a merge is hence viable in a situation like Covid-19 pandemic.

## **Rationale of the Study**

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While many developed countries faced stark resistance and protests from people in implementing corona containment measures, India government was imposing lockdown and preventive measures with great participation and

cooperation of the public in the initial stages itself. State and local authority nudges from the beginning under the leadership of Prime Minister was instrumental in creating confidence among people in healthcare departments and government machineries in general. These early nudges compounded gradually and at the time of mass vaccination, the public were by and large coming out and were getting inoculated. Studies show that any nudges from regulatory authority restricting people or limiting liberty is bound to face backlash. This stupendous achievement of mass vaccination must be analysed in that background too.

### **Objectives of the study**

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- ☑ To identify regulatory nudges operated in Covid vaccination drive in India

### **Methodology**

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The identification of nudges operated in vaccination programme is done on the basis of a Behavioural science model known as CREATE; developed by Stephen Wendel. The various policies and measures by Government and organisations is being studied and classified for the same.

### **Deciding what constitutes as a nudge.**

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It has been established that behavioural biases and cognitive limitations hinder smooth execution of public policy. Vaccine hesitancy or vaccine scepticism is also caused due to such behavioural biases which in itself bear the solution for it. Behavioural scientist Stephen Wendel (2013) identified cognitive limitations and behavioural biases that individuals usually encounter and developed a model called CREATE. This model proposes six behavioural nudges to overcome cognitive limitations; namely- Cue, Reaction, Evaluation, Ability, Timing and Experience. By using this model, individuals can be persuaded into taking up action and thereby achieve the intended result. The various nudges operated in inducing vaccination drive has been identified and explained in CREATE model.

## Results and Discussions

We can identify the operation of several events and phenomena in inducing people to take Covid vaccine doses. Based on CREATE model, these events shall be analysed and categorised as nudges.

SI no	Technique	Operation	Event constituting as nudge
1.	Cue	Used to grab attention of an individual. These can be visual as well as auditory.	During the start of vaccination campaign, caller tune was set for every States and UTs in English and regional languages. Importance of getting vaccinated was communicated to people through bill boards, newspapers, social media etc.
2.	Reaction	Related to how people react to the environment. The response for a stimuli. This also include adhering to social norms.	Public figures who have influence on common man took their vaccine doses and inspired others to do the same.  Influential personalities took vaccine and announced it through social media which gave the public the instinct to go out and get jabbed.  Later on, a trend was seen among people where they announced getting vaccination through social media.
3.	Evaluation	Techniques used to facilitate better evaluation of a situation by an individual for quick decision making. Also includes reducing cognitive limitations in decision making.	Getting at least one dose of vaccine is regarded as a pass to enter restricted public places like restaurants, parks, gyms, movie theatres etc. This was presented as one of the major benefit of getting vaccinated.

SI no	Technique	Operation	Event constituting as nudge
4.	Ability	Techniques used to facilitate action by individual. The confidence in one's ability is improved to make quick action. Also include removing any obstacles in taking course of action, making the task simple.	The booking of vaccination slots at vaccination centres have been enabled through various platforms like Co-win portal, Arogya Setu App, UMANG app etc. Scheduling date, time and venue of vaccination by individuals themselves will instigate a sense of confidence and intend to get vaccinated
5.	Timing	Techniques used to reduce time delay in action. Individuals are persuaded to take action promptly.	The initial phase of vaccination was for front-line workers of pandemic, followed by senior citizens. This ensued as a norm among public who awaited for their turn to get jabbed. Also, the vaccination programme included specific groups of people based on age or priority at each phase and communicated to them prior to their turn of vaccination.
6.	Experience	Techniques that focuses on reducing familiarity of a situation. The individual's past experience that may dissuade him from action is overcome with this technique. The past negative experiences are dissociated from individual by linking with positive experiences.	There was a short-term scarcity of vaccines in many places after the vaccination campaign took momentum. This had a negative impact among people about the whole process. But by the time they were ready for second dose of vaccine, more doses were made available and programme was coordinated by elected representatives of local authority.

Apart from these nudges, we can identify several other nudges that have operated in inducing people to take Covid vaccination. These include:

- ☑ Issue of Vaccination certificate for everyone who have got vaccinated instead of issuing for those who need it.
- ☑ Door to door supply of vaccines for maximum coverage
- ☑ Free vaccination by Companies and organisations for their employees and family.
- ☑ Depiction of Prime Minister's picture and Government symbols in the certificate, thereby creating a sense of confidence among people in the vaccine.
- ☑ Programmes and events appreciating the contribution and efforts of health workers and front-line workers instil a sense of gratitude among people and induce them to take part in the 'fight against Covid'.
- ☑ Allowing more people to get vaccination schedule from one person's phone number
- ☑ Setting up of Vaccination centres in many places to increase accessibility.
- ☑ Campaigns to make vaccination drive 'The Largest vaccination drive' in the world inspired people to be part in the endeavour.

## **Conclusion**

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With the intervention of Government, health department and other stakeholders, behaviour of people towards vaccination was influenced for good. Those nudges that was pivotal in influencing peoples' behaviour is examined in this study. Be it the courage and leadership of Prime minister or something as trivial as telephone caller tunes, everything nudged the common man towards taking vaccine and preventing disease.

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# **EFFECTIVENESS OF REGULATORY NUDGING IN INDIRECT TAX COMPLIANCE**

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## ABSTRACT

In order to enhance tax compliance, behavioural insights need to be employed to modify the social norm from “evading taxes is acceptable” to “paying taxes honestly is honourable. Nudges are found to have a strong influence on behaviour of tax payers. This study attempts to measure the effectiveness of such regulatory nudging in indirect tax compliance among select individuals. The study is based in Thiruvananthapuram and sample of 65 registered traders are selected on a purposive and convenience base. Data was collected using questionnaire and the Statistical Tool – Arithmetic Mean is used for analysis and interpretation. The non-deterrence nudges are less influential and effective than the deterrent nudges on majority of the sample selected. The main reason for reluctance in tax compliance is presence of sludges. It is required to reduce the sludges as far as possible for achieving intended outcomes of nudges.

**Keywords:** *Nudge tools, Regulatory Nudging, Tax compliance*

## Introduction

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In most countries across the world, behavioral insights are becoming part of policy tools. Behavioral insights have a prominent role in solving the tax evasion, one of the endemic challenges faced by the Government. The basic idea of nudge, as specified by Thaler and Sunstein suggests that a nudge shall motivate people’s behaviour without compulsion or threat and retains the freedom to opt out. But later studies on application of behavioural science in taxation added deterrence nudges for better tax compliance. Absence of deterrence may create a feeling among people that nothing worse could happen with non-compliance. So, deterrent (compulsion and threatens) tools are used along with non-deterrence to make them compliant. In the deterrence nudging tools, the communication between tax administration and taxpayers should specifically contain a threat that features one of the economic factors behind the tax compliance decision, as explained by (Allingham & Sandmo, 1972)-primarily the possibility of audit and the potential penalty for evasion. The communication content between the tax administration and taxpayers should



not contain a threat that has the potential to change the taxpayers' financial intentions in order to be recognized as a non-deterrence nudge. By using these nudging tools government can motivate the tax payers by morality, perceptions of fairness, social norms in society, government provision of public goods, and other factors (Antinyan, 2019).

The term 'sludge' is used by the same authors who proposed the concept of Nudge. A sludge is used to describe any component in decision architecture that introduces friction and makes it more difficult for people to achieve a better outcome. They may back out from the programs when they face too many sludges. While measuring the effectiveness of nudging tools in tax compliance, it is important to identify and consider the sludges as well. The cost of these sludges is not borne and considered by Government; they ultimately fall on the public. So, while framing structure, it is important to reduce such sludges. Then only the nudges would work effectively.

## Literature Review

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(Antinyan, 2019) conducted a meta-analysis on nudging for tax compliance and categorized the nudges into deterrence and non-deterrence. Then they measured the effectiveness of these nudges in tax compliance. They found out that non-deterrence nudges are less effective than deterrence nudges in enhancing tax compliance.

(Rapoport et al., 2020) discovered that behavioral insights can play a key role in improving public finance in a region with numerous unfulfilled needs and limited resources. Behavioral insights can help improve public finances by increasing tax compliance and improving efficiency in government spending. Messages, reminders, positive incentives, and other forms of communication can help governments to enhance public participation and voluntary compliance.

(Mogollón et al., 2019) reported the results of a field experiment done by the National Tax Agency of Colombia. They identified the importance of phone calls as a means of communication, as well as personal interaction, reminders, and commitments for improving tax compliance.

## **Importance of the study**

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Tax compliance is crucial for an economy as governments use tax revenues to invest in infrastructure, health care, education and among other public goods in order to improve people's social and economic well-being. To enhance the tax compliance among individuals and firms, tax authorities use various behavioral insights called nudges in order to change peoples' behavior as intended. It is important to evaluate how effective these nudging efforts made by tax administration for increasing indirect tax compliance levels and curbing tax evasion. The nudge tools will achieve the desired outcome only when the authorities consider and handle the sludges in tax system. Nudges as well as sludges influence the behavior of people. Sludges are the difficulties and hurdles faced which demotivates the tax payers from compliance. The taxpayers compare the time and efforts needed for compliance with that of evading their tax liability. When they feel it is more costly for complying than evasion; they go for dodging and the behavioral interventions become useless.

## **Objectives of the study**

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1. To measure the effectiveness of nudges in indirect tax compliance.
2. To identify some major sludges in tax compliance.

## **Methodology**

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The study aims to find the effectiveness of Regulatory nudging in indirect tax compliance. The sample for this study is limited to traders registered with GST. A sample size of 65 respondents in Thiruvananthapuram district were selected based on purposive and convenience sampling. A questionnaire using 5-point Likert scale has been designed to measure effectiveness of regulatory nudging in indirect tax compliance. Descriptive statistics is used for analysis and interpretation. The respondents were given a questionnaire to mark the effectiveness of certain tax related variables based on the degree of influence each statement may have. The classification made based on deterrence and non-deterrence is not communicated in the questionnaire. The variables were selected from studies based on behavioural insights' application in tax compliance.

## Results and Discussions

**Table No. 1: Effectiveness of Deterrence  
Nudges in Indirect Tax Compliance**

Sl No.		Mean
1.	Chances of tax audit	3.8
2.	Interruption by GST officials for search and seizure	4.4
3.	Penalty on late filing, filing incorrect return etc.	4.5
4.	Impact of recovery proceedings by GST department	3.7
5.	Penalty and punishment for tax evasion, default in payment etc.	4.1
	Total	4.1

Source: Primary Data

**Table No. 2: Effectiveness of Non-deterrence  
Nudges in Indirect Tax Compliance**

Sl No.		Mean
1.	Monetary benefits like cash back offers on digital payment of tax	3.9
2.	Reminders on due date for filing return through newspaper, social media etc.	3.2
3.	Personal reminders in profile of tax payer in GSTN	3.1
4.	Recognition of tax payers' contribution by Finance Ministry for substantial payments and timely filing of returns	3.5
5.	Funding of public goods by tax payers' money	3.0
	Total	3.34

Source: Primary Data

## Findings and suggestions

1. The mean score in Table No.1 and Table No.2 indicate that the influence of Deterrence nudges is slightly more than non-deterrence nudges for most of the respondents.

2. Among the non-deterrent nudges, the cash back offers for digital payment is highly influential and induce both tax compliance and digital payments.
3. The deterrent nudges like search, seizure and audit and its possible effect on the normal functioning of the firm reduces the non-compliance and non-payment.
4. Different people have different behavioural patterns and the degree of influence from different nudging tools on them would also be different. So, it is needed to classify the tax payers in accordance with their tax-behaviour patterns and apply those nudges that work with them.
5. The recognition of good tax payers by distributing certificates and prizes encourages people. But it is not motivating enough to adhere to tax regulations.
6. The reason for reluctance by most of the respondents in compliance is due to the sludges in compliance such as technical glitches, lengthy and complex proceedings like filing various online forms, frequent revisions in the GST rate and provisions and difficulty in following GST related laws, rules and compliance procedures. It takes a lot of time and effort to overcome such sludges. So, it leads to non-compliance.
7. Due to the existence of these sludges, the nudges will not properly work on taxpayers.
8. For reducing the sludges, the tax department shall provide more user friendly and efficient GSTN, simplify the GST rules and procedures, avoid unnecessary revisions, educate taxpayer etc.

## **Conclusion**

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This study aimed to measure the effectiveness of nudge tools in indirect tax compliance and to identify the sludges faced in the system. It was found that the authority uses nudging tools as an effective weapon in proper tax compliance. In the most case of proper adherence of online form filing, GST return filing, prompt payment of taxes, frequent visit in website and other

related procedures are due to the proper and timely interventions of authority. The survey revealed that the non-deterrence nudges are slightly less effective than deterrence nudges and also, they induce only a short-term influence in people. The major sludges identified in GST system are complex and lengthy procedures, technical glitches, network issues, frequent revisions and illiteracy. Nudges will not work if sludges lie above the intensity of influence created by the nudges. A strong and powerful internal team is required in GST system for identifying and taking timely action for reducing sludges and to formulate and implement strategies by combining deterrence and non-deterrence nudges to influence the peoples' behaviour for enhancing the indirect tax compliance.

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**NUDGING: CRITICISM  
AND ETHICAL ISSUES**

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## ABSTRACT

Nudges are subtle interventions which help people choose the decision which is best for the welfare of the people. While there is much enthusiasm regarding this idea, there are many who raise their concerns or criticise it. The study tries to examine some of its criticisms and ethical issues and also suggests some measures to overcome them. Secondary data, such as newspaper articles, journals, etc., is used to collect data. Nudges can be effective in some cases and ineffective in others. Even though nudging has proved to yield desired results in policy making, the ethical concerns raised over the concept cannot be ignored.

**Keywords:** *Nudge, Criticism, Ethical Issues.*

## Introduction

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Nudge theory, which is part of behavioural economics, in simple words, means subtle interventions made in the choice structure to influence decisions so as to ensure the welfare of the decision maker. The concept of “nudge” was put forward by Nobel Laureate Richard Thaler and Cass Sunstein about a decade ago. Nudging has emerged as a powerful tool in governance. Many countries have incorporated the concept into public policies. Despite all the excitement and acceptance of the concept worldwide, many have heavily criticised it.

## Statement of the problem

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Ideally, a nudge should be gentle, it should not take away the decision maker’s power to choose, and, most importantly, it should result in the welfare of the decision maker. But in reality, nudges aren’t always gentle or result in the welfare of the decision maker. For instance, there are many commercial and marketing nudges that don’t necessarily result in the welfare of the decision maker but rather result in the welfare of the nudger. It would be devastating for a democratic country if the welfare of those in power were incorporated into policies that incorporated nudges rather than the welfare of the people. In this light, it is essential to examine the criticisms and ethical issues surrounding nudges and find solutions to such concerns.

## Objectives

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- ☑ To examine the criticisms and ethical concerns regarding the use of nudges.
- ☑ To provide suggestions as to how to overcome the criticism and ethical issues.

## A review of the literature

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Hausman and Welch (2010) argue that nudges limit freedom of choice and, in the concept of libertarian paternalism, are dubious. Selinger and Whyte have pointed out key conceptual ethical issues in nudging (2011) and highlight Adam Burgess's view that nudging is ineffective in solving complex policy problems and also criticise nudging (2012). Waldron (2014) reviews the book 'Why Nudge?' by Cass Sunstein and opines that he wishes to be made into a better chooser rather than have someone take advantage of his flaws as a decision maker. Hansen (2016) in his study tries to explain the concepts of "nudge" and "libertarian paternalism" and the relationship between them. Sunstein (2018), in his article "misconceptions about nudges," tries to clarify the common mistakes and misconceptions about nudging. Hausman (2018) explains nudging and other ways of steering behaviour and also discusses some of the issues related to nudging. The study by Pavlovsky (2019) tries to shed some light on nudging and manipulation and tries to analyse both with the help of reviews. Ewert (2020) is of the opinion that nudging is a narrow and opportunistic concept that prevents further development in behavioural insights. Schmidt and Engelen (2020) discuss different objections against nudging and come to the conclusion that nudging cannot be rejected altogether.

## Discussions

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Nudging was helpful in successfully implementing some government policies. There is no doubt that a lot of issues, such as non-compliance with laws, could be solved using nudge techniques. But complex problems cannot be solved by a "nudge" (Burgess, 2012). Nudging alone cannot solve sensitive or social issues existing in society, such as gender inequality, casteism, racism, etc. To solve



such issues, it is essential to find and eliminate the root cause of the issue. A simple nudge without addressing the underlying cause will do little to solve the problems. Also, it would be better to educate and bring lasting change in the behaviour of people to ensure their welfare rather than just nudging for a temporary change.

Sometimes, nudging and manipulation overlap (Pavlovsky, 2019). In some cases, the nudge could come across as exploiting your feelings and emotions, which is ethically wrong. What if stronger emotions such as fear or hate are used to nudge people? One way of nudging is changing the default option, as many have the inertia to stick with the default option. What if a situation arises where you have many options but are too afraid to choose anything other than the default option? Then there is no real freedom of choice.

Waldron (2014) argues that nudging is an insult to human agency as it doubts a person's ability to understand the information provided to him to make the right choice. A nudge is designed in such a way that the decision maker is drawn to the option that the nudger thinks is best for the welfare of the people. But what if the policy maker or the nudger is wrong? The best decision for one individual may not prove to be the same for another. The diversity of people should be taken into consideration. For example, an opt out pension scheme might sound like a good choice for some, but others might not find it so as a lot of money will be locked up in the scheme for over 35 years (Robinson, 2019). The amount in the hands of the individual could have been put to better use.

Nudges could become a noise (Khatir, 2021). Also, constant and continuous nudges in the form of push notifications, messages, warnings, advertisements, or any other form of reminder can become extremely irritating for some. And in some cases, it can lead to undesirable decisions and behaviour.

An error, a mistake, or a bad decision is a lesson. It provides an opportunity to learn and grow. It makes us more responsible and better decision makers in the future. Thus, the learning opportunities could be lost (Robinson, 2019).

In some cases, nudges can be paternalistic (Hausman and Welch, 2010). Nudging can sometimes result in the exercise of too much control by the

nudger or government, which is not good for a democracy.

## **Suggestions**

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When nudges are being used to alter decisions, especially when they are inculcated in public policies, efforts must be made to address and eliminate the root cause of the problem.

Nudging should not be manipulative or exploitative in nature. Nudges that are educative in nature should be preferred over nudges that use cognitive biases. Covert nudges should be avoided as they are unethical and, even if they might work initially, they will not hold in the long run. Nudges shouldn't have any hidden motives.

Nudges should not pose a threat to human agency and autonomy. Nudges should be designed in such a way that they do not jeopardise the autonomy of an individual.

Nudges should be well planned, well formulated, and well tested so as to ensure that they don't become a noise or irritation. Nudges should be pre-tested before implementation so as to ensure that nudges don't backfire.

Nudging should only be done when other measures fail. In situations where nudging is inevitable, it should be ethical and transparent. The nudge units should consist of independent experts and ethicists who should ensure that nudges are ethical and that there is no conflict of interest. The nudgers, especially policymakers, must be made accountable for the nudges that they create and implement.

Measures should be taken to ensure that nudging is not transforming into a form of paternalism, where the nudger has too much control over the behaviour and attitudes of the people.

## **Conclusion**

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As per the definition, a nudge is subtle, does not pose a threat to autonomy, and is intended for the welfare of the decision maker, but the reality, in some cases, is different. Nudging cannot be completely avoided in policy making.

But it is not wise to ignore the criticisms against nudging. Hence, suitable measures should be adopted to ensure that ethical nudging is practised by the government and policymakers.

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**BEHAVIOURAL NUDGES FOR PUBLIC POLICIES  
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# FINANCIAL LITERACY AND PUBLIC POLICY IMPLICATIONS OF BEHAVIOURAL ECONOMICS

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## ABSTRACT

Behavioural economics offers support to the possibility that other public policy initiatives can enhance financial literacy. The bounded rationality approach pays particular attention to how smart but non-neoclassical decision-makers are influenced by information and the incentive environment. From this perspective, better quality information presented in a non-complex manner and an institutional environment conducive to good decisions can all help improve financial decision making.

**Keywords:** *Behavioural Economics, Financial Literacy, Decision Making, Financial Education, Bounded Rationality*

## Introduction

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Financial literacy is becoming a growing concern for the government and other public policymakers. Most people have trouble understanding compound interest, inflation, and risk diversification. People who receive financial education are more likely to make educated and successful financial decisions. Improvements to relevant information, with a focus on quality, enable the effective implementation of financial education (and truthfulness).

Individuals produce systematic errors and biases in decision making that are mostly anchored in brain hardwiring, according to the Kahneman–Tversky approach. This perspective is more in favour of government policy that encourages consumers to make decisions that, in my opinion, are in their best interests. The Simon–March approach argues that individuals are physiologically incapable of behaving as prescribed and predicted by conventional economic wisdom. As a result, they develop heuristics or experience-based decision-making shortcuts. This would include improved access to improved availability of quality and pertinent information.

## The general consensus

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The concept of Homo Economicus encapsulates the core of the traditional economic decisionmaker. Simon (1987), who won the Nobel Prize in Economics

in 1978 for his contribution to behavioural economics, articulates the usual set of assumptions of popular wisdom very well. Individuals have unlimited knowledge of relevant option alternatives, according to neuroeconomics. They are assumed to make such decisions independently of others and unaffected by the decisions of others. People's decisions are influenced by relative pricing and income levels, as well as changes in these variables.

### **Quick and cost-effective decision making**

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The errors-and-biases strategy is turned on its head by a quick and frugal decision-making approach. According to research, damage to the emotional area of the brain causes people to lose their ability to make reasonable decisions. When you look beneath the surface of what appears unreasonable from the perspective of common wisdom, you may find it to be extremely sensible and intelligent. The notion of procedural and ecological rationality suggest that education may have an impact on and improve choice behaviour. The somatic marker hypothesis, which Damasio (2006) pioneered, identifies the beneficial role of emotions in rational decision-making. Financial booms and busts can be the result of a few key decision-makers making sensible and even ideal decisions. Institutional change may be more important than education in influencing behaviour in these cases.

### **The Importance of Institutions**

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Financial education can influence behaviour in this way, but the amount of this impact is currently constrained by institutional constraints. According to the Simon–March tradition of behavioural economics, institutional traits play a significant impact in making optimal (or best) decisions. It is possible to gain a better understanding of socially irrational but personally sensible (satisficing) behaviour, such as behaviour that raises wealth while generating recessions.

### **Biases and errors**

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Financial education has limited practical use, according to traditional economics. According to behavioural economics research, individuals do not behave in a neoclassical manner. Financial education could play a crucial part in

teaching people how to properly manage their emotions. Shiller (2008) favours financial product labelling that is regulated. According to him, integrating such information on financial products will significantly increase the efficiency and effectiveness of our financial products.

### **The multiple faces of behavioural economics, as well as financial literacy and education**

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Financial education, according to mainstream economics, has limited practical utility. According to behavioural economics research, people do not behave in a neoclassical manner. One of the most essential functions of financial education is to teach people how to better control their emotions. Shiller (2008) is a proponent of financial product labelling that is regulated. Including such information on financial items, he claims, will considerably increase the efficiency and efficacy of our financial goods.

### **Financial concerns, financial education, and financial literacy are all linked.**

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In this article, we'll look at how behavioural economics might be used to address some of the most pressing challenges faced by consumers today..

- 1. Pensions and Savings:** Many behavioural economists believe that how potential savers are presented with their alternatives has a significant impact on their saving behaviour. If the default option for a savings plan is to enlist automatically, the great majority of consumers will opt out. As a result, it is a moral imperative that employees do not enrol in high-risk retirement plans without their knowledge. The most successful method for modifying saving behaviour appears to be changing the default option in combination with changing the economic incentives.
- 2. Investing in financial assets is a great way to diversify your portfolio.** Greed, overconfidence, herding, and passive trading are only a few of them. The greatest method to invest isn't through active investing (a neoclassical heuristic). For most people, passive investment methods with a diverse asset portfolio (such as the 1-Nrule) are ideal. Individuals



might benefit from financial education by knowing about the actual returns on various investing strategies.

- 3. Making a decision: bubbles and busts:** Many behavioural economists believe that asset price booms and busts are caused by irrational decision-making heuristics. Efforts to raise public awareness of these features may help to mitigate the severity of financial asset price crashes. According to Keynes, “animal spirits” are behaviours motivated by emotional reasons such as greed and exhilaration. The failures of neoclassical economic theory were a major cause of the 2008–2009 economic crisis..

### **Errors in decision-making caused by a lack of information**

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Education is likely to increase the quality of knowledge, access, and understanding, hence reducing the number of bad financial decisions made in the past. It's possible that decision-making could be improved with better, more exact data, but such information is best delivered inside a regulatory framework. Many people are oblivious to the fine print or the jargon used in financial documents..

### **The heuristic of trust**

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“Trust” refers to the belief that the other party in a transaction will maintain its word. It's critical to have the notion that breaking a contract will have financial consequences. This type of trust is enforced in an institutional framework, where a breach of the trust bond will affect one's reputation and result in legal and economic penalties.

### **Conclusion**

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People are thought to make decisions in a calculated, deliberative, non-emotive, and self-interested manner, according to conventional knowledge. Financial education, according to the behavioural economics modelling paradigm, may help people make better financial decisions. The incentive environment, as well as access to and availability of relevant and high-quality information, are crucial. It is impossible to overestimate the relevance of governmental activities targeted at improving the quality and quantity of important data. It's critical

to establish ground rules for how information is delivered to customers. Late credit card payments should have a clear and easy-to-understand penalty. Employees in private-sector pension plans should be required to explain the risks and benefits.

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**BEHAVIOURAL NUDGES FOR PUBLIC POLICIES  
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**THE USE OF DIGITAL NUDGING AS  
A UNIVERSAL SOLUTION FOR ENHANCING  
TAX COMPLIANCE IN INDIA**

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## ABSTRACT

Digital technologies and automation play a pivotal role in expansion of business which results in increased revenue and tax base. The eighth edition of the Organisation of Economic Co-operation and Development's Tax Administration Series in 2019 underlined the necessity of e-administration of tax administrations using the different technology tools. The Central Board of Direct Taxation analysis of tax compliance data shows significant number of tax evasions which emphasises that there exists a strong need for targeted and guided approach for behavioural change to improve India's tax compliance. Digital nudging can be used to increase the effectiveness and intensity of these policies along with imprinting social and cultural norms for increasing the tax base. This paper through detailed analysis of the effect of nudging on taxation tries to suggest the ways through which tax compliance can be increased in India. The study is based on secondary sources which attempts to describes the challenges in the existing taxation system and formulate solutions based on emerging technologies.

**Keywords:** *Tax Compliance, Digital Nudging, Tax evasion, Behavioural Insights, E-Administration.*

## Introduction

Tax compliance refers to the adherence of enforced tax rules and procedures by the tax base of a country. It depends on the tax rates and level of enforcement by the concerned taxation authority in the country. Even though taxation plays a pivotal role as the policy instrument for the governments, tax evasion and other tax related infractions are prominent. The Central Board of Direct Taxes estimates the significant level of compliance in India to 11.6% in 2017<sup>1</sup>, which includes individuals who do not have a tax payer identity. The level of compliance can be attributed to multiple factors such as tax rates, existent dimensions of enforcement, rate of tax evasion (Allingham and Sandmo, 1972; Srinivasan, 1973)<sup>2</sup>, along with behavioural instincts of the tax payer and

<sup>1</sup><https://timesofindia.indiatimes.com/readersblog/justlearning/behavioral-solution-for-tax-compliance-in-india-27095/>

<sup>2</sup><https://www.sciencedirect.com/science/article/abs/pii/0047272773900248>

behavioural interventions of the government.

### **Statement of the Problem**

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Tax compliance has significant contribution towards economy as the tax revenue generated is invested for economic and social welfare. The proper identification and clear-cut understanding of underlying behavioural factors clubbed with adequate behavioural interventions which is referred as nudging can be used as an effective psychological tool for enhancing tax compliance. Digitalisation mixed with proper behavioural interventions has the potential to increase tax compliance. This paper aims to understand the behavioural motives that influence the tax compliance in India and the digital interventions which can be used for increasing tax payer base.

### **Objectives of the study**

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The main objectives of the study can be stated as follows:

- ☑ To identify the taxation policy related to evasion and digitalisation measures used to increase tax compliance in India
- ☑ To formulate certain measures which can be adopted in India to increase tax compliance in India.

### **Main Focus of the Article**

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Thaler and Sunstein (2003) described nudging not only as an approach that preserves the freedom of choice but also that which authorizes both private and public institutions to guide beneficiaries in directions that will promote their welfare. Weinmann et al. (2016) defined the adoption of nudging theory as the use of user-interface design elements to guide people's behaviour in digital choice environments. Lunn (2014) and The Organisation of Economic Cooperation and Development Forum on Tax Administration (OECD, 2016) identified behavioural insights as an important tool for improving the welfare of citizen through policies and regulations that are formed based on empirically based methods through mixing traditional economic strategies with psychology, cognitive sciences and other social sciences for discovering irrational factors which impact decision making. World bank (2015) in its world development

report identified that nudging helps in thinking automatically, socially, develop a common perspective and formulation of a mental model. Brown et.al (2012) after examining comprehensive set of policy instruments used in Australia identified that it can be used by governments to emphasise the feel-good effect of individual contributions to sustainability.

**Taxation Policy, Evasion and digitalisation in India:** The Direct Tax to GDP ratio in India has been static around 5.7% over the past decade, after which that rose significantly from the below 4% levels at the start of 2001-02<sup>3</sup>. The Income Declaration Scheme (IDS) introduced in 2016-17, a tax amnesty scheme that gave an opportunity for tax evaders to pay taxes based on their undisclosed income from previous years. There was a subsequent increase in tax payment which could be the possible impact of the e-filing of returns and also the submission of Kelkar Committee Report recommended changes to the existing tax policies. The Tax Administration Reform Commission (TARC), under the chairmanship of Dr. Parthasarathi Shome, was pioneer in recommending the extensive use of information and communication technology (ICT) in tax governance and administration for improving tax compliance levels of taxpayers. The Indian tax authorities are early adopters of information technology (IT) systems and it has enabled the tax payers for online tax registrations, e-payment of taxes, e filling of returns along with e processing of returns and refunds, reconciliation and e-viewing of tax credits, etc.

With the introduction of the Goods and Services Tax (GST), the uniform indirect tax structure of the country all compliances, payments and credits matching are administered online through the Goods and Services Tax Network (GSTN). Project Insights<sup>4</sup>, the flagship project of Ministry of Finance aimed at widening tax base through an integrated data warehousing and business intelligence (DW&BI) platform, which enables in detecting patterns and plug leakages for enhancing the policy and operational effectiveness. The Ministry of Corporate Affairs (MCA) and the Central Board of Direct

<sup>3</sup><https://sabeconomics.org/wordpress/wp-content/uploads/JBEP-3-1-4-Tagat.pdf>

<sup>4</sup>“India’s ‘Project Insight’ could find tax evaders through holiday and shopping snaps,” TechWire Asia, <http://techwireasia.com/2017/07/indias-project-insight-findtax-evaders-holiday-shopping-snaps>

Taxes (CBDT) have entered into an agreement in 2017<sup>5</sup> for sharing data and information on companies namely information regarding tax returns, permanent account number (PAN) and financial statements. As a response to the operational challenges created due to posed by the pandemic India was successful in introducing special measures to counter the immediate causes. The tax authorities shifted to remote working, with the help of secured systems. This sometimes affected their ability to collect, sort, validate and transmit the financial account information, as well as to process the incoming and outgoing requests.

**Digital nudging for tax compliance in India:** The digitalised interventions have the capability to increase the tax compliance rates in India. Highly context specific digital intervention strategies clubbing with the tax policies can be designed for the country. Reminder letters stating the exemptions and deductions can be mailed using the principles of behavioural economics such as highlighting the cases, catchy words and different colour codes etc can be used.

Innes (2017) used a theoretical model for studying the impact of lie aversion for self-reporting mechanisms such as tax compliance and stated that the society stands to benefit from heterogeneous preferences. The mechanism of self-reporting can be increased using the principle of social norms using personalised mailing letters and mass media campaigns emphasising values of honesty along with fair and transparent disclosure of returns. The interventions should include the message that evading taxes leads to lower revenue for the government, and therefore reduced benefits from public goods provision (among others) to the general public. Complying truthfully with existing tax laws could be seen as the willingness to accept a loss for the public good.

Based on the principle of data identified by Michael Sobolev (2021) the tax authority in India should focus towards increasing data availability related to filing of tax returns at the individual level. The PAN (Permanent Account Number) database can be considered as a classic example and can act as an

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<sup>5</sup>“MOU between the Ministry of Corporate Affairs and Central Board of Direct Taxes (CBDT) for Automatic and Regular Exchange of Information,” Press Information Bureau, <http://pib.nic.in/newsite/PrintRelease.aspx?relid=170769>

indicator of economic status in India. This PAN database can be used to narrow down specific subsamples where interventions can be tested. It can be used for identifying tax payers and non-tax payers and by using social norms and public goods approaches sent email reminders regarding the filing deadline for tax returns, the specifications of tax management and planning and information about websites along with the procedure for tax payment.

Visual imagery like in advertisements can be used for sending messages to the taxpayers to access and use electronic filing of tax returns. With the existing technologies, data can be used on tracing and checking the relevant information relating to whether email links are opened, the sample can be further use to narrow down to a specific subsample of taxpayers who can easily access and use e-filing mechanisms. Communication especially through mass media campaigns that are aimed at informing taxpayers regarding filing deadlines, procedures, and taxpayer amnesty schemes. According to Maslow's need hierarchy theory social norms are one of the five needs of people. Social norms or benefit to the society are always marked by ones need of self-maintenance and reputation, and thus this can be used as a nudging strategy where people try to prevent them from getting reminders, they would like to pay taxes timely. These communications should focus on priming individuals to their 'national duty' to pay tax.

The cultural and local norms can be used for targeting and influencing individual taxpayers. The messages can be delivered to individuals using the e-filing system imprinting the cultural norms of honesty associated with Mahatma Gandhi and other similar personalities. The use of the image of Gandhi is a proved effective in case of public policies for example the Swachh Bharat Abhiyan, which is identified as a classic example of behavioural change in India.

Intervention drawn on the line of socio-demographic data available with the CBDT can be used for localized decision making relating to compliance with taxes to the immediate environment of the taxpayer. The interventions incorporating cultural, local and moral messages identifying the social status of the tax payer can be used for truthful reporting of their own incomes.



## Conclusion

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Tax compliance remains to be a critical problem in a developing country such as India, in spite of the repeated efforts made by the government through widening of the tax base through enforcement and moral suasion along with technological improvements. There should be effective behavioural interventions specifically designed for reducing tax evasion and dishonesty in India. Digital behavioural interventions can complement towards mandatory reporting of tax record numbers, or changing incentives associated with compliance.

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A dark blue world map is centered in the background of the top section of the cover. The map shows the outlines of continents in a slightly lighter shade of blue.

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**SUSTAINABLE BEHAVIOUR BASED SAFETY  
TRAINING IS THE NEED OF THE HOUR TO THE  
WORKING POPULATION IN THE INDUSTRY**

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### Abstract

In the modern industrial revolution i.e. industry-4.0, very sophisticated instrument, upgraded technology, digitalized & transparent policies and purely professionalized working culture has been adopted with the use of Three R's. These Three R's are Reduce, Recycle and Reuse basically adopted towards waste control management where it is categorically accepted to waste nothing or to reject nothing or to misuse nothing towards the cost effective measures. In line to the above, and as the world is changing day by day but the workers particularly in our huge populated country or rather in the state of Jharkhand, are not updated with the change scenario in working environment as a result accidents or injuries are tremendously increasing which needs to be controlled providing need based sustainable behavioural safety training to the working population in industry.

**Keywords:** *Safety behavior Cognitive-behaviour therapy, Exposure, Anxiety disorders Neutralization Treatment*

### Vision

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Behavioural safety focuses on fixing the unsafe actions of workers which are a result of the system they work in, not the other way around, and by concentrating on the workers actions, behavioural safety turns the hierarchy of controls on its head as behaviour modification programs favour PPE and training as the main ways of preventing injury. Because of this, many pure behavioural system programmes do not conform to the law. Need based behavioural safety training for the working populations in the industry are being achieved with excellence through campaign, propaganda, organizing program, workshop, seminar or conference among the working populations at the work place in industry.

### Acknowledgements

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In industries, accidents happen mainly due to improper and dangerous behavior of employees. The approach called Behavioral Based Safety (BBS)

assumes that the most effective attempts to modify dangerous employee behavior are based on influencing people abuse. As a consequence, change in behavior leads to a change in the way of thinking and attitude. It is difficult to change the mentality and habits of people. There is a great need to shape awareness of safe behaviors among employees using behavioral safety. Unsafe behavior triggers accidents and injury, resulting in a loss of productivity and workers compensation claims.

## **Introduction**

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Basically, Behaviour Based Safety in industry is a method of avoiding human error and improving workplace safety by observing and analyzing employees' behavior while they work. The industry has experienced a shortage of labor, which has forced many companies to employ people with insufficient relevant work experience. As a result, ensuring the safety of the workforce is becoming increasingly more challenging and complex, and thus, it has become more important to control and manage human behavior in industry. One effective method used to modify unsafe behavior is behavior-based safety (BBS).

### 4. Purpose

Any industrial resources are being taken care at most by the management on taking proper control measures to safe guard but still there is a scope to improve the occupational and industrial safety system to achieve zero level of accident and highest standard of quality products through adopting behavioural based safety practices.

## **Methodology**

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It is secondary research and exploratory in nature. While safety in any sphere of activities is important, it has special significance when the risk is greater. It is, therefore, not possible for any external agency to ensure safety of any industry. The principal responsibility for the safety & good health of workers employed in industries rests with the management of that industry.

The method of research includes surveys and fact- finding enquires of different kinds through questionnaires to understand their perception about behavioural

safety program in their industrial concerns. On the basis of the objectives of the research followed independent variables and dependent variables, four different null hypotheses would be formulated and tested otherwise alternate one.

## Results

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It identifies the potential risks and hazards associated with the industry and to prioritize to mitigate or to take control measure towards nullifying them and to make the ecofriendly and healthy working atmosphere or working environment by establishing a behavioral based safety and a good safety culture.

## Sample Design

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Following is the sample design:

1. Safety Survey for Plant, Process/ Methods/ Operations and Materials being handled
2. Data can be collected from the past records& also through questionnaires among the working populations
3. Variables of the study

There are two variables, those are as below.

- ☑ Independent Variables –
  - Act/Behaviour of workers
  - Physical conditions of the work place
  - Safety Communication
  - Safety Strategy by management
  - Safety Perceptions/Safety Climate
  - Dependent Variables
  - Prevailing Hazards

- Associated Risks
- Injury caused by accident
- Property damage by incident
- Occupational sickness/disease

## Design of the study

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- ☑ To update the standards or quality safety management system in copper industry in the Jharkhand, the research tools are data collection, measurements and analysis from the statutory records mentioned as under as well as questionnaires from the working populations & their families.
- ☑ % statistical analysis
- ☑ The research design is presented below:

Quality of OISMS	Responsible working populations
Up to the Standards or Norms	Unsafe act / behaviour of the working population, unsafe working condition, management strategy on safety, safety perception and safety communication
Below the standards or Norms	Unsafe act / behaviour of the working population, unsafe working condition, management strategy on safety, safety perception and safety communication

## Sample Design

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- ☑ A total number of 400 sample included as sample for the present study. The sample based on two locations (02 Mines and 02 Factories) and two nature of job namely (permanent and temporary) thus 2x2 factorial design will be used for the present study.
- ☑ The selection of the sample has been done in two stages. In the first stage a pilot study has been done and four lists has been prepared on the strata given below and in the second stage 100 cases from each list

selected randomly by using lottery method.

- ☑ Universe of the Study: Direct or Indirect Employees of copper industry in Jharkhand
- ☑ Sample Size : 100

Locations		Permanent	Contractual	Total
Mines	Surda	20	80	100
	Kendadih	10	90	100
Factories	Mosaboni Concentrator	20	80	100
	Moubhandar Works	50	50	100

### **Tool for Collecting the Data**

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Questionnaire is the instrument used for the research purpose. The instrument used to collect data from primary source is a structured questionnaire that consists of number of questions printed in a particular form. The questionnaire is administered individually on the demographic conditions and demographic population of the area concerned as well as on the basis of Safety Survey, Safety Inspection, Safety Audit, Safety Training, Recording of accident and near miss, Accident investigations and Insurance claimed and reported to statutory body for the accident.

### **Objectives of the study**

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In any industrial set up, the safety of the property/ materials or installations as well as engaged manpower's are being taken care at most by the management by taking proper control measures adopting behavioural based safety practices, engineering methods of control or the administrative control to safe guard of all the above to achieve zero level of accident and highest standard of quality products. An accident free plant enjoys certain benefits. Major ones are substantial Savings in costs, increased productivity, Morale and Legal grounds.

### **Scope of the study**

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Since the inceptions of the Factories Act as well as the State Factories Rules, the working conditions, environmental conditions, socio-cultural conditions in



the industry and its employees by its natures and its established conditions are tremendously changed. Further so many amendments either in the Factories Act or the State Factories Rules has already made and perhaps might be implemented. Now the time has come to assess or to update the subjected standard or quality safety management system through adopting behavioural based safety practices in industry which is also the demand of the hour.

### **Review of the literature**

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Clear understanding to update standard or quality safety management system through behavioural based safety practices, will surely be helped the industries to prioritize better and manage their resources in an efficient and effective way to enhance their safety & productivity and alternatively to achieve the targets with viable cost and economy with zero harm or accident.

Through this paper we contribute to identify the potential risks & hazards associated with the industries and prioritize to mitigate or to take control measure towards nullifying them and to make the ecofriendly and healthy working atmosphere or working environment by establishing a good safety culture.

### **Contribution**

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Behavioural Based Safety practices helps to extend safety awareness and improve safety practices by observing worker behavior to identify mechanical, physical, and ergonomic hazards of job duties.

### **Limitation**

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- ☑ Respondents might not disclose their honest and true opinion.
- ☑ Indian industries concerns it is extremely difficult to conduct the study.

### **Analysis for the provision to health protection**

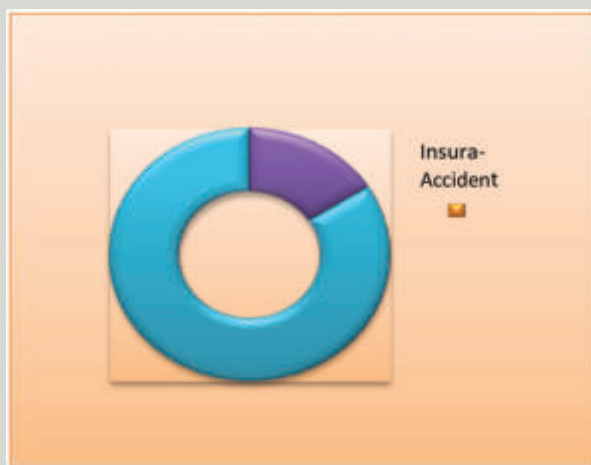
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Analyzing both independent and dependent variables, it has been established that 84% of them have been provided with hospitalization benefit, 16% of them have been provided with health insurance and none of the respondents have been provided with accident insurance.

**Table Showing The Provision For Health Protection In India**

Response	No. of Respondents	% Percentage
Accident Insurance	0	0%
Health Insurance	16	16%
Hospitalization	84	84%
Total	100	100%

**Graph Showing the Provision for Health Protection in Indian Industries**



### **Inference**

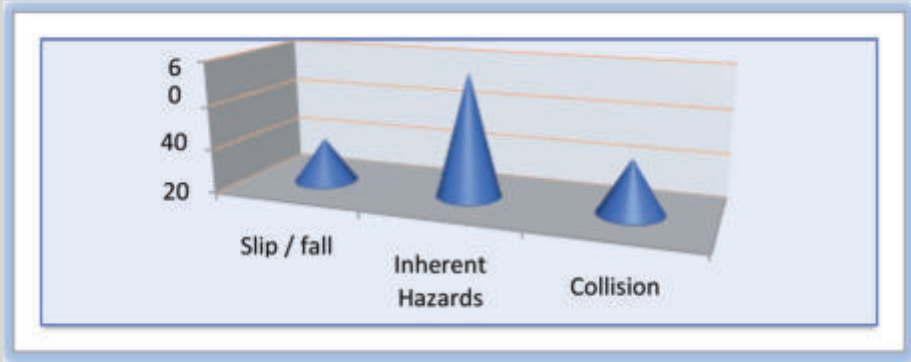
Graph showing the cause for Industrial accidents neglecting behavioural change in safety practices considering the demographic ingredients into consideration towards the variables, majority of the respondents perceive the cause being due to inherent hazards.

- ☑ Identify critical problem behaviors. These become action items to work on.

Identify root causes. The “basic things” that need to be fixed to eliminate the problem.

- ☑ Generate potential actions. ...
- ☑ Evaluate possible actions. ...

- ☑ Develop an action plan. ...
- ☑ Implement an action plan. ...
- ☑ Conduct follow up.



## Discussion

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To improve the sustainable Behavioural Based Safety in Indian Industries especially, implementation of it, is to be categorized and be implemented accordingly as Formal standards for behavior and performance, Resources to meet/exceed standards, A system of measurement, Effective consequences, Appropriate application, Continual evaluation of the system

## Findings

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Majority of the respondents believes in behavioural based safety as per safety policies and procedures. 20% feel that monitoring is done only during the occurrence of damage. Measures have to be introduced to avoid violation of safety rules just by ignoring behavioural safety practices. Majority of them have agreed that the behavioural safety and occupational health training program is conducted. It means that the employees are given due importance with respect to their safety and health.

## Conclusion

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The study concluded that, in Indian industry especially, in Jharkhand both the public and private sectors are functioning effectively towards safety and health on workforce. Discussing best practices, asking questions, and learning from

each other will help improve safety and prevent loss of life. The purpose of this paper is to explain the conceptual framework for developing and implementing effective and efficient safety training and education for the workers. The main focus is to develop intervention behaviour-based safety training program to change the behavior of workers while routine life leading rather than in the working.

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**BEHAVIOURAL NUDGES FOR PUBLIC POLICIES  
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# **MONTE CARLO SIMULATION FOR DATA-INFORMED INVESTMENT NUDGES**

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### Abstract

Nudges can influence how information is presented to us, and our decision-making processes. Automated recommendations can consider digital nudges, as they influence several user architecture phenomenon facets of the internet experience in a variety of ways. This study evaluates the predictive power of computational algorithm (Monte Carlo Simulation) in the forecast of the return on the 52-week range of the National Stock Exchange's (NSE) stock market index using the period (2010- 2020). The Volatility models are a favoured technique for price prediction. Also, Monte Carlo Simulations are more accurate, especially over a longer timescale. The approach can anticipate stock prices within a broad range. Thus, the algorithms can use to forecast stock prices within constraints. In summary, this study has the potential to provide the decision maker with a new perspective.

**Keywords:** *Monte Carlo Simulation, Nudge, Predictive analytics.*

## Introduction

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The Nudge Theory encourages people to consider using subtle psychological 'hints' to modify people's behaviour. More cross-disciplinary research (including IT, finance, and psychology) is required to address these issues. For an extended period, investors who hold securities typically receive favourable returns. Diversification can help mitigate the risks associated with stock ownership. Investing in non-equity assets such as bonds can also mitigate some risks.

Retail investors accounted for over 43% of total cash segment turnover in FY22. This is down from the multi-year high of 45% in FY21. Stock market forecasters must first build an effective technique for forecasting/predicting index values or stock prices. Efficient stock market forecasting aims to maximize results while minimizing errors. Machine learning, a widely used technique, has been extensively investigated for its potential in financial market forecasting. Big data analytics may improve predictive modelling and estimate investment returns and outcomes.

The world around us is designed so that it pushes or ‘nudges’ us toward making one decision or another. Daily, positive reinforcement can affect people’s decisions. Amazon and other retail giants utilize data-driven nudges to assist merchants with various merchandising decisions. Today’s consumers have higher expectations of businesses, whether online or in-store. Nudges can assist merchants in determining which items work and which do not, assisting them in attracting and retaining customers. By synthesizing data, merchandisers can deliver targeted nudges to assist customers in determining which products work and which do not (Kittur, 2016).

The Indian retail investment landscape is dynamic and rapidly increasing. There is an enormous opportunity to leverage Big Data analytics to help to advise firm participants to make more informed marketing decisions. Naturally, human nudges will continue to play a role in decision-making, albeit augmented by data-driven nudges.

This study analyses how computational algorithms help decision-making and Value creation. It uses MCS to forecast stock market returns, focusing on India as a highly volatile emerging market that deviates from the efficient market hypothesis.

### **Statement of the Problem**

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In 2008, Richard Thaler and Cass Sunstein (Leonard T. C., 2008) published *Nudge: Improving Decisions about Health, Wealth, and Happiness*. Their deliberate architecture design technique avoids the biases and errors associated with limited rationality (Sugden, 2009), (Egan, 2017). It is a way to “nudge” people to make self-interested decisions without limiting their choices (Thaler, 2013), (Pilaj, 2017), (Mele, 2021) and Murray, 2010). Using behavioural nudge tactics adds scientific rigor to the process of changing a person’s behaviour (Bodapati, 2008), (Häubl, 2003), (Bechwati, 2003) and (Price, 2006). Finance was one of the pioneering industries to use Machine Learning for market prediction in the early 1980s (Samanpour, 2018), (Vachhani, 2019) and (Gurav, 2018).

Different machine learning algorithms have varying predictive powers that

are highly dependent on the quantity and quality of parameters used as input features (Zhang, 2004), (Assaleh, 2011), (Atmeh, 2006) and (Shostak, 1997) . Deep learning algorithms develop and create model levels within neural networks. Due to their capacity to access knowledge databases and make inferences automatically from existing data, cognitive technologies offer promising avenues for players to develop (Cai, 2020), (Dambe, 2013), . Accurate stock price forecasting is difficult for traders and investors. Numerous elements, including economic, social, political, and psychological ones, combine in a complicated manner to create stock movement patterns.

Forecasting market prices can do with one or two methods: fundamental analysis and technical analysis (Malkiel, 2011), (Malkiel, 2011), (Larsen, 2010). Each strategy has both good and bad things about it (Neely, 2011). The objective of ‘nudging’ people is to help them make better decisions (Leonard T. C., 2008). Financial advisors might further ‘nudge’ the client by presenting their recommended advice so that the client is more inclined to follow it (García, 2020). While the nudge may successfully motivate people to save more, it may also result in them spending less on their children’s education or preventative medicine.

All of these instruments have a range of applications in financial markets. In general, financial markets employ two distinct types of nudge instruments. The first step is to alter the way investors are presented with investment opportunities. The second nudging technique is to deliver information in a targeted manner (Cai, 2020). This work aims to provide long-term financial planning in a highly volatile environment by utilizing computational finance techniques.

## **Objectives**

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1. The Monte Carlo Simulation can be enhanced to determine the decision needed and users’ propensity to respond and make better choices.

Behavioural science and machine learning offer viable approaches for developing more “emotionally intelligent AI.” The trick is to strengthen AI’s emotional intelligence by training algorithms to act similarly to how people



behave in productive relationships. New systems monitor changes in people's behaviour patterns and nudge them to determine whether they wish to alter them. Additionally, they promote self-awareness by assisting individuals in comparing their performance to that of others and applying game theory to accept or challenge results (Suh, 2019).

The following steps are taken to forecast the stock price using MCs. First, we repeatedly calculate the compound annual growth rate and annual volatility of returns over a specific period. Second, throughout the study period, we estimate random numbers daily. Thirdly, we use a Monte Carlo simulation (stochastic process) to combine the average return with a random shock of return. Finally, we multiply the actual price on day  $t$  by the exponential sum determined in the third step to obtain the anticipated price on day  $t+1$ . The expected returns are determined using the methodology below.

$$\ln\left(\frac{P_t / P_{t-1}}{t_t}\right) = m + z\sigma$$

$\mu$ : is the constant (deterministic component) daily mean of return which is calculated on year basis (drift).

$\sigma$ : is the pseudorandom number (stochastic component).

$z$ : is the yearly volatility; it expresses the stochastic random shock.

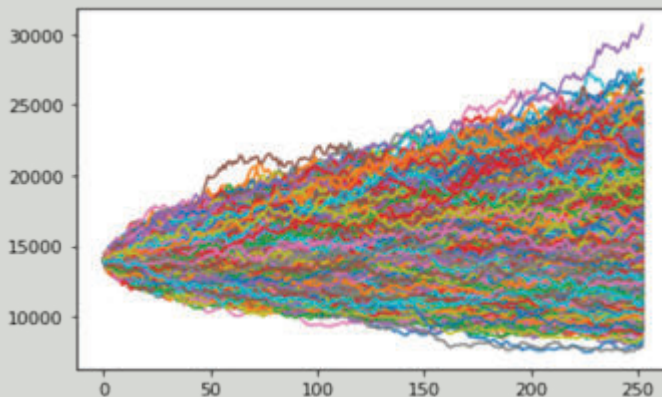
The MCS method assumes a random stochastic shock in returns (volatility). We repeat the previous steps 10,000 times for simulation, and then generate a random normal distribution of daily returns. We can gaze into the future to assess the danger of particular outcomes, such as disaster or higher returns—the NumPy, math, matplotlib, SciPy, and pandas in Python environment. The Yahoo API downloads price data. Based on historical data from 2010 to 2020, it attempts to project the NSE Indian indices' 52-week returns in 2021.

## Discussion

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The simulated price return cumulative average growth rate details are 9.26%, annual volatility 17.54%, and mean 15327.22. The method used only one

simulation of possible price series progression throughout a trading year (252 days) using a normal distribution of daily returns. We were able to reproduce a year's worth of daily pricing data. The graph (Figure 1) below shows the results of ten thousand simulated price series.



Source: Author's own computation

### Figure 1. Monte Carlo Simulation

These are daily return simulations, so the results may vary. Simulations with more “runs” or routes get closer to our “ $\mu$ ” input. Huge numbers cause this. There are other ways to assess the likelihood of significant or low returns. We use NumPy’s “percentile” function to construct quantiles from 5% to 95%. To see the real NSE indices results in 2021, see Table 1. This type of simulation helps investors make better predictions based on past data.

**Table 1. Forecasted Returns and Actual Returns**

Index	Forecasted Returns		Actual Returns	
	10 <sup>th</sup> Quantile	90 <sup>th</sup> Quantile	Min	Max
NSE Nifty 50	12080.07	18854.17	13,596.75	18,604.45

Source: Author's own computation

### Conclusion

Predictive analytics and behavioural science are used to forecast market movements. This simulation uses MC technique to predict the Nifty 50 share

values for 252 days. The simulation is based on a standard distribution of random daily returns using NumPy and matplotlib.

The results show that Monte Carlo Simulation can better anticipate stock market returns. Analysts and counsellors can use Monte Carlo simulations to provide investment options. The outcome is only as good as the inputs, and this is Monte Carlo's most significant major advantage and its most serious flaw. Monte Carlo models also undervalue the likelihood of catastrophic occurrences such as financial disasters. Experts say Monte Carlo simulations fail to account for the irrationality of market participants. However, advisors can gain from its use.

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**BEHAVIOURAL NUDGES FOR PUBLIC POLICIES  
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# **DIGITAL NUDGE; A STRONG CONSUMER BEHAVIOR INFLUENCER AND ITS PARADOXICAL EFFECT ON CONSUMER'S CHOICE LIBERTY**

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## ABSTRACT

Consumer behavior and related studies is an integral part of marketing. Now a day's consumer makes increasingly more decisions on screen. Consumers are overwhelmed by choices offered by their screens leaving them sucked at a cross road chaotic on deciding what, when and why to choose. However as far as a marketer is concerned, he has a blessing buried under this chaos, this is the point where he can apply one of the effective influencer tools i.e. 'Nudges. Nudges helps marketer to manipulate customers thoughts to take an action that favors him. Digital nudging is defined by Weinman et al. as "the use of user-interface design elements to guide people's behavior in digital choice environments" (Schneider et al., 2018). Thus, marketers make intensive use of various nudging technique to influence consumers behavior

However, a contrary concern which arises on account of intensive use of such nudging technique is, the impairment they cause on the liberty of choice of consumers. Despite of acting as a guide for making decisions, nudges many a time seems to obstruct the freedom of choice of consumers by giving in to the continuous persuasion made by marketers and not having a look at the other offers waiting other side. In this study the researcher had made an attempt to drive out the various nudging techniques and tools used by marketers, area of the application and its paradoxical effect on consumers freedom of choice.

**Keywords:** *Digital nudges, choice liberty, paradoxical effect*

## Introduction

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Digital environment offers boundless choices to a customer leaving them confused in making a decision. Marketers make this chaos an opportunity and apply the most efficient marketing tool 'nudges', so that consumers get out this chaos and marketers attain a consumer behavior which favors them. Now a day's anything that a consumer seeks is available in the digital marketplace and appears on their screen. However multiplicity of choices makes consumers decision making more complex. Thus today nudges has taken its digital avatar and is intensively used by digital marketers in inducing a favorable reaction

from their target consumers. Digital nudging take several forms and appear in the user interface where consumers make their choice. Through this study we have taken an effort to identify various forms of digital nudges in application and to assess its influence on consumer buying behavior.

In light of the discussions on various nudging techniques and its efficient application in influencing customer behavior, the study also takes into account a critical evaluation on the paradoxical effect that nudging has on customer's freedom of choice. Through this study we make an evaluation on this criticism on the basis of two psychological theories the dual process theory and SOR MODEL theory which form the basis of the nudging framework.

## **Literature Review**

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The term nudging is concept from behavioral economics which explains, the minor changes in customers decision environment will influence the decision outcome. People making purchasing decisions through digital devices ,the interface designers, knowingly or unknowingly influence peoples decision or behavior through the concept of Nudging.

Digital nudging is defined by Weinmann et al. as **“the use of user-interface design elements to guide people’s behavior in digital choice environments”** (Schneider et al., 2018). Mirsch at al. adopt this definition and furthermore consider digital nudges as “relatively minor changes to decision environments”. Thaler and Sunstein (2008) define nudging as a concept that aims to improve the decisions people make with neither changing the economic incentives nor forbidding or recommending any options directly. To apply nudging, the choice architecture has to be changed (Thaler and Sunstein, 2008)

Sunstein and Thaler state that “the libertarian aspect of our strategies lies in the straightforward insistence that, in general, people should be free to do what they like—and to opt out of undesirable arrangements if they want to do so”.

<sup>[18]</sup> The paternalistic portion of the term «lies in the claim that it is legitimate for choice architects to try to influence people’s behavior in order to make their lives longer, healthier, and better».<sup>[18]</sup> Digital nudging is an approach based on insights from behavioral economics that applies user interface (UI)



design elements to affect the choices of users in digital environments. Nudging attempt either to counter or to encourage the use of heuristics by altering the choice environment to change people's behavior (Dolan et al. 2012; Johnson et al 2012; Michie et al. 2013; Thaler and Sunstein 2008)

### **Objectives**

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1. To identify various nudging techniques applied by digital marketers
2. To analyze its impact on consumers choice behavior
3. To assess its paradoxical effect on consumers choice liberty

### **Research Methodology**

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- ☑ Study is of descriptive nature
- ☑ Study is purely based on secondary data
- ☑ Data was collected from various sources such as Research papers, Newspapers, Articles, Journals and Internet

### **Application of digital nudging and its influence**

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The choice environment where the customer is to make decision is manipulated in specific manner to achieve desired or expected behavior from prospective customers. Through this study we have tried to identify various nudging techniques applied in digital platforms like e-commerce sites, websites, mobile applications etc. However nudging is a subjective scenario where each application is customized on the basis of peculiarities of the group a marketer is dealing with. So through this study we have tried to identify most efficiently and commonly used digital nudging techniques and has classified them under it under four heads on the basis of its nature of application.

### **Social nudges**

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Social nudges indicate how popular a product is by showing how many people already bought it or liked it by presenting consumers reviews and rating. These nudges are identified as strong instruments by the markets as humans have a general tendency to follow the crowd. So knowledge of others interest on

the product triggers an act to choose the same product. Table showing various social nudges used and its influence on consumer behavior

Nudge	Application	Influence
Reviews	Shares fellow beings opinion on the product.	Finds satisfactory reasons for choosing the product.
Rating	Exhibits public opinion on quality of the product	Builds confidence on product quality

### Information Nudges

Information nudges appear in the form of various information presented before the customers, like product descriptions, reminders, etc. Such acts from the part of sellers creates an appreciation for the transparency of the seller which results in building confidence on the product whereby initiating a favorable behavior from the consumer. Table showing various information nudges used and its influence on consumer behavior

Nudging	Application	Influence
Product Labels with Description on Features and functional Benefits	Inform prospective customers about the products and thereby ensures transparency	Descriptions about the product help a customer to easily identify the product he/she is looking for
Notifications in the form of SMS or Emails	Serves several purpose like informing about exciting offers, retargeting a customer with incomplete purchase	Induces customers to complete already
Pop Ups	Appears on the screen with an information content to grab the attention of the consumers	Induces sudden action in consumers and directs them towards a favorable decision
Anchoring	Used for manipulating the information displayed by presenting a first choice and other information are added supplementary to this first choice.	A person generally shows a tendency to focus on the anchored or highlighted information and compares it with the supplementary information .

<b>Nudging</b>	<b>Application</b>	<b>Influence</b>
Scarcity or loss aversion (Enginess, 2021)nudges	Used to induce the fear of missing out in the consumers (Enginess, 2021)	Humans are usually loss averse so when coming across such an information jump up into sudden action for not missing out an opportunity.

### **Nudges improving customer experience**

These types of nudges are widely used in digital environment to offer consumers with better experience by simplifying their process of initiating purchase behavior. Table showing various consumer experience improving nudges used and its influence on consumer behavior

<b>Nudge</b>	<b>Application</b>	<b>Influence</b>
Embedded Nudges	Desired actions are embedded on websites or social media platforms. (Enginess, 2021)	Induces customers to sudden responses and actions.
Cognitive Ease Nudge ( <b>Enginess, 2021</b> )	These nudges creates a perception of ease of use despite the complex procedure. This can be achieved by including visual cues and images graphical representation and directions. (Enginess, 2021)	Boost the interest of customers in carrying on the purchase as the process seems to be easy and attractive. (Enginess, 2021)
Simplifying messaging	Reduces the complexity of a message to the bare essentials, so that less processing is required to understand it. (Blume, 2020)	Better understanding leads to appropriate actions
Opt-out default	Sets default actions to happen when a consumer takes up a particular behavior pattern.	Easy achieve the desired action as there is less chance to look for an alternative option.

## Non transparent Nudging

In case of non transparent nudging the user interface will be altered in such a manner that customers will not come across any visible contents like notification, pop-ups, reviews etc. Instead the interface will be structured to direct customer's responses. Table showing various non transparent nudging technique and its influence on consumer behavior

Nudging	Purpose	Effect
Limiting the number of options (Siemer)	Eliminate those options which are too much similar or which seems to be unfamiliar for your consumers to help consumes get rid of the information overload which can hinder their choice (Siemer)	Customers will be able to take a more satisfactory purchase decision. (Siemer)
Framing	Choices and information are presented in such a manner that a trigger is generated to take up an action.	Helps in generating triggers that induces sudden actions from the customers.
Creating friction: (Siemer)	Apart from making an unblemished user experience, here nudging inculcates more interventions in various process like increased confirmations detailed explanations and so on. (Siemer)	Customers get more time for decision making Also contributes towards building confidence on the transparency and security control system (Siemer)
<b>Decoy effect</b> (Christoph Schneider, 2018)	decoy effect increases an option's attractiveness by presenting the option alongside an unattractive option (Christoph Schneider, 2018)	Decoys or unattractive choices automatically direct the consumer to choose the product intended to be sold to him.

## **Paradoxical effect on consumer's choice liberty**

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Thaler and Sunstein define “choice architecture” as the context in which people make decisions, and a nudge as “any aspect of the choice architecture that alters people’s behavior in a predictable way without forbidding any options or significantly changing their economic incentives.” The design of nudges largely relies on results from behavioral sciences about the use of heuristics—i.e., strategies of judgment or decision that are fast and use only a few cues (instead of the totality of the available information). (Barton, 2015). This inclination of nudge theory towards heuristics forms the basis for its paradoxical effect on consumers’ choice liberty discussed in this study. However, this study tries to make a critical evaluation of the effect of these manipulated choice architectures on making rational and free choices. An analysis of this criticism is made with evaluating two psychological theories which form the basis of the nudge theory.

## **Dual process theory (of reasoning)**

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According to this theory when we’re making decisions, we use two different systems of thinking. System 1 is our intuition or gut-feeling: fast, automatic, emotional, and subconscious. System 2 is slower and more deliberate: consciously working through different considerations, applying different concepts and models and weighing them all up. (Conceptually). In our discussion on nudging it can be viewed that nudging takes advantage of type 1 process. (LC Van Gestel, 2020).

## **Stimulus organism response theory**

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Stimulus organism response theory states that there’s a stimulus that triggers a response based on the internal feelings or behavior of an organism (person). This internal processing of the stimulus can be conscious or unconscious. It further triggers an emotion that leads to a response. To a great extent, the SOR theory in psychology helps us understand the reasons behind a person’s behavior.

## **Observations made from analysis**

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Analyses of above stated theories on psychology behind nudging

- ☑ Draws insight on the pattern of thought process that is invoked while applying nudging.
- ☑ From this it is clear that nudging is heuristic techniques and the outcomes like choices or behavioral changes that results from nudging are not guaranteed to be optimal.
- ☑ Another argument which can be raised in light of the discussions are, as nudging results in sudden or immediate choices and the choices are taken in a designed choice architecture consumers are restricted to a manipulated or regulate choice environment which hinders their choice liberty or freedom of access to more choices outside the created choice environment.

## Conclusion

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Digital nudging has proved to be an efficient technique for inducing desired behavior from the prospective consumers. It acts as guiding points for customers to achieve satisfactory purchase decision. Each marketer uses various nudging techniques on the basis on the nature of group they are supposed to address. Thus nudging can be understood as subjective affair and its understood that it's not possible to make a concrete or specific list of nudging techniques. However through this study we have tried to list of the common and effective digital nudging techniques and of its influence consumers buying behavior. Subsequently having a look at the other side of the coin the study also analyses the paradoxical effect that nudges have on consumers freedom of choice. This analysis was made by evaluation two common psychological theories i.e. the dual process theory and the SOR model theory. In the light of analyses made from these two theories it can be concluded that nudging offers a manipulated or altered choice environment in which they arrive at heuristic responses. So the outcomes of these reactions or responses are not considered to be optimal. So such responses or choices are not guaranteed and can be questioned in the long run.

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A dark blue world map is centered in the background of the cover. The map shows the continents in a slightly lighter shade of blue against the darker background. The text is overlaid on the map.

**BEHAVIOURAL NUDGES FOR PUBLIC POLICIES  
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**APPLICABILITY OF BEHAVIOURAL INSIGHTS  
IN PUBLIC HEALTH POLICY: A COST-EFFECTIVE  
APPROACH TO LIFESTYLE DISEASES**

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## ABSTRACT

Lifestyle diseases are slow and highly dangerous and mostly invisible in nature. Its treatment utilizes more time and money as compared to other kinds of diseases. The study aims to understand the spending pattern of government health expenditure and also to analyze and understand the core behind behavioral approach, how it works, previous experiments in different countries etc. It is found that behavioral approach helps to implement interventions impactful in an economically efficient manner, as the behavioral approach focuses on creating big positive turns with small changes. Grass root level initiatives should be promoted in order to increase the awareness among the public regarding health conditions and their importance.

**Keywords:** *Behavioural approach, Public Health Policy, Lifestyle diseases*

## Introduction

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Health is an important indicator of a nation's capability to boost the economic and Public Policies tries to ensure that proper healthcare facilities are made accessible to everyone in society. India spends just around 1.02 percent of the total GDP for public health which mainly revolves around various schemes including Ayushman Bharat, National Health policy, etc. Mainly the amount is spent among different expenditure category (India, 2019). In this scenario, the study aims to understand the applicability of the behavioural approach in public health policy focusing on the condition of lifestyle diseases. As lifestyle diseases are slow and highly dangerous and mostly invisible in nature. Its treatment utilizes more time and money as compared to other kind of diseases. In this context, Behavioural approach helps to implement interventions impactful in an economically efficient manner, as the behavioural approach focuses on creating big positive turns with small changes.

As society gets modernized and lifestyle changes due to work-burden and environment, the probability of getting affected by the diseases increases. As time advances, the situation gets worse due to changing environmental and working conditions. The out-of-pocket expenditure is moving up swiftly, this growing incidences of unstainable expenditure because of the increased

healthcare costs is leading to an imbalanced situation in the economic or fiscal condition of the country. In this context, it is important to have a solution that is cost-effective, whose burden won't crack the economic growth, and brings instant results. So in this study, considering the behavioural approach as a solution, an attempt was made to analyse and understand the previous experiences of behavioural insights in different countries around the world.

### **Statement of the problem**

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Lifestyle diseases being a major threat to the growing nations. Due to tight economic indicators the work character of the public has changed thus giving way to irregular lifestyles, causing diseases. Kerala's record of high health indices is exposed to face the task of maintaining the sustainability due to the presences of non- communicable diseases (NCD) and lifestyle diseases at an alarming rate. The recent health index report, prepared by the NITI Aayog and the World Bank, has ranked Kerala at the top among the states in terms of health performance (Economic review, 2019). The report has also raised serious concern with regard to the sustainability of achievements of the health sector like high life expectancy, low infant mortality rate, low birth and death rates – as lifestyle diseases, or NCDs, such as cancer, hypertension, diabetes, coronary heart disease, and geriatric problems become extensive. Many policies and government interventions are initiated but it fails to have an impact as the density of diseases is much larger. The public health system and other healthcare institutes focuses mainly on treatment side rather than on the prevention side. Under this scenario, will the adoption of a different approach would improve the condition of lifestyle diseases would improve the health conditions or not is the primary question of concern. Or can the behavioral insights resolve the healthcare glitches?

### **Objectives**

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The study is main focuses on producing a work on behavioral approach to public health policy. As part of which the lifestyle diseases in Kerala are taken into consideration. Based on this topic the following objectives are framed: i) To analyze the trend and conditions of lifestyle diseases in Kerala. ii) To draw

attention towards various behavioral insights applied to reduce the incidence of lifestyle diseases around the world and its impact.

## **Analysis and discussions**

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**Risk factor causing death in Kerala:** There has been significant change in the lifestyle of people from 1990s to 2016 and these changes will also reflect in the health and morbidity status of people. Considering the death and causes of death in Kerala, many causes like malnutrition, air pollution, Dietary risks, high blood pressure, Tobacco use, high fasting plasma glucose, High total cholesterol, WaSH (Water and Sanitation Health), Occupational risks, impaired Kidney function, High body-mass index are considered to be major risk factors (NFHS-4, 2015).

Over the years this change is significant as causes like high blood pressure, dietary risks, High fasting plasma glucose, high body-mass index, high total cholesterol have reached top positions in ranking of risk factors that cause death in Kerala. And all of these risk factors are due to behavioral and lifestyle changes. Issues like malnutrition, sanitation occupational risks came down in the ranking.

**Health Indicators:** Based on the national family household survey, the health condition of public in Kerala considering their nutritional status mainly their body mass index and obesity level, blood sugar level, hypertension level is taken into consideration. The health condition among the adults ranging from 15-49 years are reflected in the analysis.

- ☑ Nutritional status of adults- The Nutritional status of both men and women are available, the data shows the change in 10 years that is from 2005-06 to 2015-16. Main factors are number of women and men whose body mass index is below normal and those of whose body mass index is high or obese. The number of persons whose body mass index is below has come down during 2015-16 as compared to 2005-06 both in case of men and women. And low BMI is slightly more among rural Kerala and also it is slightly higher in among women as compared to Men. Considering the Obesity situation, it has shown a reverse trend

that it has increased in 2015-16 as compared to 2005-06 situation. And it is high in urban Kerala than in rural areas and also obesity situation is more among women as compared to men both in rural and urban areas (NFHS-4 N.-3. , 2005-2015).

- ☑ Blood sugar level- The blood sugar level of men and women over 2005-06 and 2015-16 is analyzed, the conditions of high blood sugar level and very high level of blood sugar is considered. It seen that the number of people affected by blood sugar level is low as compared to other diseases but the trend is increasing considering the data over 10 years. Considering the case of women high blood sugar level is more than very high blood sugar. Similarly the case of men is also similar the level of high blood sugar is more as compared to very high level of blood sugar level. Blood sugar level is high among men than women in all cases (NFHS-4 N.-3. , 2005-2015).
- ☑ Hypertension level- High hypertension have been ranked top among the risk factors that cause death in Kerala. For the analysis both the case of women and men have been taken. Hypertension levels that are slightly above normal, moderately high and very high is considered. From the data, even though the number of people affected is low, similar as in the case of blood sugar level, there has been an increasing trend in the number of people affected by this condition. In case of women, slightly above normal level is high in rural Kerala whereas moderately high and very high level of hypertension is high in urban Kerala. Similarly in case of men, slightly above normal level is high in rural Kerala whereas it is low in rural Kerala. When moderate level and very high level of hypertension is considered (NFHS-4 N.-3. , 2005-2015). And the percent of affected persons are high in all these cases.

## **Financial Expenditure**

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Kerala has achieved many landmarks when considering the health sector and it is among those states whose 'out of pocket' expenditure is highest among the country. Kerala's unique feature is that it has a high-morbidity with low

mortality model. Even though there is significant infrastructure development, the finance of the common man has been always under a pressure situation. Morbidity condition is mainly because of the reasons such as demographic transition, high health seeking behavior and prevalence of a wide range of non-communicable disease. The cost of healthcare is comparatively to other states because of significant changes in the health profile, that is, the spectrum of diseases in Kerala has been changing from communicable to non-communicable diseases to chronic diseases like CVD and diabetes, cancer and hypertension (Economic review, 2019).

### **Behavioural approach experiences**

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The study mainly analysed the behavioural insight experiments that have been practiced in countries like UK, Canada, Denmark and Iceland. Iceland was fast to experiment behavioural policy but it was not through a proper government institution. Lazy Town, a private institute, took the initiative to reduce child obesity through their TV channel in late 1990s. And this initiative has clearly succeeded to create an impact and bring down the child obesity rate of Iceland. In Denmark, the institute iNudgeyou was vested with responsibility to reduce lifestyle diseases and they have tried many nudges to reduce lifestyle diseases. Some of them include nudges to reduce outdoor smoking and to increase the vegetable sales. For performing such nudges, they had performed the case analysis and understood the general character and behaviour of the people on which the nudges are performed and later execute such a nudge which will be effective for that particular group (OECD, 2017). These experiments also helped to have a reduction in the level of mortality rate and smokers.

In UK and Canada, the Behavioural approach is in almost all aspects of government policies. UK has experienced different types of behavioural in areas like health, education, consumer policies, tax exemption etc. The Behavioural Insight Team (BIT), is handling the behavioural policy framing, they collect data and understand the nature and character of the people on which the nudges are to be performed. Some of the nudges include SMS reminders, reduction in the sugar content, promoting regular health check-ups etc. In case

of Canada, they have used the affinity of Canadians towards the loyalty rewards and instituted loyalty instead of better health performance or physical activity. All these nudges have helped both the nations to bring down their obesity level and health conditions. Currently they are experimenting on different areas, the result of these experiments needs to be updated in the coming years. Considering the mortality rate cancer is one of the major reasons for mortality in Denmark. Heart attacks and Stroke rate is also high in Denmark. When we see the data, it is clear that there is a decrease in these death rates, and the major reason for this decreased rate are improved lifestyle and healthy habits (OECD, 2017). No other significant spikes are observed in any other diseases. The interventions like increased sale of vegetables, non-smoking zones have helped to achieve this mark in the mortality rates.

## Conclusions

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Policy adoption for lifestyle diseases has been difficult as the number of patients has been increasing due to the change in lifestyles across the world and emergence of diseases is based on long-term conditions and curing it would require constant and persistent effort on which conventional public policy have a limited role. Behavioural insights have mostly helped many countries like Canada, UK, and Germany to bring down the incidence of lifestyle diseases through small and cost-effective interventions. These interventions were mainly based on the psychological, emotional and social characteristics of people of that particular nation. Recapping the same nudges or insights won't help other countries or situations with different features and emotions. In India, the behavioural insight approach would be a solution to tackle its issue of increasing lifestyle diseases through flawless conditioned interventions.

The healthcare in Kerala is dependent on both public and private sector and also there is a prevalence of all kinds of treatment types like allopath, homeopath, ayurvedic, etc. Treatments for almost all diseases are available in Kerala. The prime concern is now with the incidence of Lifestyle diseases. The impact of globalization and privatization has increased number of jobs that seek less physical activity and more time which has created an unbalanced

lifestyle among the current generation of Kerala. The National Family Health Survey and Kerala state planning board has been releasing data with regard to the health sector. The increasing trend in the number of people affected by diseases like diabetes, hypertension, and obesity is clearly visible. Even though the absolute number is low compared to the entire population, the possibility of increased numbers in the future is really high. Economically, Kerala is having high per capita expenditure in both private and public sector. The policies framed had failed to clearly address the concern of growing lifestyle diseases. Grass root level initiatives should be promoted in order to increase the awareness among the public regarding the health conditions and its importance. Schools and colleges could be used to promote better living conditions among the young population so that you can better the conditions of the future generation. Incentives and tax redemption could be offered by the government for promoting better health and lifestyle habits among various institutions. Apart from these policy suggestions, more policy suggestions could be made only by analysing the psychological and behavioural aspects of people of different places so that impact can be more. Behavioural insight approach also promotes such a process of policy framing. Considering the current scenario of India, incorporation of Behavioural insight approach could bring better changes.

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**BEHAVIOURAL NUDGES FOR PUBLIC POLICIES  
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# **NUDGING AND PUBLIC POLICY: KERALA'S COVID-19 VACCINATION POLICY**

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**Adarsh HS**

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## ABSTRACT

Public policy refers to a system of laws, regulatory measures, courses of action, and funding priorities promulgated by a governmental entity or its representatives in response to a social issue. Public policy focuses on the decisions, which create the outputs of a political system that include the management of a public health service. As we know, “Nudging” in public policy involves using behavioral, economic, and psychological insights to influence the behavior of policy targets, an attempt is made here to understand the Government’s policy to examine the nudges used to help achieve its health policy goals. In the present paper the authors make an attempt to examine the Government of Kerala’s efforts to expand its vaccination drive during COVID -19 pandemic. The authors will be taking the different nudges, i.e., the three regulatory measures – 1. the policy that the Government will not take care of the hospital expenses of non-vaccinated covid patients, 2. the mandatory decision that non-vaccinated teachers and employees should submit their RTPCR results every week at their own expense, and 3. the protocol that only those who were either partially or fully vaccinated were allowed to enter malls, supermarkets and cinema theatres. These measures will be analysed to assess their effectiveness in increasing the vaccination rate in the state.

## Introduction

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After the publication of the book *Nudge: Improving Decisions about Health, Wealth and Happiness* in 2008 by Richard H Thaler and Cass R Sunstein, ‘nudging units’ has become part of policy making across the world. The concept of nudge is something which is applicable in almost all aspects of society, be it economic, political or psychological. It is most important in the fields of public policy making. Nudging in public policy involves using behavioural, economic and psychological insights to influence the behaviour of policy targets (Moseley, 2020). Nudging usually involves the active role of a choice architect who has the responsibility for organising the context in which people make decisions. As far as public policy is concerned, the government itself is considered to be the choice architect. Many researches show that people prefer softer approaches in public policy rather than coercive methods. This is where the application of

nudges become highly important in the field of public policy.

Thaler and Sunstein used the term ‘nudge’ to explain a behavioural and economic aspect of policy making or activities included in the day to day life. According to them, “[a] nudge is any aspect of the choice architecture that alters people’s behaviour in a predictable way without forbidding any options or significantly changing their economic incentives” (Thaler & Sunstein, 2008). The purpose of the nudge is to help people make the choice that they would have made if they had paid full attention and possessed complete information, unlimited cognitive ability and complete self-control. The primary concern is that the people should not be forced into any option and that they have the entire array of choices open to them. For instance, in Africa, the government offered home-delivery of fertilisers to farmers because many farmers procrastinated the decision to buy fertilisers due to the effort involved in travelling to a market place to purchase it (Lokeshwarri, 2020). The concept of nudging believes that the notion of human beings making choices that are in their best interest or at the very least are better than the choices that would be made by someone else is a false assumption (Thaler & Sunstein, 2021). Therefore, it becomes necessary to influence the choice of the people. The term ‘nudge’ simply means to push something or someone gently with one’s elbow in order to attract attention (Cambridge dictionary).

### **Nudging in the pandemic time**

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Since vaccination is considered as an important strategy to counter the Covid-19 pandemic situation, different methods were used by different governments across the world for increasing their vaccination rate. Some have tried the coercive method of compelling their citizens to take vaccines. For example, San Francisco announced on 9 September 2021 that all municipal employees should get vaccinated or they may face penalties including dismissal. Survey funded by Robert Wood Johnson Foundation shows that as many as half of the unvaccinated workers insist, they would leave their jobs if forced to get vaccinated. A hospital in Lowville, New York had to shut down its maternity ward when dozens of staff left their job rather than getting vaccinated. At least

125 employees at Indiana University Health resigned after refusing to take the vaccine (Barry et al., 2021). On the contrary, we have seen countries setting up football matches and using players to propagate the necessity to get vaccinated. This has provided far better results than the previous one. All these point to the rising role of nudges in handling pandemic situations.

### **Nudging and Vaccination policies in Kerala: A case study**

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Even though the Government of Kerala did not have an official nudging unit of its own, we have seen the uses of certain nudges in the vaccination policy of the state. Three major nudges of that kind are identified and taken for study. These include 1) the policy that the Government would not take care of the hospital expenses of non-vaccinated Covid patients (Philip, 2021); 2) the mandatory decision that non-vaccinated teachers and employees should submit their RT-PCR results every week at their own expense (Raghunath, 2021); and 3) the protocol that only those who were either fully or partially vaccinated are allowed to enter malls, supermarkets and cinema theatres (The New Indian Express, 2021). To consider something as a nudge, it should not be coercive in nature and there should be the freedom of choices available. These three policies therefore fit into the category of nudges. It is analysed that the uses of these nudges have helped in raising the vaccination rate in the state with the help of several other factors. The socio-political condition of Kerala significantly contributed to it. While comparing with the governments which have taken coercive techniques to increase the vaccination rate, it is found that the nudge policies works better than such techniques.

### **Conclusion**

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In conclusion, it is assumed that these nudge policies have contributed to some amount of economic benefits for the state and several psychological factors have worked in association with these nudges especially while dealing with religious issues. It is suggested that the establishment of an official nudging unit could help in improving the standard of living in the state.

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