

Generation Z preference on reusable food container on subscription basis

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ABSTRACT

Purpose: Environmental degradation is a significant concern. The awareness and understanding of climate change and one's willingness to change their consumption behavior is a crucial factor that needs to be considered in ensuring a smooth transition to a world which is eco-friendly. With food and beverage industry being most prominent contributors of non-reusable plastic, therefore, this paper aims at understanding the profile of Generation Z preference on the context of using reusable food containers. The paper is based on the acceptance of a self-formulated model of subscription-based service of reusable containers. **Methodology:** Extensive literature has been reviewed. A sample of 200 respondents belonging to Generation Z has been selected and data have been collected using a 20 questioned questionnaire. The reliability of the data collected was estimated using KMO and Bartlett's test. The data were analyzed using SPSS version 21 by conducting factor analysis. **Findings:** The result and findings showed several factors which were identified as six main headings that would encourage Generation Z to be a part of the initiative. **Implications:** It was concluded that Generation Z is comfortable and adaptable with the changes in lifestyle for environmental conversation. **Originality:** The research is based on a self-formulated model. All the references are duly cited and all the information is collected by the researchers on their own.

Key words: Generation, online food delivery, plastic containers, reusable containers, subscription model, sustainability.

JEL Classification: M31, Q20, C38

INTRODUCTION

Food delivery business can be defined as a process of delivery of food or takeaways from a well-established restaurant or a local food joint through a web page or a mobile application. The consumers order food from their wide choice of restaurant, their selection of cuisines can also decide whether to get it delivered by an executive or self-pickup. The business has expanded so much that it is possible to obtain delivery of food or beverage items available in the market. With the aim and planning of Indian Government to focus on the cashless economy

and digital India, the emergence of electronic-wallet and various kind of payment platform has boosted the business and profitability of these application-based food delivery services. Customers can choose to pay from a different mode of payments such as debit card, credit card, Unified Payment Interface (UPI), electronic-wallets, Bharat Interface for Money (BHIM), or even by cash at the time of delivery.

Food delivery market in India is likely to touch \$12.53 billion by the year 2023, which projects the growth rate of almost 15%. When compared this to global statistic,

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the growth rate is around 9.1%. Indian entrepreneurs are taking up these services as their business and startup ideas which are very evident from the fact that out of \$5.24 billion raised by Indian startups between 2014 and H2 2019, 56% has been invested in food-technological related services and business. The main reason for the growth of Indian food delivery market is the increasing number of working women in the society and the families where both the partners are earning and prefers hot, convenient and quick meals at their doorstep. These applications have allowed customers to compare menu, prices, look for ongoing promotions, and discount, which ultimately helps consumers to get a good deal. According to International Market Analysis Research and Consulting (IMARC) group's report of 2018, Swiggy and Zomato are the two most prominent organizations in the Indian online food delivery market. There are other players such as Dominos, FoodPanda, and Faasos.

An online food order typically includes two or three plastic boxes, carried in one or two plastic bags with plastic spoons and plastic soup/gravy containers and sometimes a plastic drink bottle. Let's consider 200 million is the active population which uses these delivery services, the amount of single-use plastic being used in this industry alone. Although we call ourselves advanced in every field, it is a fact that still, we are not able to find efficient and economical methods to recycle plastic. It has been a human tendency to exploit the environment and its resources for their comfortable lifestyle. Plastics take around 500–1000 years to degrade due to their complex nature of polymers ultimately. According to the World Economic Forum, India generates about 56 lakh tones of plastic waste every year, contributing an astounding 60% to the amount of plastic waste dumped into the world's oceans every year.

Vishnoi (2019) restated Prime Minister Narendra Modi's statement on the Indian Government identification of six single-use plastic items that are to be discontinued on a priority basis. No immediate move to ban plastic bags, cups, plates, small bottles, straws, and certain types of sachets and instead the government would try to curb their use. This will widely affect the business of food delivery. Companies such as Zomato and Swiggy have started working on this concern, and Swiggy recently launched Swiggy Packaging Assist, in Bengaluru, Mumbai, and Pune, to enable its restaurant partners to be aware of eco-friendly options. Zomato says they have been closely monitoring restaurant partners since the ban announcement to encourage them to comply with the stipulations. They are also in the process to launch their eco-friendly packing range.

However, shoppers talk about the unsafe impact of plastic and their usage in food delivery services which amounts to one of the largest producers of waste from plastic bags and containers have hardly done something on the ground level. To protect and save the environment, it must be a collective process of the government by establishing laws, companies by changing their way of operations, and customers by supporting government and companies and complying with these regulations, even if they come at a slightly higher cost.

Literature Review

Muthe (2011) observes the increase in consumer's demand. It is mostly attributed to penetration of technology and increases in population. Companies are also attracting customers through advertisement and investing in new unique product. Vinaik et al. (2019) outline the high level of awareness and use of food delivery application. Zomato is most popular followed by Swiggy, Foodpanda, and Uber Eats. However, Mundy (2018) felt that Indians still rely on a home-cooked meal. Despite this, the industry is growing at a fast pace and will also grow in the future. Gupta (2018) believed that there is a relationship between growing food delivery industry and the restaurant industry. Zhong and Zhang (2019) identified that food delivery industry in China is becoming prevalent. However, the industry is responsible for a massive amount of plastic being dumped every day in water reservoirs resulting in making China home to the world's most polluted rivers. Shindelar (2015) characterized global food delivery system. They account for one-third of greenhouse gas emission as they rely on long-distance transportation instead of local produce. In the United States produce on an average travel 2400 km before reaching a supermarket. In contrast, local produce travels only 72 km.

Bhushan (2019) discussed a recent slew of the ban on plastic. Eighteen states banned single-use plastic of various forms. The central government also plans a countrywide ban. This has called outcry regarding the scope of the prohibition, its timeline and product included in such initiative. Maheshwari and Bhushan (2016) examined the effect of plastic ban in Karnataka. Companies such as Freshmenu and Chai Point started to change their delivery operation where later already shifted to biodegradable packagings such as bagasse boxes, glass bottles, and rice cornstarch forks. On the other hand, some other business is looking for relaxation in the ban. Chen (2019) evaluated Chinese food delivery service such as Meituan and Ele Me and their sustainable plan called Green Hills and Blue Planet. They

are giving an option to customers to avoid unnecessary disposable items, and in return, they receive points that can be exchanged for an environmentally-friendly shopping bag or to plant trees. They also started using a container that uses less proportion of plastic and uses more paper. [Fagundes \(2019\)](#) explained how companies are trying to cut down their plastic use. Nestle has planned to phase out all non-recyclable plastic from their product by 2050. They also joined a loop for subscription-based service where their product will be delivered in reusable containers. These containers will be collected, cleaned, and refilled so that they can be used again. Companies are also opting for plant-based packaging. [Cheng et al. \(2014\)](#) draws attention to plastic use and various types of plastic. Approximately 50% of the plastic is single use. Emphasized the importance of seven grades of plastic that allows separation of different grade of polymer for recycling was given. [Seetharaman \(2019\)](#) examined about the plastic industry. It has an annual turnover of INR 2.25 lakh crore and employing around 4 million people. Even though 60% of plastic waste is recyclable, but lack of proper action has led to a considerable amount of pollutants entering into rivers and oceans. This has resulted in a trend where companies such as Amazon are trying to curb their plastic use. [University of Exeter \(February 5, 2018\)](#) described the harmful effects of using plastic for carrying and containing food. Plastic such as containers and water bottles releases Bisphenol A, which capable of changing estrogen-responsive genes and the regulation of hormones. Research detected that the chemical was present in 86% of the participants. [Jinling et al. \(2019\)](#) conducted that research was food samples that were collected and divided into two categories, recently manufactured and near its shelf life. They found traces of phthalate plasticizers (PAE) in the latter category, which is harmful to human health. This chemical was transferred from the plastic that was generally used for packaging. [Thackston \(2013\)](#) reveals that the majority of the single-use food services products are either made of plastic. Ironically, the toxic effects these packets have on human health, these are a necessity in the restaurant industry due to hygiene and convenience, but stress on the use of more sustainable packaging options should be given as it has a long-term benefit on health and environment.

[Helo and Ala-Harja \(2018\)](#) discussed about the food supply chain. It is unique from other supply chain management as it has a product with a shorter lifecycle and sensitive to temperature and other factors. Most of the carbon emission happens due to transportation and cooling. They also mentioned that carbon dioxide equivalent emission caused by 1000 kg of supply chain product produces was 66.5 kg. This makes the supply chain an integral part of

the food industry. Hence, stress on green logistics was given that use efficiency and promote eco-friendly methods for transportation. [Hamprecht et al. \(2005\)](#) define green logistics as the practice and strategies of supply chain management which aim to reduce environmental effects and energy consumption caused by cargo handling, waste handling, packaging, and transportation.

[Thackston \(2013\)](#) underlines the importance of packaging as it provides an opportunity for advertisement and consumer satisfaction along with their functional need. Restaurant and food industry have to use single-use packaging product to maintain hygiene and for customers convenience. [Bhushan and Bailay \(2019\)](#) raised the problem of lack of an alternative that is available against plastic. Moreover, the alternative available is not commercially viable. This is especially the case for the gravy-based food item. Alternatives such as paper absorb flavors and water content of the food during transportation. [Ojha et al. \(2015\)](#) studied about packaging for products. Even though the glass was the oldest choice for food packaging, but metal and plastic are increasingly used. Metal such as aluminum, steel, and their alloys is mainly used as they offer excellent physical protection and are recyclable. Plastic is also popular, but these packagings are facing public and government scrutiny. The common sustainable packaging trends are include downsizing the weight of packing material, improved recycling and recovery of waste, and use of recycled content.

The plastic waste generation by industrial sector in 2015, had packaging industry as its leader as shown in [Figure 1](#), with generation on 141 million tonnes a year which is almost same as all other sectors combined.

[Stier \(2019\)](#) listed out that the various food packaging methods such as use of tamper-evident packaging, internal audit programs, and employee's background check should be used to ensure the integrity and safety of food that is transported. [Suhartantoa et al. \(2018\)](#) claimed that the restaurant industry is saturated, but the availability of online delivery service helps in enhancing productivity and customer relationship. They felt that customer satisfaction is not enough for survival, but instead of that, customer loyalty is important for further growth. They also found a relationship between customer experience from the website while ordering food and the customer's perception of food quality. Along with that customer also value the monetary aspects and quality of the product. [Piqueras-Fiszman et al. \(2012\)](#) emphasis on the fact that containers in which foods are packaged and consumed from can influence the perception of their related sensory qualities and even the overall consumption experience. [Namkung and Jang](#)

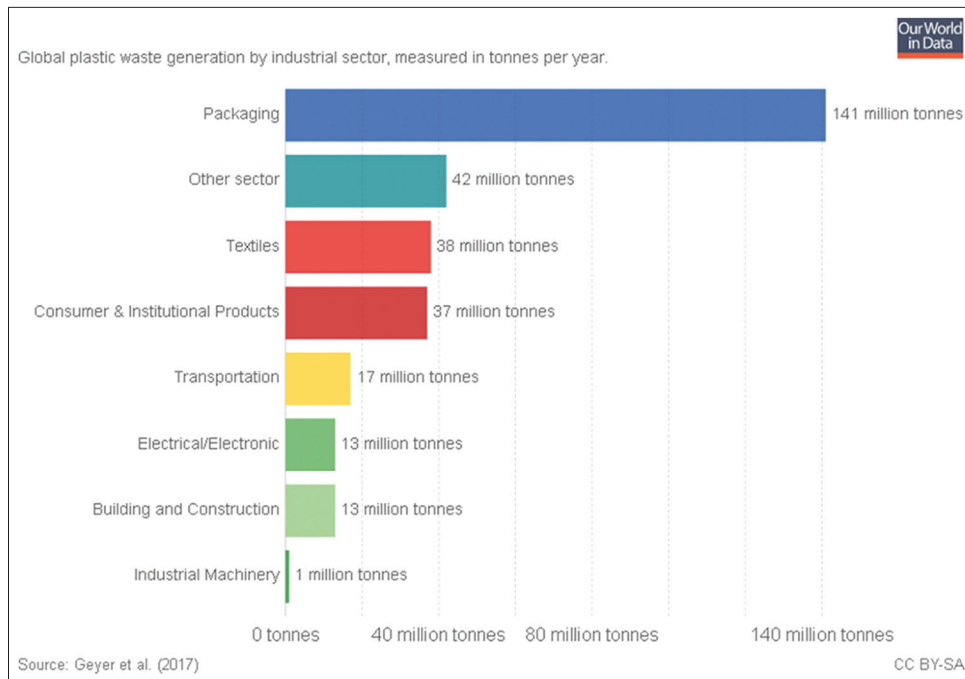


Figure 1: Plastic waste generation by the industrial sector

Source: Wang (2019). Industrial plastic waste worldwide by industry 2015 | Statista. [online] Statista. Available at: <https://www.statista.com/statistics/960038/plastic-waste-by-industrial-sector-worldwide>

(2008) concluded that the manner of the delivery would influence the customer's experience with the food. For e-service platforms, the process of consuming the food starts from when the customers search and order food from the application. Thus, the quality of the web would also influence customer perception of food quality. To make customers loyal toward the service, it is important to give a perception that they will gain higher value in both monetary and non-monetary terms.

Diabat et al. (2012) listed out the various risks involved in food industry like supply risk which is due to movement between supplier, firm, and customers; operational risk due to internal factor of the firm such as ability of production, profitability, operational breakdown in the firm, or change in technology; demand risk is due to obsolescence and lack of proper inventory management; and other risks such as governmental policies, political unrest, terrorist attacks, strikes, and lack of workers. A good supply chain management must identify these potential risks and make necessary changes in the system to control and mitigate loss from such situations. Valley (2019) described Good Club, which is a Brixton based online supermarket, formed by Ben Patten. The organization started a research work on its business model that is still in a rudimentary phase where

multiple-use recyclable container for their delivery will be used. The new order will be in a new container, but it is to be returned back to Good Club when they order next time. Furthermore, research was conducted with customers of Good Club, where 27% of the respondent is willing to pay an extra amount of 5 euros in the order above 100 euros for such a delivery system.

RESEARCH OBJECTIVES

This research work attempts to study Generation Z's knowledge about the usage of plastic in food delivery business and their perception to subscribe to reusable packaging. The specific objectives are as follows.

- To explore the factors considered by Generation Z while considering reusable containers.
- To analyze the Generation Z perception on the subscription model of reusable containers in food delivery services.

Research framework model

In this era, most of us are dependent on food delivery services for our meal, and we know the amount of waste generated by these services is huge! "I have an experience of 20 years

in this industry, I've worked at this garbage collection center for 7 years," Mansoor, a senior spokesperson from the industry, tells TNM. "Garbage is increasing. Packaging waste is a huge part of it. It is only increasing; it is not decreasing. Now everyone orders online," he says, pointing to a pile of plastic containers. Due to the proposed single-use plastic ban by the Government of India, food services aggregators are worried about their business and the new regulations in place. "We may stop delivery of items temporarily if a sweeping ban is announced on October 2," said SS Aggarwal, Managing Director of Bikanervala Foods that operate more than 50 restaurants across India. These companies are trying to find feasible alternatives which can keep them in business as well as abide by the new regulations and environmental concern. "The company plans to introduce eco-friendly meal trays and other items made of materials such as corn-starch and bagasse," said Srivats TS, VP (Marketing), Zomato. "Swiggy is working with multiple design consultants and manufacturers of packaging materials to come up with improved design and recyclability of packaging solutions," said the spokesperson.

To reduce the waste created by such food delivery services and moving toward a healthier and greener environment, the researchers have formulated a model as shown in Figure 2 in contrast to the already existing model of food delivery depicted in Figure 3 where after the order is placed, the food is packaged and delivered by the executive, the disposal of the packaging is left as per consumers discretion.

In this model, the researchers will try to use a subscription-based service, where single-use takeaway packaging will be replaced by a closed-loop reusable packaging scheme. Here, a customer will need to subscribe to this service by paying quarterly/annually fees which will be held as a security deposit as well as maintenance tear fees for the container. Customers can choose to get a meal delivered in a reusable stainless-steel bowl and once done they rinse the bowl and can return it at the time of next delivery. Every time the customer orders, it is bound to happen that the delivery will happen in a reusable container and it will be mandatory for the customers to return the previously delivered container then and there itself failing to which their subscription will be forfeited. Maintaining of containers and inventories will be done directly by the company on a weekly basis, and an optimum level of required containers at any point will be decided on the basis of popularity of the kitchen.

METHODOLOGY

The research was conducted with the help of primary data collected through a survey using a questionnaire.

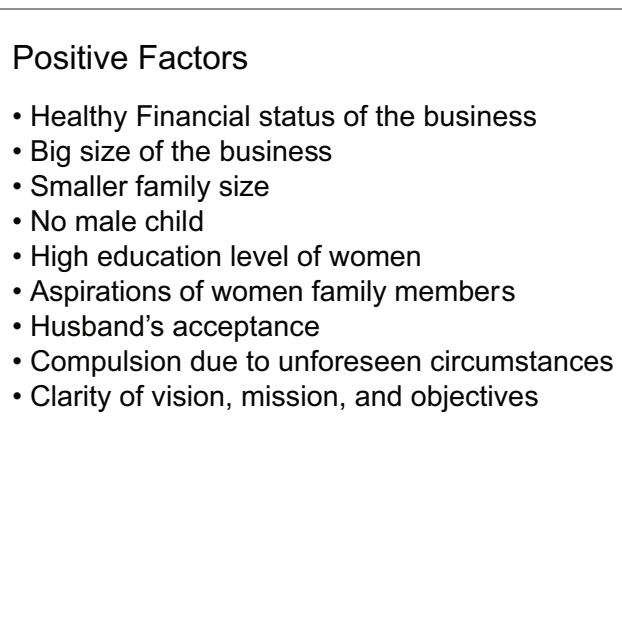


Figure 2: Proposed Subscription-based model
Source: Designed by Author

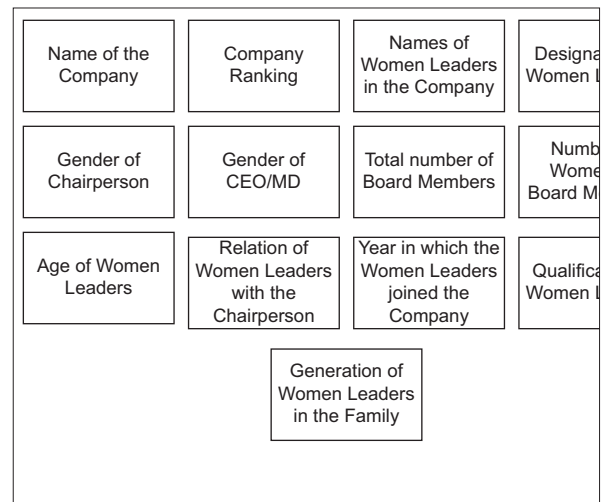


Figure 3: Conventional food delivery model
Source: Designed by Author

The respondents are only from Generation Z (born on or after 1995 but before 2010) because of convenience, and they represent one of the biggest customer bases for food delivery application. They are the ones who are proactive about environmental conversation. Their opinion and knowledge will act as a cornerstone for future development and transition to a more environmentally-friendly system. The questionnaire had 20 questions other than the personal information, and all of them were based on a Likert scale of 1–5 (1 being most likely and

five being most unlikely). The questionnaire was divided into two parts.

First part tried to know people’s understanding of climate change, knowledge of grades of plastic they are using and their current recycling and reuse pattern.

The second part deals with food delivery service and use of the business model in the service that replaces the plastic with reusable metal containers. Perception of the respondents was collected to know whether they will be willing to pay extra and ready for an additional effort of cleaning and storing the container. The questionnaire

collected 200 responses in total majorly from Bengaluru. Out of that, 51.2% were female, and 48.8% were male. The data were collected through Google forms, and judgmental sampling has been used for data collection as each researcher’s acquaintances were approached for the survey. The data collected has been presented in Table 1 under the next heading.

Further, the data collected have been analyzed using automatic generated graphs and pie charts to have an overview of the responses. The data collected were analyzed using SPSS Version 21, and factor analysis was conducted. This was followed by classifying and segregating the

Table 1: Demographic information and responses of the respondents

Measure	Items	Frequency	%
Gender	Male	98	49
	Female	102	51
Accommodation type	Hostelers	84	42
	Apartments without family	42	21
	Residence with family	74	37
Awareness of the harmful effects of plastic on the environment	Aware	164	82
	Neutral	24	12
	Unaware	12	6
Interest in being part of an initiative to reduce single-use plastic consumption	Interested	158	79
	Neutral	28	14
	Not interested	14	7
Awareness about the grade of plastics and the grade used for making food packaging	Aware	32	16
	Neutral	40	20
	Unaware	128	64
Usage of food delivery applications	Frequent	120	60
	Neutral	44	22
	Infrequent	36	18
Willingness to pay extra for the service	Willing	126	63
	Neutral	42	21
	Unwilling	32	16
Comfort using reusable containers	Comfortable	140	70
	Neutral	34	17
	Uncomfortable	26	13
Long term impact of the initiative	Positive	152	76
	Neutral	34	17
	Negative	14	7

Source: Primary Data. Note: $n=200$ respondents

identified factors into their commonality. The analysis helped in identifying six major factors that would be taken into consideration to find out the acceptance of Generation Z for the reusable container packaging. The 20 questions asked have been clubbed into six major factors that would lead to the acceptance of this sustainable model. With the help of review of the literature and the factor analysis, the researchers have been able to narrow the scope of research and record the various factors which relate to the usage of reusable containers. These factors were termed as major factors, and it was analyzed whether all the varied proposed factors fit into the identified six factors.

In addition to factor analysis, the KMO test, i.e., Kaiser-Meyer-Olkin Measure of Sampling Adequacy and Bartlett's Test of Sphericity Measure of data redundancy have been used to check the sample adequacy.

FINDINGS AND DISCUSSION

Empirical Results and Analysis

Factor analysis has been used to reduce a cast set of variables into a fewer number of factors. This technique extracts maximum common variance from all variables and puts them into a common score. It considers a true relationship between the factors and the variables. Principal component analysis method was used for the research, and it is the most common method used. This method extracts the maximum variance and puts them into the first factor. After that, it removes the variance explained by the first factor and then started extracting maximum variance for the second factor. This process goes on until the last factor. However, before conducting the factor analysis, it is necessary to know the suitability of respondents' data to the factor analysis. KMO test, i.e., Kaiser-Meyer-Olkin Measure of Sampling Adequacy and Bartlett's Test of Sphericity are used. The KMO index lies between 0 and 1 with 0.5 considered suitable for factor analysis which in the case of the research is 0.8 as shown in Table 2, thus the research is suitable for factor analysis. For Bartlett's Test of Sphericity, the value should be <0.5 for factor analysis to be suitable. In the case of the data derived, the value is <0.85, i.e., 0.0 as shown in Table 2; thus, it is suitable for factor analysis. Variables that fall under the same group have been clubbed and have been assigned a factor name as shown in Table 3. The below-conducted factor analysis has produced six factors. As presented in Table 4 the derived factors have been further supported with descriptions for theoretical and conceptual purposes.

Table 2: KMO and Bartlett's test

Kaiser-Meyer-Olkin measure of sampling adequacy	.801
Bartlett's test of Sphericity	1139.959
Approx. Chi-square	
Df	171
Sig.	.000

Table 3: The rotated component matrix

	Component					
	1	2	3	4	5	6
ADT4	0.818					
ADT6	0.806					
ADT3	0.786					
ADT2	.785					
ADT1	.746					
ADT5	.667					
EVF2		.761				
EVF4		.704				
EVF1		.582				
EVF3		.481				
AWR2			.865			
AWR1			.838			
FQU1				.891		
FQU2				.858		
RUS2					.802	
RUS1					.658	
FRG1						.654

Extraction method: Principal component analysis. Rotation method: Varimax with Kaiser normalization

Reliability of data was checked by conducting KMO test that confirms that the data is suitable for factor analysis. While Bartlett's test of Sphericity shows low amount of redundancy in the data.

Implications of the Study

Based on the factor analysis conducted to check the suitability of this sustainable model toward better food packaging, following six factors have been determined that encourage Generation Z to take up an initiative to be a part of the drive to change the food packaging in India.

- Adaptability: It includes attributes related to willingness to take part in this initiative of using

Table 4: Constructs and proposed measurement items

Constructs	Proposed measurement items
Adaptability (ADT)	ADT1: Comfort in keeping with self-reusable containers after food delivery ADT 2: Comfort in using reusable containers than single use ADT3: Positive step toward preventing food contamination and plastic usage ADT4: Comfort in cleaning reusing containers for environment ADT5: Likelihood to enroll for subscription-based service ADT6: Initiative sustained in long run
Environmentally Friendly (EVF)	EVF1: Likelihood to be a part of an initiative to reduce single-use plastic consumption EVF2: Awareness on contamination caused by food stored in plastic EVF3: Likelihood of segregating the left over from the container post-consumption EVF4: Impact of plastic usage on environment
Awareness (AWR)	AWR1: Awareness about seven grades of plastic and ones used to make containers AWR2: Awareness about type of plastic used to make containers
Frequency of Use (FQU)	FQU1: Usage of food subscription facilities FQU2: Usage of Food Delivery application
Reusability (RUS)	RUS1: Usage of reusable containers RUS2: Carrying food in such containers for outings like picnic
Frugality (FRG)	FRG1: Willingness to pay an extra amount to get food delivered in a healthy manner

reusable containers, views on the sustainability of the model, comfort toward cleaning and keeping the containers and an optimistic approach toward the initiative.

- Environmentally-Friendly: It comprises concern for the environment and willingness to take action for the betterment of the environment.
- Awareness: This factor deals with regard to the awareness of the respondents toward the plastic usage in packaging and its implication on the environment.

- Frequency of Usage: It comprises variable including the number of times respondents use subscription-based services and how often they order food.
- Reusability: It looks at the reusability of the containers and people’s attitude toward using reusable and recycled things.
- Frugality: It deals with whether people would pay toward such initiatives and the spending behavior of the people.

Limitations and Further Scope of the Research

As a model like this is still an alien concept in India and with the upcoming ban on single-use plastic by 2022, the research is a proposed concept suggested by the authors that can be brought into the Indian scenario as well and has the potential of replacing the traditional food delivery packaging model. Thus, companies can take up this model and further conduct research to confirm its validity and use it in their operations. Furthermore, an amount that people would be willing to pay for the subscription has not been covered in the limited scope of the research. Thus, further scope should determine a feasible price for the same. Additional work on this model would help in the development of a cost-benefit analysis for this model. Moreover, it is recommended to widen the scope of the research to the whole market and not just limit it to Generation Z. A further investigation would help establish a trend pattern of acceptance of this model and the usage behavior, thus identifying the long-term sustainability of the model. Future works should also aim at introducing such a model in other industries too. The research has also raised a need to impellent educational initiatives increasing people’s knowledge and awareness about different types and grades of plastic and their effects.

CONCLUSION

From the study, it can be assessed that most of the respondents are aware of climate change and the role of plastic in environmental degradation. They are also aware that plastic contaminates the food and environment, but they are unaware of plastic grades prescribed by Food Safety and Standard Authority of India (FSSAI). It can be identified that Generation Z is ready to support proposed environment-friendly services and has no problem in paying extra, clean, and store reusable containers. With the changing era, the horizon of Generation Z is widened, and they are comfortable in using reusable containers despite the fact that someone else used it before, shows their adaptability.

The drawback was that around 13% of respondents said they were not comfortable in reusing the containers used by someone else. The research also does not include a food delivery service such as Zomato or Swiggy whether they will change their business operation and its impact on their cost and revenue. The research only focuses on plastic use of food delivery service as one of the fastest-growing service providers. However, there are various other packaging and logistics industries that are also responsible for plastic mayhem. Further research can be conducted on production and packaging of industry relating to Fast Moving Consumer Goods (FMCG), automobiles, toys, and electrical appliances.

The model proposed that the use of reusable containers is still in the rudimentary stage. There are still a lot of unanswered questions about the same. Types of containers to be used, collection points, delivery points, restocking period of containers, exact logistics mechanism of reusable containers, and the amount for such added service needs to be further discovered.

Further research can be conducted to identify the perception of food delivery services and their opinion on the proposed model or any other environmental-friendly model. The research only used Generation Z and food delivery service, but further analysis can include other generations and analyze other plastic using industries. Other models that eliminate plastic and can be adopted by businesses in operation can also be discovered and further analyzed.

CONFLICT OF INTEREST

The authors declare that the work submitted is an original work and is not copied from anywhere. All the articles or journals referred to have been duly cited in text and in references attached.

The authors declare they have no issued in regard to publication of the article under The Indian Journal of Commerce and Management.

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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REFERENCES

- Bhushan, R. (2019), Industry Seeks Clarity on Single-use Plastic Ban; Officials Say Each State Following its Own Policies is Fragmenting Industry, The Economic Times. Available from: <https://www.economictimes.indiatimes.com/news/company/corporate-trends/industry-seeks-clarity-on-single-use-plastic-ban/articleshow/71606595.cms?from=mdr>.
- Bhushan, R., Bailay, R. (2019), Plastic Ban May Leave Bitter Taste for Food Delivery, The Economic Times. Available from: <https://www.economictimes.indiatimes.com/news/politics-and-nation/plastic-ban-may-leave-bitter-taste-for-food-delivery/articleshow/71344568.cms?from=mdr>.
- Chen, W. (2019), Food Delivery Apps Skewered for Creating Plastic Waste. Available from: <https://www.chinadialogue.net/article/show/single/en/10846-Food-delivery-apps-skewered-for-creating-plastic-waste>.
- Cheng, N., Chow, C., Zhan, Y. (2014), Learning about the Types of Plastic Wastes: Effectiveness of Inquiry Learning Strategies. Milton Park: Taylor and Francis. Available from: <https://www.tandfonline.com/doi/full/10.1080/03004279.2014.976239>.
- Diabat, A., Govindan, K., Panicker, V. (2012), Supply chain risk management and its mitigation in a food industry. International Journal of Production Research, 50(11), 3039-3050.
- Fagundes, C. (2019), Rethinking Food Packaging can Dent the Plastic Pollution Crisis. available from: <https://www.greenbiz.com/article/rethinking-food-packaging-can-dent-plastic-pollution-crisis>.
- Gupta, M. (2018), A Study on Impact of Online Food delivery app on Restaurant Business Special Reference to Zomato and Swiggy. Available from: <http://www>.

- ijrar.com; https://www.ijrar.com/upload_issue/ijrar_issue_20542895.pdf.
- Hamprecht, J., Corsten, D., Noll, M., Meier, E. (2005), Controlling the sustainability of food supply chains. *Supply Chain Management: An International Journal*, 10, 7-10.
- Helo, P., Ala-Harja, H. (2018), Cloud manufacturing system for sheet metal. *International Journal of Logistics: Research and Applications*, 21(4), 524-537.
- Jinling, Y., Song, W., Wang, X., Li, Y., Sun, J., Gong, W., Sun, C. (2019), Migration of phthalates from plastic packages to convenience foods and its cumulative health risk assessments. *Food Additives and Contaminants: Part B*, 12(3), 151-158.
- Maheshwari, R., Bhushan, R. (2016), Karnataka Ban on Plastic Use Stumps Quick Service Restaurants Like Cafe Coffee Day, McDonald's, KFC, *The Economic Times*. Available from: <https://www.economictimes.indiatimes.com/industry/cons-products/food/karnataka-ban-on-plastic-use-stumps-quick-service-restaurants-like-cafe-coffee-day-mcdonalds-kfc/articleshow/51721000.cms?from=mdr>.
- Mundy, S. (2018), Competition Heats up in India's Online Food Delivery Market. Available from: <https://www.ft.com/content/365617e6-f239-11e8-ae55-df4bf40f9d0d>.
- Muthe, P. (2011), Changing behavioral trends of the Indian consumer. *Indian Journal of Commerce and Management Studies*, 2, 84-89.
- Namkung, Y., Jang, S. (2008), Are highly satisfied restaurant customers really different? A quality perception perspective. *International Journal of Contemporary Hospitality Management*, 20, 142-155.
- Ojha, A., Sharma, A., Sihag, M., Ojha, S. (2015), Food packaging materials and sustainability a review. *Agricultural Reviews*, 36(3), 241.
- Piqueras-Fiszman, B., Spence, C. (2012), The influence of the feel of product packaging on the perception of the oral-somatosensory texture of food. *Food Quality and Preference*, 26(1), 67-73.
- Seetharaman, G. (2019), How Plastic Ban will Affect Businesses and Consumers, *The Economic Times*. Available from: <https://www.economictimes.indiatimes.com/industry/indl-goods/svs/paper/-wood/-glass/-plastic/-marbles/how-plastic-ban-will-affect-businesses-and-consumers/articleshow/71236532.cms?from=mdr>.
- Shindelar, R. (2015), The Ecological Sustainability of Local Food Systems Environment and Society Portal. Available from: <http://www.environmentandsociety.org/perspectives/2015/1/article/ecological-sustainability-local-food-systems>.
- Stier, R. (2019), Food Defense has become a Critical Aspect of Food Safety Audits. Available from: <https://www.foodengineeringmag.com/articles/98252-food-defense-has-become-a-critical-aspect-of-food-safety-audits>.
- Suhartanto, D., Ali, M.H., Tan, K., Sjahroeddin, F., Kusdibylo, L. (2018), Loyalty toward online food delivery service: The role of e-service quality and food quality. *Journal of Foodservice Business Research*, 22(1), 81-97.
- Thackston, E.K. (2013), The Effect of Packaging Material Properties on Consumer Food Quality Perception in Quick-service Restaurants. ProQuest Dissertations and Theses Global. Available from: <https://www.search.proquest.com/docview/1412674920?accountid=38885>.
- University of Exeter. (2018), Exposure to Chemical Found in Plastics "Hard to Avoid" in Everyday Life. *Science Daily*. Available from: <http://www.sciencedaily.com/releases/2018/02/180205102728.htm>. [Last accessed on 2020 Mar 02].
- Valley, L. (2019), Good Club Takes Plastic Fight Online: Grocery Retailers are Struggling to Cut Plastic Packaging Out of Online Orders, but Brixton-based Online Grocer Good Club Believes It's Found a Solution to the Problem. *Grocer*, 32. Available from: <https://www.search.proquest.com/docview/2307937330?accountid=38885>.
- Vinaik, A., Goel, R., Sahai, S., Garg, V. (2019), The Study of Interest of Consumers in Mobile Food Ordering Apps. Available from: <https://www.ijrte.org/wp-content/uploads/papers/v8i1/A9219058119.pdf>.
- Vishnoi, A. (2019), Government May List 8 Single-use Plastic Items, *The Economic Times*. Available from: <https://www.economictimes.indiatimes.com/news/politics-and-nation/government-may-list-8-single-use-plastic-items/articleshow/72324377.cms?from=mdr>.
- Wang, T. (2019), Industrial Plastic Waste Worldwide by Industry 2015, Statista. Available from: <https://www.statista.com/statistics/960038/plastic-waste-by-industrial-sector-worldwide>.
- Zhong, R., Zhang, C. (2019), Food Delivery Apps are Drowning China in Plastic. Available from: <https://www.nytimes.com/2019/05/28/technology/china-food-delivery-trash.html>.

