IDENTIFYING THE PREVALENCE OF ATTITUDINAL GAP IN CONTROLLING WHITE POLLUTION - A STUDY ON UNOR-GANIZED RETAIL SECTORS OF KOLKATA

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Abstract

Despite several legal notifications and awareness programs plastic carry bags of different sizes and thicknesses are incredibly visible in all market places in Kolkata. Availability at free of cost and easy to store make the use of these bags true convenience for both the sellers as well as the shoppers in the unorganized retail sectors especially. Concerning the ill effect of plastic use on the environment and health control of its indiscriminate use is the need of the hour in the city. Under such circumstances a thoughtful understanding of the present scenario in light of knowledge, attitude and awareness of the users (Both Sellers and Shoppers) of this product is fundamental. The present study made a sincere attempt to focus light on this concern in the unorganized retail sector in Kolkata. Primary data, using personal interview, observation and survey method, is collected for two different samples—sellers and customers of non-branded retail shops from six distinctive market places of Kolkata. Factor Analysis is used to estimate the Business As Usual Scenario in light of attitude and opinion of the users of plastic bags. Analysis of data identified existence of gap between knowledge and behavior of the users regarding their action to control white pollution in this sector. This paper argued that such gap determines attitude of both buyers and sellers towards the unlimited use of this product and finally prevent successful implementation of any legal action to control the while pollution originating from the unorganized retail sectors in the city.

Key Words: Attitude, Awareness, White Pollution, Unorganized Retail

Introduction

If we look around our home, workplace, market places especially grocery; vegetable stores plastic carry bags are visible everywhere. It is cheap, convenient and lightweight. Plastic bags, called poly bags, are made of thin, flexible, plastic film, plastic textile. It usually utilizes less material than comparable boxes, cartons or jars thus are often considered for packaging. But it is non-biodegradable having very long working lifetime and can also be recycled into a

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second life application. The colored or recycled plastics are hazardous to the human health. Even animals die by unintentional ingesting of it. Moreover plastic waste prevents the natural freshening of land and water body consequently affects agriculture and pisciculture of the country.

Now a day indiscriminate use of plastic carry bags is causing environmental damage in a mounting rate and leading to serious health risk for the living world. Hence its use is being demonized across the world these days. The Governments of different countries across the world have taken bold initiative to phase out light weight plastic bags along with control over the use of plastic bags. In India the Ministry of Environment and Forests, Government of India passed the 'Recycled Plastics Manufacture and Usage Rules, 1999' under the Environment (Protection) Act, 1986. Later In 2002, the production of plastic bags below 20μm in thickness was banned in the country.

Like the other cities the plastic carry bags are incredibly visible in all market places in the City of Joy, Kolkata. Both from the sellers as well as the shoppers' perspective it is true convenience to use these bags for any organized or unorganized retail store. Unfortunately such unlimited use of plastic carry bags especially unorganized retail outlets results in clogging the drainage system finally leads to water-logging in the city. It has become a hazardous issue to the people living this city.

Concerned over indiscriminate exploitation of this product both Government of West Bengal and the West Bengal Pollution Control Board (WBPCB) too passed a number of regulations to restrict its use within the state of West Bengal since 2007. In 2007 the Government of West Bengal in consultation with WBPCB, Indian Plastic federation and Federation of Small and Medium Scale Industries announced a ban on the manufacture and use of plastic bags below 40 microns and a size not below 12"x16". In addition any violation of the rule punishment would be imprisonment for a term which may extend to 5 years and a fine which may extend to Rs.100000.[1] Again the new plastic waste (management & handling) Rules 2011 imposed a ban on manufacture, stoking, distribution & sale and use of plastic carry bags of thickness below 40 microns. In 2012 Kolkata Municipal Corporation in association with the WBPCB instigated massive campaign to boost up awareness among the buyers as well as the sellers of all municipal markets across the city. This was to initiate use of the plastic bags above thickness 40 microns.

But despite their several notifications and awareness programs the manufacture, sales and use of low quality plastic carry bags (below 40 micron thickness) is still continuing in a flourishing way in the city. Only the organized retail outlets have taken steps to discourage its use indirectly. But in the unorganized retail sector majority of customers and sellers continue to use plastic bags of different sizes and thicknesses repeatedly in spite of the ban. Especially black colored plastic carry bags are vivid in all meat and fish shops across different market places in Kolkata.

Literature Survey

Use and disposal of plastic carry bag is a worldwide problem—the problem of white pollution. Several empirical studies discussed on the intensity of the problem and its future, policy action and implications both at govt. and non government level. Studies are also there to estimate the effectiveness of policies to handle the problem in several especially developing countries. Some are mentioned below—

Analon Ofira et.al (2009) highlighted the business as usual scenario related to the use of plastics bags in Israel. Several environmental hazards due to extensive use of plastic bag distributed by shop owners in Israel are also noted out. This study noted that as the plastic bags were provided free of cost, people have a tendency to use those bags excessively which contributes subsequently increasing level of pollution. This estimation lead to formulation and implementation of several policy measures (imposition of levy on its use) and many more are being designed. It is knowledge which is the pillar of attitude building and behavioral change. But regarding effectiveness of policy implication for controlling the use of plastic carry bags Ferdous.T et.al (2013) identified a gap between peoples' knowledge and behavior. They studied the knowledge, attitude and behavior of the grade eight students in Balkumari, Lalitpur district in Nepal. This study reveals that academic knowledge transfer rate was very good but the process was affected by educational barriers and other societal factor. Finally to stop white pollution suggestion was given to bridge the gap among knowledge, behavior and attitude.

In the field of policy implementation it is observed that apart from the blanket ban on the use of these bags some regulatory instruments such as mandatory pricing of plastic bags, taxes at manufacturing level and stores from where it is sold, awareness campaigns have been suggested in several literature. And these are also implemented in different countries in different time with the same objectives. Several studies have been undertaken on the effectiveness of such actions. The government of South Africa has imposed the levy on the use of plastic bag and it had been successful in reducing the demand of plastic bag only short run. But over time, the levy had failed to control this problem despite its comprehensive application at checkout points. Effectiveness of this levy, studied by Dikgang.J et.al (2012), depends on its level and the time period. The Senegal Government announced Saturday as "No plastic bag day" as an initiative to stop the use of plastic bags. The acceptance and attitude among Shah Alam community of such action of the govt. was measured by Rohana Kumaruddin et.al (2012). Effect of such action on people's awareness towards protecting the environment is also estimated here. This study recommended that proper strategies along with need based practical instruments to improve knowledge and awareness among households are simultaneously essential to protect environment from the "White Pollution". In Delhi use of plastic bags below 40 micron was banned since 2008. But still effectiveness of this ban was questioned. In this context Gupta.K et.al (2011) have strongly argued that blanket ban is not enough in developing countries to regulate

the use of plastic bags with little enforcement capacity. They have tested and compared the effectiveness of a number of complementary approaches to control the use of plastic bags for fruits and vegetables and grocery shops in Delhi. The approaches were a) providing information to the consumers, b) cash-back scheme and c) providing alternative to plastic bags to limit the use of plastic bag. Different demographic variables along with attributes were undertaken in the study to test the result of their interventions against the use of plastic. Finally it is estimated that these interventions results in a fall in the use of these bags from 80.8% to 57.1% in the study area. Hence, this study concludes that low cost information interventions, availability of substitutes and subsidies (taxes) on the use of reusable bags can play significant role to discourage the use of plastic bags.

Studies by Gupta.K et.al (2011), Dikgang. J et.al (2012), by Rohana Kumaruddin et.al (2012) intensely support the fact that attitude towards the product attributes has a greater influence on consumer behavior for a product. Attitude is "a learned predisposition to respond in a consistently favorable or unfavorable manner with respect to a given object" Fisbein et.al (1975).It is a convert feeling of favorability or unfavorability for an object (Lutz, 1981). Here Claiborne et.al (1990) stated that consumer attitudes are formed by the image of the product. And it is guided by dual perspectives of tangible and symbolic attributes of the product. Therefore it is defined as precursor of behavior and guided by the knowledge of the people have for the product or service. Current research in this field has stated that it is a strong favorable predisposition towards a product/ program/ policy or service may lead to favorable behavior with respect to that.

Objective of the Study

Therefore any effective policy implementation to control white pollution in Kolkata demands a thoughtful understanding of the present scenario in light of knowledge, attitude and awareness of both the seller and buyers. Then only the need based low cost options, substitutes, subsidies along with blanket ban can act as win-win key to achieve the goal. The present study is a sincere attempt to focus light on these concerns in the unorganized retail sector in Kolkata. The Business as Usual Scenario of the use of plastic carry bags in four different unorganized retails sectors in Kolkata is estimated in this study. Here it needs to be mentioned that the Business as usual scenario is studied on the basis of three perspectives—

- Awareness and Attitude of the people engaged in unorganized retail sector towards the use of plastic carry bag,

- Their opinion to stop the usage of plastic bags,

- Their acceptability regarding the use of different alternatives to plastic carry bag.

Methodology

This study is based on Primary Data. In this respect Researchers used three distinctive methods:

- Observation method
- Personal Interview methods
- Survey method with a Structured Questionnaire

The required data is collected from the sellers along with the buyers of different non branded shops across different market places in Kolkata. The four types of unorganized retail shops are considered for this study are - Grocery, Fruits & Vegetables, Sweets & Fast Food, Fish and Meat.
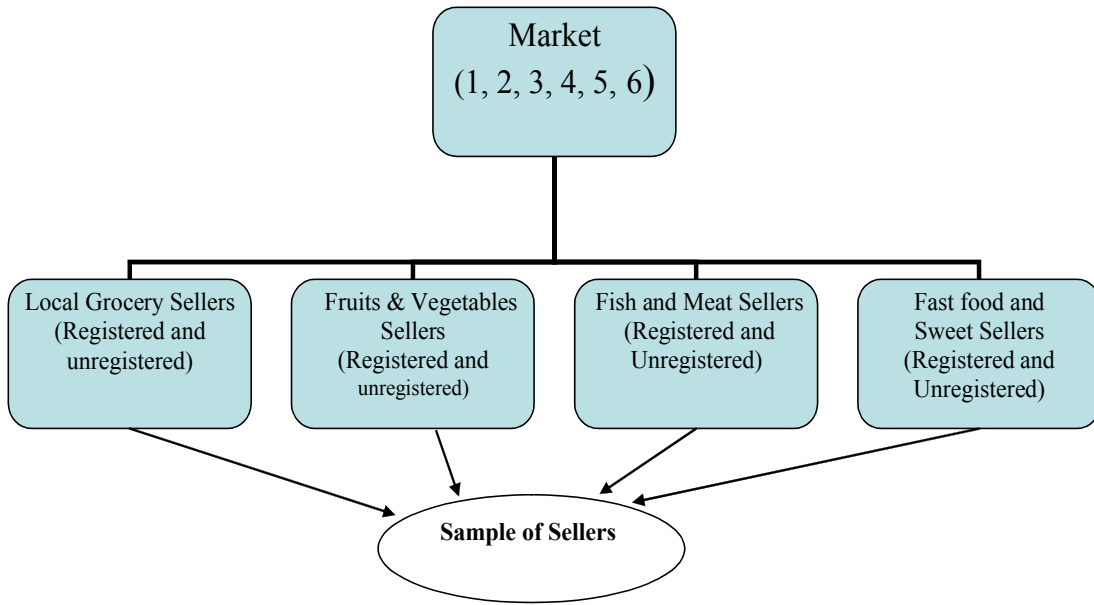
Sampling Design

Target Population: All customers of non-branded retail shops in Kolkata and all sellers of non branded retail shops in Kolkata

Sampling Technique: This study is based on two samples. Both the seller and buyers data were collected from six distinctive market places of Kolkata
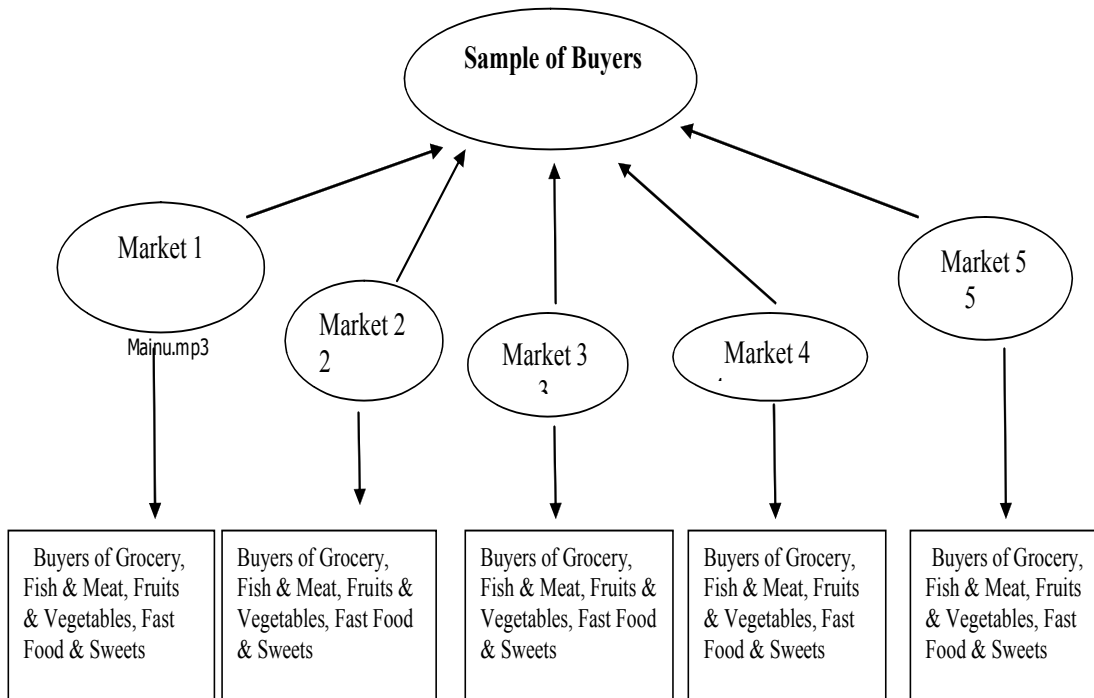
These market places are —

- Gariahat Market
- Khiddirpore Market
- Muchipara Market
- Bhawanipur Market
- Entally Market
- Behala Market

For the questionnaire survey we planned to collect the data from registered sellers of mentioned categories in different market places. But there is significant number of unregistered sellers in each category in all the market places and low quality plastic bags are used in intensively there. Under such circumstances this study made an attempt to collect data from both registered and non registered sellers of each market place. On the other hand each sampling unit of buyers was chosen from the 5 different market places of Kolkata. Hence non-probability sampling technique, purposive sampling technique is used to select sampling unit of seller and buyers. Following **Figures 1A and 1B** show clear illustration of sample selection of sellers and buyers in non branded retail sectors in Kolkata respectively. Data on two samples were collected simultaneously by two groups of surveyors.

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                        ┌─────────────────┐
                        │     Market      │
                        │ (1, 2, 3, 4, 5, 6) │
                        └─────────────────┘
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| Local Grocery Sellers (Registered and unregistered) | Fruits & Vegetables Sellers (Registered and unregistered) | Fish and Meat Sellers (Registered and Unregistered) | Fast food and Sweet Sellers (Registered and Unregistered) |

Sample of Sellers

Figure1A: Sampling Unit Selection for Sellers

Sample of Buyers

Market 1

Mainu.mp3

Market 2
2

Market 3
3

Market 4

Market 5
5

| Buyers of Grocery, Fish & Meat, Fruits & Vegetables, Fast Food & Sweets | Buyers of Grocery, Fish & Meat, Fruits & Vegetables, Fast Food & Sweets | Buyers of Grocery, Fish & Meat, Fruits & Vegetables, Fast Food & Sweets | Buyers of Grocery, Fish & Meat, Fruits & Vegetables, Fast Food & Sweets | Buyers of Grocery, Fish & Meat, Fruits & Vegetables, Fast Food & Sweets |

Figure1B: Sampling Unit Selection for the Buyers

Sample Size

This study is based on two sample case. The sample size for sellers is 118 and that for buyers is 146.

The researchers visited different non branded shops of all categories in each market place and observed that plastic bags, frequently provided at free of cost to the customers, are available at various sizes with various thickness levels in this sector. The thickness of these bags is found mostly below 40 micron in almost all shops. The size of the bags varies with the type of product and its quantity. The most usable sizes are 9/12, 13/16 and 16/20 inches. There seems to be no stringent checking on the thickness and size of the bags. The bags are mainly white transparent in color but in few market places other colors are also used. Black colored plastic carry bags are vivid in all meat and fish shops across different market places. Sellers of fish and meat shops, grocery shops reported that even if the buyers bring their own bag they demand the plastic bags from their shop.

On the other hand the buyers informed that in spite of their awareness about the ban on plastic bags they are accepting it as it is offered by the sellers at free of cost. These bags are very useful for carrying the good especially fish and meat products and fast food, sweet even if they carry their own bags. Some customers asked for the rigorous action from the government for implementation of the ban on plastic bags below 40 microns. Like the sellers they have also shown interest on the use of the alternatives of plastic bags. In addition they have shown interest to follow the rule if it is stringently imposed to stop the use of plastic bags in the non branded shops.

Therefore it is evident from the observation and personal interview with both buyers and sellers in various non branded retail outlets that high customer demand for plastic carry bags irrespective of its quality at free of cost, easy availability of low quality plastic carry bags (below 40 microns) creates a win-win solution for both of them to make available of low quality bags in this sector.

Questionnaire

Two sets of structured questionnaire, one for buyers and another for sellers, are used for this study. Both buyers and sellers were asked mainly close ended questions to know their knowledge, attitude, opinion about ban on plastic bags and its use, its substitutes and their choice of substitutes etc. Five point Likert scale (where 5 indicates strongly agree and 1 indicates strongly disagree) is used along with four basic scales are used to measure these variable.

Data Analysis

It is already mentioned in this study that data were collected separately from the buyers and

sellers of four types of unorganized retail outlets in six different market places. This section represents detail analysis of both buyers and sellers. The buyers who shops from the unorganized retail outlets, nearly 87% of them demand plastic bags. And only 19 buyers, of our study, are found carrying their own bag while shopping. In case of sellers only 16% are providing the plastic bags above 40 micron thickness to their customers. In respect of knowledge on ban only 26% of the buyers have the correct knowledge on thickness and size of plastic bags. Both the sellers and buyers were asked to rank the factors responsible for demanding plastic bags separately. The result is shown below in **Table 1A and 1B**. From the sellers' perspective customer demand is the main factor behind providing the plastic bag from their shop followed by other factors easy to serve and cost effectiveness of the product. On the other hand in spite of their knowledge that plastic bags are not eco friendly the buyers demand it as it is easy to carry and available at free of cost.

Table 1A: Factors Responsible for Providing Plastic Bags

Factor for Sellers	Weighted Sum	Rank
Customer demand	4160	1
Easy to serve	2580	2
Cost effective	2410	3

Table 1B: Factors Responsible for Demanding Plastic Bags

Factor for Buyers	Weighted Sum	Rank
Easy to carry	5970	1
Available at free of cost	4370	2
Durable	2090	3
Easy to dispose	1750	4
Eco friendly	170	5

Therefore lack of proper knowledge about the ban, easy to carry along with its availability at free of cost raises customer demand for plastic bags and finally lead to its indiscriminate use in poor quality in the unorganized retail shops in Kolkata.

In addition to survey method observation and personal interview methods are also used intensely in this study to understand the attitude of both sellers and customers' of non branded shops. It is true that the market for non branded products of any type considered in this study is highly competitive in nature. So sellers' opinion was very candid irrespective of the product type. The cost per bag is very minimal. So they do not want to lose their loyal customers by not providing plastic bags. Hence neither the seller nor the customers are concerned about the quality of the bag they use. Rather they are more concerned about its usefulness. Therefore it

is essential to understand the attitude towards the use of plastic bag and its alternative in the non branded shops from both the seller's and customers' perspective. For this purpose data on more than several parameters each from both buyers and sellers were collected separately. These are stated in the following **Table 2**.

Table 2: Statements Asked to the Sellers and the Buyers of Unorganized Retail Outlets

Code	Statements for Sellers
S1	Willing to provide alternative of plastic bags to customers
S2	We are willing to pay extra amount for providing alternatives of plastic bags
S3	Plastic bag manufacturing must be banned
S4	Customers demands the plastic bags in your shop
S5	We provide plastic bag as it is easy to store
S6	Easy availability of plastic bags encourages us to provide it to the customers
S7	We want customers to bring their own bag
S8	We are willing to provide refundable bags (Jute/Nylon)

Code	Statements for Buyers
C1	We demand plastic bags from the shop as it is available at free of cost
C2	Sellers should provide eco friendly bags instead of plastic bag
C3	Govt. must take steps to stop the use of plastic bag
C4	Seller can provide good quality bags(need based) against deposit of minimum amount of money from the customers
C5	I am ready to pay for the eco-friendly bags in market as I pay in Pantaloons, Spencers, BigBazar etc.
C6	Along with government. general public should take initiative to stop the use of plastic bags in the market
C7	We should carry our own bag to stop the degradation of the environment from plastic bags
C8	I will visit only those shops where seller provides plastic bag at free of cost
C9	For up to purchase of Rs.100 I can pay Rs.5 for the eco friendly alternatives

It is evident from the above table that to estimate attitude and opinion of buyers and sellers we need to apply data reduction technique for grouping those parameters. In this regard Factor analysis can serve the purpose of our objective. "Factor Analysis" is a multivariate statistical technique in which the whole set of interdependent relationship is examined. The main purpose of this technique is to compact the number of original variables into a smaller set of new

composite dimensions with a minimum loss of information (Joseph, 1999). So this Multivariate technique in particular, Exploratory Factor Analysis has been applied for both set of data (buyers and sellers) separately in this study. The results are shown in the following sections.

Adequacy of the Data for Factor Analysis

To check the adequacy of the data for Factory Analysis, the recommended techniques are:

Anti-Image Correlation Matrix: Present study has also computed Anti-Image correlations and found that the partial correlations are very low indicating that true factor existed in the data. The following **Tables 3A and 3B** show the anti image correlation matrix for both seller and buyers respectively.

TABLE 3A: Anti-image Matrices (Sellers)

	S1	S2	S3	S4	S5	S6	S7	S8
S1	.560[a]	-0.197	-0.202	-0.098	0.005	0.107	0.018	-0.056
S2	-0.197	.490[a]	-0.054	0.139	-0.003	-0.086	0.073	-0.048
S3	-0.202	-0.054	.518[a]	-0.085	0.044	0.169	-0.303	-0.092
S4	-0.098	0.139	-0.085	.672[a]	-0.135	-0.146	-0.245	0.017
S5	0.005	-0.003	0.044	-0.135	.598[a]	-0.39	0.054	0.037
S6	0.107	-0.086	0.169	-0.146	-0.39	.560[a]	-0.253	-0.041
S7	0.018	0.073	-0.303	-0.245	0.054	-0.253	.559[a]	0.096
S8	-0.056	-0.048	-0.092	0.017	0.037	-0.041	0.096	.545[a]

a. Measures of Sampling Adequacy (MSA)

	C1	C2	C3	C4	C5	C6	C7	C8	C9
C1	.592[a]	.019	-.073	.050	-.048	.058	-.049	-.136	.179
C2	.019	.565[a]	-.033	-.161	.094	-.269	-.079	-.171	.043
C3	-.073	-.033	.638[a]	.002	-.008	-.336	-.021	-.014	-.017
C4	.050	-.161	.002	.596[a]	-.492	.042	.020	.060	-.060
C5.	-.048	.094	-.008	-.492	.589[a]	-.035	-.027	.069	-.309
C6	.058	-.269	-.336	.042	-.035	.573[a]	-.305	.190	-.059
C7	-.049	-.079	-.021	.020	-.027	-.305	.650[a]	-.091	-.034
C8	-.136	-.171	-.014	.060	.069	.190	-.091	.575[a]	.045
C9	.179	.043	-.017	-.060	-.309	-.059	-.034	.045	.703[a]

a. Measures of Sampling Adequacy (MSA)

Kaiser-Meyer-Oklin (KMO) Measure of Sampling Adequacy: This index is used to examine the appropriateness of factor analysis. Values of this index between 0.5 and 1.0 indicates adequacy of the data for using Factor Analysis as a tool for data reduction (Malhotra, 2002, p. 588). Here, the computed value of KMO statistic is 0.572 for the sellers and .606 for the buyers as indicated in **Tables 4A and 4B**.

Bartlett Test of Sphericity: The result of this test as shown in **Tables 4A and 4B**. It represents overall significance of correlation matrix and the statistical probability that the correlation matrix has significant correlations among at least some of the variables.

Table 4A: KMO and Bartlett's Test (Seller)

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.572
Bartlett's Test of sphericity	Approx. Chi-Square	85.339
	df	28
	Sig.	.000

Table 4B: KMO and Bartlett's Test (Buyers)

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.606
Bartlett's Test of Sphericity	Approx. Chi-Square	167.161
	df	36
	Sig.	.000

All the above tables confirm the adequacy of data for application of Factor Analysis for both the samples. Now, after ensuring testing the adequacy of data, the set of 9 statements for buyers and 8 statements for sellers regarding their attitude and opinion for the use of plastic bags and its substitutes were subjected to Factor Analysis.

Extraction of the Factors

For extraction of the factors from those statements Principal Component Analysis (PCA) was used to both the sample individually in this study. The number of factors to be retained was on the basis of component matrix. Malhotra (2002) noted that the unrotated factor matrix indicates the relationship between the factors and individual variables. But it seldom results in factors that can be interpreted. This is mainly because factors are correlated with many variables.

Therefore the most common solution is Varimax Rotation. Varimax rotated component matrix for both the samples are shown in **Table 5A and 5B**.

Table 5A: Rotated Component Matrix[a] (Buyers)

Code	Component			Communalities
	1	**2**	**3**	
C2	**.587**	.074	.285	.432
C3	**.637**	-.023	-.095	.415
C6	**.809**	.036	-.239	.713
C7	**.637**	.043	.101	.418
C4	.032	**.826**	.034	.684
C5	.011	**.857**	-.073	.740
C9	.067	**.608**	-.325	.479
C1	.012	-.083	**.663**	.446
C8	-.004	-.108	**.756**	.584

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 4 iterations.

Table 5B: Rotated Component Matrix[b] (Sellers)

Code	Component			Communalities
	1	**2**	**3**	
S1	-.190	.325	**.626**	.534
S2	.110	-.169	**.750**	.603
S8	-.009	-.056	**.489**	.243
S3	-.315	**.688**	.277	.649
S4	.355	**.631**	-.132	.542
S7	.197	**.750**	-.158	.627
S5	**.794**	.029	.031	.632
S6	**.827**	.139	-.037	.705

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
b. Rotation converged in 7 iterations.

Therefore, a model with these 3 factors can be considered adequate to represent the whole data relating to both the samples separately. The following section represents the interpretation of these factors.

Factor loading and Interpretation of the Factors

The factor loadings represent the correlation between variable and its factor. Their signs are just like any other correlation coefficient. Present study has assigned symbolic labels to the factors. All the variables of both the samples are fallen into three common categories. The following **Table 6** represents factors along with their codes and factor loadings.

Table 6: Factor Loading For Buyers and Sellers

Factors	Code	Seller/buyer	Factor loading	Statement
Attitude towards the use of plastic bags	C1	Buyer	.663	We demand plastic bags from the shop as it is available at free of cost
	C8		.756	I will visit only those shops where seller provides plastic bag at free of cost
	S5	Sellers	.794	We provide plastic bag as it is easy to store
	S6		.827	Easy availability of plastic bags encourages us to provide it to the customers
Required Action to be taken	C2	Buyer	.587	Sellers should provide eco friendly bags instead of plastic bags
	C3		.637	Government must take steps to stop the use of plastic bag
	C6		.809	Along with government general public should take initiative to stop the use of plastic bags in the market
	C7		.637	We should carry our own bag to stop the degradation of the environment from plastic bags
	S3	Sellers	.688	Plastic bag manufacturing must be banned
	S7		.750	We want customers to bring their own bag
	S4		.631	Customers demands the plastic bags in our shop
Opinion about the use of substitutes of plastic bags	C4	Buyer	.826	Seller can provide good quality bags(need based) against deposit of minimum amount of money from the customers
	C5		.857	I am ready to pay for the eco-friendly bags in market as I pay in Pantaloons, Spencers, BigBazar etc.
	C9		.608	For up to purchase of Rs.100 I can pay Rs.5 for the eco friendly alternatives
	S1	Sellers	.626	Willing to provide alternative of plastic bags to customers
	S2		.750	Willing to pay extra amount for providing alternatives of plastic bags
	S8		.489	We are willing to provide refundable bags(Jute/Nylon)

Through Factor Analysis, from Rotated Component Matrix for Buyers (Ref. Table 5A) we have found that the variables C1 and C8 are having high loading on Factor 1 and similarly for Sellers (Ref. Table 5B) we have found that the variables S5 and S6 are also having high loading on Factor 1. Now variables C1 and C8 for buyers and S5 and S6 for sellers represent their attitude towards the use of plastic bag in unorganized retail sector. Therefore the Factor 1 is being named as **"Attitude Towards the Use of Plastic Bags"** from the perspective of both buyers and sellers. Similarly variables C2, C3, C6 and C7 for buyers are having high loading on Factor 2 and S3 and S7 for sellers are also having high loading on Factor 2. These variables represent their knowledge about action required to be taken to control the unlimited usage of these bags. Therefore Factor 2 noted as **"Required Action to be Taken"**. For Factor 3, we have observed that C4, C5 and C9 of buyers and S1, S2 and S8 of sellers are having high loading and these variables represents opinion about the use of alternative to plastic bags for buyers and sellers separately. So we have named Factor 3 as "**Opinion about the Use of Alternatives to Plastic Bags"**.

It has been observed from the above table that three factors observed for both sellers and buyers sample. The detail analysis is given below.

- **Factor 1– (Attitude Towards the Use of Plastic Bags):** Variables C1 and C8 for the customers and variables S5 and S6 for sellers are positively loaded on this factor. Form perspective of the buyers of non branded shops this factor reveals that they demand the plastic bags as it is available at free of cost. But their opinion is neutral regarding the visit of the shops where it is available at free of cost. This has shown in the following **Table 7.**

  Sellers' attitude towards the use of plastic bag is due to easy availability and easy storage facility of these bags. Both the statements they have agreed as shown in the **Table 7**.

  Therefore this factor strongly reveals the fact that due to east availability and easy to storage facility the sellers provides the plastic bags to the buyers who demand it as it is available at free of cost. Hence easy availability of plastic bags below 40 micron in the market for the sellers and getting of these at free of cost to the buyers determines their attitude towards the use of these types of plastic bags in the unorganized market in Kolkata.]

- **Factor 2 (Required Action to be Taken):** Variables C2, C3, C6, C7 for buyers and S3, S7, S4 for the sellers are included in this factor. All the variables are positively loaded on this factor. This factor significantly said that buyers strongly agreed the actions from the sellers, government along with general public to stop the use of these bags in the market. In addition they also agreed to bring their own bag under necessary situation. This is shown in **Table 8**.

  On the other hand perspective of the sellers for the factor 2 is very significant from the

Table 7: Attitude Towards The Use of Plastic Bags

Code	Statements for Buyers/ Sellers	Mean	Std. Deviation	Opinion
C1	We demand plastic bags from the shop as it is available at free of cost	3.8	1.14	AGREE
C8	I will visit only those shops where seller provides plastic bag at free of cost	2.6	1.14	NEUTRAL
S5	We provide plastic bag as it is easy to store	3.7	1.00	AGREE
S6	Easy availability of plastic bags encourages us to provide it to the customers	3.9	0.87	AGREE

Table 6 and 8. They agreed that to stop the unlimited use manufacturing of these bags must be banned. Both top down and bottom up approaches were demanded by them as required action to prevent its use. Unlike the buyers they strongly wish the customers to bring their own bag in their shops for shopping. At the same time concerning the profitability of their business they also strongly accepted their difficulties to take any preventive action regarding the use of plastic bags as customers demands the bags in their shop.

Therefore this factor concludes that knowing well about the limitations of the use of plastic bags to save the environment the preventive actions from the government along with collective action of the buyers and sellers end are essential. Plastic bag available in the market are of different size and thickness along with different color. Therefore manufacturing of these products must be kept on eye.

Table 8: Required Action to Be Taken

Code	Statements for BUYERS/ SELLERS	Mean	Std. Deviation	Opinion
C2	Sellers should provide eco friendly bags instead of plastic bag	4.5	.58951	STRONGLY AGREE
C3	Govt. must take steps to stop the use of plastic bag	4.5	.60168	STRONGLY AGREE
C6	Along with government. general public should take initiative to stop the use of plastic bags in the market	4.2	.72687	AGREE
C7	We should carry our own bag to stop the degradation of the environment from plastic bags	4.3	.76583	AGREE
S3	Plastic bag manufacturing must be banned	4.0	1.18760	AGREE
S4	Customers demands the plastic bags in your shop	4.5	.91682	STRONGLY AGREE
S7	We want customers to bring their own bag	4.6	.76621	STRONGLY AGREE

- **Factor 3 (Opinion about the Use of Alternatives to Plastic Bags):** This factor includes the variables C4, C5, C9 for buyers' side and S1, S2, S8 from the sellers' side. It is obvious from the table 6 and 9 that according to this factor the buyers are willing to pay for the eco friendly bags if it is provided by the sellers from the shops. On the other hand from the sellers' perspective they are willing to provide eco friendly bags as alternatives to their customers. And for this they are willing to share the cost of alternative. But both buyers and sellers' opinion is neutral for all these statements shown in table 9

Table 9: Opinion about the Use of Alternatives to Plastic Bags

Code	Statements for BUYERS/ SELLERS	Mean	Std. Deviation	Opinion
C4	Seller can provide good quality bags(need based) against deposit of minimum amount of money from the customers	3.3014	1.07876	NEUTRAL
C5	I am ready to pay for the eco-friendly bags in market as I pay in Pantaloons, Spencers, Bigbazar etc.	3.2055	1.21438	NEUTRAL
C9	For up to purchase of Rs.100 I can pay Rs.5 for the eco friendly alternatives	2.9863	1.15063	NEUTRAL
S1	We are willing to provide alternative of plastic bags to customers	3.3009	1.25275	NEUTRAL
S2	We are willing to pay extra amount for providing alternatives of plastic bags	2.6283	1.31063	NEUTRAL
S8	We are willing to provide refundable bags(Jute/Nylon)	3.1593	1.07376	NEUTRAL

From the above discussion we have observed that the Variables (Statements from Buyers and Sellers) grouped into Factor 2, "Action needs to be taken", are having Higher Mean Values (Greater than 4) suggest that both Buyers and Sellers are having clear **knowledge** regarding their action to stop white pollution in the unorganized retail sector. However when it comes to the Factor 3 "Opinion about the use of substitutes of Plastic Bags", the variables are estimated with lower mean value (less than 3.5). This clearly indicates the Neutrality in their **behavior** towards individual action in the same context. Therefore it is evident that though both buyers and sellers are having clear Knowledge about their action, there exists a clear gap between Knowledge, behavior which finally affects the attitude of both the sellers and buyers of unorganized retail sector towards the control of indiscriminate use of plastic bags.

Conclusion

From this analysis it is clear that it is cost effective and convenient for both sellers as well as buyers to use plastic bags in the Unorganized Retail Outlets in the city. An important trend noticed here is that, since the plastic bags were provided free of cost, people have a tendency to use those bags excessively and the level of pollution was increasing subsequently. This clearly reflects the attitude of the people towards the use of Plastic Bags. On the other hand both the buyers and sellers have clear knowledge about the harmful effect from indiscriminate

usage of Plastic Bags on our environment along with the required actions needs to be taken to stop the excess use of Plastic Bags in this sector. But when it comes to the behavior, there exists a clear inertia in both the sellers and buyers end in developing a habit to stop the usage of Plastic bags. Thus a clear gap between knowledge and behavior of the people towards the control of the use of plastic bags in the unorganized retail sector is observed across the markets in Kolkata. And such gap is determining their attitude towards the use of plastic bags in this sector. So in this respect any action to bridge this gap is the need of the hour today. This can only make the blanket ban policy of the government a successful one to control the while pollution originating from the unorganized retail sectors in the city.

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