THE DEVELOPMENT OF NEIGHBOURHOOD CENTRES IN SINGAPORE: FROM TRADITIONAL TO CLUSTER SHOPPING

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ABSTRACT

Housing and Development Board (HDB) neighbourhood centres have evolved over the past four decades. These neighbourhood centres mainly provide for the daily living needs of the households in a housing estate i.e., "convenience goods", such as groceries, drugs, hardware and personal services. This study aims to provide an insight into the development of the neighbourhood centres in Singapore over the past four decades, as well as compare the shoppers' preferences of three types of neighbourhood centres, namely; the Traditional Neighbourhood Centres, the New Generation Neighbourhood Complexes and the Neighbourhood Cluster Shops.

The findings show that most shoppers prefer the Traditional Neighbourhood Centres than the other two types of neighbourhood centres. This is due to the wider variety of goods and services and better travel factors offered by the Traditional Neighbourhood Centres. These findings have significant implications for the planning of future neighbourhood centres in Singapore.

Keywords: Development, neighbourhood centre, retail, shopping, Singapore

INTRODUCTION

Singapore is a city state with a land area of about 660 square kilometres. From a small trading settlement of a few hundred people in the early 1820s, it has grown into a modern

metropolis of over 4.1 million people today. With such a high population density on limited land resources, proper planning is essential.

During the post-war period, an increase in the population growth resulted in overcrowding and congestion in the Central Area of Singapore. Therefore, in 1952, the Singapore Improvement Trust (SIT) was formed to take charge of public housing, planning and development control. On 1 Feb 1960, the Housing Development Board (HDB), a statutory board of the Ministry of National Development, was formed to take over the work of the SIT. Its primary role is to plan and develop affordable, quality public housing and related facilities and low-cost housing for Singapore citizens. In order to effectively achieve its role, the neighbourhood concept, which emphasized self-sufficiency, was adopted by HDB as a basic guiding principle.

In the early years of Singapore's development, retailing was characterised by unplanned, spatially dispersed shophouses operated by small-scale retailers in the central area. However, in the 1970s and 1980s, due to rising population and congestion in the central area, the government took on a decentralisation and redistribution of population policy, following the concept of the British New Town Programme. The decentralisation of retail facilities was based on well-established principles of intra-urban retail hierarchy, where local town centres, neighbourhood centres and precinct shops provided convenience goods and the city centre provided most of the shopping and comparison goods. Currently, the retail hierarchy in Singapore comprises retail centres at the city centre, regional centre, subregional centre/new town centres, neighbourhood centre and precinct shop (Sim and Goh, 1995).

Neighbourhood Centre is defined by Northern (1984) as:
> '…is usually based on a supermarket and covers a wide range of convenience goods as well as some personal services such as laundry, dry cleaning and shoe repairs. It normally has an area of about $5000m^2$ ($50,000$ ft^2) and serves a population of five to ten thousand people. Its catchment area radius does not normally exceed five miles'

The neighbourhood centre provides a range of convenience goods. These are goods that are bought regularly, such as groceries, newspaper, cleaning and toiletry materials and personal services. Neighbourhood centre is normally planned within residential areas, made within convenient and accessible distance to local catchment population, where it could expect to derive 80% – 90% of its shoppers (Northern,1984).

Over the past four decades, the landscape of neighbourhood centres in Singapore has evolved from that of Traditional Neighbourhood Centres (TNCs) to New Generation Neighbourhood Complexes (NGNCs) and to Neighbourhood Cluster Shops (NCSs).

TRADITIONAL NEIGHBOURHOOD CENTRES (TNC)

Since the 1970s, the development of first few satellite towns witnessed the emerging of planned retail facilities in new towns which aimed to provide residents with self-sufficient daily and essential needs. This brought about the development of Traditional Neighbourhood Centres (TNCs) in housing estates such as Toa Payoh, Queenstown, Ang Mo Kio, Bedok (Refer to Plate 1). These TNCs comprise an open surface carparks, wet markets, hawker centres with a mixture of coffee shops, provision shops, laundry shops, stationery shops, clinics at the bottom or void deck of HDB blocks and are within short convenient walking distances from surrounding blocks.

Although these TNCs were successful at the initial stage of their development, the emergence of new private retail centres, as well as problems such as noise, heat, fume, and nuisances arising from the business operations of these TNCs led to their loss of favourability among the shoppers, in particular, the younger ones. This led to the next stage of neighbourhood centre development in Singapore.

Plate 1
EXAMPLE OF TRADITIONAL NEIGHBOURHOOD CENTRES IN BEDOK

NEW GENERATION NEIGHBOURHOOD COMPLEXES (NGNC)

The New Generation Neighbourhood Complexes (NGNCs) were first introduced in 1991 in view of the increasing living standards and affluence of the people, as well as a solution to the problems caused by the TNCs. NGNC is an independent block housing all retail and service facilities, usually located within a radius of five miles, serving surrounding residential flats. It attempts to provide a one-stop shopping experience to residents (Refer to Plate 2).

These complexes are designed similarly to privately developed shopping centres. It also comes with a covered car porch area for picking and alighting of passengers and most of these complexes are also fully air-conditioned. It usually has two levels with wet market, fast food restaurants like McDonalds, Kentucky Fried Chicken (KFC), convenient stores at ground floor and clinics, music centres, electrical stores and food courts at the second floor.

Plate 2
EXAMPLE OF NEW GENERATION NEIGHBOURHOOD COMPLEXES (RIVERVALE PLAZA)

NEIGHBOURHOOD CLUSTER SHOPS (NCS)

The NGNCs provide a certain degree of convenience of one–stop shopping experience to the residents around the area. However, it fails to take into account the travel distance by the residents, as they no longer have the luxury of being within walking distance to the shops, except for residents staying near to these complexes.

Residents staying at the outer fringe of the catchment area will have to take a bus or LRT to reach the complex. The travel factor became an important aspect, which led to the next concept of neighbourhood centres in newer estates. They are known as Neighbourhood Cluster Shops (Refer to Plates 3)

These shops are built below or linked to multi-storey carparks within the housing estates. The catchment areas are usually residents staying within walking distances from the NCS. Each cluster consists of an eating house, a minimart, a few shoplets (three to five numbers) for clinic, salons, and other convenient shops (for example, hardware and stationery shops).

Plate 3
EXAMPLE OF NEIGHBOURHOOD CLUSTER SHOPS IN PUNGGOL

In the light of the evolution of neighbourhood centres in Singapore, this study attempts to examine shoppers' perceptions of the different types of neighbourhood centres, as well as to evaluate the determinants of shoppers' preference of the different types of neighbourhood centres. The findings of the study will have significant implications for town planners, estate managers, as well as for the future planning of neighbourhood centres in Singapore.

LITERATURE REVIEW

Besides studies by researchers, such as those by Northern (1984) and Sim and Goh (1995), the review of the vast literature on shopping destination choice shows an apparent gap in the understanding of the neighbourhood centre in the retail marketing system. The majority of the studies have looked at the shopping centres and retail stores in the city centre, regional centre and town centre (McGoldrick and Thomson, 1992; Ibrahim and McGoldrick, 2003).

In one of the more recent studies, Ibrahim and McGoldrick (2003) summarizes the factors affecting the choice of shopping centres. These include the shopping centre characteristics (for example, variety of goods and services, number of stores, atmosphere, etc.), travel factors (for example, ease of travel, comfort of travel, cost of travel, etc.), buying situation (for example, grocery shopping, clothing shopping, time of the day, etc.) and socio-economic characteristics of the shoppers (for example, age, gender, marital status, etc.). These attributes have been adopted in the refinement of this study.

In addition, Ibrahim and McGoldrick (2003) categorizes shopping destination choice studies into three main groups, namely, conceptual models, image studies and spatial models. The conceptual models attempt to explain the decision process of an individual shopper in the retail store/centre/area choice process (for example, Huff, 1960; Monroe and Guiltinan, 1975; Timmermans 1982; Laaksonen, 1993). These models take on a deductive approach, based on consumer spatial behaviour and cognition.

Image studies look at the way in which the shopping destination is defined in the shoppers' mind (Martineau, 1958). Image studies reject the notion that retail store/centre/area choice is determined by traditional factors, such as size and distance. Over the years, many variables have been found to be significant in determining the choices of retail store/centre/area. These include the retail store/centre/area characteristics, such as quality of goods and services, atmosphere, tenant mix, size of retail centres, etc., and travel factors, such as ease of travel, comfort of travel, etc. Some of these image studies include Martineau (1958), Bucklin (1967), Nevin and Houston (1980), McGoldrick and Thompson (1992), Bell (1999) and Ibrahim and McGoldrick (2003).

Finally, spatial models developed from the simple Central Place Theory (Christaller, 1933) to the General Attraction Models, allow the inclusion of many factors in modelling shopping destination choice. In addition to the Central Place Theory, spatial models include the Reilly' Law of Retail Gravitation or Spatial Interaction Model (1931), Huff model (1962) and various post-Huff's models which have attempted to improve the explanatory power of the models including additional variables, as well as developing new methodologies (for example, Kotler, 1971; Gautschi, 1981; Timmermans et al. 1991; Timmermans, 1996; and Raijas, 1999).

Although there have been many studies on retail development and preference, most are concerned with large shopping developments in the city centre, regional centre, or town centre. Therefore, this study, while giving insights to the development of neighbourhood centres in Singapore, will also attempt to examine shopper's perceptions of neighbourhood centres and the determinants of shopper's preference of the different types of neighbourhood centres.

RESEARCH METHODOLOGY

This study adopts the sequential mixed-method research design involving first a qualitative research followed by a separate quantitative research. Coupled with the variables identified from the literature review, data from the qualitative research was used as the basis for the quantitative phase of the study.

Qualitative research
In marketing research, qualitative research may take the form of unstructured research, exploratory research, in-depth interviewing, motivation research or opinion and attitude research. Malhotra (1996) states that unlike quantitative research, which attempts to quantify data, qualitative research provides insights and understanding of the research problem.

In- depth interviews
In this study, the qualitative research was carried out by way of in-depth interviews. Burgess (1982) states that in-depth interviews provide the opportunities for the researcher to probe deeply, to uncover new clues, to open up new dimensions of a problem and to secure vivid, accurate, inclusive accounts that are based on personal experience.

Based on the conceptual framework developed by Ibrahim and McGoldrick (2003), as well as the attributes of retail store/centre/area developed in conceptual models, image studies and spatial models, the researchers have asked the respondents open-ended questions about their perceptions of the various types of neighbourhood centres in Singapore. In addition, the respondents' socio-demographic details, such as age, gender, marital status were also solicited.

The following issues were discussed during the in-depth interviews:

1) Description of a recent trip to neighbourhood centres.
2) Reasons for visiting the neighbourhood centres.
3) Perceptions of the different types of neighbourhood centres and their strengths and weaknesses.
4) Socio-demographic characteristics of the respondents.

The in-depth interviews were carried out outside the three different types of neighbourhood centres in the northeast region of Singapore. Qualitative studies that are undertaken as a preliminary to quantitative studies should consist of between 20 to 40 in-depth interviews (Walker, 1985). Hence, the researchers carried out a total of 40 interviews at the above sites.

From the qualitative research, the researchers were able to obtain descriptive data pertaining to the respondents' perceptions of the three different types of neighbourhood centres. The analysis and interpretation of the data was guided by the procedures proposed by Spiggle (1994) and Ibrahim and McGoldrick (2003). These procedures include a nine-stage process of qualitative data analysis; namely, read and re-read data, categorization, abstraction, comparison, dimensionalisation, integration, iteration, refutation and relationship to the literature (Ibrahim and McGoldrick, 2003).

Quantitative research

Malhotra (1996) states that quantitative research aims to quantify the data and generalise the results from the sample to the population of interest. Quantitative research is usually administered in a structured and formal manner, such as the use of a structured and closed end questionnaire and normally some form of statistical analysis is applied to the data that is collected.

A door-to-door household interviewing method was adopted by the researchers as the method of administering the questionnaires for the quantitative research. The targeted population were all the residents or households living in the northeast region in Singapore. The sampling frame was the list of properties in the northeast region of Singapore. The sampling size in this study is 600. The respondents were selected via multi-cluster sampling technique from the list of properties within the sampling frame. However, only shoppers who have visited and have an idea about the three respective neighbourhood centres were interviewed. The surveys were carried out over a period of two months, on both weekdays and weekends to ensure that an unbiased sample was achieved.

The questionnaire attempts to evaluate the three concepts of neighbourhood centres based on a five-point Likert scale of 1 being "Poor" and 5 being "Excellent". The respondents were also asked to rank the three neighbourhood centre concepts in term of their preferences. In addition, the respondents were required to indicate their shopping patterns

and behaviour at neighbourhood centres. Finally, the respondents' socio-demographic profiles, such as age, gender, marital status, etc. were also collected.
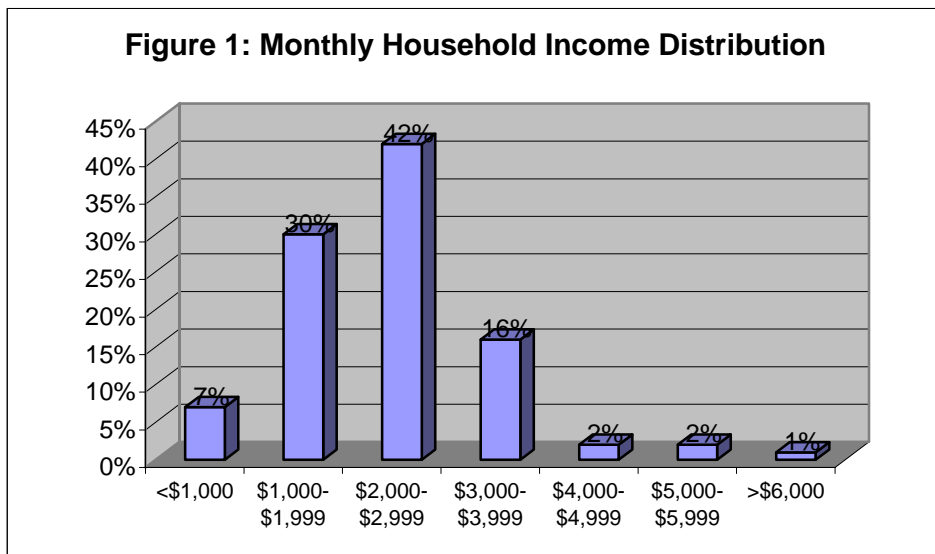
DATA ANALYSIS

This section presents the analysis of the shoppers' profile, shopping patterns and behaviours, as well as their preference towards the three neighbourhood centre options; namely, Traditional Neighbourhood Centre, New Generation Neighbourhood Complex and Neighbourhood Cluster Shop.
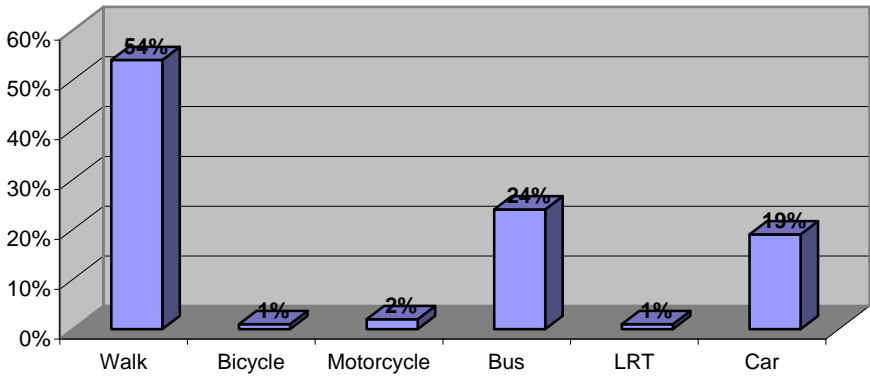
Shopper's profile, shopping patterns and travel behaviour

The majority (70%) of the respondents are female. In relation to age groups, the majority (60%) are in the range of 21-40 years old. This is followed by those in the range of 41-50, 51-60, <21 and >61. Figure 1 shows that the majority (42%) of the respondents have a monthly household income of about $2,000 – $2,999.
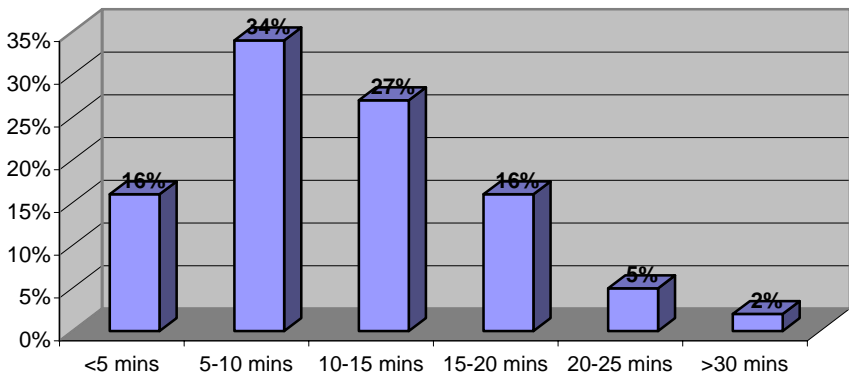
The majority (70%) of the respondents interviewed do not own a car. Even if one owns a car, the transport mode used to get to the neighbourhood centre is usually by walking (54%) or by bus (24%) (Figure 2). The travel time taken for the shoppers from their home to the nearest neighbourhood centre is between 5 to 20 minutes (77%) (Figure 3). The average time spent by the majority of the shoppers (45%) at the centre is between 30 to 60 minutes (Figure 4).

Figure 1: Monthly Household Income Distribution

Figure 2: Mode of Transport

Mode	Percentage
Walk	54%
Bicycle	1%
Motorcycle	2%
Bus	24%
LRT	1%
Car	19%

Figure 3: Travel Time to Neighbourhood Centres

Travel Time	Percentage
<5 mins	16%
5-10 mins	34%
10-15 mins	27%
15-20 mins	16%
20-25 mins	5%
>30 mins	2%

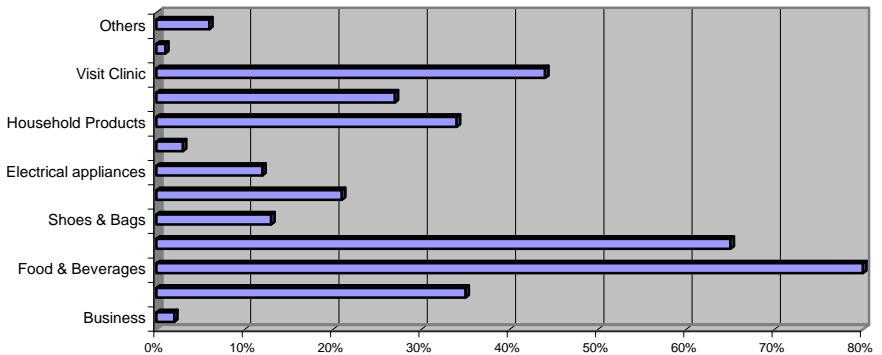**Figure 4: Time Spent at Neighbourhood Centres**
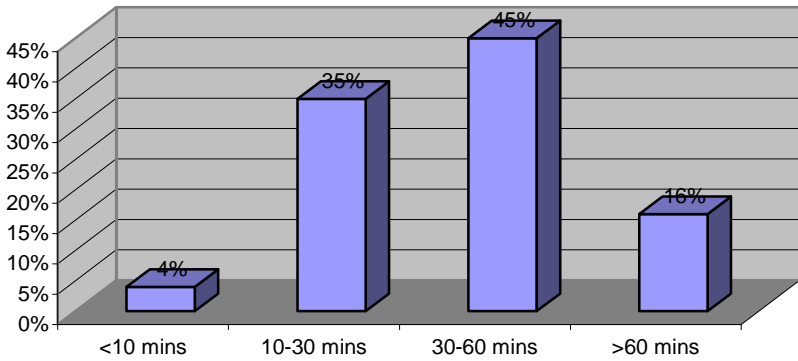
The majority of the shoppers visit the centre mainly for food and beverages and purchasing of groceries/daily necessities, while a small percentage visit the centre for commercial courses.

Figure 5:Purpose of Visit to Neighbourhood Centres

Mean ratings of attributes
The mean ratings in Table 1 shows that the Traditional Neighbourhood Centres (TNCs) recorded higher scores for its availability of wet markets, availability of eating establishments and wide variety of merchandise. In addition, it is relatively more accessible to the shoppers. It recorded relatively low mean scores for its cleanliness and security. The New Generation Neighbourhood Complexes (NGNCs) recorded higher scores for its cleanliness, presence of anchor tenants or major stores and design and layout of shopping area. It scored relatively lower for its availability of wet markets and accessibility. Finally, Neighbourhood Cluster Shops (NCSs) recorded relatively lower scores among the three neighbourhood centre concepts. It recorded higher scores for its cleanliness, landscaping and parking facilities. About half of the list of variables recorded scores lower than 3. All the variables of the three types of neighbourhood centres recorded standard deviation scores of less than 1.

Ranking of neighbourhood centres
Table 2 shows that 386 out of the 600 respondents (64%) most preferred the TNCs. The results also show that 455 respondents (76%) least preferred the concept of the NCSs. This could be due to the limited variety of merchandise available, despite its superior design of being within accessible radius of the surrounding blocks.

Neighbourhood centres stated preference analysis
The stated preference analysis refers to the use of hypothetical choices in the analysis of the behaviour of the targeted respondents on certain issues, such at the preference of transportation modes, destinations, consumer products (Louviere et al., 2000). In analyzing the stated preference of the shoppers, the researchers firstly carry out a factor analysis on the data collected. The results of the factor analysis coupled with the ranking of neighbourhood centres are then used to run a discrete choice analysis.

Throughout the analysis, significance values of greater than 0.100 are reported as not significant (n.s.). Similarly, where the values fall within the range of 0.100-0.050, they should be treated with caution. For the purposes of interpretation, a value of 0.05 will be used as a benchmark. Therefore, when the significance level is <0.05, the null hypothesis is rejected, thus implying that the estimate is significantly different from zero.

Table 1: Mean ratings of neighbourhood centres

Variables	Traditional Neighbourhood Centre		New Generation Neighbourhood Centre		Neighbourhood Cluster Shop	
	Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation
Availability of wet market	3.92	.905	2.71	.722	2.35	.895
Availability of eating establishment	3.91	.846	3.56	.792	3.00	.925
Wide variety of merchandise	3.90	.900	3.33	.873	2.94	.837
Availability of other amenities	3.81	.916	3.56	.913	2.79	.983
Reasonable price level	3.78	.764	3.08	.709	2.94	.773
Accessibility to neighbourhood centre	3.73	.922	2.75	.851	2.80	.903
Presence of anchor tenants/major stores	3.70	.855	3.74	.811	2.98	.988
Travel time	3.66	.894	2.84	.858	2.73	.923
Cost of travel	3.60	.940	2.84	.749	2.81	.852
Offer one-stop shopping	3.41	.950	3.33	.881	2.94	.893
Quality of good/services	3.32	.841	3.43	.715	3.18	.750
Landscaping	3.13	.788	3.59	.762	3.37	.887
Good place for family outing	3.08	.892	3.30	.915	2.79	.871
Conducive shopping atmosphere	3.08	.811	3.61	.814	3.15	.848
Parking facilities	3.07	.864	3.53	.772	3.33	.847
Design and layout of shopping area	3.03	.829	3.69	.658	3.31	.790
Spaciousness of internal layout of neighbourhood centre	3.03	.849	3.60	.774	3.24	.779
Security	3.01	.795	3.43	.680	2.88	.749
Cleanliness	2.93	.691	3.77	.704	3.40	.821

Table 2: Ranking of neighbourhood centres

Neighbourhood Centres	Most Preferred	Preferred	Least Preferred	Total
Traditional Neighbourhood Centre	386	154	60	600
New Generation Neighbourhood Centre	196	319	85	600
Neighbourhood Cluster	18	127	455	600

Factor analysis

Factor analysis is a common method used to identify the common factors that represent shoppers' evaluation of the three different types of neighbourhood centres. In conducting the factor analysis, the appropriateness of the data is first assessed using two tests; namely, The Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) and Bartlett's test of sphericity. In addition, the Alpha values of the factors are measured to indicate the reliability of the attributes in contributing to each factor produced by the factor analysis procedures (Cronbach, 1951).

Table 3 shows the values of KMO (0.884) and Bartlett's test of sphericity (0 values), indicating that the data is suitable for factor analysis. The latent root criterion suggests a four-factor solution accounting to 64.22% of the variance within the original variables. The Alpha values of the four factors indicate acceptable reliability of the variables within each factor. These are 0.8492 for "Atmosphere", 0.8489 for "Centre Features", 0.8757 for "Travel" and 0.5882 for "Landscaping and Security".

Factor 1 refers to the atmosphere of the shopping areas. It comprises attributes relating to the conduciveness of the shopping atmosphere, spaciousness of internal layout, cleanliness, design and layout of shopping area, quality of goods and services, parking facilities and good place for family outing. It accounts for 33.24% of the variance.

Table 3: Results of factor analysis

Common Factors	Variables	Factor Loadings
FACTOR 1 **Atmosphere** *Alpha Coefficient = 0.8492*	Conducive shopping atmospheres	0.793
	Spaciousness of internal layout	0.759
	Cleanliness	0.692
	Design and layout of shopping area	0.682
	Quality of goods / services	0.654
	Parking facilities	0.593
	Good place for family outing	0.591
	Explained Variance	**33.241%**
FACTOR 2 **Centre features** *Alpha Coefficient = 0.8489*	Availability of eating establishments	0.803
	Presence of anchor tenants / major stores	0.727
	Offer one-stop shopping	0.645
	Wide variety of merchandises	0.625
	Reasonable price level	0.617
	Availability of wet markets	0.589
	Availability of other amenities	0.554
	Explained Variance	**18.010%**
FACTOR 3 **Travel** *Alpha Coefficient = 0.8757*	Travel time	0.905
	Cost of travel	0.843
	Accessibility to neighbourhood centres	0.841
	Explained Variance	**7.093%**
FACTOR 4 **Landscaping/Security** *Alpha Coefficient = 0.5882*	Security	0.820
	Landscaping	0.601
	Explained Variance	**5.872%**
	Total Explained Variance	*64.216%*
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.884
Bartlett's Test of Sphericity Approx. chi Square Sig. Level		17,443.061 .000

Factor 2 relates to the centre features of the neighbourhood centre and it accounts for 18.01% of the variance. The factor includes variables relating to the availability of eating establishments, presence of anchor tenants and major stores, offer one-stop shopping, wide variety of merchandises, reasonable price level, availability of wet markets and availability of other amenities such as Automated Teller Machines (ATMs) or Transit Link Top-up Machines.

Factor 3 relates to the travel factors to the neighbourhood centre. This factor accounts for 7.09% of the variance. The attributes which load in this factor relate to travel time, cost of travel and accessibility to neighbourhood centres. Finally, factor 4 primarily relates to the quality of landscaping and security of the neighbourhood centres. It accounts for 5.87% of the total variance

Discrete choice analysis
A discrete choice model via a logit model has been adopted to estimate the relative significance of the factors affecting respondents' preference of the neighbourhood centres. This is because it is better-designed to handle interval scale data of attitude variables (Gautschi, 1981). It has been adopted by many researchers in studies relating to land use and transport planning, such as destination choice (shopping centres, residential properties, public housing choice options) and transportation mode choice (for example, Gautschi, 1981; Raijas, 1999). In this study, the respondents are assumed to be faced with a discrete set of choices of neighbourhood centres; they have to make a choice (preference) among these alternatives.

The logit model is estimated by maximum likelihood estimation. It is concerned with selecting parameter estimates implying the highest probability or likelihood of having obtained the observed sample outcome (Aldrich and Nelson, 1984). The model produces the individual coefficient estimates measuring the relationship between the independent variables and the dependent variables. The estimated standard errors measure the likely variation in the estimated coefficients from sample to sample. The t-statistic is used for testing the null hypothesis that a coefficient of an attribute is zero. The dependent variable used in the model referred to the probability of a respondents' selection of his/her preferred neighbourhood centre. The independent variables are as shown in Table 4.

There are two main statistics that are adopted to test the entire estimation run of the model. These are the likelihood ratio test and goodness-of-fit index (p^2). It is used to test the null hypothesis that all the parameters in the model are zero. Raijas (1997) states that it shows the predictability of the choice model. The statistic is asymptotically distributed as χ^2 with K degrees of freedom. On the other hand, p^2, is a goodness-of-fit index. It measures the fraction of an initial log likelihood value explained by the model.

Table 4 shows that the model has a goodness-of-fit index of 0.555. The results of the likelihood ratio test imply rejection of the null hypothesis that all parameters are zero. It reflects the ability of the independent variables in the model to predict the preference of the neighbourhood centres.

All the factors recorded significant results. The results from the model further imply that the preferred neighbourhood centre is one with better atmosphere, centre feature characteristics, travel factors, security and landscaping. In addition, among the factors, the highest coefficient was recorded by "centre features". This is consistent with the results in the earlier section (the mean ratings). It suggests that respondents prefer the

Traditional Neighbourhood Centre, as it offers wider variety of merchandise, availability of wet markets and availability of eating establishments.

Table 4: Discrete choice model

DIMENSIONS	COEFFICIENT	STANDARD ERROR	B/St.Er.	P[lZl>z]
Atmosphere	**0.935**	**0.964**	**9.697**	**0.000**
Centre features	**1.505**	**0.113**	**13.332**	**0.000**
Travel	**1.371**	**0.105**	**13.019**	**0.000**
Landscaping/ Security	**0.857**	**0.107**	**8.032**	**0.000**
Number of iterations = 7 p^2 **(goodness-of-fit index) = 0.555** X^2 **(likelihood ratio test) = 586.188** **Degree of freedom = 4** **Level of significance = 0.000**				

"Travel" scored the second highest coefficient value. Respondents' preference of traditional neighbourhood centres was based on shorter travel time, lower cost of travel and easy accessibility to the neighbourhood centre. This is also reflected in the earlier section of the mean ratings of attributes where traditional neighbourhood centres achieve higher mean ratings for the attributes; namely accessibility to neighbourhood centres, travel time and cost of travel than New Generation Neighbourhood Complex or Neighbourhood Cluster Shop.

CONCLUSION AND IMPLICATIONS

This study aims to provide an insight to the development of neighbourhood centres in Singapore. In addition, it examines shoppers' preference analysis of the different neighbourhood centres; namely the Traditional Neighbourhood Centres, the New Generation Neighbourhood Complex and the new concept of Neighbourhood Cluster Shops.

This paper shows an attempt by the relevant authority to change the concept of a neighbourhood shopping centre; i.e., from Traditional Neighbourhood Centres to Neighbourhood Complexes and to the newly emerged concept of Neighbourhood Cluster Shops.

The survey results indicate that shoppers' preferences are still with the Traditional Neighbourhood Centres. The main reasons being the availability of eating establishments, presence of wet markets, wider variety of merchandises, more convenient and accessible, lower cost of travel and faster travel time, despite the lower standards in cleanliness, security and spaciousness of the internal layout of the shopping area.

The relevant authority should still implement the new concept of New Generation Neighbourhood Complexes or the Neighbourhood Cluster Shops; but feedback can be sought through dialogue sessions from people staying in that area on their preferences. The main shortfalls with neighbourhood complex and Neighbourhood Cluster Shop are the shortage of wet markets and less variety of merchandise. Improvements could be done on the types of goods and services and the introduction of wet markets (small scale) in existing New Generation Neighbourhood Complexes and Neighbourhood Cluster Shops.

To enhance the variety of merchandises, the present tender system should be reviewed so that different trades could be introduced. Present system of tender process awards the shop space to the highest bid, regardless of the types of trades operated. As a result, there could be duplication of trades in the same area. The award to highest bid could still be maintained, but perhaps trade mix will have to be closely monitored or distributed by HDB to ensure no duplication of trades at that same area.

While Singapore develops its emerging concepts of neighbourhood centre developments, it is very critical to note shoppers' changing needs and dynamics in neighbourhood centre concepts preferences. This will ultimately promote the optimization of scarce land use resources.

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