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In What Ways Do Green Nudges Impact the Purchasing Patterns of Urban Indian Middle-Class Consumers in the Organic Food Market?

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Abstract

The market for organic food products in India has gained significant momentum in the last decade. This paper studies the impact of green nudges (defined below) on the purchasing patterns of middle-class consumers in urban India. For this purpose, the study undertook a quantitative approach, conducting two surveys. One of the surveys was randomly assigned to a control group, while the other was administered to a treatment group. The sample size was 242 in total, with 123 responses from the respondents in the control group and 119 from those in the treatment group. The treatment group received the green nudges in the form of "framing", while the control group did not. The data received was analyzed for significance using *two-sample t-tests* as well as *Mann-Whitney U-tests* and it was concluded that the green nudges likely impacted the purchasing patterns of these consumers for the various categories of products studied. The effects are comparatively more significant for organic fruits, vegetables and dairy products as compared to proteins. Therefore, this research emphasizes the potential of green nudges as effective strategies to boost sales of organic produce and facilitate environmentally sustainable purchasing decisions by consumers.

Keywords

1. Introduction

We hypothesized that green nudges, such as "framing" would be effective in en-

couraging consumers to consume more eco-friendly alternatives. To examine our hypothesis, we created two surveys (one for the control group and one for the treatment group) that were rolled out to a sample of 242 respondents across India. The sample was received from a range of cities distributed throughout India, namely Delhi NCR, Mumbai, Thane, Pune, Lucknow, Jodhpur, Bhiwandi, Burdwan, Dombivli, Alapuzha, Thrissur, Chengannur, Kozhikode, Kottayam, Pathanamthitta, Ernakulam, Trivandrum, Changanacherry, Bangalore, Kochi, Meghalaya, Mohali, Chennai, Haripad, Palakkad, and Gudalur. The first section in both surveys assessed the consumers' current levels of interest in organic foods and their consumption patterns for different categories of products like fruits and vegetables, dairy products, meat and poultry etc. The next part of the surveys, however, was designed separately based on the administration of the green nudge. The survey for the treatment group included "framing" as the nudge while the survey for the control group did not. The questions thus sought information regarding the consumers' projected purchasing intents for organic products with and without receiving the green nudge.

After conducting *two-sample t-tests*, as well as *Mann-Whitney U-tests* for each category from both surveys, the study found that the data collected from each category from both groups were significant at the significance level of 0.05—indicating that the green nudges applied were effective in nudging consumer intent towards purchasing organic food products.

This paper is divided into a number of different sections. Section 2 discusses the existing literature on the topic, Section 3 emphasises the materials and methods used to conduct the study, Section 4 summarises the results of the study, Section 5 discusses the implications of the obtained results, and finally, Section 6 emphasizes on the generality and the validity of the results and offers a detailed overview of the policy recommendations that the Indian government may implement.

2. Literature Review

The onset of the Green Revolution in India that began in the 1960s encouraged Indian farmers to widely utilise technology to meet the ever-increasing demands of the growing population. While the revolution led to an increase in agricultural output due to the adoption of modern industrial agricultural techniques, it also managed to usher in a new era of agricultural production (Singh & Verma, 2017): the use of chemical fertilisers and pesticides. Several concerns have continuously been raised over the last decade, specifically regarding the negative effects of these chemicals on our health as well as on the environment (Dholakia and Shukul, 2012).

As consumers have become more aware of the impacts of chemical fertilisers, they have begun voicing their concerns over the societal as well as personal repercussions of the long-term consumption of such crops, and have started switching to a more sustainable alternative: organic food. For the purpose of this

research paper, we will define organic foods as those "grown without the use of synthetic chemicals, such as human-made pesticides and fertilizers, and does not contain genetically modified organisms (GMOs)" (Duram, 2019). Studies have shown that organic foods provide three socio-environmental benefits (Kirmani et al., 2022):

1) Benefits to farmers: Organic food helps struggling farmers survive in the difficult farming environment (Basha & Lal, 2019).

2) Benefits to consumers: Because organic food is grown without any harmful chemical means, it offers numerous health benefits to consumers (Kirmani et al., 2022).

3) Consumer altruism: Organic food seemingly fuels consumers' altruistic mindset and forces them to consider the ethical implications of their actions on the environment (Kirmani et al., 2022; Kushwah et al., 2019).

Given this background, the organic food market has gained significant momentum in recent years, with an increasing number of consumers becoming more conscious of the environmental and health impacts of their decisions (Kumar, 2011). The Indian market for organic food, initially valued at USD 1.023 billion in 2021, is likely to grow at a compound annual growth rate of 20.5% (between 2022 and 2027) to USD 3.134 billion by 2027 (EMR, 2023). Most of the produce is exported to developed countries (Singh & Verma, 2017). Within India, the domestic market for organic food is primarily limited to major cities. Currently, the organic food categories that witness the highest demand are fruits and vegetables. India also has the highest number of organic producers in the world, with over 15,000 organic farms (Singh & Verma, 2017).

There has been intense discussion regarding the factors affecting consumer awareness in this domain and the reasons why consumers in different age brackets purchase organic foods in India. Research conducted as part of the Seed Money Research Project on Consumers' Awareness, Attitude and Behaviours towards Organic Food Products & Media Coverage in 2011 indicates that levels of consumer awareness are significantly higher in developed countries than in developing countries. However, in general, consumers do exhibit optimistic outlooks towards organic products in comparison to conventional substitutes. A survey of over 200 respondents as part of this study confirms over 58.8% of the respondents have awareness about organic food, with males being comparatively more aware than females, which could be justified by the higher male literacy rates at that time. Moreover, males with a higher annual income of more than INR 5 Lakhs (USD 6082.69) are also more likely to be aware of the benefits associated with organic food (Kumar, 2011), highlighting income as a major factor influencing consumer awareness and purchasing intent.

The research conducted above also shares insights regarding the age bracket of the most prominent consumers. It was observed that 60.7% of the respondents were in the age group of 35 years and below, indicating that the younger generation is more conscious of the personal and social impacts of their food

choices. A recent study conducted in 2022 on a sample of urban Indian millennials highlights health and environmental motivations for purchasing organic food (Nafees et al., 2022). Notably, the findings also revealed a negative association between consumer attitudes towards organic food and their purchasing intentions, suggesting that consumers who prefer organic food for health-related reasons tend to have a stronger affinity for it. Conversely, those who prioritize the environmental impact are less sensitive to the price and are more likely to make actual purchases. This has also been demonstrated by another study that took place in the Netherlands (Fechner & Herder, 2021).

Several studies have demonstrated how behavioural economics has played a significant role in boosting consumer demand towards purchasing organic food, both in India and globally. An important aspect included within this is the use of what behavioral economists call "nudges". For the purpose of this dissertation, we will define "nudges" as "features of the choice architecture that influence the decisions people make without changing either objective payoffs or incentives" (Thaler, 2018). Green nudges are more precisely defined as "behavioral interventions aimed at reducing negative externalities" (Carlsson et al., 2021). Several studies have highlighted the use of nudges to promote healthy and sustainable behavior. However, there is little awareness about the use of "nudges", most importantly, those of framing effects to promote the consumption of Organic food in the Indian market.

A study conducted in Germany underscores the effects of physical nudging in a supermarket setting, examining multiple hypotheses such as whether an eco-friendly product was bought because of its environmental benefits or because it was placed at the eye level (Korenke, 2020). Three studies comprising more than 21,000 participants and over 100 supermarkets in northern Germany were designed to investigate the impacts of "social norm and feedback messaging" on organic food purchases, repositioning organic products in a segment of the supermarkets, and placing the products at the eye level respectively. The conclusions of the first study reported no increase (or decrease) in the organic revenue share and found no evidence of a "change in perceived norms or perceived own frequency of buying organic food". The findings of the second study, however, did show an increase in revenue. By implementing a display setting where organic products were positioned alongside their conventional counterparts, in addition to their existing placement as a separate block, the revenue share of the rearranged organic products witnessed an increase in revenue of approximately 17%. However, this did not carry through to the organic share where the step was introduced. Other organic products were likely purchased less due to the more pronounced placement; therefore, there was no indication of a large-scale substitution of conventional products with organic products. The third study did not result in any significant conclusions.

A study conducted in Sweden tested whether receiving informational along with emotional or social norm messages affected intent to buy organic fruits and

vegetables and found that (Weimer et al., 2022) price was the determining factor that influenced consumers' decisions to purchase organic foods. The findings reflect that price can also be viewed as a barrier to the purchase of organic food.

This brings us to the objective of the current study, which is to fill in the gap in the existing literature pertaining to the use of green nudges (termed as such since they aim to promote ecologically friendly behaviour) and examine how the implementation of these nudges within the Indian organic food market impacts the purchasing intent of middle-class consumers in urban India. This study identifies middle-class consumers by placing them in an income bracket that earns between Rs. 20 Lakhs to Rs. 50 Lakhs (USD 24330.76 to USD 60826.90 in a country with a per capita GDP of 2256.6 dollars (World Bank, 2021) as their annual household income.

3. Materials and Methods

Our study was based on quantitative analysis using surveys. For this, we created two surveys, of which one was for the control group and the other for the treatment group. The sample size consisted of 242 respondents (123 responses from the control group and 119 from the treatment group). The surveys were randomly assigned to these sets of people.

The sample of the study was diverse and representative of the Indian population in terms of the age-range, locations across India, and annual household income in INR (that we have defined as urban middle-class Indians). The sample size consisted of people from all ages beginning from below 20 years to over 51 years as mentioned above. It was ensured that the surveys were administered to adults only, since they are the ones taking the purchasing decisions in most Indian households. Secondly, the locations of the respondents of the survey included cities from across India to ensure a wide range of respondents nationally. Thirdly, the annual household incomes levels of the people were distributed across all income levels that this study has considered a part of the urban Indian middle-class.

The set of questions in section 1 of the survey was standardized for both surveys, anonymously revealing information about the consumer's age, gender, annual household income (INR), location, and current frequency of purchase and monthly expenditure (in INR) on the following food categories: Fruits and Vegetables, Pulses and Cereal, Meat and Poultry, and Milk Products. This data was collected to understand the demographics of the respondents and later analyse whether these factors also play an important role in directing consumer purchasing intent. Section 2 of both surveys was entirely different. The treatment group was administered with the digital green nudges, one for each category, simulating real-world market scenarios. The green nudge applied was "framing", testing whether consumers would positively respond to questions worded differently in order to nudge them to purchase organic products. They

were asked to select their likelihood of purchasing the organic food product on a Likert Scale numbered from 0 to 10, where "0" represented the consumers not buying the product at all, and "10" represented that they would definitely buy it. Care was taken not to explicitly mention the word "organic" so as to prevent consumers from answering contrary to their actual behaviour in a market situation. Some of the statements assessing their likeliness to purchase the products, with each nudge considering a distinct characteristic of organic food, were as follows:

1) A box of six tomatoes costs Rs 200 (USD 2.43). The box contains the brand's logo and the message "Tomatoes grown with 50% less chemical fertilizer than comparable brand."

2) A packet of milk with the label "Healthy, tasty and 100% Cruelty-free!"

3) You come across a Freezer display with fresh pieces of chunky Chicken Meat displayed in a tray. Above the counter, there is a board saying "Reared without antibiotics!"

4) A chocolate bar costs Rs. 100 (USD 1.22). On the bar's package, there is a slogan "60% of our cocoa beans come from organic and sustainable farms!"

5) A pack of lentils that the shopkeeper tells you are nutritious and sourced from farms that prioritise soil health and biodiversity conservation.

6) You come across a section of Fruits and you find almost the entire section filled with colourful fruit Juices and the label at the front has a line saying "75% added-sugar free!"

For the same products, the questions were worded differently for the control group. The questions below either did not contain the green nudges at all or were phrased differently from the ones listed in questions 1 to 6 above:

1) A box of six tomatoes costs Rs 200. The box contains the brand's logo and the slogan "Tastiest tomatoes money can buy!"

2) A packet of milk with the label "Healthy and tasty!"

3) You come across a Freezer display with big pieces of Chicken Meat displayed in a tray. Above the counter, there is a board saying "Fresh and Chunky pieces!!"

4) A chocolate bar costs Rs. 100. On the bar's package, there is a slogan "40% of our cocoa beans come from large MNCs!"

5) A pack of lentils that the shopkeeper tells you are pure and nutritious.

6) You come across a section of Fruits and you find almost the entire section filled with colourful fruit Juices and the label at the front has a line saying "25% processed sugar added".

We conducted *two-sample t-tests with unequal variances* with samples of the control and treatment groups for each of the product categories. For example, taking dairy products as one category, we analysed the data collected from the Likert scales using the *t-test*, with the hypothesized mean difference of 0. A *p*-value was obtained, which could be analysed for significance at the significance level of 0.05 (the results are analysed below). This procedure was repeated for all the varieties of organic products listed above.

We also conducted *Mann-Whitney U-tests* as a robustness check of the results as well as to assess whether the statistical significance of the nudge effects is sensitive to the assumption of normality. This test was also used in order to check whether the results from both these tests are consistent and reveal similar observations in terms of consumer intent towards buying organic produce. Various *p*-values for each of the categories were obtained, which could be analysed for significance at the significance level of 0.05.

Furthermore, we computed the means of the both the control and the treatment groups for each of the product categories, which also aided us to assess whether the direction of the effect was towards a particular group (control or treatment).

The study also intended to analyse the impacts of the other factors that could be involved in directing consumer purchase intent, such as gender, age and annual household income (in INR). This was done to not only gauge whether they influenced the likelihood of the consumers being affected by the nudge, but also to measure the extent of this effect. It conducted *t-tests* for each of the product categories and the factors mentioned above. The calculated *p*-values indicated the statistical significance of the factors for each of the product categories. The results have been summarised below.

4. Results

The results were obtained from two randomized samples of respondents: the first group received the survey designed for the control group (without the nudges), while the second group received the survey for the treatment group (with the nudges). Data pertaining to the individuals' demographics such as their age, gender and annual household income was also collected (anonymously) to find correlation between these factors and the relevant nudges. **Figures 1-3** below highlight the summary statistics obtained for the demographics in the two groups (for a total of 242 respondents):
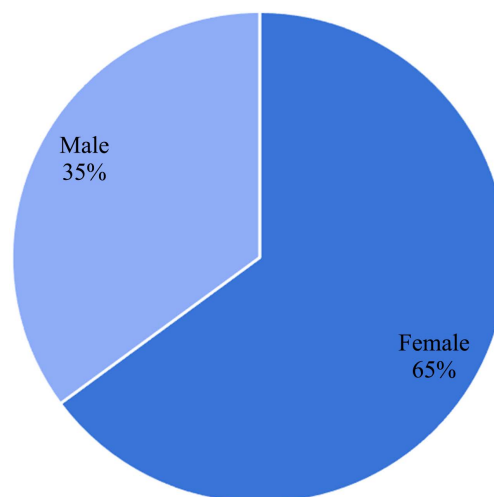

Figure 1. The majority of the respondents were females (65%). Source: Author's data.
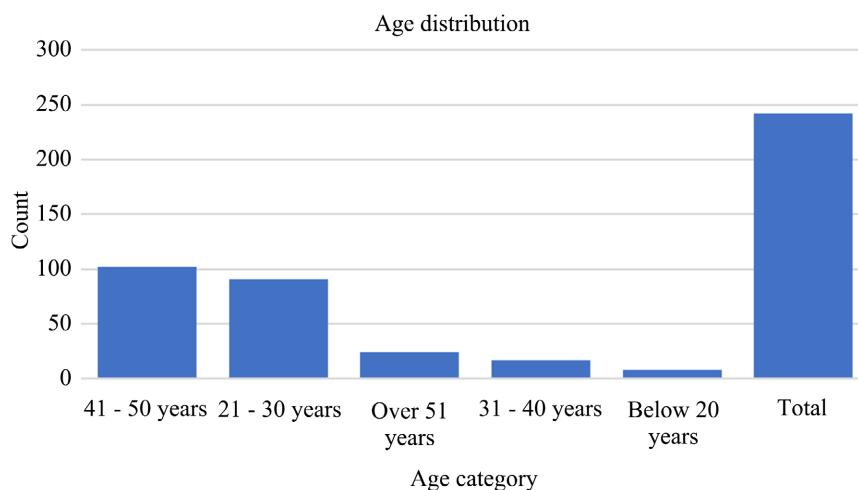
Figure 2. The majority of the respondents were from the age group of 41 - 50 years (42.15%). Source: Author's data.
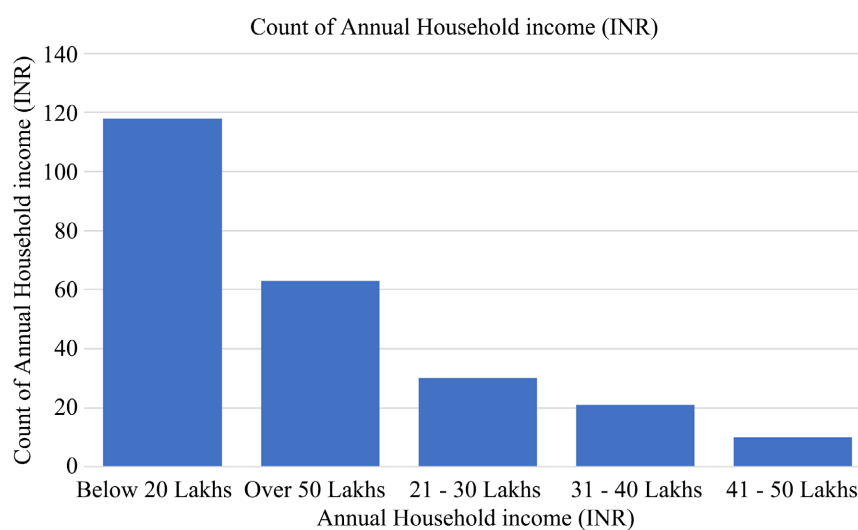
Figure 3. The majority of the respondents were from the income bracket of Below INR 20 Lakhs (48.8%). Source: Author's data.

Table 1. The majority of the respondents were neutral when asked about their preference for purchasing locally sourced products (34.7%).

How important is it for you to purchase products that are locally sourced?	Count
I am neutral	84
Quite important	69
Somewhat important	59
Extremely important	16
Not important at all	14
Total	242

Source: Author's data.

Table 1 highlights the consumers' preference for purchasing locally sourced products.

When we conducted *two-sample t-tests* assuming *unequal variances* for each of the product categories, we found the results for all of them to be statistically significant since the *p*-values were lower than the significance level of 0.05. The values are summarized in Tables 2-6 below:

Table 2. Results of the two-sample t-test for organic vegetables from the control and treatment groups.

	Group	
	Control	Treatment
Mean	2.642276423	5.12605042
Variance	4.526722644	7.331434269
Observations	123	119
Hypothesized Mean Difference	0	
df	224	
t Stat	−7.917527124	
p (T ≤ t) one-tail	5.58266E−14	
t Critical one-tail	1.65168456	

Source: Author's data.

Table 3. Results of the two-sample t-test for organic dairy/milk products from the control and treatment groups.

	Group	
	Control	Treatment
Mean	4.894308943	6.731092437
Variance	8.324803412	6.486397949
Observations	123	119
Hypothesized Mean Difference	0	
df	238	
t Stat	−5.25462994	
p (T ≤ t) one-tail	1.64699E−07	
t Critical one-tail	1.651281164	

Source: Author's data.

Table 4. Results of the two-sample t-test for organic lentils from the control and treatment groups.

	Group	
	Control	Treatment
Mean	5.886178862	6.831932773

Continued

Variance	6.609889378	5.479988606
Observations	123	119
Hypothesized Mean Difference	0	
df	239	
t Stat	−2.993892758	
p (T ≤ t) one-tail	0.001521865	
t Critical one-tail	1.651254165	

Source: Author's data.

Table 5. Results of the two-sample t-test for organic meat and poultry products from the control and treatment groups.

	Group	
	Control	Treatment
Mean	4.739583333	6. 261682243
Variance	8.236732456	8.176159408
Observations	96	107
Hypothesized Mean Difference	0	
df	198	
t Stat	−3.779213121	
p (T ≤ t) one-tail	0.000104063	
t Critical one-tail	1.652585784	

Source: Author's data.

Table 6. Results of the two-sample t-test for organic fruits and juices from the control and treatment groups.

	Group	
	Control	Treatment
Mean	2.504065041	5.168067227
Variance	5.711048914	9.073208945
Observations	123	119
Hypothesized Mean Difference	0	
df	225	
t Stat	−7.605949792	
p (T ≤ t) one-tail	3.82114E−13	
t Critical one-tail	1.651654074	

Source: Author's data.

To underscore the statistical significance of each of the *t-tests* conducted above, we analysed the various *p*-values obtained from the samples. The *p*-value of 5.58266E−14 for the test for Organic Vegetables shown in Table 2 is statistically significant ($p < 0.05$), leaving us with sufficient statistical evidence to conclude that at the significance level of 0.05, the nudge pertaining to Organic Vegetables was associated with a difference in purchase intentions of the urban Indian middle-class consumers in the sample. Similarly, the subsequent tests conducted for the various other categories of food such as in Tables 3-6 have the *p*-values of 1.65E−07, 0.0015, 0.000104 and 3.28E−13 respectively ($p < 0.05$), suggesting that at the significance level of 0.05, there is convincing evidence that the nudges did have an impact on the purchasing intentions of these consumers. This can also be shown by the proportion of responses received on the Likert scale for both experimental groups.

The study also conducted *Mann-Whitney U-tests* for each of the aforementioned product categories, and analysed the *p*-values obtained from the samples. For the test for Organic Vegetables, the *p*-value obtained was 3.799E−13, for Organic dairy products it was 9.103E−07, for Organic Lentils it was 0.005179, for Organic meat and poultry products it was 0.0002754, and for Organic fruits and juices it was 1.561E−12. Because $p < 0.05$ for all the product categories, these are all significant at the significance levels of 0.05.

The mean values or averages computed for both groups in each of the product categories were also all greater for the treatment groups in comparison to the control groups. This further suggests that the direction of the effect was towards the treatment group. This is further analysed below.

The study also aimed to evaluate the impacts of the other factors involved in the investigation, to identify whether they played a significant role in influencing consumer intent towards purchasing organic food products when the nudges were involved. These were gender, age and household income level (in INR). We again conducted *t-tests* for the same with each product category. For the category of organic vegetables, it was found that while age and gender did not play any statistically significant role (as the *p*-values were all higher than the levels of significance), the income level of "Below INR 20 Lakhs" proved to be statistically significant at the significance level of 0.1, with a *p*-value of 0.0653. As for milk, it was found that age in the category of "41 - 50 years" and "Over 51 years" proved to be statistically significant at the *p*-values of 0.07 (at the 0.1 significance level) and 0.0058 (at the 0.05 significance level) respectively. No statistically significant evidence was found for gender and income levels. As for lentils, the age category of "Over 51 years" had a *p*-value of 0.0499 which came out to be significant at the 0.05 level. However, this does not give very statistically significant evidence as the *p*-value is very close to 0.05. Here, again, income and gender showed no statistically significant evidence. For meat and poultry, age in the category of "Below 20 years" had a *p*-value of 0.026 which is significant at the 0.05 level. No relation was observed with respect to income level and gender. Lastly, for organic fruits and juices, none of the interactions was proven to be statistically signifi-

cant at any of the significance levels.

The evidence for statistical significance is strengthened by the computation of the mean values for the two groups in reference to all the product categories. As observed, the mean values of 5.126, 6.731, 6.831, 6.261, and 5.168 from the treatment groups of Tables 2-6 are all greater than their counterparts in the control groups. This provides us with a direction for the effect and suggests that the average purchase likelihood of the consumers after having received the nudges was notably greater in the treatment groups.

5. Discussion

The results showed that the nudges did have an effect on the purchasing intent of the urban Indian middle-class consumers in the organic food market. The significance tests conducted above highlight the p-values calculated (from the t-tests) for each of the products and whether they prove the tests to be statistically significant in terms of the effect of the nudges or not. However, the extent to which it can be said with certainty that the nudges indeed had an effect, varies. For instance, for organic vegetables, milk products and organic fruits and juices it can be said with a great degree of certainty that the results were statistically significant and the nudges did have an impact on the consumer purchasing intent. This is largely because the p-values are extremely small (and further away from the significance level of 0.05). In the case of organic meat and poultry products and organic lentils, though the data is significant, the values are closer to 0.05 and therefore the degree of certainty to which we can completely be convinced about the evidence reduces. An interesting observation arises here: we are convinced that the data for organic fruits and vegetables and dairy products have a high level of significance, which may suggest that the effect of green nudges on consumer purchasing patterns may be more pronounced for these categories compared to proteins.

Because the *Mann-Whitney U-test* was also used as a method to validate the results obtained, the p-values here further reveal the varying degrees of certainty to which we can be confident about the evidence for each of the product categories. For instance, the p-values for organic lentils and meat products (proteins) are 0.005179 and 0.0002754 respectively, and are closer to the significance level of 0.05. This is, again, an indication of the lower degree of certainty to which we can be convinced of the evidence. In comparison, the p-values for organic fruits and vegetables along with dairy products are extremely small, suggesting a higher level of confidence on the ability of the nudges to produce their desired effect. Notably, the higher degree of certainty that we have over the positive effects of the nudge on organic fruits and vegetables may largely be due to the fact that in India, fruits are vegetables are the greatest demanded organic food categories (Singh & Verma, 2017), suggesting that this increased demand was further augmented by the implementation of the green nudge for this category.

Since the p-values for the *Mann-Whitney U-tests* are all significant, the statis-

tical significance of the nudge effects is not sensitive to the assumption of normality. Additionally, the results of the *t-tests* and *Mann-Whitney U-tests* are consistent, and therefore indicate that the results obtained are useful to understand that the nudges were indeed effective to produce a positive response from the consumers.

The data collected from computing the means for the control and treatment groups for all product categories also portrays that the direction of the effect is towards the treatment group, exemplifying the notion that the digitally implemented green nudges were successful in improving consumer purchase likelihood. The data obtained thus suggests that the way food is marketed affects consumer intentions to buy it, underscoring how a good advertising campaign could be rewarding for firms wishing to expand their sales.

Prior research conducted in this field also highlights the positive impacts of "framing" as a green nudge on consumer purchasing patterns. The online grocery store sector is growing rampantly in India (LocalCircles, 2023), making it imperative for us to understand the implications of these green nudges being administered through online platforms. A study conducted by Berger et al. (2020) in an online grocery store in Germany suggests that "DNEs" (Digital Nudging Elements) such as positive framing "in the form of smiling world icon might thus have been highly appreciated" (Berger et al., 2020). This suggests that if online "framing" nudges could be introduced into the Indian market for organic food, it could be favourable for the producers involved.

To validate these findings, further studies have also shown that digital nudging is an effective way "to guide consumers into a more ecologically friendly direction" (Fechner & Herder, 2021). In fact, it is also shown that while price does have an impact on consumer choice to choose between organic and non-organic products, the impacts of the nudges are proven to be stronger. These nudges can therefore help boost more sustainable and environment-friendly behaviour in general.

The results also revealed correlation between factors such as age, gender and annual household income level (INR) and their effects on consumer purchasing intent when the nudges were administered. As shown, 65% of the respondents are female. This is likely because women are typically the primary grocery shoppers in Indian households, and so would be in a better position to respond to the green nudges. As the results also identify the correlation between each of these factors for the various product categories, we realise that "age" as a category has likely played a more significant role per product category as compared to income levels and gender distributions. The importance assigned to "age" as a factor was also shown by a study analysing consumer motivation to buy organic food among urban Indian millennials (Nafees et al., 2022). This has been discussed in Section 1 of this paper.

However, it can also be noted that a study conducted in India pertinent to green nudging in the market for vegan food argues that there "exists an ex-

tremely weak-negative relationship between age and the corresponding decision to switch to a plant-based diet" and "that there exists a weak positive relationship between the choice of switching to a vegan diet and the gender of the consumer" (Manchanda et al., 2022). This highlights that while the current study received some statistically significant results for "age" and its impact on consumer intent when the nudges were administered, a study for this effect on vegan food concluded the contrary (Manchanda et al., 2022).

This leads us to the discussion of the limitations of the present study, and further studies are encouraged to understand and address these limitations. Firstly, the sample size could have been larger, with more sections of the diverse Indian population included. Future researchers are encouraged to ensure that they have a sample size that is mostly representative of the strata and the subgroups in the country as a whole.

Secondly, the study tested the consumers' purchase intentions after being exposed to the nudge. However, their behaviour in a real-life market situation may be different from what they reveal as their purchasing intent. Since this was challenging to test, it is vital for future researchers to get deeper insights into the actual behaviour of the consumers before and after being given the green nudge, in a real-life market scenario.

6. Conclusion

The study has discovered effective ways to encourage consumers to purchase organic food when exposed to green nudges digitally. This section will discuss the implications of this research along with some recommendations for the Indian government and organic food producers.

As mentioned earlier in this paper, the sample obtained from the surveys is mostly representative of the urban-Indian middle-class consumers due to its variability in terms of age categories, locations across India and range of annual income levels (in INR) per household.

In order to ensure that the results obtained from the *t-tests* were consistent under most conditions, we also conducted *Mann-Whitney U-tests*, whose results were both consistent with the results obtained from the *t-tests* and demonstrated that the statistical significance of the nudge effects is not sensitive to the assumption of normality.

The government could utilize these nudges effectively to promote positive behavior attitudes amongst consumers towards organic food. This could be done with the help of information campaigns that could employ "framing effects", centered around 1) the beneficial health impacts of organic food, 2) the various ethical considerations involved and 3) the repercussions of consumer choices on environmental sustainability. This may also be applied for digital product labels (that could be especially highlighted), as it would encourage firms to emphasize the pesticide-free nature of their organic products. The placement of the advertisements of such organic products could be at the center of the webpage. In ac-

cordance with the "central choice bias" theory, studies have demonstrated that placing products centrally attracts consumers' attention (Djurica, 2017), thereby advancing sales. Furthermore, since the digital nudging technique has shown to be effective, the government and the producers could establish partnerships with other retailers to ensure that these organic products are prominently displayed in supermarkets. Lastly, the government may also fund more comprehensive research studies on the topic in order to orchestrate the desired impact on consumer behavior in real-world market situations. If the government is concerned about the risk of synthetic pesticides causing death or disease, nudges could be used to convince consumers to buy organic food produced to reduce the usage of synthetic pesticides.

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Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

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