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REPORT

Modernization of Kirana Stores:

Which Consumer Aspects to Focus

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Introduction

Indian retail sector traditionally has been unorganized. Local 'Kirana Stores' have been the backbone of Indian retail sector specially in case of grocery. In 2015 the traditional grocery stores contributed 98% of total grocery sells.[1]They have the highest reach in terms of number and coverage of cities and villages. Though the sector seems to be strong, they are likely to face tough competition from organized retailers. Domestic players like Future Group and Reliance's spending is giving traditional players a tough competition specially in urban areas. And international retailers are also planning to enter the market after 51% FDI has been allowed. Walmart has already entered the market under the name, 'Best Price'. Between 2014 and 2015, the organized retail has grown by 17% whereas traditional grocery sales have grown by 9.8%.[2] This growth is fueled by changing customer demand of convenience. Attitude of urban customer are changing and their preference is moving towards organized retail.

In this project, we intend to find out what are the factors that influence Indian consumers in their selection of a retail format. We also intend to find the behaviors that influence selection of a particular retail format.

Overview of Indian Retail Stores:

There are different kinds of retail stores operating in India. The most common one is Kirana stores. They have been traditional format and present over all nook and corners of India. As of 2016, traditional grocery stores have 97.9% of total revenue of grocery retail in India. Among the other format we have convenience stores or general stores and hypermarkets or supermarket. Together they contribute just 2.1% of retail industry. Convenience store and supermarkets can be classified as modernized retail stores which are mostly present in urban areas. As a part of this project we visited both traditional and modernized stores to see what they offer and how they have evolved. They key insight from the store visits are listed in the table below.

Modernized Retail	Traditional Store
EK Retail – There are two stores in Bangalore. The owner expressed plans for future expansion. Availability of credit for expansion from banks is not difficult according to the owner. The store did not evolve from a Kirana and was established as a modernized store from the beginning. Some of the features included home delivery service, POS machines, CCTV, 6-8 employees, credit card acceptance. The store space is 4000 sq ft with 2 floors. The ground floor had the grocery items and a separate room for selling fresh items like	We visited 2-3 kirana stores near the campus. We noticed that the seller was reluctant to share information and language barrier was a problem. Since the owner could not be met we did not get information about their expansion plans. Home delivery service was available for one kirana only. For all the kiranas hand-written bills are provided and loose products are sold. Paytm facility was available in one store. The important insights regarding kirana stores were actually obtained from depth interviews of homemakers which are discussed in the section of this report.

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[1] euromonitor

vegetables and fruits. The upper floor sold gift items and cookery. One interesting feature noted is that the sod sold loose products also. *See Appendix 1 for images captured during store visit.*	
Span Retail – The store acted as a wholesale dealer/distributor of few products and also as a retail shop. Their main customer is an online platform called Shoparno (www.shoparno.com). This store also did not evolve from a kirana store. The store has POS machines, CCTV cameras and card acceptance facilities. One unique feature is that the store rented a part to a restaurant. *See Appendix 11 for images.*	
Green Fresh – A store selling only vegetables. No home delivery service but other characteristics of a modernized store is present. In a few other cases, we also observed that expansion leads to creation of specialized stores.	

Literature Review

There have been a number of research articles on Indian retail. Some of them identified key features of traditional kirana stores and modernized retails. An article by identified key features of a small traditional store.[2] The identified key features are targeting neighborhood residents as customers, selling product on credit and offering home delivery to known and nearby customers, more frequent inventory replenishment, not so good product assortment etc. The study also identifies close relationship of shopkeeper and his customers. In most of the cases the shopkeeper knows most of his regular customers by name and often charge a few rupees less to regular customers. At present these stores are trying to improve on product display and increase point of purchase sales. Mostly FMCG companies like ITC, HUL help them in improving product display but with the intention of selling their portfolio rather than increasing sales of the kirana store.

A journal[3] mentioned that since e-tailing and kirana stores have distinct model and they can actually complement each other. The article started by identifying the problems faced by large format retailing which are increased real estate prices, higher operational costs and non-availability of good retail spaces. These factors restrict the growth of large physical stores. In India real estate price comprises 10% of sales as

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[2] India's Emerging Retail Systems: Coexistence of Tradition and Modernity- Nikhilesh Dholakia, Ruby Roy Dholakia, and Atish Chattopadhyay

[3] Online Retailing Paired with Kirana—A Formidable Combination for Emerging Markets
Piyush Kumar Sinha & Srikant Gokhale & Saurabh Rawal

compared to 3-4% in developed countries. This restriction actually resulted in the rise of online platforms. These have the potential to reduce the market share of kirana stores particularly platforms like Bigbasket which sell grocery items. On the other hand, large format retails have lesser chance of reducing kiranas market share. The impact is limited. The journal suggests that in order to succeed in selling groceries, online retailers have to work in cooperation with kirana stores. These platforms can act as demand-aggregators for small shops. This will help the latter to become less dependent on wholesalers or distributors. Since last-mile is the main pain point for these platforms, the kirana stores can act as pick-up points for online ordered items.

Contemporary projects:

- **Project Ganges by SAP in 2013:** SAP developed business ecosystem based on their HANA cloud platform for connecting distributors, small stores and banks with FMCG companies. The cloud based platform offers real time-applications based on real-time analytics.
- **Bewo Technologies:** This start-up modernizes retail stores by automating processes. The ecosystem partners can monitor real time inventory and directly connect with the physical retails.
- **ShopKirana:** The company is the first in India to introduce M-distribution channel. They aim at improving exchange of information. The below diagram explains their model:

These projects suggest that companies are moving from linear pipeline model to platform model and ths focusing on increasing value for all the stakeholders in network ecosystem.

Qualitative Research

To find out what consumers think and prefer about each retail format we conducted twelve depth interviews of consumers across different socio-economic classes. Key insights from our depth interviews are listed below. A detailed description of the depth interview is given in Appendix 12.

1. Time & Distance is of utmost important. Most of the time it is the deciding factor to select a format.
2. There is a perception that good packaging is equal to better quality. Also, some people think that if packaging is not good or if it is a loose product, it can be unhygienic as it can have insects, dust etc.
3. Modernized stores keep the products at specified temperature, humidity keeping the product is good condition.
4. Specialty items like diet coke, liquid detergents and exotic items like mushroom, sausages etc. are usually available at modernized stores
5. There's a perception that modernized retail stores don't keep smaller SKUs and sachets and stock-outs are more frequent. Whereas Kirana store has less variety but stock-outs are rare.
6. Supermarkets offer deals and discounts usually on large volume or larger SKU. It is only relevant if they are buying large volume.
7. Modernized retail stores are time consuming at times. There are usually long queue and it takes time to go here and there to collect products in a large store.

8. Some people think that modernized stores and supermarkets are for upper strata of the society.
9. Kirana stores have lower inventory and replenishments are more frequent. This gives the perception that products are newer and fresh at Kirana Stores.

Based on the key insights found from depth interviews, we have formed the objectives of our analysis. Some people think that patronage at modernized retail stores are usually by people from higher strata of the society. We intend to find out whether people who think they are successful are more likely to visit a modernized retail or not. We also need to know which are the behavior that encourage people to buy from a modernized retail and traditional stores. Based on our objectives we have formed hypothesis for our analysis. These are listed below.

- **Relation between social status of a person and his selection of retail format**:

A few respondents in our depth interview felt that people from higher strata of the society are more likely to visit a supermarket. Based on this we formed the hypothesis.

1. **Hyp1**: People who aspire to be successful or have high social status visit supermarkets". We have tested the hypothesis with our response from primary study.
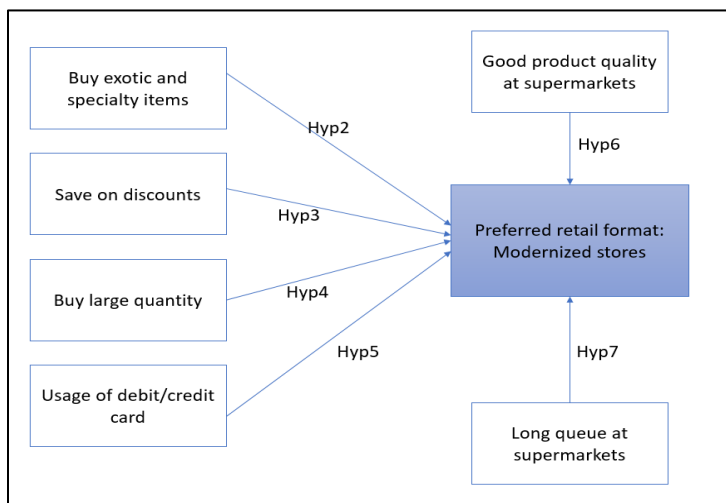
- **Behaviors that influence selection of a modernized retail:**

From depth interviews we have identified some behaviors which leads to selection of modernized retail stores. Key insights numbered from 2 to 8 gives us the behaviors when someone decides to buy from supermarkets. We have made our hypothesis about the same and they are listed below

1. **Hyp2:** People visit supermarkets for buying variety of specialty and exotic items
2. **Hyp3**: People visit supermarkets to save on discounts
3. **Hyp4:** People visit supermarket/general stores to buy in bulk quantity
4. **Hyp5:** Buyers use debit/credit card to purchase from supermarkets

In depth interview, we also found two perceptions about the quality of product at supermarket and long queue at supermarket. We formed hypothesis around these two perceptions.

1. **Hyp6**: People prefer buying from supermarkets because good packaged items ensure good quality
2. **Hyp7**: Long queue is observed at the counter of supermarkets

- **Behaviors that influence selection of a kirana store:**

Apart from time and convenience offered by kirana stores, they offer products on credit and home delivery to nearby homes. To see whether these are factors are significant decision making we have formed two hypotheses to verify the same.

1. **Hyp8**: Buyers usually take-home delivery from neighborhood kirana
2. **Hyp9**: People buy products on credit from kirana stores

In-depth interview, some concerns were raised about the hygiene of products at a kirana stores. To testify the same, we formed a hypothesis about the perception that kirana stores are unhygienic.

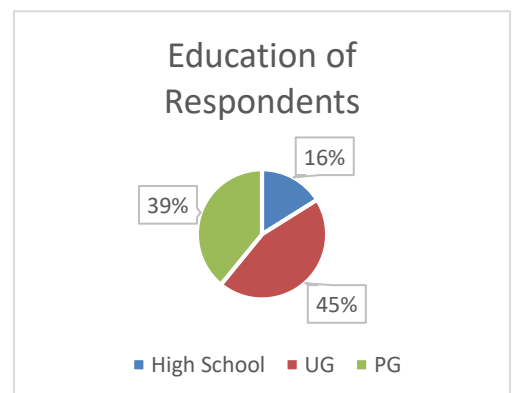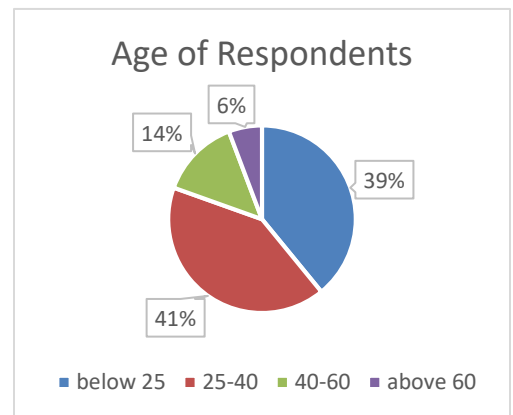1. **Hyp10**: Kirana stores lack good maintenance and hygiene
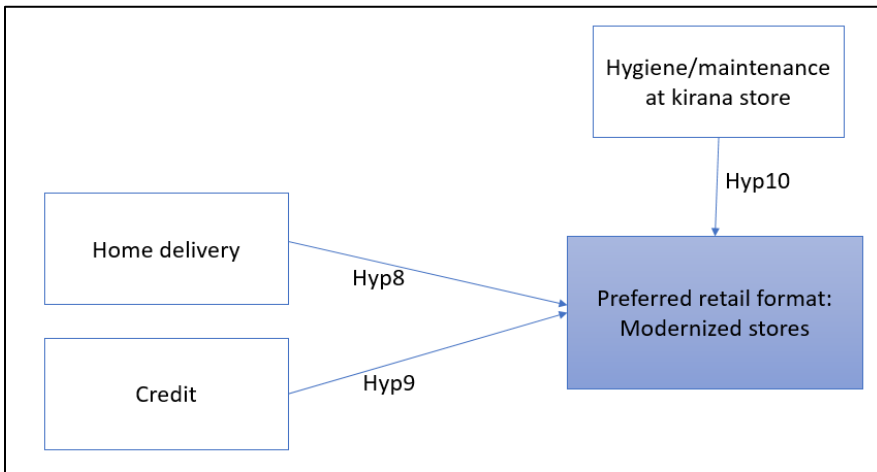
Primary Study

We did a survey on 87 people. Questionnaire was designed to test the hypothesis we have formed and how various factors are related to selection of retail format. A detailed questionnaire is given in appendix 13.

Among the population surveyed, 43% prefers buying from supermarkets, 23% from general stores, 22% from kirana stores and rest from online stores. Almost half of them buys grocery weekly or once in two weeks. The age of the population was skewed towards younger population, almost 80% of them were below 40 years of age. Most of the respondents were educated, 80 percent of them were being graduates. And most of the respondents were also urban population.

The first hypothesis about relationship of social status and choice of retail format is broken down to 3 statements about people's perception about themselves. These are about how successful they think, they are and how they project their success through their lifestyle and they place they visit. Rest of the hypotheses had one statement. Respondents were asked to rate this statement on how much they agree about the same. Five-point Likert scale was used for the

Age of Respondents

6%
14%
39%
41%

■ below 25　■ 25-40　■ 40-60　■ above 60

Education of Respondents

16%
39%
45%

■ High School　■ UG　■ PG

response.

We also identified 14 factors from depth interviews which plays a role in selection of a retail format. We have asked respondents to rate how important these factors are on a scale of 1 to 7. We have done factor analysis of the responses to find out how these factors can be grouped together.

In the last section, we asked about overall assessment of modernized stores and kirana stores. The respondents were asked about overall satisfaction of both types of store on a 5-point Likert scale. We have used regression analysis to see how the overall assessment is related to the 14 factors.

Profession of Respondents

- Homemaker
- Student
- Jr Level Employee
- Sr Level Employee
- Own business
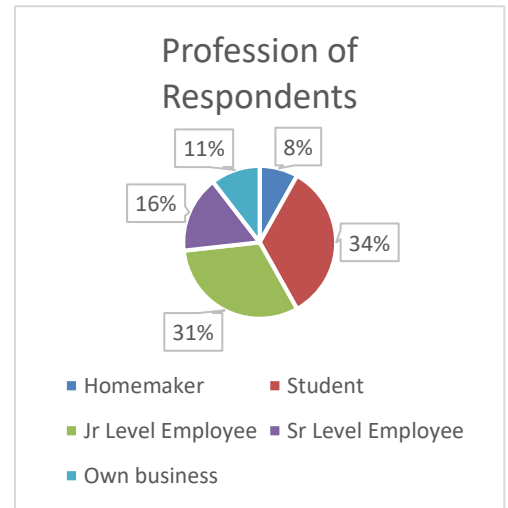
Hypothesis Testing:

- **Hypothesis 1**:

Hypothesis Formulation:

H0: Selection of retail format is independent with the social status of the person

H1: People who aspire to be successful or have a high social status visits supermarket

Since we have used a 5-point to determine its importance, we are choosing the test value 3.

So,

H0: μ ≤ 3

H1: μ > 3

Conclusion:

People who aspire to be successful or have a high social status visits supermarket

- **Hypothesis 2**:

Hypothesis Formulation:

H0: People do not visit supermarkets for buying specialty and exotic items

H1: People visit supermarkets for buying variety of specialty and exotic items

Since we have used a 5-point to determine its importance, we are choosing the test value 3.

So,

H0: μ ≤ 3

H1: μ > 3

Conclusion:

People visit supermarkets for buying variety of specialty and exotic items

- **Hypothesis 3**:

Hypothesis Formulation:

H0: Discount is not a factor for visiting supermarkets

H1: People visit supermarkets to save on discounts

Since we have used a 5-point to determine its importance, we are choosing the test value 3.

So,

H0: $\mu \leq 3$

H1: $\mu > 3$

Conclusion:

People visit supermarkets to save on discounts

- **Hypothesis 4**:

Hypothesis Formulation:

H0: People do not visit supermarket/general stores to buy in bulk quantity

H1: People visit supermarket/general stores to buy in bulk quantity

Since we have used a 5-point to determine its importance, we are choosing the test value 3.

So,

H0: $\mu \leq 3$

H1: $\mu > 3$

Conclusion:

People visit supermarket/general stores to buy in bulk quantity

- **Hypothesis 5**:

Hypothesis Formulation:

H0: In supermarkets, debit/credit card are not used to purchase items

H1: Buyers use debit/credit card to purchase from supermarkets

Since we have used a 5-point to determine its importance, we are choosing the test value 3.

So,

H0: $\mu \leq 3$

H1: $\mu > 3$

Conclusion:

Buyers use debit/credit card to purchase from supermarkets

- **Hypothesis 6**:

Hypothesis Formulation:

H0: In Supermarkets packaging does not ensure good quality

H1: People prefer buying from supermarkets because good packaged items ensure good quality

Since we have used a 5-point to determine its importance, we are choosing the test value 3.

So,

H0: μ ≤ 3

H1: μ > 3

Conclusion:

People prefer buying from supermarkets because good packaged items ensures good quality

- **Hypothesis 7**:

Hypothesis Formulation:

H0: Long queue at the counter is not observed in supermarkets

H1: Supermarkets usually have long queue at the counter

Since we have used a 5-point to determine its importance, we are choosing the test value 3.

So,

H0: μ ≤ 3

H1: μ > 3

Conclusion:

Supermarkets usually have long queue at the counter

- **Hypothesis 8**:

Hypothesis Formulation:

H0: Buyers do not take-home delivery from neighborhood kirana

H1: Buyers usually take-home delivery from neighborhood kirana

Since we have used a 5-point to determine its importance, we are choosing the test value 3.

So,

H0: μ ≤ 3

H1: μ > 3

Conclusion:

We cannot conclude that buyers usually take-home delivery from neighborhood kirana

- **Hypothesis 9**:

Hypothesis Formulation:

H0: People do not buy products on credit from kirana stores

H1: People buy products on credit from kirana stores

Since we have used a 5-point to determine its importance, we are choosing the test value 3.

So,

H0: μ ≤ 3

H1: μ > 3

Conclusion:

We cannot conclude that people buy products on credit from kirana stores

- **Hypothesis 10**:

Hypothesis Formulation:

H0: Hygiene is not an issue in a kirana store

H1: Kirana stores lack good maintenance and hygiene

Since we have used a 5-point to determine its importance, we are choosing the test value 3.

So,

H0: μ ≤ 3

H1: μ > 3

Conclusion:

We cannot conclude that Kirana stores lack good maintenance and hygiene

Factor Analysis

Objective

Here, factor analysis is done to identify the underlying dimensions to explain the correlation among a set of variables. Also, if possible to identify a smaller set of uncorrelated variables that is relevant and can be used for further analysis.

The attributes identified from depth interviews are:

1. Home delivery
2. Deals and discount
3. Availability of items
4. Ambience of the shop
5. Card acceptance
6. Printed bills
7. Nearby location
8. Variety
9. Known shopkeeper
10. Quality assurance
11. Freshness
12. Convenience
13. Time saving
14. Availability of credit

The respondents in the survey were asked to rate the following attributes (Qs 5) in a 7-point scale ranging from not at all important to most important (Refer Questionnaire Attached).

Construction of the correlation Matrix

The 14 variables must be correlated for the factor analysis. The correlation among the variables can be verified using Kaiser-Meyer-Olkin (KMO) test and Bartlett's test of sphericity.

The KMO value is greater than 0.5 and the chi-square value is significant with 91 degrees of freedom. So, factor analysis is appropriate. The correlation table (See Appendix 11), does not show very high correlation (>.8) among the 10 attributes.

Determination of the method of Factor Analysis

Our main objective is to reduce the number of attributes into factors, accounting for maximum variance, for using in subsequent analysis. So, we decided to use the **principal component analysis** method for factor analysis.

The higher factor loadings denote existence of high correlations between the factor and the variables. We have used varimax procedure for rotation. **Availability of items, nearby location, Variety, Quality Assurance, Freshness, Convenience and Time saving are correlated with factor 1. Ambience, Card Acceptance and Printed bills are correlated with factor 2. Home delivery, deals and discounts, known shopkeeper and availability of credit are correlated with factor 3.**

Regression Analysis

If we run regression of 14 factors as independent variable and overall assessment of modernized retail stores as dependent variable we get the following regression table.

	Coefficients	Standard Error	t Stat	P-value
Intercept	2.715566346	0.530244687	5.121345698	2.49736E-06
Home delivery	0.050182794	0.045503226	1.102840374	0.273820647
Deals and discounts	0.044043914	0.059624603	0.738686918	0.462532082
Availability of items	0.109559347	0.099945296	1.096193131	0.276698568
Ambience of the shop	0.005639814	0.066584451	0.084701664	0.932736958
Card acceptance	0.087377266	0.077298422	1.130388749	0.262116629
Printed bills	-0.040423909	0.054299454	-0.744462529	0.459053703
Nearby location	-0.009523899	0.081342855	-0.117083408	0.907124531
Variety	0.181085492	0.119495936	1.5154113	0.134107899
Known shopkeeper	-0.010187168	0.05070553	-0.200908423	0.841344615
Quality assurance	0.09943254	0.119452601	0.832401635	0.407973454
Freshness	-0.068614855	0.103595811	-0.662332329	0.509902534
Convenience	-0.096505836	0.090950185	-1.061084544	0.29224763
Time saving	-0.083122724	0.096810964	-0.85860858	0.393445954
Availability of credit	-0.036084498	0.043497148	-0.829583079	0.409555102

If we run a regression analysis keeping 14 variables as independent and overall assessment of kirana stores as dependent variable, we get the following table.

	Coefficients	Standard Error	t Stat	P-value
Intercept	3.44480394	0.663077289	5.195177	1.88E-06
Home delivery	0.017248793	0.056902325	0.30313	0.762677
Deals and discounts	0.075373751	0.074561275	1.010897	0.315499
Availability of items	0.05707249	0.124982782	0.456643	0.649322
Ambience of the shop	-0.031153148	0.083264649	-0.37415	0.709411
Card acceptance	-0.104069663	0.096662596	-1.07663	0.285291
Printed bills	-0.066517701	0.067902113	-0.97961	0.330604
Nearby location	0.126034797	0.101720207	-1.23903	0.219413
Variety	-0.031959402	0.149431089	-0.21387	0.831258
Known shopkeeper	0.14492364	0.063407869	2.285578	0.025267
Quality assurance	0.101142409	0.149376899	0.677095	0.500546
Freshness	-0.046452757	0.129547795	-0.35858	0.720976
Convenience	-0.040335907	0.113734288	-0.35465	0.723903
Time saving	0.046461679	0.121063262	0.38378	0.702288
Availability of credit	0.05811128	0.054393702	1.068346	0.288984

Findings

Hypotheses Testing:

All the hypotheses formed for the analysis found to be true except hypothesis 8 and hypothesis 9. Those seeking availability of credit and home-delivery may not buy from a kirana store. Also, the hypothesis that Kirana stores do not have hygiene and good maintenance is rejected. All the insights that we got from depth interviews about kirana stores are found to be not true. Time saving and nearby location are two major reasons for selecting a kirana store but from hypothesis testing nothing can be said about which behavior make consumers buy from a kirana store.

On the other hand, all hypothesis about super market are true. The behavior identified like seeking specialty and exotic items, using cards for payment, buying on discounts and buying large quantity will make a consumer select a modernized retail. Also, the hypothesis about relation of being successful and choosing modernized retail is found to be true. This means the young achievement and prosperity seeking population will have a tendency to go to a supermarket to project themselves. In addition to these, the overall perception of better packaging and better-quality works in favour of selecting a supermarket. But the perception that supermarkets are time consuming is also true because there is a long queue. We can summarize when supermarket will be selected in the following diagram.
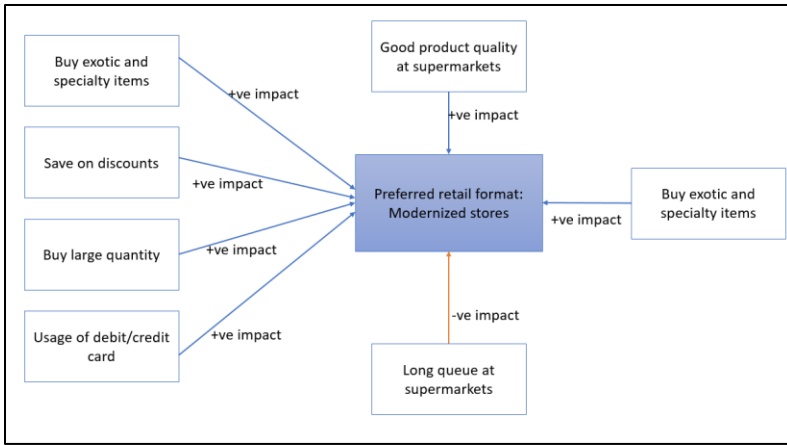
Factors Analysis:

The result of the factor analysis can be summarized as follows:

Factor 1	Availability of items, nearby location, Variety, Quality Assurance, Freshness, Convenience and Time saving
Factor 2	Ambience, Card Acceptance and Printed bills
Factor 3	Home delivery, deals and discounts, known shopkeeper and availability of credit

As we can see the factor 1 consists of the attributes which are in general important for a retail store. Most of these attributes can be associated with Kirana Store. Factor 2 consists of attributes of a modernized retail store which are not usually associated with Kirana Stores. Factor 3 is based of conative aspects of consumers. These are the trigger point of buying or going to a store. For example, if there is a discount, a consumer will purchase now. So, we can interpret the factors as follows:

Factors	Labels	Most important attribute
1	General attributes of a retail	Freshness, Quality assurance
2	Special attributes of a modernized store	Ambience of the shop, card acceptance
3	Conative aspect of consumers	Known shopkeeper, availability of credit

Regression Analysis:

From the first regression table, we can see satisfaction with a modernized retail is positively related with the importance of discount, availability, card acceptance, ambience, variety and quality assurance. But if a person has more importance for convenience, availability of credit, time saving, freshness and nearby location, he is more likely to avoid a modernized retail. We can write the following equation about selection of a modernized retail store:

Satisfaction with modernized retail = function (discount, *availability, card acceptance, ambience, variety, quality assurance, home delivery*)-function (*credit, time saving, freshness, nearby location, printed bill*)

Among the factors which have positive impact, availability of items and variety of items are most importance factors since they have a relatively higher coefficient. Among the factors which have negative impact,

convenience and timing saving have relatively higher coefficient which makes them more impactful than others.

Similarly, from the second regression table, we can see which factors have positively and negatively satisfaction with a kirana stores. The factors with positive impacts are- availability, home delivery, discount, known shop-keeper, availability of credit, quality assurance, time saving. The factors with negative impacts are- ambience, card acceptance, printed bill, variety, freshness, convenience. So, we can write

Satisfaction with traditional retail = function (*availability, home delivery, discount, known shop-keeper, availability of credit, quality assurance, time saving*)- function (*ambience, card acceptance, printed bill, variety, freshness*)

Among the positive factors known shopkeeper, quality assurance and nearby location are more important. On the other side, among negative factors printed bills and card acceptance have most negative impact.

There are factors like printed bill which impacts both format negatively may be because it is time consuming for both and consumers value time. Similarly, the opposite is true for factors like availability which impacts both formats positively.

Recommendations

From the hypothesis testing we have seen like behaviors like buying exotic and specialty item, buying bulk and on discount encourage consumers to visit supermarkets more. And the trend in last few years is that urban middle-class population is slowly moving towards modernized retail. This is also verified by hypothesis 1, that as people move up in social status, they are more likely to visit modernized retails. To compete with modernized retail store, Kirana stores have to compete on the factors identified in the analysis. They need to keep exotic and specialty items and offer discounts on bulk purchase. But it becomes impossible for a single kirana stores to procure bulk quantity at low price and offer discounts. They cannot also stock exotic and specialty items since demand of such products from a single kirana store would be low enough to make the business unprofitable. One possible way out to form a cooperation of kirana stores. The cooperative will procure goods on behalf of kirana stores. If more number of kirana stores are in a cooperative, the combined demand will be higher. Goods can be procured at a lower price and kirana stores can offer discounts. Such a cooperative already exists in Singapore. A study has been conducted about the cooperative in Singapore.[4] But the scenario is India is much different than Singapore. The model need modifications to suit Indian market because most kirana stores in India are smaller in size, they threat from organized retail is not also as extreme as Singapore. Most kirana stores in urban are have started accepting payment wallets though most of them don't accept cards as of now. This is one way to address those who are looking for non-cash transactions.

From regression, we have found that some factors like ambience, have negative impact with satisfaction from a Kirana store. This issue can also be addressed by forming a cooperative. Being combined buying power of kirana stores can afford to expert knowledge to work on product assortment and store ambience.

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[4] Singapore's Experience with Econ Minimart: A case study with implications for retailing in developing countries-Subhash C Mehta, R.S. Wickkramasuriya, Daleen D. Richmond