Benign or Exploitative and Space
The Changing Pattern of Shopping Development in a Rapidly Developing City Dhaka

Ref 027

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Keywords
retail; formal and informal; developing countries; place specific; space economy; socio-spatial sustainability

Abstract
This paper presents research into the dynamic nature of changing shopping developments in a developing city Dhaka. Within a process of rapid urbanization retailing in developing countries takes place in an enormous range of contexts. On one hand retailing acts as a survival strategy for the urban poor by securing job opportunities; on the other hand it reflects the penetration of western consumer values and the consequent spatial changes. This opposing nature of economic activities has been broadly categorized as formal and informal sector retailing. This study selects Dhaka, to understand the duality of 'place specific' socio-economic issues, and the 'modernisation effect' in a changing retail environment. The city has been experiencing uncontrolled growth of shopping developments since the last six decades. It presents a varying nature of retail outlets by accommodating the formal and informal retail activities within the same precincts. This study attempts to identify the socio-economic relationship between these two retail sectors and the spatial outcome of the process. This will lead to a new level of understanding of the way that urban retail centres and their spatial layout interact as market mechanisms in space.

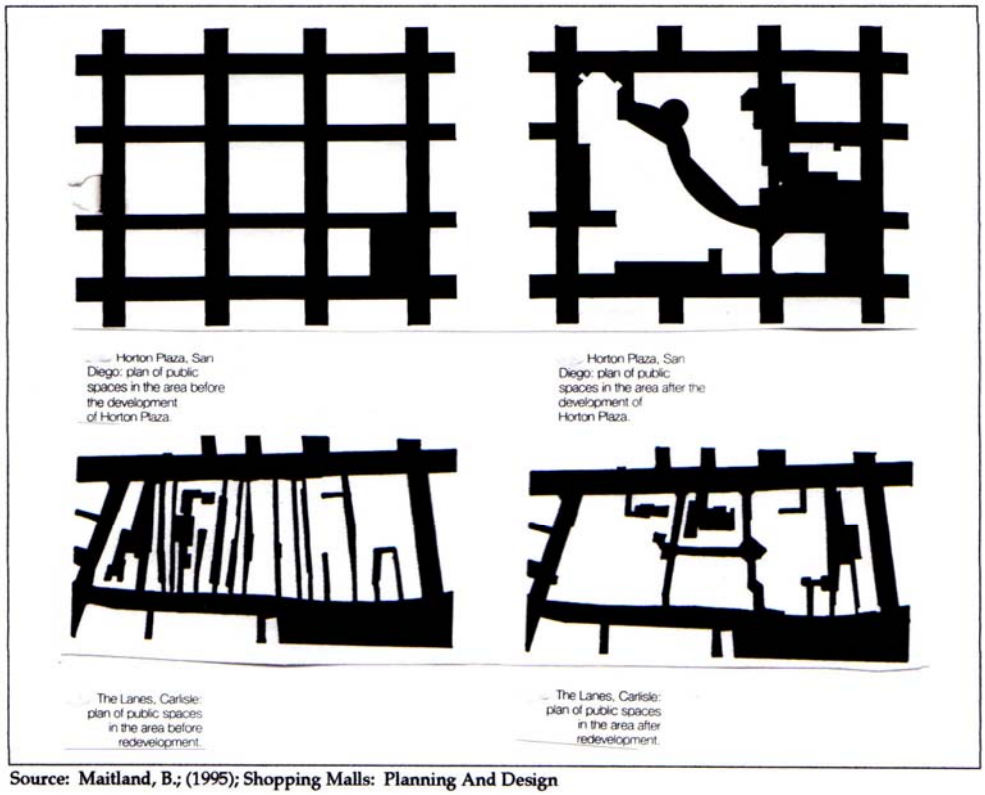
By using 'Space Syntax' techniques this research allow us to investigate the spatial nature of retail space organization in relation to their social meaning. The main search in this paper remains - the way in which configuration and socio-economic behaviour affect patterns of space use. Finally, the syntactic analysis identifies whether these retail buildings forms an integral part of their surrounding urban context in the creation of a sustainable and place specific urban retail development.

The research findings suggest that in a rapidly urbanizing context, the socio-economic aspects are the prime concerns in changing and shaping the urban retail activities in space. The spatial forms of 'spontaneous' retail developments and their morphological variations are the outcome of a dependency relationship among various formal and informal retailer groups. In a developing context, this benign economic relationship primarily determines what a 'place specific' retail architecture should be. On the contrary, the modern and planned shopping developments cannot successfully express the sense of social and economic forces of a developing context and stands as an isolated building in the surrounding urban context. Their spatialisation process and pattern are merely controlled by space economy of a specific context rather guided by the planning principles of 'enclosed shopping centres' of the west.

1. Introduction

In the last half-century, shopping formats in the west have evolved from the open precincts of the 1950's, to the universal adaptation of enclosed centres, returning once again to favor more open natural shopping environments (Coleman, 2006). The enclosed shopping centres of mid 20th century seem to become less popular in time as being monolithic, stand-alone buildings especially in city centres. A general criticism of the enclosed shopping developments refers to their physical isolation from the surrounding urban context (Maitland, 1990). They seem to destroy the natural

permeability of an urban block [FIGURE 1]. This set the agenda for a new generation centres in central area redevelopment projects, to bring back the essential relationship between the shopping mall and the city centre. This idea has been tackled by insulating the enclosed retail buildings into the surrounding texture of the city to enhance movement pattern and densities in shopping areas. Many urban design theorists, from Jane Jacobs to Leon Krier, have argued that a healthy urban fabric needs to be highly permeable). Hillier describes 'Disurbanism' as the breaking of the relation between buildings and public spaces by breaking the relation between scales of movement i.e. the breaking of the interface between the inhabitant and stranger (Hillier, 1996). In fact an integrated internal external movement system not only increase the accessibility and permeability of the internal shopping environment but also contributes to the formation of city environments, which are rich and successful in physical and social, as well as in commercial terms. Therefore, the evolution of shopping centre forms in the past few decades has focused on the way they interact with their surrounding urban context to make them more commercially and environmentally sustainable.



Source: Maitland, B.; (1995); Shopping Malls: Planning And Design

Figure 1
Modern shopping developments seem to destroy the natural permeability of an urban block.

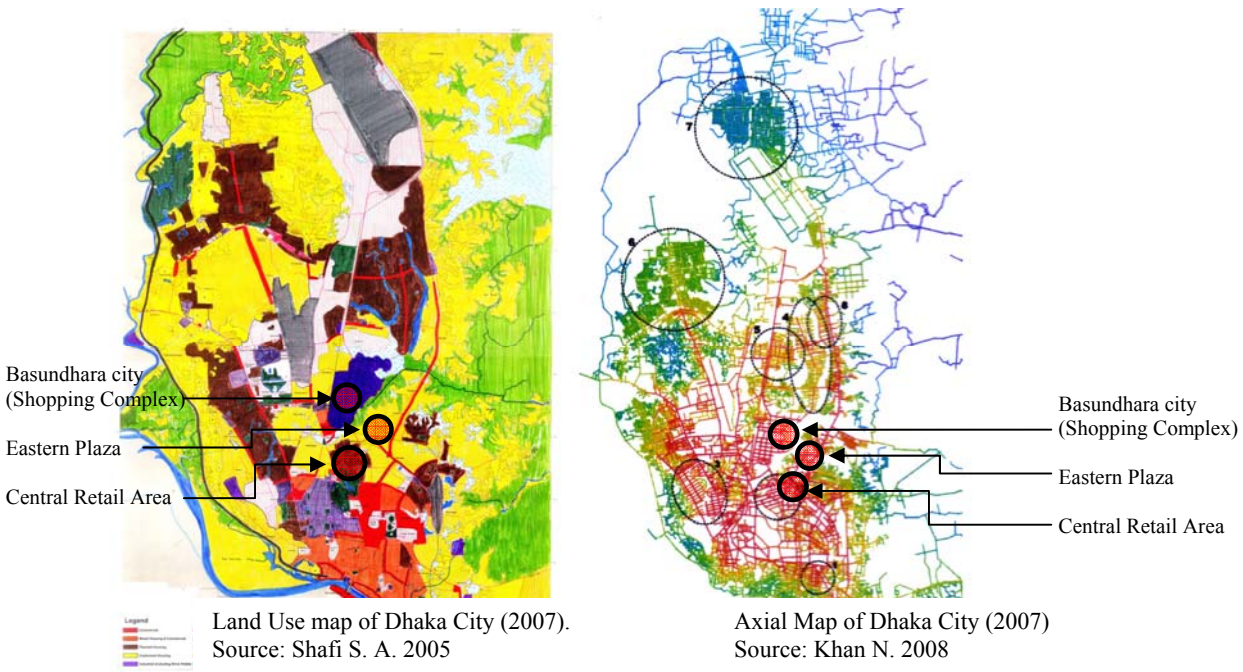
1.1 Retail Environment in a Developing Context

The situation is more critical in developing countries. The more rapidly the countries urbanise the more difficult becomes the question of provisioning the city. This problem is accentuated by virtue of the rapid growth of urban populations in developing countries. Rural to urban migration has continued to be a major contributor to urban growth, whilst the economics of Third World cities have failed to generate sufficient employment for their growing population. The 'surplus population' has been forced to generate its own employment in the so-called 'informal sector'. Among various types of occupational patterns in the informal sector, retailing activities as an entry point are attractive to immigrant groups, since they provide the opportunity of self employment with minimal capital investment and technical constraints (Paddison,et.al., 1990). These factors contribute to the extensive growth of informal hawking activities within and around urban retail

centres. Thus, retail areas in developing countries are characterized by varying group of retailers and consumers and involves a wide variety of institutions; which have, for research purposes, often been reduced to the 'formal' and 'informal' sectors. The spatial changes in the former one reflects the penetration of western consumer values; where as the informal sector represents a potential solution to unemployment in developing countries (Mortuza; 1987). Thus, in less-developed countries retail outlets with western characteristics seem to coexist uneasily alongside 'informal' traders. In general, 'place-specific' retail developments in various developing context appears to be more integrated with their urban context by accommodating formal and informal retail functions within a shopping development; where as, the imported ideas from the west fails to ensure an interactive retail environment as they tend to accommodate a specific economic class of retailer and consumer, hence, physically isolate themselves from a specific urban context (Paddison,et.al., 1990).

1.2 Trends in Retail Development in Dhaka

From this view point this research selects Dhaka a South Asian developing city - undergoing extensive urban growth since the last few decades. Dhaka the capital city of Bangladesh, has grown from a small Hindu trading centre to a metropolis. In different periods of history the city expanded due to significant developments in trade and commerce (Islam, 1972). This study specifically deals with the period after 1950's, since when Dhaka has experienced rapid and uncontrolled urbanization. This urban growth has been fuelled by the extensive rural to urban migration since Dhaka became the capital of independent Bangladesh in 1971. The landscape of the city has undergone change very rapidly with this economic and political change. With the expansion of the new upper and middle class residential areas the emerging retail areas tend to project themselves towards the northern part of the city [FIGURE 2]. The government sector could not cope with the increasing demand of urban growth hence an extensive growth of shopping centres started to develop through private initiative. In the absence of any effective retail planning theories they grew within a spontaneous process of growth. Along with the formal retail activities an extensive growth of informal hawkers has become a prominent feature in these retail centres.



Land Use map of Dhaka City (2007).
Source: Shafi S. A. 2005

Axial Map of Dhaka City (2007)
Source: Khan N. 2008

Figure 2
Global importance of the study areas in Dhaka City

On the contrary, the influence of western ideas has influenced the attitudes of policy makers towards the informal sector. In the last decade the private sector of development have undergone major changes in thought process, which in turn affected the design of modern shopping centres in Dhaka. The informal sector was perceived to be an inefficient, backward, irrational and frequently unhygienic form of economic activity. In policy terms, there were attempts in both central and local level of government, to restrict the penetration of the informal sector, specifically, to exclude it from the main commercial centres of cities. The recent and modern shopping developments are planned and follows the introvert planning concept which does not accommodate or invite the small scale retailers of informal sector [FIGURE 4]. Their planning principle do not consider local socio-economic factors, rather these new emerging shopping centres are replacing the existing format of shopping which has been developed spontaneously following the needs and wants of different socio-economic class of retailer and consumer within a process of rapid urbanization.

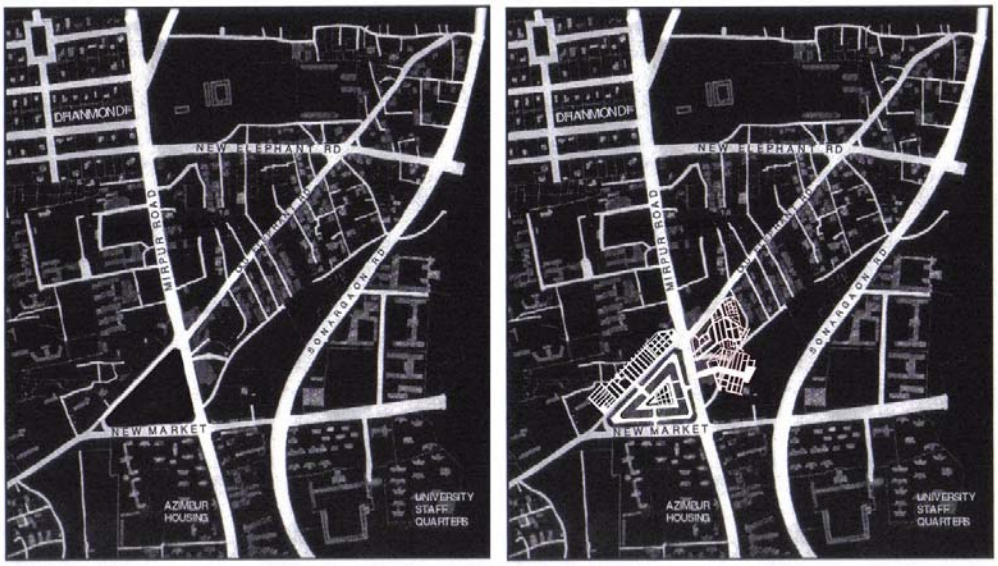
1.3 Selection of the Study Area and the Retail Developments under study

The previous discussion has shown that, the retail environment in Dhaka is characterised by both spontaneous [1] and modern planned retail developments. This research selects the spontaneously grown central retail area in Dhaka [FIGURE 2] as the study area, which had enough time to evolve and change. Thus it accommodates the most mature stage of spontaneous retail developments in the city. These spontaneous retail developments will enable us to study spatial pattern of retail in a more complex socio-economic context where dual nature of economic activities concentrate in a single platform. This study will lead us to a new level of understanding - how this unplanned growth process and the emerging spatial patterns are structuring themselves in the larger urban environment.

On the other hand, the study of two planned retail developments in close proximity to the central area, will allow us to investigate how in the same developing context, the modernizing effect shapes and changes the spatial structure of retail developments. A comparative analysis between these opposing nature of spatial growth patterns will enable us to identify whether the spatial logic of concentration of formal and informal retail activities are an outcome of a benign or exploitative socio-economic behavior between the two opposing economic sector of the urban retail environment.

Before entering into the main analytical part of the study, a brief description of the study area and the selected retail developments are given here. The central area has the advantage of being located at the converging section of Mirpur road and New Elephant road in the middle of Azimpur housing estate, Nilkhet University quarters, Dhanmandi upper class residential area and the New Market. The locational advantage of the central retail area is further aided by the surrounding residential and institutional land use pattern. Among the spontaneous retail developments this study selects New market (1953), Gausia market (1965), Chadni Chawk (1978) and New Super market (1992) – each represents different period of growth. Gausia market and Chadni chawk market are two extreme examples of spontaneous retail growth which are constantly changing and shaping within a process of rapid urbanization. Though developed as planned developments through government initiative; New market and New Super market has transformed into an unplanned physical structure (as defined earlier) with the growing needs and wants of different user group. Their physical growth [FIGURE 3] is extremely flexible following the change in the surrounding land use pattern and the changing plot boundary due to division or fragmentation of land, to cope with the constant change in land value in the central part of the city. They develop or transform into a deformed or complex grid pattern, without any concern for tenant mix pattern or any other retail planning theories or regulations found in the planned centres in the developed countries.

Spontaneous Retail Developments Showing Hawkers' accumulation and variety of tenant mix within the buildings.



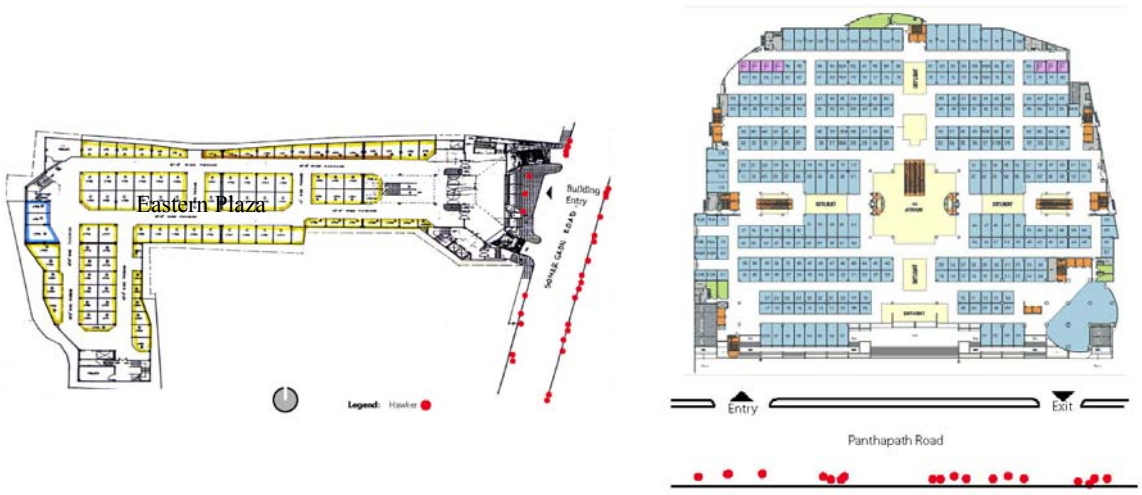
Year 1956 (before development) **Year 2007** (after development)

Spontaneous retail developments insulate themselves into the surrounding urban context

FIGURE 3

Spontaneous Retail Developments in Central Retail Area in Dhaka

Two modern and planned developments analysed here are – Eastern Plaza (1990's) and Basundhara City Shopping Complex (2004), located respectively on Sonargaon Rd. and Pantapath Rd. near the new CBD area of Kawran Bazzar and also surrounded by the upper and middle class residential areas like Dhanmandi, Rajabazar, Kalabagan, Green Rd. etc. Compared to the spontaneous growth patterns, these planned developments are huge in scale. They represent a planned circulation layout in grid-iron pattern [FIGURE 4]. Different floor level of these retail centres accommodate individual retail types instead of a mixed tenant mix pattern as seen in the spontaneous retail developments. However, this study only considers the ground floor level of the spontaneous and planned retail developments – as the formal retailers and the informal hawkers seems to concentrate only at this level of the buildings due to their immediate accessibility from the surrounding urban context.



- Eastern Plaza Shopping Center

Basundhara City Shopping Complex

FIGURE 4

Modern enclosed shopping centers do not offer variety of tenant mix and hawkers in a single floor level

The study is performed in Three different sections: First, a questionnaire survey is performed to understand the social logic of the spatial patterns of formal and informal retail developments; Second, a syntactic analysis of these spatial patterns is done to identify the spatial properties of space configuration of the systems; and Third, a movement observation is done to identify the movement pattern in two different spatial patterns of retail developments. Through an understanding of the relationship among the socio economic and spatial behavior and the configurational characteristics of the spatial developments, this study will enable us to understand – why and how retail developments integrate or segregate their spatial structure from the surrounding urban context.

2. Socio economic relation to spatial patterns

Local socio-cultural and economic forces has interpreted the dual nature of spontaneous retail growth and 'modernizing' processes in different ways in different developing environment.

Therefore, an understanding of retailing in developing countries from a spatial point of view necessities an appreciation of the specific social environment. On the basis of an elaborate questionnaire survey and interviews with the various consumers, formal retailer and informal hawker group, the recurrent pattern of socio-economic behavior and the spatial outcome of the process has been investigated and summarized in this section.

In general, a lower disposable income of the consumers is reflected in their preference for variety of items and greater bargaining power. This has resulted in a wide range of tenant mix and the consequent variety in shop size to accommodate different economic class of retailer. Their specific demand for generative business [2] has attracted shared business within and between different shopping developments in the same vicinity. Consumer's preference for this functional link has resulted in cluster growth of shopping centres and encouraged spatial linkage among them [FIGURE 5]. Moreover, the variety in travel mode [3] has enhanced this cluster growth of shopping centres in the residential areas where consumer shopping trips are also very frequent. The hawkers take benefit of this spatial pattern by locating themselves along these circulation routes linking the retail centres in the central area [FIGURE 5].

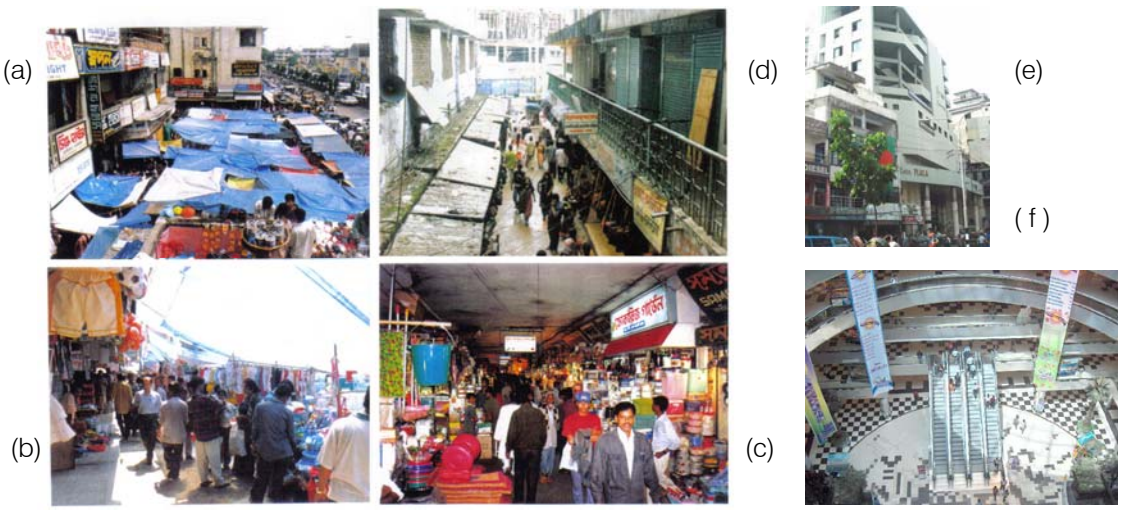


Figure 5
(a) Static hawkers at the entry yard of Gausia Market
(b) Hawkers along thefootpath and street front shops of Gausia Market
(c) Hawkers along both sides of internal circulation corridor of New Super Market
(d) Open to sky shopping corridors linking two markets in central retail area
(e) Basundhara city central mall (interior)
(f) Eastern plaza entry from outside.

Varied socio-economic class of hawkers characterize the shopping developments in the central area. In general 80% (Hossain, 2001) of the hawkers have migrated to Dhaka to secure a job in the informal sector. These migrant hawkers with lower capital investment and financial ability prefer to concentrate within and around the shopping areas where they can get easy reach to the general shoppers. These hawkers prefer to locate themselves at the entry points, along the footpaths facing the streets of the market fronts to attract moving people [FIGURE 3]. These accessible locations also permit them easy escape during police raids [4] against illegal hawking. The hawkers employed by the small entrepreneurs occupy larger open spaces near the entry point [FIGURE 3 & 5]. They cluster in a group of 10 to 20, in accessible locations due to their selling strategy based on a pseudo competition within the group.

The variety in tenant mix, no fixed module in shop size and extensive growth of shops is further enhanced by the various retailers rent paying ability to possess a shop within a spontaneous shopping development. However the retailer's ability to acquire a shop depends on their individual economic status, rather depending on the retail type (Simmons and Jones, 1990) as in a planned centre in developed countries. This results in an extensive growth of individual shop units with a varying size range. Thus, a compact grid pattern of internal layout to accommodate more shop

units in a smaller built area is a common feature of these developments. This phenomenon has increased the building depth from outside. To overcome this spatial problem, the retailers incorporate multiple entryways to offer multiple accessibility to the shoppers. Moreover, the lower economic class of informal retailers, possessing a low rent shop at the deeper part of the buildings, employ hawkers at the market fronts where shopper accumulation is much higher. However, these hawkers with very low capital investment failed to generate profitable business, hence they advertise for these informal retailers inside, who used to pay illegal tax to the police to allow these hawkers within the shopping areas. The hawkers benefit by offering variety of items to the general shoppers by selling their own goods along with their employers. This mutual selling strategy allows the informal hawkers and retailers to accommodate themselves with the formal retailers in the same shopping precincts.

The survey findings reveals the fact that, the middle and lower income retailers in the spontaneous shopping developments are taking advantage by employing hawkers and the hawker's benefit financially by securing a job with a low capital investment. This fact points to the benign dependency relationship between the formal and informal retailing sectors from a socio-economic viewpoint. This phemenon is strongly reflected through a co-operative space mechanism within and around the spontaneous shopping developments in Dhaka, Here different retail activities - formal and informal, are organizing themselves within the same shopping precincts. This has resulted in a sustainable urban environment by channeling higher consumer flow and accumulating formal and informal retailers and hawkers in the central area all day long.

On the contrary, the recent trend of modern and enclosed shopping centre development in Dhaka, attempt to imitate the internal shopping environment of the developed countries [FIGURE 5]. These large scale developments do not follow the attraction theories of magnet stores or tenant mix policies either, which is a prime concern for a successful shopping development from economic point of view. Extensive number of fixed and similar shop size, grouping or cluster of retail types in different floor levels fails to meet different class of consumers shopping preference as explained in the previous section. The long linear corridors with limited accessibility and less variety in tenant mix pattern [FIGURE 4], fails to generate customers in the deeper part of the building. These enclosed centres though being located within the city centre, attempt to isolate their spatial structure from the surrounding urban environment. To ensure a hawker free secure environment they provide limited entry which do not attract or allow hawking activities within or around them [FIGURE 4]. By ignoring the local socio-economic issues these modern retail developments fails to generate sufficient employment opportunity for all class of retailers and hawkers within a mutual space mechanism.

3. Syntactic properties of the retail developments

However the social analysis has revealed the fact that the socio-spatial relationship among various retailer and hawker group has been enhanced by creating accessible spaces within and around a spontaneous shopping development. Therefore, an important aspect of the spatial properties of retail developments in Dhaka seems to be their spatial nature of accessibility as an independent building and as an urban system. The spatial structure of the spontaneous and modern shopping developments in Dhaka has been analysed by using various Space Syntax techniques of spatial analysis. The analysis has two parts; First: the actual pattern of entryways and integration core of the retail developments has been identified [TABLE 1], and Second; their spatial relationship with the surrounding urban context has been investigated [TABLE 2 and 3] to see whether the internal structure of these shopping developments as a whole creates an integrated or segregated pedestrian network with the surrounding urban context. The study attempts to identify whether the social nature of space preference has any relation to the spatial properties of the retail developments.

Syntactic Measures	Basundhara City	Eastern Plaza	Gausia Market	Chadni Chawk Market	New super Market	New Market
Global Integration Mean - R= n	1.4997	1.2658	1.6500	2.093	2.534	1.922
Global Integration Max - R= n	2.4724	2.3537	2.9300	4.54	7.833	3.523
Local Integration Mean - R= 3	1.8472	1.3579	2.7630	2.779	3.264	3.425
Local Integration Max - R= 3	2.8379	2.3537	4.5050	5.382	8.715	6.214
Connectivity Mean - CN	4.8085	2.8000	5.3430	5.795	6.098	9.053
Connectivity Max - CN	13	6	13	17	26	34
Intelligibility R^ R=n -CN	0.8010	0.8809	0.5690	0.901	0.718	0.389
Local Global Relationship R^ R=n - R=3	0.9276	0.9673	0.6040	0.867	0.606	0.72

Table 1

Syntactic measures of the modern and spontaneous retail developments as an independent building

	Global Integration Mean R=n	Global Integration Max R=n	Local Integration Mean R=3	Local Integration Max R=3	Connectivity Mean CN	Connectivity Max CN	Intelligibility R^ R=n -CN	Local Global Relationshp R^ R=n - R=3
Local urban context	1.4349	2.9199	1.8567	2.9199	2.7042	20	0.443	0.8241
Local urban Context including Internal Movement system	1.9703	4.3435	2.5658	4.3435	4.0312	33	0.5115	0.8397

Table 2

Syntactic measures of the local urban system - analysed independently and with the internal movement systems of the spontaneous retail developments in Dhaka.

	Global Integration Mean R=n	Global Integration Max R=n	Local Integration Mean R=3	Local Integration Max R=3	Connectivity Mean CN	Connectivity Max CN	Intelligibility R^ R=n -CN	Local Global Relationship R^ R=n - R=3
Local urban context	1.0276	1.822	1.4743	3.3061	2.6742	20	0.2116	0.6988
Local urban context including Internal Movement network	0.9797	1.7457	1.5066	3.3321	2.867	20	0.1005	0.485

Table 3

Syntactic measures of the local urban system - analysed independently and with the internal movement systems of the modern and planned retail development in Dhaka.

3.1 Retail developments as an independent building structure

In the spontaneous retail developments the key globally oriented routes i.e. the shallowest spaces feature as the accessible spaces [FIGURE 6] within the internal spatial structure of the developments. Thus the spontaneous retail developments reinstate Peponis' proposition of strong association between structure of accessibility and integration of an area (Peponis; 1989). Such routes could be well expected to perform directly the complex role of interfacing the regular shoppers and strangers, i.e. channeling movement towards the internal structures from their broader surroundings. In reality, a higher concentration of the hawkers near these accessible entry points is a natural outcome of higher consumer flow through these routes.

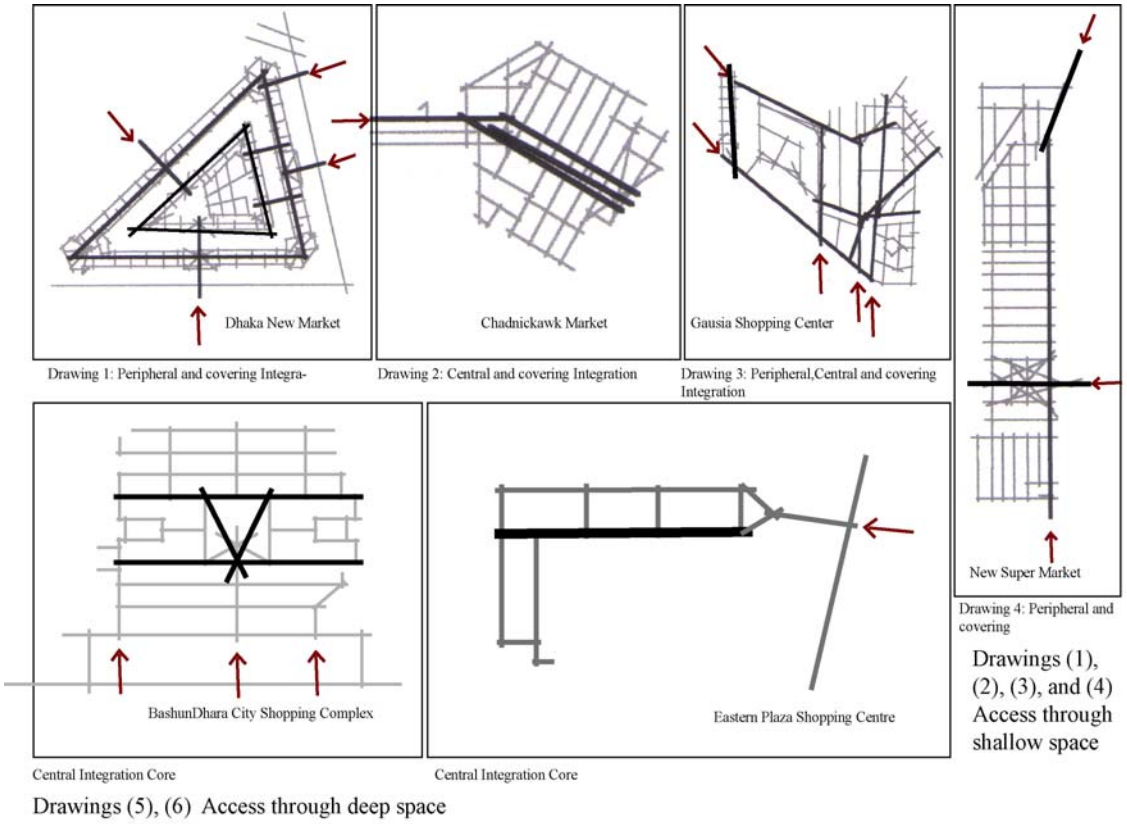


Figure 6

Different types of integration cores and pattern of accessibility in the Retail developments under study

Along with articulation, the pattern of shallow spaces within the retail developments and their conformity to the surrounding urban fabric seems important. Different patterns of integration core has been identified through this study [FIGURE 6]. Gausia Shopping Centre shows a pattern of integration rather like a small scale version of the local and global urban context of the city as a whole: integrating axes link edge to centre in different directions. This type of 'peripheral, central and covering integration core' makes the integrated internal structure into an intelligible urban whole irrespective of the extreme deformity of the internal grid pattern. In Dhaka New Market, New Super Market and Chadnichawk Market, the integrated axes are more peripheral and central, so that integration and segregation are more or less biased on the outer and central zone of a circulation system or on a side of a linear system. In this type of a system some parts of the internal system do not bear configurational similarities with the external context. However, the hawkers tend to occupy the spaces along the integration core in the spontaneous retail developments and those parts of a building which bear a reasonable spatial similarities with their local urban pattern.

The internal spatial structure of the modern planned shopping developments do not appear to derive from their local urban pattern at all. Their integration cores are more peripheral in Eastern Plaza Shopping Development and central in Basundhara City Shopping Mall– which do not connect the rest of the internal space system from edge to centre in various directions. This introvert nature of internal integration core represent a segregated internal external relationship with the surrounding urban context instead of their very regular grid-iron morphology. Moreover, in the planned shopping developments, the pattern of integration core do not associate with the structure of accessibility i.e. they provide access to the building through deeper spaces of the internal spatial system [FIGURE 6].

3.2 Retail developments as an integrated urban spatial system

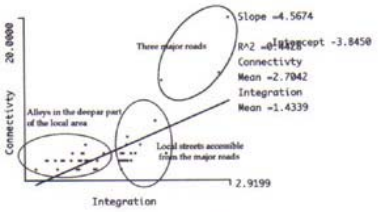
The measure of 'connectivity' in the space syntax analysis indicates the permeability of an urban system. Connectivity of a space literally means how many spaces intersect with it. Here the linkage or circulation routes among the retail centres in the study area have been considered along with those axes which only form a part of the local context [FIGURE 7]. However, in order to understand the actual connectivity, i.e. permeability, of the segments or routes, which form a part of the local spatial system, the mean connectivity of the two systems has been compared. The mean connectivity of the local urban network including the internal systems of the spontaneous retail developments remain high at 4.0312; where as the urban context itself represents a lower value of 2.7042 [TABLE 2]. Furthermore the maximum connectivity of the two systems respectively varies between 33 and 20. All this suggests that, the local urban system including the internal circulation network of the retail buildings has a significantly higher average connectivity. Thus the central retail area reveals a more permeable urban system after the spontaneous growth of the retail centres.

The relationships between the global and local syntactic measures are considered here which seems necessary for an urban system to be legible. Thus the 'intelligibility' and local global integration pattern has been considered as well. The local urban system including the internal movement system shows higher values in all measures of the analysis [TABLE 2]. A higher intelligibility of the urban system as a whole indicates an increased permeability within a shallow space system. In fact, the internally integrated circulation routes are directly accessible from the integration core of the external system i.e. the surrounding major roads in the local and global urban context. The intelligibility and local global scatter grams shows that [FIGURE 7], the internal axes forming a part of the local urban system coincide with the clusters of the space hierarchy of the external urban system. Thus the morphological similarities of the external and internal (only those axes forming a part of the local context) movement system have also contributed to an intelligible urban system. The fragmented nature of the scatter grams of the building systems becomes much more linear and compact against the regression line of the scatter grams representing the buildings in the context. This indicates that an increased connectivity through the retail buildings has resulted in a better integrated structure of the study area. Therefore, moving around the shopping precinct one can perceive the layout as whole from any locally significant space.

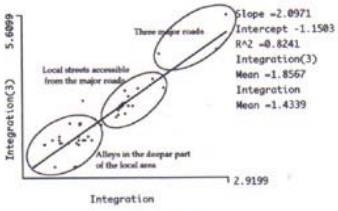
The spatial integrity and continuity of the internal and external space configuration have in fact strongly guided the social nature of space organization within the shopping precinct. It is evident from the social survey that, the integrated urban streets naturally offer an integrated location to the hawkers. In addition, the integrity of the internally accessible routes with that of the external movement system has specifically organized the hawker's zone near the entry points of the buildings and the linkage routes among different retail developments. This spontaneous nature of space organization has in fact contributed to a symbiotic relationship between the formal and informal sector of retail activities in the central retail area in Dhaka.

Global Integration

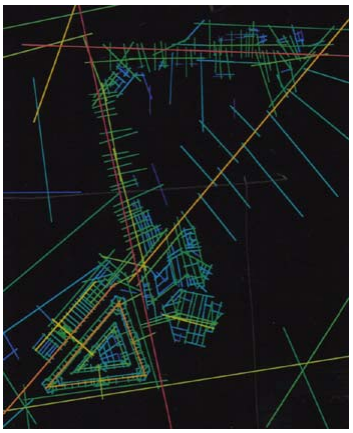
Local Integration



Scattergram showing Intelligibility of the local urban grid

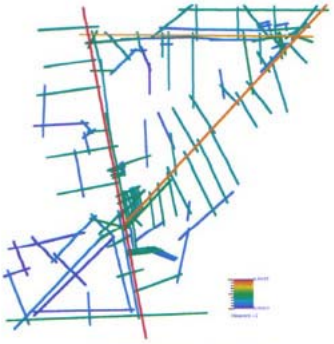


Scattergram showing local global relationship of the local urban grid

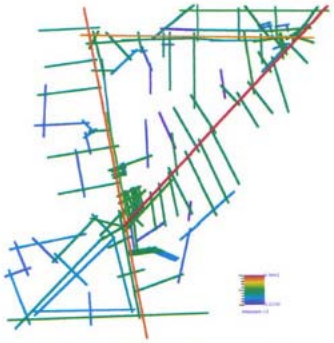


Retail Centres within the Global Urban Context

← 1. Syntactic structure of Urban Context



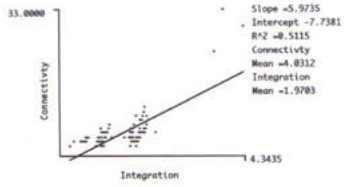
Global Integration R=n



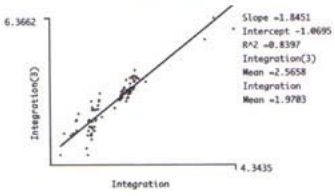
Local Integration R=3

← 2. Syntactic structure of the retail development within the Context

All movement flow per 30 minutes through circulation space in the study areas. (Dig 1-4)

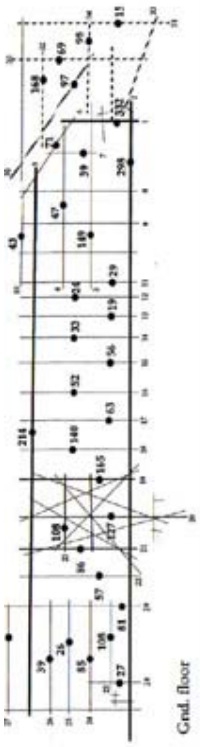


Scattergram showing Intelligibility of the system



Scattergram showing Local Global relationship of the system

Diagram 4



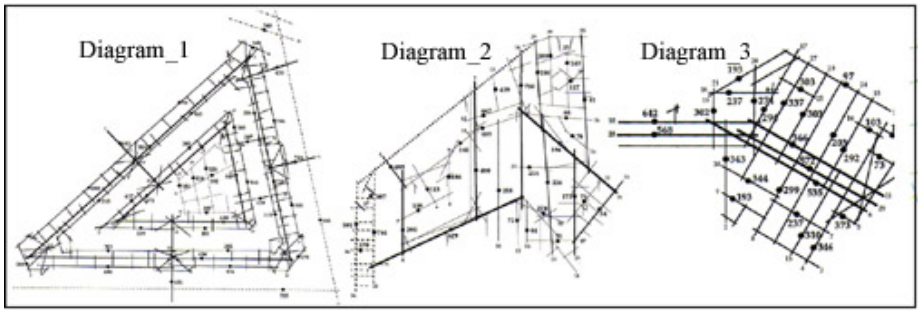
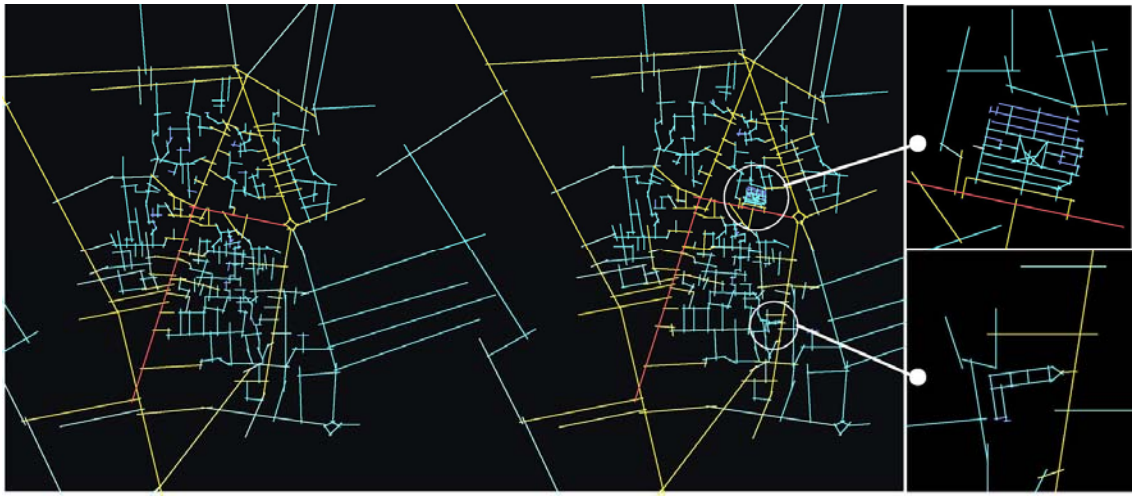


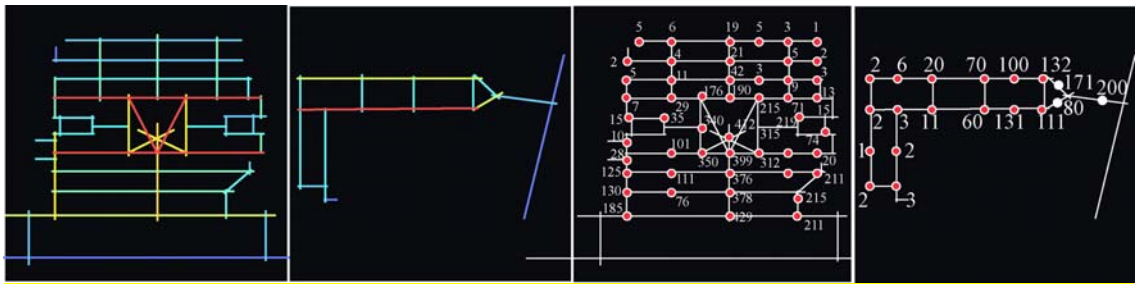
Figure 7

Syntactic structure and movement pattern in the spontaneous retail Developments as an urban system

On the contrary the modern enclosed developments stand as an independent building with lower mean connectivity and hence they are less integrated with the local urban system. These modern developments do not show a significant increase in mean connectivity level when considered as an urban system [TABLE 3]. This represents the fact that, these planned developments fails to generate spatially attractive locations i.e. externally integrated spaces to attract informal hawkers within and around shopping precincts [FIGURE 8]. These internally segregated spatial structure represents the exploitative attitude of the formal retailer group associated with the private developers, to exclude the informal retail sector from the formal sector.



· Syntactic structure of the Urban Context · Syntactic structure of the modern retail developments within the context



· Syntactic structure of Basundhara city and Eastern plaza as an independent building

· All movement flow per 30 minutes through circulation space within the buildings.

Figure 8

Syntactic structure and movement pattern in the modern retail developments as an urban system

The local urban system including the internal circulation corridors do not show higher values in all levels of the analysis [TABLE 3]. In spite of a higher intelligibility and local global relationship of the local urban system the modern developments do not represent a permeable urban movement network due to their lower intelligibility and local global relationship when embedded in the surrounding urban grid. This is because their internal spatial structure substantially detracts from their local urban structure where the economy of space mechanism does not exist at all. Thus, to some extent, the hawkers tend to gather at the street levels facing the shopping developments.

4. Socio-Spatial Nature of Movement

The previous discussion has shown the variation and diversity in the configurational characteristics of the spontaneous and planned shopping developments in Dhaka. This section attempts to investigate the spatial nature of movement within the developments. Irrespective of any retail planning theory, the way in which configuration and social nature of space preference affect patterns of movement is the ultimate focus of this part of the study.

Data on movement behavior was gathered by direct observation within the retail centers in Dhaka. A 'gate observation' survey of movement flow (of different sex and age group of consumers and hawkers) through the circulation spaces was carried out. A total of 30 minute's count was obtained at each gate. The following sections give a brief overview of all movement flow rate through the circulation spaces in different retail centers [FIGURE 7 & 8].

4.1 Movement Patterns Within the Retail Developments

Movement patterns in Dhaka New Market gradually decreases from the entryways to the inner mall spaces and finally to the covered corridor spaces. The interesting issue is that the entryways and open malls accommodating hawkers secure higher movement rates. Thus hawkers are taking advantage of movement economy as paths of through movement of different consumer group. In New Super Market movement flows suddenly drop from the entryways and enclosed malls to other spaces within the market. Surprisingly the hawkers zone show a very low rate of movement in their planned location facing Mirpur road than the internal mall linking the interior to the surrounding urban context. FIGURE 7 shows high levels of movement flow along the entryways & globally integrated spaces within Gausia market. Here, the hawker's plaza near the entry from Mirpur road and the circulation spaces along the market front footpaths occupied by the hawkers and informal retailers, represent highest movement rates. A similar movement pattern is evident in Chadni Chawk market, where movement flow gradually decreases from the open mall to the inner circulation spaces. Though developed within a planned process, Eastern Plaza Shopping Centre and Basundhara Shopping Complex show a drastic fall in movement rate from the entryways and central atrium spaces towards the deeper parts of the buildings [FIGURE 8].

It is clear from the study that, the pattern of movement in different spontaneous retail centers is dependent on the depth of spaces from the outside of the development. This suggests that, movement gradually decreases from the circulation routes providing access from the surrounding urban grid to the inner spaces of a retail centre. Added to these spatial attributes, shopper's density and overall flow rate show a strong bias towards hawker's zone in different strategic locations in different centers. However, to ensure a clear understanding of the relationship between socio spatial nature of retail space organization and the spatial behavior pattern, it seems logically necessary to investigate the relation between syntactic properties of space configurations and observed pattern of movement in different retail centres.

4.2 The Effect of Configuration on Movement Pattern and Densities

Space syntax research has shown that the association between syntactic properties and movement is the prime determinant of urban spatial form. The linearity of the relation between the two becomes a significant aspect of movement economy. However, the spatial analysis in the previous section has revealed the importance of global and local syntactic measures in morphologically different retail buildings. Therefore, the correlation between global and local integration and connectivity of the building configurations as independent and as urban systems have been correlated here with the movement rates in the six retail centres under study.

TABLE 4 shows that, movement in New Market is controlled significantly by the global integration pattern of the spatial structure. Local measure like connectivity has less impact in channeling movement patterns as an independent building system. New Super Market failed to generate customer flow through local or global characteristics of the building system. Movement flows do not bear any significant correspondence with the integrated or segregated locations within the development with a lower correlation value between the syntactic properties and movement flow. However, as a local urban system the building layout seems to control all movement by showing a higher correlation value. The correlation values in TABLE 4 show a drastic increase in natural movement flow in Gausia Market and Chadni Chawk Market when embedded in their local urban grid. On the contrary Basundhara City and Eastern Plaza resembles a lower correlation between spatial properties and movement flow as an urban system. However, the internal spatial structure seems to control movement density to some extent due to their strong gridiron pattern of space configuration.

Syntactic Measures	Basundhara City	Eastern Plaza	Gausia Market	Chadni Chawk Market	New super Market	New Market
Correlation of Global Integration & all movement **(Independent Building) R^R=n- all mov.**	.399	.163	.288	.473	.174	.423
Correlation of Global Integration & all movement **(Building in Local Urban Context) R^R=n- all mov.**	.236	.117	.609	.683	.287	.638
Correlation of Local Integration & all movement **(Independent Building) R^R=3- all mov.**	.321	.112	.199	.336	.094	.325
Correlation of Local Integration & all movement **(Building in Local Urban Context) R^R=n- all mov.**	.271	.093	.318	.407	.332	.443
Correlation of Connectivity & all movement **(Independent Building) R^CN- all mov.**	.221	.213	.191	.264	.217	.251
Correlation of Connectivity & all movement **(Building in Local Urban Context) R^CN- all mov.**	.196	.177	.315	.277	.341	.287

Table 4

Correlation between different Syntactic measures of the spontaneous and modern planned retail developments and observed all movement flows (per 30 minuites) -as an independent building and embedded in their local urban context

The research findings suggest that, an externally intelligible retail building seems to be a better predictor of consumer movement than an internally intelligible spatial structure. This supports the previous argument that spontaneous and unplanned retail developments better function as an integral part of the urban system rather like an isolated building of the modern and planned shopping developments.

5. Discussions and Conclusions

In Dhaka, the spontaneous retail developments evolve as a group of small scale buildings and tend to insulate their spatial structure into the surrounding urban context - which is visually unified as one expression. On the contrary, the modern shopping developments here stands alone while disregarding their urban context. Today, internationally the debate is no more about the open or enclosed but relating to the nature of pedestrian circulation space, connecting the different accommodation of shops, cafes and other related uses through open or covered streets of the interior to the surrounding public network. However, this socio-spatial sustainability has been successfully adopted in the spontaneous shopping developments in Dhaka – by accommodating formal and informal retail activities within the same precinct.

In a developing context, to ensure a sustainable urban retail environment, this paper has addressed the following urban design issues; First' the retail development should bring a variety of uses into a contiguous relationship - to enhance interaction and overlapping of retail activities through spaces; Second, the network of pedestrian circulation spaces of the development should form an integral part of the surrounding urban network to encourage the dependency relationship among various user group representing two opposing nature of the economy – i.e. formal and informal.

From the preceding analysis that informal sector do not operate in separate economic circuits: indeed they are undoubtedly interrelated with the formal sector (although the spatial form varies in different socio economic context) - it can be urged that, informal sector has the potential to play an important role both in providing economic feasibility and impart spatial integrity to the modern shopping developments when embedded in their surrounding urban context. A spatially sustainable urban retail development could be ensured through a benign dependency relationship between the formal and informal sector characterising a developing economy.

Finally, it is hard to think about changes to any spatial developments in Dhaka without mentioning its most paradigmatic urban design project- Louis Kahn's monumental Capital Complex at Sherebanglanagar. Undoubtedly the relation of the parliament building and the open plaza indicates an enhancement of the public realm for any urban design scheme. In reality, the open plaza is encouraging informal hawking activities to facilitate the public gathering; i.e. people from all levels of the society who are the frequent viewers of this legendary building. Lessons from Khan's public plaza, i.e. to address peoples participation in a conceptually restricted and secured environment could be a modern interpretation of creating accessible hence, sustainable urban retail development for all - which will be successful in economic and spatial point of view. The place-specific issues coupled with modernity are indeed timeless and can steer enduring design decisions for the future urban retail developments in Dhaka and other developing cities of the world.

Notes

1 The 50's so called planned retail developments through government initiative bear planned physical pattern in terms of their physical layout, but they do not have any control over tenant mix policy, or location and clustering of different retail functions. In fact these retail developments have grown and changed within a natural growth process with the growing needs and wants of the formal and informal sector of retailing. The more spontaneous developments do not follow any planning regulations in terms of either their physical layout or any other aspects of retail planning. From this view point the research defines both types of shopping centres as spontaneous retail development.

2 The selection of 'retail locations' by Nelson (1958) identifies generative , shared and suscipient business types based on empirical research on consumers decision making process. His defines three business types as follows: Generative business – sales secure by the store itself due to its own demand Shared business – sales secured by the store as a result of the generative power of the neighboring shops i.e. these stores act as a supportive function to the demand oriented generative retail types, and Suscipient business – shoppers are attracted coincidentally which increase impulse buying within a shopping centre.

3 Instead of a significant percentage of consumers car ownership pattern, majority (specially female) preffers to travel by 'rickshaw' and 'auto-rickshaw' (a three wheeled motorized vehicle) to travel short distance as shopping centres are growing within the residential areas and avoid traffic congestion in the central retail area.

4 An interview with the hawkers has shown that, it has become a common practice in retail areas in Dhaka to make periodic attempts towards hawker control via police raids, as informal hawking continue unabated in an almost entirely non-regulated way. This phenomenon is very usual in most developing countries Dewar & Watson (1990).

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