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Shopping behavior of UMHIC localities of South Delhi: a study of the sustainable economic environment

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Abstract

Rapid Urbanization and deteriorating environment condition is a common scenario in almost all major cities of India including the capital city Delhi, thus the concept of '*sustainability of the urban environment*' is a major factor of concern. In Delhi, fast urbanization and varying purchasing power of the population has resulted in growth of unplanned and haphazard shopping areas. The very existence of such shopping centers poses queries regarding their feasibility for sustainable urban economic growth of the various parts of Delhi as identified under MPD-2021. Therefore, the present paper seeks to address the issue of feasibility of local shops/ markets in residential colonies in deciding the sustainable urban economic development of that area.

Shopping behavior of the population determines the presence and continuance of shopping areas. In this study, which is a part of a larger study, 'Shopping Behavior' pattern of the affluent residents of the study area has been studied to analyze its influence on the continuance of their neighborhood shopping centers. The selected core indicator in this study is the *shopping behavior of food and non-food items* representing the spatial variations in economic environment from a set of sample population belonging to Upper Middle and Higher Income Categories Localities (UMHIC). With the help of a set of background indicators, the study tests and highlights the shopping behavior of food and non-food items by various income groups in terms of frequencies of trips and distances traveled. A set of hypothesis are formulated and tested through *chi-square* to see the impact of income on the key indicators and bi-variate correlation defines the impact of key variables on shopping behavior of the population. Keeping in mind the nature of the data, Principal Component Analysis has also been done. PCA has economized the details of description and has helped to come out with most pertinent dimension of the levels and pattern of shopping behavior in the study area. Considering the diversity in the socio- economic and demographic profile of the area, the techniques, thus, selected are supposed to fulfill the objectives of the study. The findings of the study favors presence of local shops in the surveyed localities. A shopping behavior model for sustainability of urban economic environment is developed for a metro city undergoing uncontrolled urbanization with space crunch.

Keywords: Shopping behavior, non-food items, MPD-2021, economic land use, feasibility of local shops/ markets, residential areas/ colonies, sustainability of urban economic environment, shopping behavior model.

1. Introduction

In metro city like Delhi, the rapidity of population growth has become synonymous with urbanization. With advancement in science and technology the rural population is rapidly caught into an urban nexus where a variety of jobs are in purview in both formal and informal sector of economy. The city landscape in response to the changing dynamics of urban economic base is going through phases of reconstruction and restructuring, which brings into debate the question of viability of incorporating those structural changes as integral part of urban economic planning.

The sustainable economic development is an approach to economic planning that attempts to foster economic growth while preserving the quality of the environment for future generations. The awareness about environmental crises is a recent phenomenon. It was in the Rio 'Earth Summit', (1992) that environment and development, were considered as inter-dependent. The Brundtland report in 1980 talked about '*sustainable development*' first time (Independent Commission on International Developmental Issues: 1980). The World Commission of Environment and Development in 1984 supported Brundtland report and

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highlighted the need for sustainable development through a participatory management system of economists and ecologists (WCED:1987). Integration of the 'Green Environmental Agenda' and 'Brown Environmental Agenda' are the latest approaches towards sustainable development.

As the cities grows, productive activities tend to concentrate in urban centers but the scale of city development activity is determined by the demand from local as well as regional/national economy in face of liberalization and globalization. In a metropolitan economy like Delhi, the urban labor market is surprisingly dominated by informal sector of economy. This is mainly due to the heavy influx of both skilled and semi-skilled migrants and limited employment opportunities that have promoted self-employment. Since income inequalities are deeply entrenched in the society, the cost of living in various parts of the city is very much variable. One of such manifestation of income inequalities is experienced by the city residents in the form of dwindling purchasing power, increasing necessities and demands, and the cost effectiveness of the item accessed. This promotes the insurgence of make shift stall/ kiosks within and outside tightly packed residential areas and recording changes in city landscape through reconstruction and restructuring of urban built environment, which raises issues regarding the sustainability of urban built environment in terms of urban planning.

2. Literature Review

With growing concerns about the sustainability of urban environment especially in its economic terms, a lot of work has been done regarding its various aspects especially by economists both at macro and micro level. However, the identification of parameter evaluating performance of urban economic environment has been an issue of debate. 'White and Whitney' (1992) argue, "Sustainability involves more than planting trees and curbside recycling. It implies a holistic approach to the restructuring of our global society...." Briefly, it is important to recognize that new ideas on urban sustainability have been influenced by sustainable development discourse.

Mac Lachlan, "et al", (1990), study has been designed to see whether a re-conceptualization of social distance (as measured by social class variables) between shoppers and stores would provide a basis for understanding store avoidance behavior. While Coshall, (1985), has examined the relationship between consumers' cognitions of distances and the physical distances that separate shops in the micro-spatial retail environment. Mulligan, F. G. (1984), has analyzed the relationship that exists between consumer shopping behavior and the population sizes of central places. He concluded that the multi -purpose shopping behavior creates an intra-level variability in central place sizes and a shift from single-purpose behavior to multipurpose behavior, generating a population decline in small places and population increase in large places. Schuler, (1981), carried out a conjoint analysis of expressed preferences for experimental levels of supermarket attributes to forecasts spatial behavior through a behavioral gravity model. The retail markets have been researched upon by Messinger, and Narasimhan, (1997), with the help of a model to explain the

growth of one stop shopping. A typology of travel tours to account for different travel purposes to understand tours relative to the range of services typically offered in accessible neighborhoods (Krzizek, 2003). The basic element of consumer behavior through shopping trips to the departmental stores has been analyzed by developing a model of shopping behavior that assumes that households seek to minimize the travel cost associated with shopping and the cost of holding goods in inventory (Bawa, and Ghosh, 1991). The decision to patronize a particular store was examined by Moye, and Kincade, (2000) through the influence of selected environmental dimension like Sensory/ Layout (Factor 1) and Music/ Aesthetics (Factor 2), on store patronage. A comprehensive treatment of hedonism and culture on shopping behavior reflecting two distinct form of consumer: hedonic and utilitarian are thought to be the determinants of the purchasing behavior of shoppers (Kaul, 2006). Gayler, (1979), studied the spatial behavior pattern of consumer and its relation to the retail structure of an area through cognitive behavioral approach. However, a geographers approach to the study of the spatial distribution, spatial interaction and spatial regularity to analyze the urban economic environment by concentrating on the economic indicators of sustainable economic development is still at nascent stage. Thus, the present work is focused upon the study of urban economic environment through shopping behavior as an indicator of recording changing spatial preferences for shopping trips and restructuring of urban built up area as a result of continuance/discontinuance of shopping destinations. This phenomenon is well marked in developing countries particularly in India with a burgeoning population and metropolitan growth leading to mixed land use.

Delhi the 2nd most populous metropolis in the world has a population of about 12.8 million (Census: 2011) due to higher rate of migration from neighboring states as it forms a part of National Capital Region (NCR). While the population over the last two decades has been more than doubled, the area has remained almost constant leading to higher density of population from 6352 persons per sq. km (1991) to 11,297 (2011). Since, the rapid rise in population growth could not be matched with the expansion of geographical area of the city of Delhi; it has resulted into disorganized urban development and growth. Furthermore, the planned commercial areas due to cost factor are out of reach for most of the population, hence the residential lands are being rapidly converted into commercial lands. The problem with the urban governing body is now to assure a sustainable economic development through the economic growth of the city, which is mostly based on mixed land use- supportive of residential and commercial activities on all levels of development.

3. Selection of the Study Area

The present study focuses primarily on identification of shopping patterns/behavior of residents of selected localities from South Delhi, with its heterogeneous socio-economic religious, cultural and behavioral set up. The study also addresses the issue of sustainability of urban economic

environment as is observed through the feasibility of promoting commercial shops in residential areas. NCT (National Capital Territory) of Delhi (**Fig: 1**), as a part of the NCR (National Capital Region) is well connected with Faridabad and Gurgaon in Haryana, NOIDA (New Okhla Industrial Development Area) and Ghaziabad in Uttar Pradesh making it the sixth most populous urban agglomeration in the world. The Union Territory of Delhi

forms a part of Southern part of Haryana Plain micro-region falling under the Haryana Plain meso- region. It is situated between 28 °24'-17" and 28 ° 53'-00" of north latitude and between 76 ° 50'-24" and 77 ° 20'-37" of east longitude.

For the present research work, the *Zone F* (**Fig: 2**) of South District of Delhi has been selected, which covers a considerable part of South District with a total area of 119.58 sq. kms (ZDP, DDA: 1998).

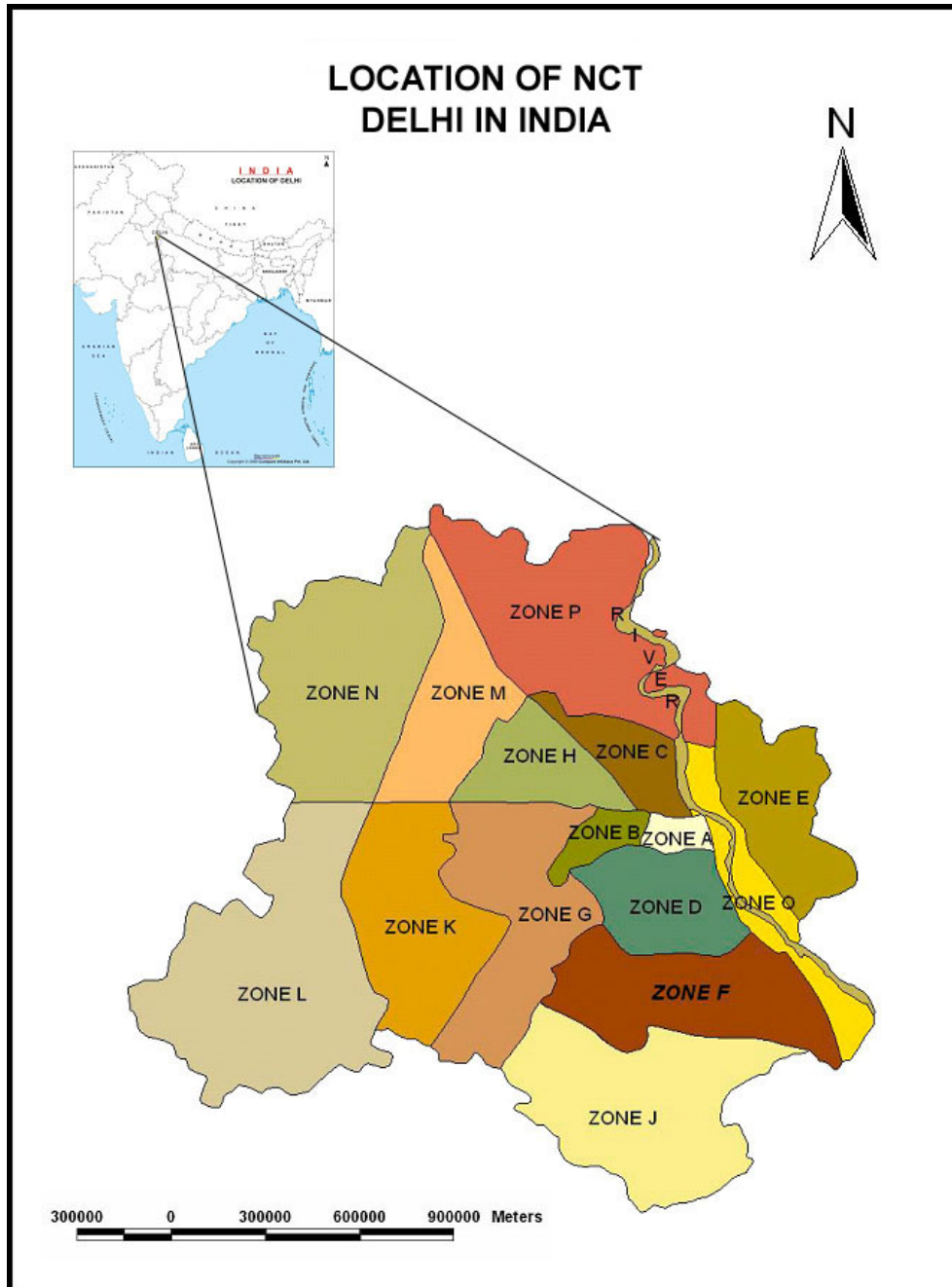


Fig 1: Source: DDA Zone Development Plan 1998

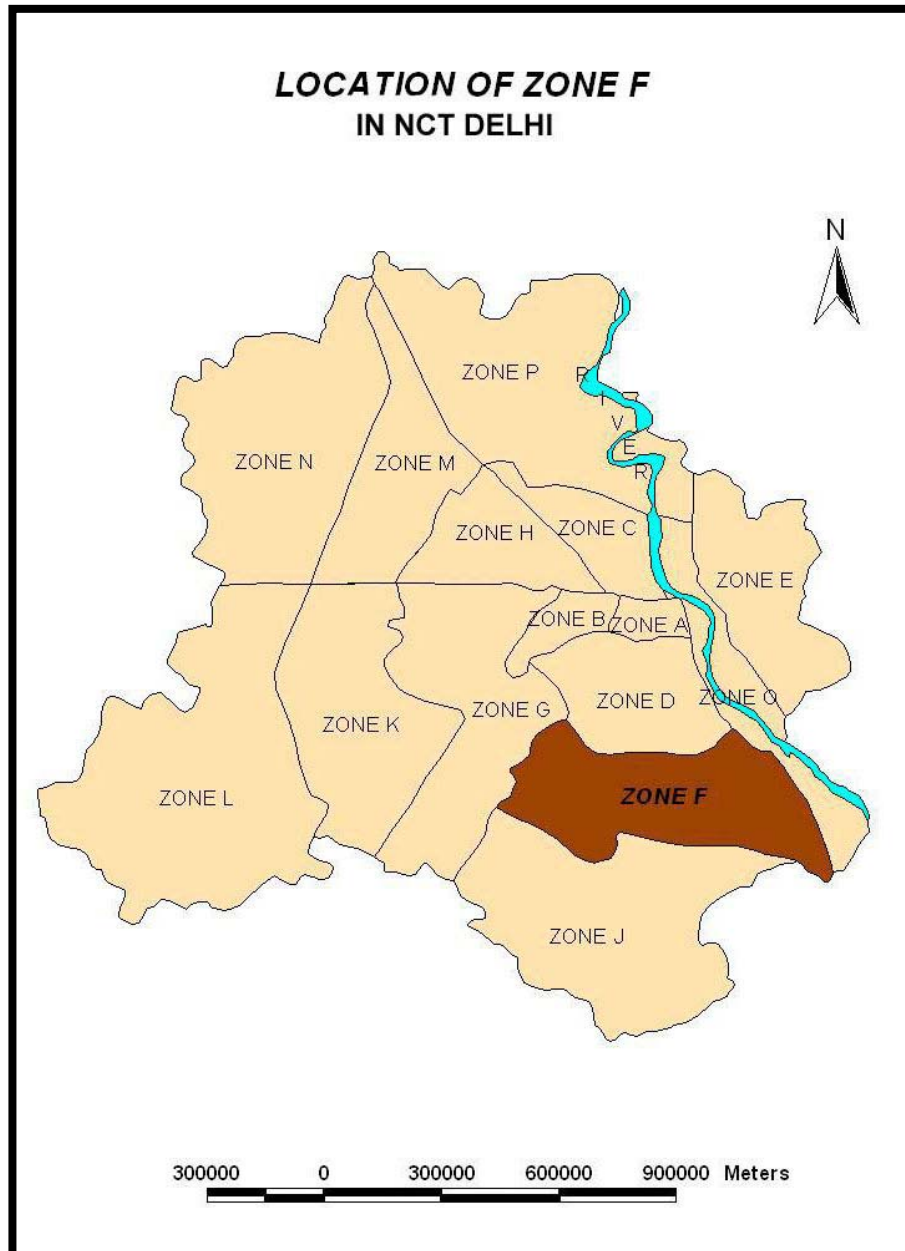


Fig 2: Source: DDA Zone Development Plan 1998

4. Database

The present study is a sub-part of a larger research work, which is based on: *primary* data collected in the year 2006 and 2007 from field survey through self-structured questionnaire based upon the selected indicators for shopping behavior of food and non-food items in UMHIC localities and corresponding *secondary* data for South Delhi, Zone F from published sources for 2001. To conduct the field survey, a pilot survey was carried out first. It was decided that MCD ward number 9 and 10 are occupied by high, middle and low-income group of population exhibiting a highly diverse land-use pattern, where inter and intra sample variations are expected to be maximum.

In the present study, out of total households of 7,866 in these upper middle and higher income localities of C.R.Park, Kalkaji and Alakananda, 236 households are surveyed randomly, which forms 3% of the total households. The respondents/consumers were divided into five income groups and to link economic viability with the cognitive

environment; the data was cross-tabulated for all the areas. The lowest income group being less than 10,000 and the highest income group being higher than 70,000. The pie diagram (Fig: 3) shows out of 236 households, only 7% i.e. 17 households have income less than 10,000. In fact these households with less than 10,000 incomes mainly had retired couple with earnings coming from pension and savings. The income category of 30,000- 50,000 is the dominant category, 71 out of 236 households i.e. 29% fall in this category, followed by 65 households i.e. 28% with income ranging from 10,000- 30,000. 19% of the total households (44 out of 236) have income ranging from 50,000-70,000 and 17% of the households i.e. 39 households have family income more than 70,000 a month. That is primarily because C.R.Park, Kalkaji and Alakananda are upper middle and higher income residential area. The surveyed data showed a heterogeneous economic as well as racial, social and cultural composition of households.

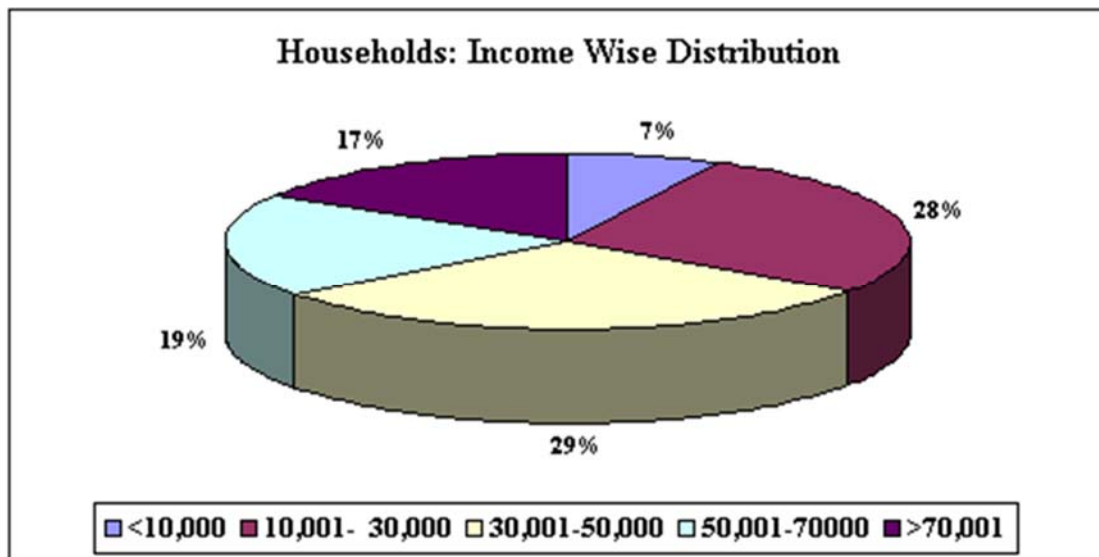


Fig 3: Source: Primary Survey

5. Aims and Objectives

The *aim* of the present research is to study the sustainability of urban economic environment through the most significant aspect of urban economic land-use as defined by the shopping behavior of the residents for food and non-food items in a selected part of Delhi.

The important *objectives* of the study are:

- To find out the variations in the basic *living environment* of the study area in terms of the socio-economic status of population.
- To find out the influence of *income* in determining the *distances traveled* for food and non-food items in the study area.
- To find out the influence of *income* in determining the *frequency of shopping trips* measured through the purchasing activity for food and non-food items in the study area.
- To analyze the *determinants* of shopping behavior in terms of *frequency of trips* for food and non-food items by various income groups in the study area.
- To analyze the *determinants* of shopping behavior in terms of *distances traveled* for food and non-food items by various income groups in the study area.
- To analyze the *major dimension* of shopping behavior for food and non-food items by various income groups in the study area.
- To develop a model, to determine the *shopping behavior of non-food items* for the *feasibility* of local shops/ super markets/ shopping plazas in the neighborhood for sustainable economic development of the study area.

6. Hypothesis

Since the study is operational in research, sets of hypothesis related with sets of theoretical assumptions are formulated which are analyzed under major findings.

7. Methodology

An indicator reflects the status or progress of something by quantifying and simplifying the phenomenon. Indicators of sustainability allow a community to determine where it is, where it is going, and how far it is from its chosen goals. (Swisher and Monaghan: 2003). The development of 'indicators of sustainability', perceived as a first step towards the operationalization of the concept, has reflected a proactive initiative to make a change, itself fired up by a real sense of urgency: "...sustainability [becomes] meaningless unless we can do it..." (Bell and Morse: 1999).

Thus, in this study *shopping behavior has been considered as a core indicator*, which has been analyzed on the basis of a *set of background indicators* to study the feasibility of neighborhood markets and their sustainability.

8. Core Indicator: Shopping Behavior

- Distances Traveled for food and non-food items (% of households 0.1 to 2.0 km, 2.1 to 4.0 km and 4.1 km and above)
- Frequency of trips for food and non-food items (% of households visiting shops/ markets in less than 7 days, 7-15 days, 16- 183 days)

9. Background Indicators

- Family System (% of Joint and Single Family)
- Density Index (% of household with Average Floor Area Per Person)
- Function of House (% of households with Purely Residential and Residential cum Commercial)
- Employment Status (% of Employed Males and Employed Females)
- Median Family Income (Average Income of the Households)
- Shopping Expenditure (%) on Food and Non-food Items

- Selection/ Preference of Stores (% of households visiting Local Shops, Super Markets, Open Markets/ Commercial Centers and Plazas /Malls)
- Reasons Behind Selection of Stores (% of households going for Nearness, Reasonable Rates, Better Quality, Variety and Trust)
- Educational Status (% of households with Graduation degree)

10. Statistical Techniques

The statistical techniques used in the study include the testing of hypothesis through *Chi- Square*, *Bi-Variate Correlation* to find out the interaction of key variables of shopping behavior in the study area and *PCA (Principal Component Analysis)* to study the dimension of the shopping behavior.

11. Major Findings

1) To achieve the **1st objective**, the following analysis of the *basic living environment* of UMHIL have been done:

Upper Middle and Higher Income Category (UMHIC) Localities: The area information shows that C. R. Park, Kalkaji main area and Alakananda are authorized and planned localities with residential houses/ apartments, markets, religious centers, post-offices, commercial hub etc. spread across the localities. Alakananda mainly has three or four stories apartments /flats where as Kalkaji and C.R.Park have both private houses and flats. At present, many owners from C.R. Park and Kalkaji are selling their houses to builders, who in turn are turning the single/ double story houses into 3 to 4 stories flats rapidly converting these localities into high density areas. Even though the floor index is highest in the highest income group, the rise in floor index value with increase in income is not constant. The tenancy status shows that only 12% of the surveyed households are on rent. In fact because of the faster lives in the urban areas the percentage of nucleated families is rising, as shown by the data with 12% households with joint families. 6% of the surveyed households in these localities have residential cum

commercial use of their houses. Though the locality is authorized and planned, some households still run some small businesses or commercial activities from home like boutique, clinics, departmental stores etc. showing mixed land use. The employment status shows that out of total males, 75% are employed, while out of total females 25% are employed in well-paid jobs. The dependency ratio is less with only 27% population as dependents. While 52% of population has minimum graduate/ specialized degree, 22% have higher education which enables them to get better paying jobs and hence maintain higher standards of living. This is reflected by the possession of electrical gadgets/ products which reflect the impact of faster lives along with the higher purchasing power, therefore the demand for sophisticated electrical items are on rise in these localities.

2) To accomplish the **2nd objective**, a number of hypothesis are made to find out the significance of relationship between the *income levels* and the *distances traveled* for the shopping of food and non-food items.

In a metro city like Delhi, where the level of modernization is high, the consumption pattern of non-food items like clothes, home décor items, electronic gadzets etc. is also high, among most of the income groups. Since the demand of such items is high in Delhi due to the purchasing power of the population, even the local shops have enough supply of low cost products which do not involve long distance travel for shopping. **Fig: 4.** highlights that people from most income groups in these localities prefer to travel shorter distances.

The food shopping activity including both perishable and non-perishable items is mainly confined within distances of 1 km. **Fig 5**, thus indicating a mix of shopping centers, providing all types of food items to cater to the needs of all income groups is available in the vicinity of the study area. Therefore, UMHIC localities furnishes a good example of self-sustained consumer economy, where the local market is thriving, in accordance with the demands of the consumers.

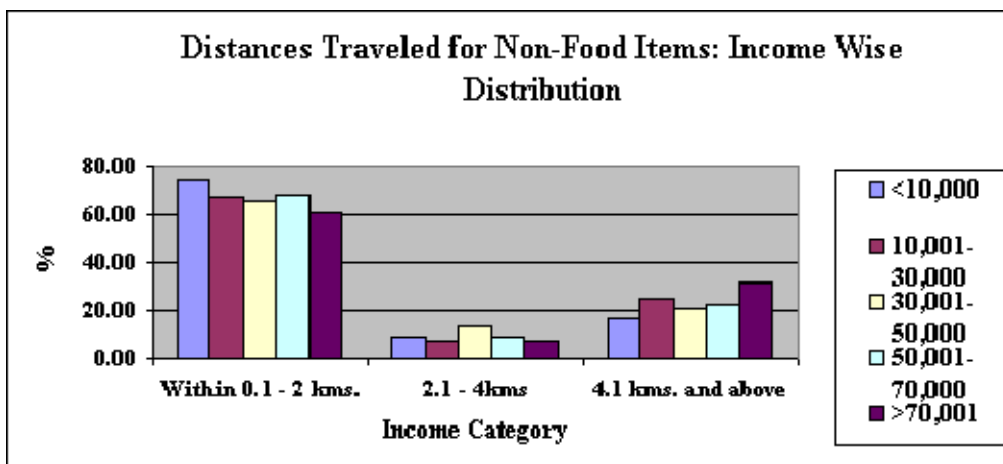


Fig 4.

- The influence of *short distance (1.0 – 2 kms)* on the shopping of *non-food items* within different economic categories

Lower and Middle Income Group: A positive relationship is established between the short distances traveled for non-food items and the level of income with 95% confidence level. Since the requirement for non-food items is limited within this income group, only occasionally people are traveling to longer distances.

Higher Income Group: As the requirement for non-food items is high within higher income group especially for frequently required items like fuel, stationary items, gas etc., therefore shorter distance travel is more dominant. This is confirmed by the rejection of null hypothesis at 0.05 level of significance suggesting the existence of a significant relationship between the higher income and shorter distances traveled for non-food items.

- The influence of *longer distance (4 kms and above)* on the shopping of *non-food items within different economic categories*

Lower and Middle Income Group: The analysis of this income group accepts the null hypothesis at 0.05 level of significance therefore establishing a negative relationship between the distances traveled and income levels. Since the requirement of non-food items is limited, therefore people in this income level occasionally travel longer distances especially for selected non-food items like furniture or electrical gadgets, especially when they do not find those items in their nearby markets at reasonable/ discounted rates.

Higher Income Group: At 95% level of confidence, a positive relation has been established since households from this income group very frequently visit shopping complexes, open markets, plazas and malls located at distances within 4 kms. and above, for non-food items like clothes, accessories, home décor items, jewelry, electrical gadgets, furniture etc.

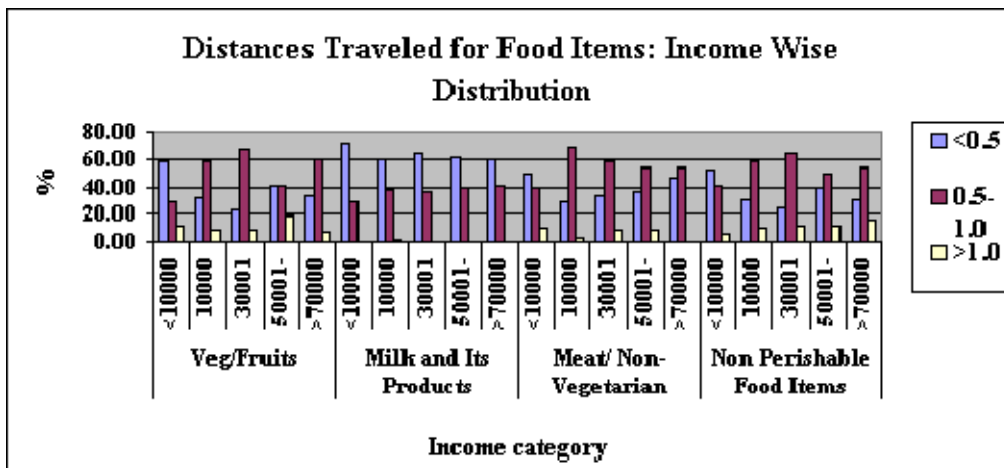


Fig 5.

- **The influence of short distances (less than 0.5 km) on the shopping of food items within different income categories.**

Lower and Middle Income Group: At 0.05 level of significance, the null hypothesis is rejected thus, establishing a significant relationship with 95% confidence level, between the short distances traveled for the shopping of food items by lower and middle income group, irrespective of the socio-economic status of the locality. This further suggests that nearness/ availability of food items at shorter distances is a deciding factor for the shopping behavior for food items.

Higher Income Group: Even the higher income group households prefer to visit the nearby shops more frequently to buy food items because of the presence of a number of local shops/ departmental stores providing a variety of food items in the vicinity of the localities. Thus, nearness emerges again as a deciding factor to determine the shopping behavior of the higher income group for food items, which is also

established by the rejection of null hypothesis at 0.05 level of significance.

3) To realize the 3rd objective, hypothesis testing is done to determine the significance of relationship between the income levels and the frequency of shopping trips for food and non-food items.

The frequency of trip to stores/ shops is one of the most basic elements of consumer behavior. The frequency of trips for food item in (Fig: 6) shows that the frequency of trips is highest within less than 7 days' time period (47%) amongst all the income groups especially, the higher income group. This is mainly because of the presence of higher percentage of joint families and their higher requirements. The following hypothesis testing result reveals the same.

- The influence of *higher frequency of trips (less than 7 days)* on the shopping of *food items*.

Lower and Middle Income Group: Since higher percentage of surveyed households in this income group are on rented accommodation with limited storage facilities; more frequent trips are made for shopping of food items. This is established by a significant relation with this income group and the higher frequency of shopping trips at 95 % confidence level.

Higher Income Group: The higher socio-economic class mostly supportive of joint families with higher degree of food requirement shows a higher frequency of visits for food shopping. Hence, a positive relationship between higher income group and higher frequency is established with 95% level of confidence.

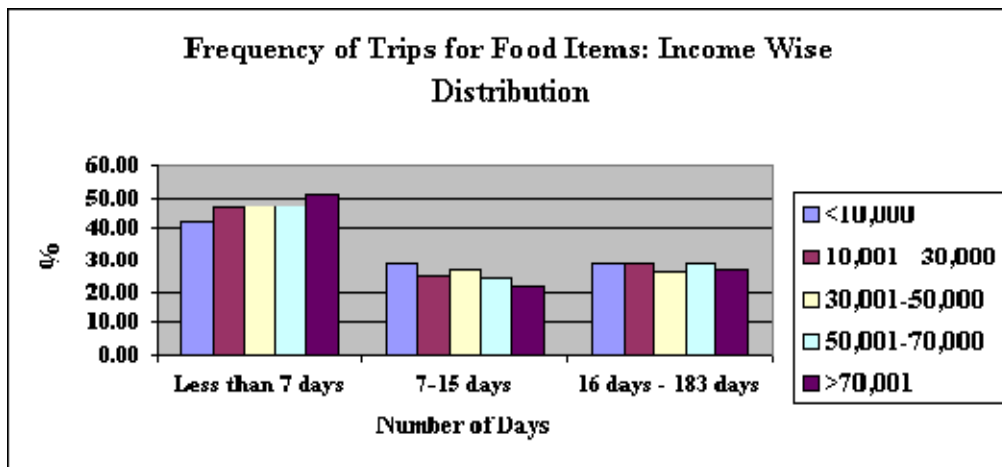


Fig 6.

The (Fig 7) and the following hypothesis testing result shows that in almost all income level, the frequency of trip for non-food items is confined within period between a month to six months' time especially for items like medicines, household's items, accessories etc. Occasionally also the households from all the income groups' shows higher tendency to visit the markets/ shops to buy costly items like jewelry, furniture, house décor etc. especially during festival/marriage season.

- The influence of *lower frequency of trips (16 to 183 days)* on the shopping of *non-food items*.

Lower and Middle Income Group: The income group with limited requirement of non-food items prefers to visit the

markets within a month to six months' time showing occasional visits for selected non-food items as per their needs. Hence, a significant relationship has been depicted between this income group and lower frequency of trips with 95 % level of confidence.

Higher Income Group: At 0.05 level of significance, the null hypothesis is rejected, as the households from higher income group also prefer to travel occasionally for buying non-food items like furniture, clothes, electrical gadgets etc. but the only difference is that their expenditure on non-food items per trips are much higher than lower income groups.

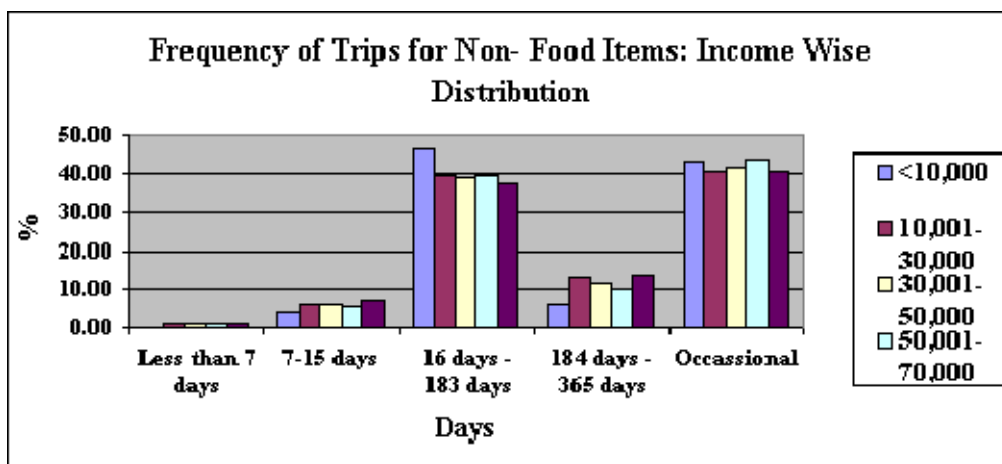


Fig 7.

4) To attempt the 4th objective the *frequency of trips* for food and non-food items as a *determinant of shopping behavior*

has been analyzed, with the help of bi-variate correlation coefficient on key variables on shopping activity:

- **Frequency of Trips for Food Items:** Within *less than 7 days* the employed and educated people from UMHIC high density localities like Kalkaji main area, prefer to visit the neighboring super markets and open markets like C.R. Park market I and II and Kalkaji market for the sake of required quality of food products mainly within 1 km distances. In fact for perishable items like vegetables, fruits, milk etc. households prefer to visit the markets more frequently. Still some nucleated families from C.R. Park prefer to go to local markets to shop for such items *once in a week or fortnight* for the reasonable rates and variety of items. The *bi monthly* visits are also made by some families from C.R. Park and Alakananda who prefer to go to shops beyond 1kms for buying food items especially non-perishable products like pulses, flour, etc.
- **Frequency of Trips for Non -Food Items:** In UMHIC areas, the households especially from Kalkaji main area who are mainly owners of the houses with joint family system visit the shops on a regular basis i.e. *within a fortnight*. The significant point is that the residents especially the higher income groups with the rising socio-economic status prefer to visit plazas and malls beyond 4 kms, within a *period of six months to one year* for better quality and branded non-food items like home décor, furniture, accessories, appliances, jewelry etc. Nevertheless, *within a fortnight to six months* shopping trips are also made to buy regularly required non-food items like toiletries, stationary etc. However, some single households from C.R.Park and Alakananda also visit the neighboring markets/ local shops *occasionally* for buying reasonably rated non-food items.

5) To attempt the **5th objective** the *distances traveled for food and non-food items as a determinant of shopping behavior* has been analyzed, with the analysis of bi- variate correlation coefficient on key variables of shopping activity:

- **Distances Traveled for Food Items:** The distances traveled mainly for perishable food items like vegetable, fruits, milk products, meat products, are primarily confined *within a radius of 0.5 kms*. The households with nucleated families with the higher percentage of senile population especially in C.R. Park, shows a tendency to prefer the neighboring shops/ markets for buying perishable food items. This could be because this locality is self-sufficient in terms of shops/ markets and milk booths in the vicinity selling different variety of food items, which helps the shopper to save on traveling distances. For non-perishable items also households with nucleated families in which both male and female are working, prefer to visit the locals shops to save on traveling time and energy. The distances traveled *within 0.5 to 1 km* are a characteristic of shoppers from all types of families going to open markets like Gobind Puri, C.R. Park market etc. Some shoppers especially from Kalkaji, prefer to visit the open markets/ plazas for buying good quality food items. Some households especially from Alakananda also occasionally prefer to shop for food items from the malls or plazas because of the availability of variety of quality items especially

foreign fruit or vegetable which are otherwise not easily available in local markets. Few households mainly from Kalkaji also show a tendency to travel greater distances *mainly beyond 1 km* for buying reasonably rated quality food items.

- **Distances Traveled for Non-Food Items:** The households with nucleated families in this UMHIC localities with higher dependency ratio because of the presence of young children and senile population show a tendency to visit the neighborhood local markets/ shops/ super markets within *0.1 to 4 kms for general non-food items* like toys, stationary, medicines etc., as cheaper/ reasonably rated items are easily available in the nearby stores. This phenomenon is mainly seen in households in C.R. Park. The households belonging to joint families with family members employed in higher paying jobs due to their higher education prefer to visit malls and plazas once in a month to six months' time located at longer *distances beyond 4 kms* for the purchase better quality, branded non-food items like clothes, footwear's, accessories, furniture, jewelry etc.

6) To attempt the **6th objective**, to explore the *major dimension of the shopping behavior*, principal component analysis is carried out with the following results:

- **PCA I: Distances and Frequency of Trips to Commercial Centers, Malls and Plazas from Affluent Localities:** The first principal component, accounts for 44.32% of the total variance in the data set. The loadings within each income group on PCA I seem to be a distinctiveness of localities of upper middle to higher income status area in terms of the shopping behavior. The households here irrespective of their income levels, are showing a definite trend to regularly visit open markets/ super stores/ plazas and malls for the shopping of branded food and non- food items, in fact the expenditure on both food and non- food is higher in these localities compare to LMIC localities. The impact of urbanism and globalization is well marked on both the middle and higher income class in these affluent localities, where distances are not a concern rather the variety, quality and brand of items are more significant in determining the shopping behavior. This is incidentally true for most parts of C.R.Park, Kalkaji and Alakananda. Hence the dimension I has been named as 'Distances and Frequency of Trips to Commercial Centers, Malls and Plazas from Affluent Localities'.
- **PCA II: Shopping for Nearness and Cost Effectiveness by Middle Class:** The next principal component accounting for 23.37% of the total variance in the data set, has fully focused upon the influence of nearness and cost effectiveness on the shopping trips usually made by middle class households. The loadings signify that the households mainly from middle income group give preference to the nearness and cost effectiveness for shopping of both food and non-food items. Therefore, the frequency of visits is higher to the nearby local stores/ open markets/ commercial centers where the reasonably rated products are available. The above findings highlight the shopping behavior pattern of the

households from middle-income areas like DDA Flats Kalkaji, parts of C.R. Park and Kalkaji main area. On the basis of the above shopping behavior by a definite set of socio-economic population, the PCA II has been labeled as ‘Shopping for Nearness and Cost Effectiveness by Middle Class’.

- PCA III: Selection of Stores for Better Quality by Employed Females:** The influence of urbanism through the education can easily be seen in case of employed females determining their shopping behavior irrespective of the socio-economic status of the area. In fact education and work participation has enabled females to exercise their own privileges to do shopping as per their taste, therefore, *PCA III* accounting for 17.97% of the total variance in data set, has successfully brought out the influence of employed females in determining shopping pattern in the study area. The employed females whether in low or high paid jobs are showing a definite trend for selection of stores, In case of lower earnings by females for the cost effectiveness for quality items, the open markets like Gobind Puri market, DDA market are frequently visited. While the higher paid females are patronizing shopping plazas, malls etc. Thus, earning females in the study area belonging to each and every income group have a decisive role to play in defining the shopping behavior, which leads to the continuance of selected stores through patronization by them. Therefore, *PCA III* has been

labeled as “*Selection of Stores for Better Quality Items by Employed Females*”.

- PCA IV: Loyalty and Trust of Shoppers:** The *PCA IV* explaining 14.31% of the total variance in data set has focused upon a narrow behavioral attribute of shoppers which is a trait of mainly middle-income localities. The shoppers from middle income group seem to have developed a sense of loyalty and trust for the shopping of both food and non-food products to their selected stores and patronize them. Although the local shops are being patronized by lower and middle income group for the cost effectiveness and desired quality of both food and non-food items from localities like Gobind Puri and DDA flats. However, with rising income levels, there is a trend to prefer super markets and plazas to local markets because of the quality products and branded items which attract some households of Kalkaji main area. Thus, a small group of households, irrespective of their income levels prefer to visit stores/ markets/ plazas/ malls for the basic trust for quality and sense of loyalty attached to these places. Hence, *PCA IV* has been named as ‘*Loyalty and Trust of Shoppers*’.

Shopping Behavior Model

The basic assumption of the model (**Fig: 8**) is that the shopping behavior of the households is determined by the average income, density index and family size.

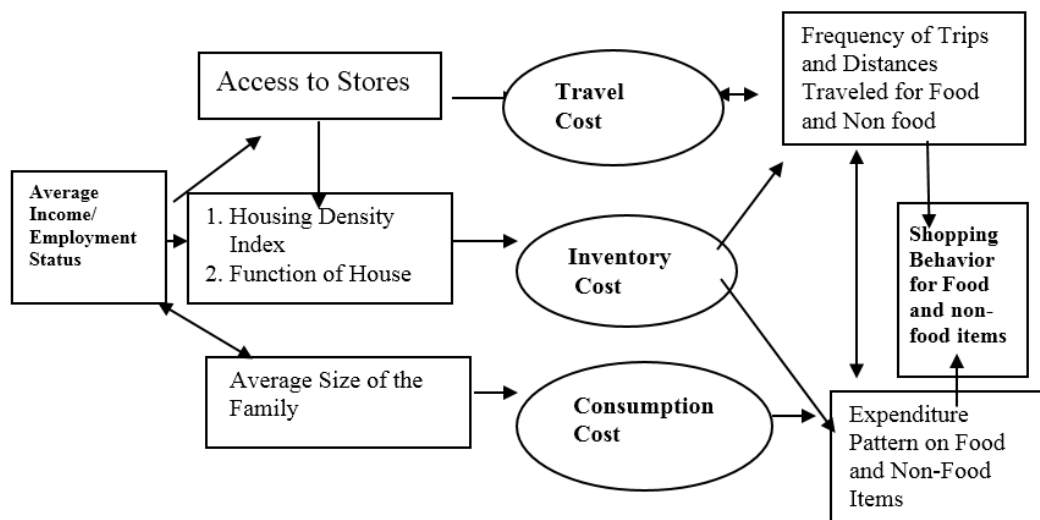


Fig 8.

12. Conclusion and Suggestion

With rapidity of urbanization, there is a mushrooming of commercial shops in the residential areas; therefore, the unplanned and mixed land use has been a major area of concern for policy makers over the years all over the world. Therefore, the present paper has attempted to evolve a model of shopping behavior for both food and non-food items in a metropolitan city like Delhi, in a fast developing country like India, where the problem of urbanization is typically characterized by a spurt into informal sector of economy and haphazard urban growth, unchecked and unplanned mixed

land use in face of limited urban land. The paper further addresses the question of urban economic sustainability of the living environment through a differentiated approach by disaggregating the population as per the living environment as in this case, the UMHIC localities, then cross classifying the households on the basis of average income levels. Thus it made possible to understand and analyze better, certain aspects of shopping behavior in terms of frequency of trips, distances traveled, expenditure pattern and selection of stores by the shoppers. The study highlights, irrespective of the

income levels, nearness or ease to shopping destinations emerges as the determining factor for all income groups.

Suggestions: The findings of the study support the MPD-2021's decision of permitting local shops/ stores operating from ground floor. However, it is felt that it will promote more local stores/ shops at residential premises leading to lot of congestion, crowding and rising pollution levels. Since the mixed land use cannot be avoided in Delhi, it is better to be worked out with the help of public private partnership. This includes checking illegal encroachment upon already congested narrow roads, providing parking space at least for two wheelers, encouraging underground parking for the new commercial set ups and granting of easy and short term loans for the up gradation of the existing local shops/ markets. Thus, to manage the urban economic environment of a metropolitan city like Delhi, apart from the strict land legislation policies and institutional reforms, the role of public-private partnership like RWAs (Residents Welfare Association) should be identified in promoting the mixed land use plan as suggested by MPD-2021.

Thus, the present study has focused upon primarily on identification of shopping patterns / behavior of residents of selected localities in determining the feasibility of promoting commercial shops in residential areas, since the built environment itself is a spatial manifestation of socio-economic behavior of population. The model drawn is a best representative of any fast urbanizing city of a developing country, with limited land for expansion and dominance of workforce mainly within moderate-income levels as is observed in the NCT of Delhi, India.

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