

# **Shopping Destination Choice Behaviour and Retail Impact Assessment in Taiwan**

By

**Ho-Wen Yang**

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## Abstract

Taiwan has experienced a series of economic growth phases since the 1940s. Following these growth phase, there have been considerable changes in the nature of the retail system and consumer behaviour on the island. Notably, in 1994, in order to promote economic development, the *Industrial and Commercial Composite Area Establishment Law* (ICCAE Law) was promulgated by the MOEA and the MOI which opened the door to a new type of larger out-of-town retail development in Taiwan. However, few English language studies have focused on recent retail market development or collected retail data pertaining to Taiwan. Therefore, the present study aimed to investigate the relationship between consumers' patronage behaviour and the retailing system in Taiwan's urban area and then, drawing on changes in behaviour, to infer likely retail impact derived from the new retailing type. The Taiwan Sugar Mall in Tainan, Taiwan, one of the first larger out-of-town retail developments derived from the ICCAE Law, was selected as a case to conduct an empirical study.

Through a longitudinal panel shopping behaviour survey of households, both quantitative and qualitative data were collected to develop shopping destination choice models, analyse changes in patronage behaviour, and explore likely impacts derived from the Taiwan Sugar Mall. The study found households' convenience goods' patronage behaviour was more easily measured/predicted than their comparison goods' patronage behaviour, better explained/predicted by a dichotomous logistic regression model, primarily dominated by spatial separation distance and store selection criteria. Comparing steady unplanned retailer shoppers with changed-to-planned retailer shoppers, the latter were identified as: travelling further, younger, having short residential durations, single, with a higher educational level, higher personal income, and more concerned about parking facilities and store loyalty card scheme/coupons/promotional activities. Finally, a minor impact of the Taiwan Sugar Mall was concluded due to failure to attract unplanned retailer shoppers, failure to meet planned retailer shoppers' requirements, failure to attract changed-to-planned retailer shoppers' patronage, and insufficient promotional activities.

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# Abbreviations

-2LL	-2 Times the Log of the Likelihood
CEPD	The Council for Economic Planning and Development, Executive Yuan
CPA, MOI	The Construction and Planning Agency, MOI
DGBAS	Directorate-General of Budget, Accounting, and Statistics, Executive Yuan
DOC, MOEA	the Department of Commerce, MOEA
DLG Models	Dichotomous Logistic Regression Models
EIA	Environment Impact Assessment
GDP	Gross Domestic Product
GIO	General Information Office, Executive Yuan
ICCAE Law	The Industrial and Commercial Composite Area Establishment Law
KMO	Kaiser-Meyer-Olkin statistic
MOEA	The Ministry of Economic Affairs, Executive Yuan
MOI	The Ministry of the Interior, Executive Yuan
MOTC	The Institute of Transportation at the Ministry of Transportation & Communications
NCDP	The National Comprehensive Development Plan
PLG Models	Polytomous Logistic Regression Models

# Chapter 1

## Research Framework

### 1.1 INTRODUCTION TO THE THESIS

The study of shopping destination choice behaviour is an essential part of answering the basic market share analysis questions of 'Who shops where?' and 'What factors determine who shops where?' (Fotheringham, 1988<sup>a</sup>: p.120). In addition, changing market share is a central part of retail impact studies measuring trade diversion (or trade draw) (England, 2000: pp.70-73). In Western countries, following rapid changes in retailing development, numerous studies have explored fundamental retailing issues, systems, consumers, and the relationship between them (e.g. Fotheringham, 1988<sup>a</sup>; Timmermans, 1993; Fotheringham and Trew, 1993; Arnold, Handelman, and Tigert, 1996; Kim and Park, 1997; Popkowski and Timmermans, 1997; Bell, 1999; Sinha, 2000; Ibrahim and McGoldrick, 2003; Solgaard and Hansen, 2003; Hansen and Solgaard, 2004).

In Taiwan, following continuous economic growth and recently changing planning policies, there have been considerable changes in the nature of the retailing system and consumer patronage behaviour. However, few English language studies have focused on recent retail market development in Taiwan and retail data pertaining to Taiwan is lacking (Trappey, 1998: p.48; Chang, 2001: p.5). The present study was motivated by

the proposed development of the Taiwan Sugar Mall, one of the first larger out-of-town retail developments derived from the *Industrial and Commercial Composite Area Establishment Law* (ICCAE Law) enacted in 1994.

Therefore, this research attempts to fill the gap in the literature by using empirical data to answer the following research questions:

- What are the main factors affecting shopping destination choice behaviour in Taiwan's urban area?
- What are the factors affecting changes in shopping behaviour over time in this area?
- When the Taiwan Sugar Mall opens, will the new type of out-of-town retail development be likely to be successful and then change original shopping patterns within the study area?

Through examining these research questions, the study can identify factors influencing consumers' patronage, investigate factors affecting their switching patronage behaviour, analyse possible retail impact derived from the Taiwan Sugar Mall, and then conclude whether the Western model of larger out-of-town retail developments is likely to work in Taiwan.

In this study, a panel shopping behaviour survey of households was conducted to ascertain individual actual shopping destination choice behaviour and factors influencing destination choice, including spatial separation distance, attitudes towards shopping, store selection criteria, and respondents'/households' demographic and socio-economic characteristics, based on specific shopping situations: convenience and comparison goods shopping trips. A stratified random sampling technique was used for selecting samples within the study area. The first round of interviews was carried out in

June and July, 2002, before the Taiwan Sugar Mall opened, and the second round in December, 2003, and January, 2004, after the Taiwan Sugar Mall had opened. Both quantitative and qualitative data were collected by way of face-to-face interviews to answer the research questions. To analyse the survey data, several statistical techniques were employed, including descriptive statistics, bivariate analysis, factor analysis, and logistic regression analysis, and supported by the qualitative categorisation of meaning approach.

This chapter sets out the framework necessary for the study to proceed. First, it briefly describes the research origins and the reasons for changing the original research focus in this thesis. Secondly, the chapter outlines the research aim and the specific objectives the study wants to achieve. The chapter proceeds with a formulation of research questions. Here, two hierarchies, general questions and specific questions, are constructed. Lastly, the chapter presents the overall organisation of the thesis, outlining the four stages by which the study will progress, and describes the main contents of each chapter.

## **1.2 RESEARCH ORIGINS**

### **1.2.1 The Importance of Shopping Destination Choice Studies**

The study of shopping destination choice behaviour is of interest to academics in a number of different disciplines, such as marketing, geography, and urban planning, who wish to discuss and explore retailing systems, consumers, and the relationship between them. In terms of marketing, the importance of shopping destination choice studies lies in analysing and predicting retail store market share based on consumers' spatial shopping behaviour. As Fotheringham (1988<sup>a</sup>: pp.122-125) acutely pointed out, obtaining knowledge of shopping destination choice behaviour and being able to answer

the basic questions of why and how consumers select certain stores are essential to perform the following important marketing tasks: (a) examining the market characteristics of a store; (b) determining the optimal location of a new store; (c) predicting the market share and market characteristics a store of a given size will generate by locating in a certain location; and (d) determining the effects on sales at existing stores of opening a new store or closing an existing store, etc. In addition, because of the inherent spatial nature of shopping destination choice behaviour, and since where the consumer is likely to shop will directly affect the location and organisation of the retail market system, many geography researchers have been concerned with examining the relationships between consumer choice behaviour and the spatial structure of the retail environment based on aggregate or disaggregate scales (e.g. Golledge and Stimson, 1997: pp.31-70). Further, in urban planning, through understanding patronage behaviour and the retailing system, planners can link land-use control to retailing development, then establish effective rules for retail planning, and subsequently make informed judgements as a basis for planning decisions (e.g. England, 2000; Ibrahim and McGoldrick, 2003).

### **1.2.2 The Relevance of Shopping Destination Choice Studies to Retail Impact**

The relevance of shopping destination choice studies to retail impact lies in predicting and explaining the market share in relation to changes in patronage behaviour after the new retail development has entered the retailing system. The emergence of retail impact is derived from recognition of the need to closely monitor development of the retail system and the accumulated experiences of new types of shopping centre developments. In the UK, methodology for assessing retail impact has increasingly developed since the 1960s (BDP Planning and the OXIRM, 1992: p.38), so much so that

the definition of retail impact and the way it is measured have been refined in recent decades. By the late 1990s there was a generally accepted view of what retail impact meant and how it should be interpreted (England, 2000: p.7). According to BDP Planning and the OXIRM's literature review in 1992 for the Department of the Environment (DoE), retail impact is of legitimate concern for five principal reasons: understanding the effects of change, control of public costs, and promoting efficiency, equity, and quality of life (p.33). Furthermore, specific aspects of the impact can be clearly identified, namely, economic, social, and environmental (BDP Planning and the OXIRM, 1992: pp.37-38; McGoldrick and Thompson, 1992: pp.19-21; England, 2000: p.9). Although all aspects of the impact are important for assessing the overall effects of a development, economic impact is the primary element. As England (2000: p.13) points out, retail impact is fundamentally an economic concept, concerned with the diversion of trade from existing shopping centres to a new development. In addition, trade diversion can be identified as the loss of trade from an existing shopping centre (or facility) as a result of a new retail development taking place and also as changes in consumer behaviour after the new retail development has entered the existing retailing system.

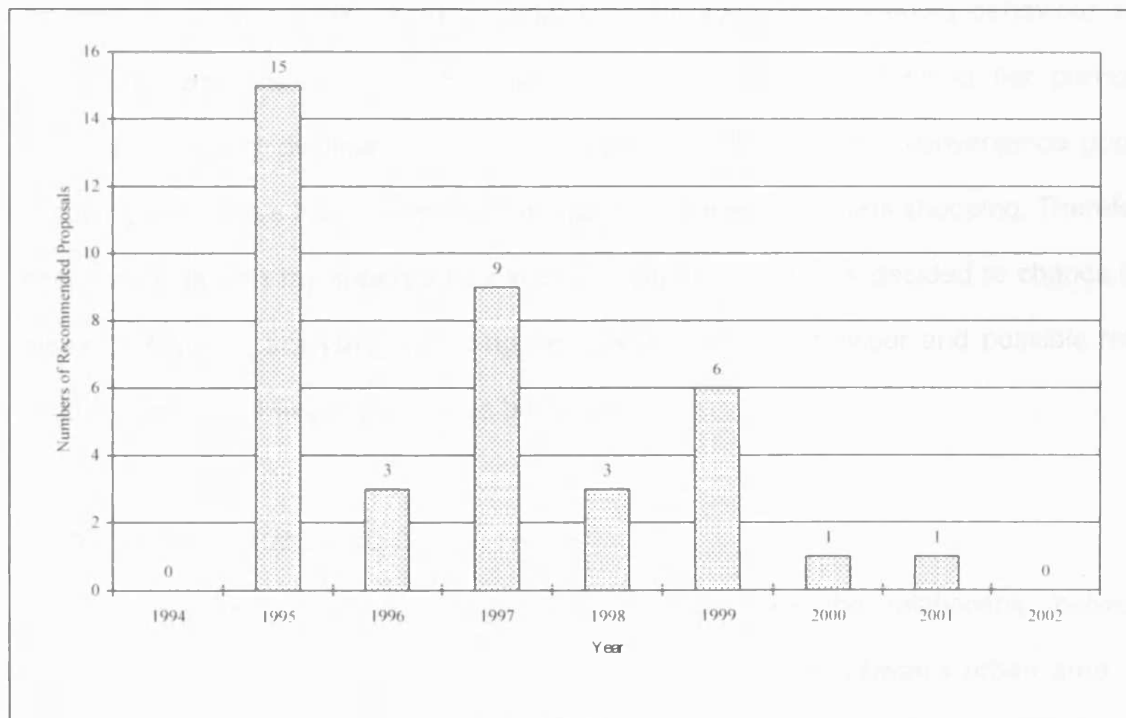
### **1.2.3 The Appearance of New Retailing Types in Taiwan**

Taiwan's retailing industry includes traditional unplanned retailing and new modern planned retailing. The former predominates in the food and groceries retailing industry, in the mode of, corner shops/stalls, wet markets, dusk markets, and night markets (for more details see Chapter 3, Section 3.5.4). The latter is mainly derived from Western Countries' and Japanese models of retail development, namely, supermarkets, hypermarkets, and department stores (for more details see Chapter 3, Section 3.5.3).

However, its provision is experiencing rapid change as a result of the central government taking an active interest in promoting new types of retail development, particularly larger-scale out-of-town shopping centre developments. Since the central government promulgated the ***Industrial and Commercial Composite Area Establishment Law*** (ICCAE Law) in 1994 to loosen the strict zoning regulations pertaining to land-use, developers (or retailers) can look for any potential site, either in urban or suburban areas, but require planning permission to establish mixed industrial-commercial districts. Most planned shopping centres' developments until 1994, such as department stores, speciality clothing stores, etc., were located in commercial districts, except for a few early hypermarket developments operating in violation of zoning regulations and located in industrial districts (Trappey and Lai, 1996: p.33). As Poa (2001: p.52) states in his report 'Taiwan hears the call of the mall', developers can now choose either less expensive mixed industrial-commercial land in suburban areas or higher-priced commercial land for retail use. However, the out-of-centre site is the best choice for developers and retailers due to cheaper land cost, easy acquirement, large-scale site, etc.

To-date, according to statistics released by the Ministry of Economic Affairs (MOEA, 2003), the total development area for recommended proposals amounts to over 340 hectares (almost 3.4 million m<sup>2</sup>) and, at the time of writing, there were thirty-nine proposals. Specifically, thirty-seven out of thirty-nine proposals are for shopping centre developments. Furthermore, seven of the proposals are under construction and two have already opened. Figure 1-1 shows recommended proposals for shopping centre

developments from 1994 to 2002. As Figure 1-1 indicates, after the ICCAE Law was introduced in 1994, recommended proposals rapidly escalated in number in 1995 and then gradually decreased. The situation of larger shopping centre development in Taiwan is similar to regional shopping centre development prevailing in the 1980s in Britain (BDP Planning and the OXIRM, 1992: p.28). Additionally, the authorities overemphasise the positive effects of large-scale retail developments to successfully boost economic prosperity. Figures released by the MOEA show that estimated total investment will amount to NT\$ 185 billion (about £3.3 billion), excluding land cost, and will create more than 70,000 new employment opportunities (MOEA, 2003).



**Figure 1-1 Recommended Proposals for Shopping Centre Developments**

**1994 to 2002**

Source: MOEA, 2003



#### **1.2.4 A Change in the Original Research Focus**

The original study aimed to investigate and explore the possible retail impact of new out-of-town shopping centre development as a result of the introduction of the ICCAE Law, in Taiwan. Like most impact studies primarily assessing retail impact in a particular area, the study intended to focus on a particular case, the Taiwan Sugar Mall in Tainan, Taiwan. The Taiwan Sugar Mall is one of the first out-of-town shopping centre developments in Taiwan and therefore it was considered appropriate to conduct a 'before and after' survey study. The Mall was proposed by the MOEA in May 1995, obtained planning permission from the local authorities in September 1998, and finally opened at the end of 2003. However, after carrying out the second round of interviews, insufficient samples were found for analysing the switching shopping behaviour and measuring retail impact. Of 386 respondents, only one had changed her previous selected shopping destination from wet markets to the Mall for convenience goods shopping and twelve had changed to the Mall for comparison goods shopping. Therefore, after meetings with my supervisory panel and supervisor, it was decided to change the research focus to analysing shopping destination choice behaviour and possible retail impact based on changed patronage behaviour.

### **1.3 RESEARCH AIMS AND OBJECTIVES**

The primary aim of the study is to investigate the relationship between consumers' patronage behaviour and the retailing system in Taiwan's urban area. By way of analysing shopping destination choice behaviour, the study can identify and scrutinise the factors determining households' shopping destination choice between different types of stores. Through examining switching shopping behaviour, the study

can further probe into the possible factors affecting changes in patronage behaviour over time. Further, the study can draw on the changed behaviour to infer possible retail impact derived from a new retailing type, an out-of-town shopping centre development, the Taiwan Sugar Mall in Tainan, Taiwan. Finally, depending on the degree of possible retail impact, the study can examine the future prospects for the Western models of retail development in Taiwan, Asia.

In order to achieve this aim, the study will endeavour to accomplish the following specific objectives:

- Review current literature on shopping destination choice behaviour to extract essential factors assumed to influence choice behaviour.
- Review current literature on retail impact studies from the UK's out-of-town retail development experience.
- Identify, analyse, and explain the relationships between shopping destination choice behaviour and a set of factors assumed to influence choice behaviour in Taiwan's urban area.
- Examine, analyse, and explain the changes in shopping behaviour over time in Taiwan's urban area.
- Link changed shopping behaviour to retail impact assessment, derived from the Taiwan Sugar Mall in Tainan, Taiwan.
- Assess the future prospects for the Western new type of larger out-of-town retail development in Taiwan, Asia.

#### **1.4 RESEARCH QUESTIONS**

The study first formulated three general questions and then devised individual specific questions for each general question in order to bring research questions down

to the next level of specificity, thus narrowing the focus of the study. Punch (2000: p.25) clearly defined general questions and specific questions. The former are more general, more abstract, and are usually not themselves directly answerable, because they are too general; the latter are more specific, detailed and concrete, and are directly answerable because they point directly at the data needed to answer them. Each type is presented in turn below.

#### **1.4.1 General Research Questions**

The study formulated three general questions to investigate the relationship between patronage behaviour and the retailing system, and then to explore possible retail impact based on the changed patronage behaviour. They are:

- What are the main factors affecting shopping destination choice behaviour within the study area?
- What are factors affecting changes in shopping behaviour over time?
- When the Taiwan Sugar Mall opens, will the new type of out-of-town retail development be likely to be successful and then change original shopping patterns within the study area?

#### **1.4.2 Specific Research Questions**

Following the first general question, the study attempts to examine households' patronage behaviour based on different shopping trips. In the past, shopping was often categorised according to the types of goods being sought on a shopping trip, for example, convenience goods, shopping goods, or specific goods (O'Brien and Harris, 1992: p.120). In the present study, convenience goods and comparison goods are used to classify types of goods sought by households on shopping trips. Moreover, the study

simplifies shopping destinations (or households' choice sets) into small groups based on retailer types, such as unplanned or planned retailers. Finally, the study endeavours to ascertain what factors influence shopping destination choice behaviour. However, as Rust and Donthu (1995: p.103) point out, it is a practical impossibility to include all of the factors that affect shopping destination choice. Therefore, after reviewing the relevant literature (for more details see Chapter 2, Section 2.3), the study subsequently extracted four different kinds of factors, i.e. a distance variable (or location) (e.g. van der Heijden and Timmermans, 1984; Fotheringham and Trew, 1993; Volle, 2001), attitudes towards shopping (e.g. East, 1990; Hallsworth, 1991; Ibrahim and McGoldrick, 2003), store selection criteria (e.g. East, 1997; Baltas and Papastathopoulou, 2003; Solgaard and Hansen, 2003), and buyer/household demographic and social-economic characteristics (e.g. Scott, Stern, and Gillpatrick, 1990; Roy, 1994; Shim and Eastlick, 1998; Goodwin and McElwee, 1999; Nisel, 2001; Baltas and Papastathopoulou, 2003; Ibrahim and McGoldrick, 2003). By analysing these factors, the study could elucidate how shoppers patronise existing shopping centres, and reveal 'who shops where?' and 'What factors determine who shops where?'

Based on the first general question, the study devised a further four specific questions as follows (see Section 1.4.3 for definitions):

- (1) Dividing shopping destinations into unplanned and planned retailers to investigate households' convenience goods patronage behaviour, what kinds of factors are useful for explaining and predicting such behaviour?
- (2) Dividing shopping destinations into unplanned and planned retailers to investigate households' comparison goods patronage behaviour, what kinds of factors are useful for explaining and predicting such behaviour?

- (3) Dividing shopping destinations into four categories, namely, wet markets, other unplanned retailers, hypermarkets, and other planned retailers, to investigate households' convenience goods patronage behaviour, what kinds of factors are useful for explaining and predicting such behaviour?
- (4) Dividing shopping destinations into four categories, namely, high streets, other unplanned retailers, department stores, and other planned retailers, to investigate households' comparison goods patronage behaviour, what kinds of factors are useful for explaining and predicting such behaviour?

Following the second general question, the study sought to explore the factors affecting changes in patronage behaviour over time. As Popkowski and Timmermans (1997: pp.193-195) have pointed out, most shopping behaviour studies either explicitly or implicitly assume that consumer choice behaviour is constant over time but their empirical results seem to indicate that a substantial proportion of households is involved in a convenience goods shopping pattern that involves two to five different stores. Accordingly, following the previous first general question, the study endeavours to examine whether factors, assumed to influence households' shopping destination choice behaviour, change between first and second round surveys based on different shopping trips.

Based on the second general question, the study further derived three specific questions as follows:

- (5) Are there differences (or associations) between first and second round surveys in respect of the major factors affecting households' shopping destination choice behaviour?

- (6) Dividing shopping destinations into unplanned and planned retailers, what factors explain changes in households' convenience goods patronage behaviour over time?
- (7) Dividing shopping destinations into unplanned and planned retailers, what factors explain changes in households' comparison goods patronage behaviour over time?

Finally, following the third general question, the study tries to represent possible retail impact by way of changed patronage behaviour and assess the Western style of larger out-of-town retail development in Taiwan, Asia. As England (2000: p.13) indicated, all impact aspects can be important in assessing the overall effect of a development, but economic impact is the fundamental one, since it is concerned with the diversion of trade from existing shopping centres to a new development. The present study thus endeavours to precisely measure and explain the shift in stores' (or types of retailers') market share in the retailing system through switching shopping behaviour and interpret loss of trade from existing shopping centres (or facilities) as a result of the opening of the new development and the unexpected closure of the Makro hypermarket.

Accordingly, based on the third general question, the study derived three further specific questions. They are:

- (8) What is the changed patronage percentage by different retailer types after the Taiwan Sugar Mall enters (and the Makro leaves) the market? Does the Mall cause serious trade diversion from existing shopping centres?
- (9) What are households' responses to the new type of out-of-town shopping centre, the Taiwan Sugar Mall?

- (10) In terms of convenience goods shopping trips, do households switch their original shopping habit to shop at the new development and why/ why not?

### **1.4.3 Definitions of Essential Terms**

So far, the study has formulated relevant research questions. However, some ambiguous terms need to be identified in advance in order to clearly understand the subject matter of the research. These are types of goods, retailer types, out-of-town, and shopping centres. Others will be defined in the course of the literature review.

The well-known classification of types of goods separates them into convenience goods and comparison goods. In terms of types of goods sold by retail outlets, the former includes food, alcoholic drink, tobacco, and other goods (such as newspapers and magazines, and cleaning materials and matches); the latter includes clothing and footwear, do-it-yourself goods, household goods, recreational goods, and other goods (pharmaceutical products and medical equipment, toiletry articles and perfumery, jewellery, silverware, watches, clocks, and other goods) (Guy, 1998: p.256). However, in the current study, the term is used to identify different purposes of shopping trips. In O'Brien and Harris's (1991) work, they referred to the American Marketing Association's 1948 study which suggested the classification of goods as follows: convenience goods, shopping goods, and speciality goods (p.34). At the same time, Guy (1998: p.257) also described the classification of goods by two types of shopping trip purpose: convenience shopping and comparison shopping. The former is defined as goods that the consumer buys frequently, immediately, and with minimum of effort; the latter traditionally involves an element of personal gratification, comparing different products according to price, quality, style, and suitability. The study will continuously use the classification defined by Guy (1998: p.257) to explore the changing patronage patterns of consumers.

The term, retailer types, is related to categorisation of existing shopping centres in Taiwan. According to studies of urban retailing, shopping centres can be classified into two categories: unplanned and planned retail areas (Guy, 1994: p.11). According to Guy (1994: pp.11-12), an unplanned retail area is one that has evolved in a gradual and /or piecemeal manner, often through conversion of buildings originally designed for some other purpose, whereas a planned retail area is deliberately developed in a coordinated manner for retail use. Based on the standard, shopping centres in this study will be categorised into two groups, unplanned and planned retail areas. The former includes the corner store, small shops in high streets, wet markets, dusk markets, and night markets; the latter includes convenience stores, supermarkets, superstores, hypermarkets, department stores, and shopping malls (for more details see Chapter 3, Sections 3.5.3 and 3.5.4).

Out-of-town is a term related to type of location and is found in many retail studies. As Guy (1994: p.xiv) indicated, in the retail context, it can be used to mean either edge of town or off-centre (out-of-centre). In Britain, Planning Policy Guidance Number 6 (PPG6) gives a stricter definition and clearly distinguishes different types of location (DoE, 1996). For present research purposes, the study will adopt a rigorous definition: an out-of-town development on a green-field site, or on land not clearly within the current urban boundary.

The term 'shopping centres' has been used in many different ways. As McGoldrick and Thompson (1992) pointed out, shopping centre can mean either a comprehensive shopping development, as it does in most other countries, or a cluster of traditional shops in a town centre. Additionally, Guy (1994: p.xvi) defined the shopping centre as a planned retail development comprising at least three shops, under one freehold ownership, and managed and marketed as a unit. But, as he also pointed out,



the term has been used in the retail literature to describe almost any type of retail area. In the present study, the term 'shopping centres' will refer to any type of retail area, including an unplanned retail area and planned retailers.

## **1.5 ORGANISATION OF THE THESIS**

The study follows a well-established structure, comprising nine chapters. The order of each chapter is designed to follow a generic structure, starting from an introduction, progressing to a review of Taiwan's geographic background and current retail development, research methodology, analysis, interpretation, discussion, and, finally, conclusions and recommendations. As Figure 1-2 shows, the structure of the thesis is divided into four stages.

The first stage comprises the introduction, review of literature, and background information. It endeavours to summarise and evaluate relevant studies, define the gap in the literature, and then define and justify the present research project. This stage comprises three chapters as follows:

Chapter 1 describes the research origins and the reasons for changing the original research focus. The study is derived from changes in planning policies and the rapid evolution of the retailing system in Taiwan, for instance, the emergence of a new type of retailing based on the ICCAE Law and the unexpected withdrawal of the Makro hypermarkets. Subsequently, the research aim is presented and five specific objectives are outlined based on this aim. Following the framework of two hierarchies of questions, four specific questions for the first general question, three for the second, and three for the third, are formulated, respectively. Lastly, the chapter provides a brief description of the structure of the thesis.

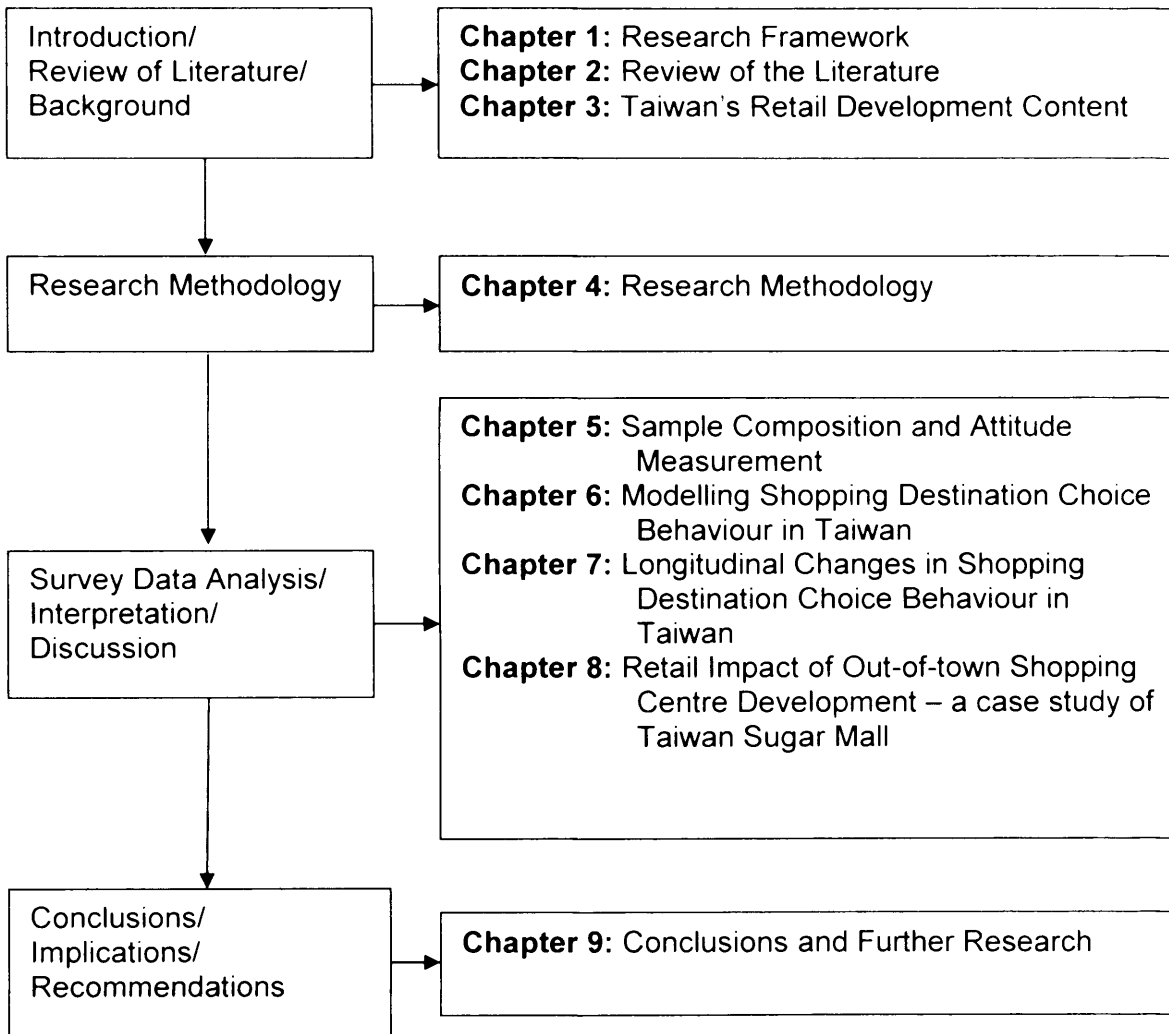


Figure 1-2 Thesis Structure

Chapter 2 presents a review of the literature. The purpose of this chapter is to provide an overview of the evolution of shopping destination choice models and to link choice behaviour studies to retail impact assessment. After reviewing relevant literature, the chapter is able to provide a context for the study and to identify gaps in the literature. First, the chapter highlights the origin of shopping destination choice studies, classifies shopping destination choice models using different discriminatory factors, and then introduces the application of discrete data analysis techniques to shopping destination choice behaviour studies. Secondly, it looks into the primary determinants of shopping destination choice by reviewing relevant studies. Thirdly, it introduces the concept of RIA and tries to link it with shopping destination choice behaviour studies. Lastly, it briefly introduces the development of Western style larger out-of-town retailing in Asia.

Chapter 3 presents information on Taiwan in terms of geographic background, current planning policy towards promoting out-of-town retail developments, and retail development background details for both demand and supply sides.

The second stage details the research methodology employed to address the research paradigms, strategies, research design, sources and types of data collected, and analysis procedures and techniques. This stage comprises one chapter, Chapter 4. Firstly, it briefly introduces research paradigms and then indicates what strategies of inquiry will be adopted. Then it goes on to identify the study area. Finally, it outlines the research design processes, including the research design, sampling design, development of questionnaires, survey administration, and data preparation and analysis. In the research design processes, both quantitative and qualitative data are collected.

The third stage includes an analysis of the survey data derived from quantitative and qualitative techniques to answer the research questions and interpret the empirical findings of the study.

Chapter 5 begins with a description of the sample composition in the first and second round surveys, and then tries to analyse households' attitudes towards shopping. Figure 1-3 displays the relationships between research objectives, general and specific research questions, and Chapters' structure. More details are presented below:

Chapter 6 is designed to answer the first research question, 'what are the main factors affecting shopping destination choice behaviour within the study area?' based on first round interview data. Firstly, descriptive statistics are employed to present choice set results and chosen determinants. Secondly, shopping destinations are divided into two groups, unplanned and planned retailers, and then stepwise dichotomous logistic regression is used to build the exploratory and explanatory models for investigating shopping destination choice behaviour by different shopping trips. Thirdly, the study tries to extend the groups of shopping destinations from two to four in order to examine households' choice behaviour between types of stores. Here, polytomous (or multinomial) logistic regression is employed to examine households' choice behaviour and extract significantly influential factors. Finally, a brief comparison between the two models is made to infer explanatory effects.

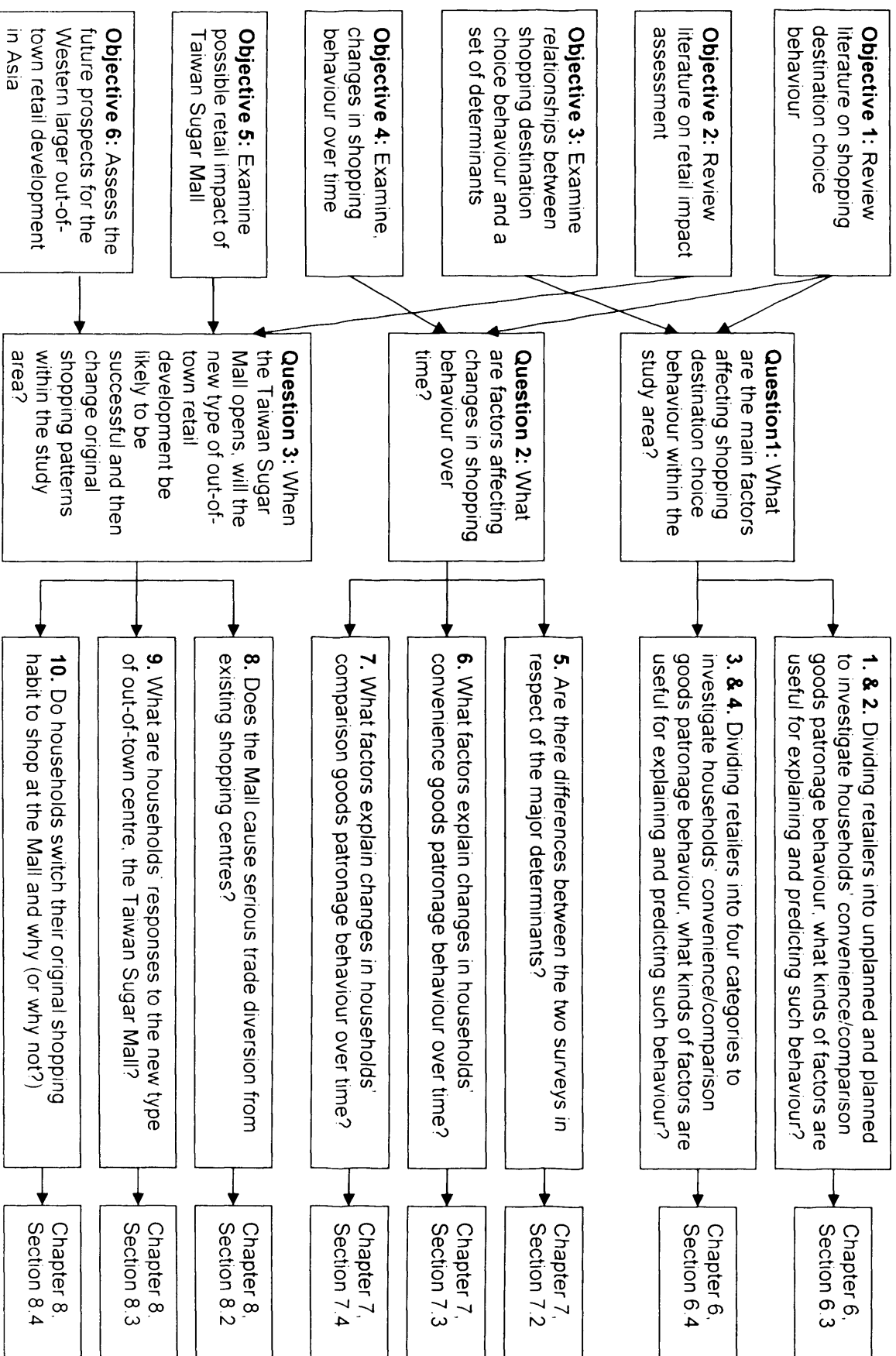


Figure 1-3 Relationships between Research Objectives, Questions, and Chapters' Structure

Chapter 7 is designed to answer the second research question, 'what are factors affecting changes in shopping behaviour over time?' based on first and second round survey data. First, this chapter investigates changes in major determinants influencing consumers' shopping destination choice behaviour over time. Subsequently, based on convenience and comparison goods shopping trips' data, the study examines respondents' choice results between first and second round surveys, and then analyses the influence derived from changes in the retailing system. Further, according to choice results, the study probes into differences between steady and changed shoppers, utilising increased spatial separation distance, store selection criteria, attitudes, and demographic and socio-economic attributes to present their characteristics.

Chapter 8 is designed to answer the third research question, 'when the Taiwan Sugar Mall opens, will the new type of out-of-town retail development be likely to be successful and then change original shopping patterns within the study area?' based on changed patronage behaviour. First, this chapter explains why shopping choice models cannot be used to measure retail impact. Then, based on respondents' shopping experience in the Mall, their opinions on the out-of-town shopping centre can be elicited. Finally, using a qualitative analysis approach, reasons for respondents not patronising the Mall can be explored, based on respondents' patronage behaviour between the two surveys. Through analysing these opinions, possible causes for the minor impact derived from the Mall can be inferred, and judgements can be made about the future prospects for the Western style large format retailing in East Asia.

The final fourth stage summarises, discusses, and concludes the findings of the thesis. For this stage, there is only one chapter, Chapter 9. In the concluding chapter, the study not only summarises the findings of the study but also provides suggestions for further research.

## Chapter 2

# Review of the Literature

### 2.1 INTRODUCTION

This chapter aims to review, selectively, the vast literature in relation to shopping destination choice, as well as that relevant to retail impact studies. As was noted previously, although some English language studies discuss certain aspects of retail development in Taiwan, few discuss shopping destination choice as well as retail impact studies in any depth or detail. They will be reviewed in Chapter 3 which provides background details on retail development in Taiwan. In this chapter, studies in Western societies relevant to the research focus are included in the following review.

In consideration of the stated research questions, the review of the literature will be divided into five parts. After this initial introduction, the second and third main sections will focus on the evolution of shopping destination choice models and determinants of shopping destination choice, respectively. The fourth section will discuss the relevance of shopping destination choice to retail impact assessment. The final section will review the introduction of the Western style of retail development in East Asia.

## **2.2 EVOLUTION OF SHOPPING DESTINATION CHOICE MODELS**

### **2.2.1 The Concept of Shopping Destination Choice Behaviour**

Shopping destination choice behaviour, traditionally, is viewed as a patronage decision process that leads a consumer to patronise a particular shopping destination from his/her consideration set of shopping centres. According to Ibrahim and McGoldrick (2003: pp.45-46), shopping destination choice behaviour forms part of consumer behaviour and the study of consumer behaviour comes from various sources. Each academic discipline looks at different facets of consumer behaviour. Hansen and Solgaard (2004: p.47) also indicated that the theoretical framework for specifying the patronage decision process is drawn from the theories of consumer behaviour and from the microeconomic theory of the consumer.

However, due to the different areas of study under each discipline, there has been dissent about definitions of shopping destination choice, patronage, and preference. Ibrahim and McGoldrick (2003: p.49) have pointed out that some researchers view shopping destination choice and patronage as referring to the same concept (e.g. Hirschman, 1979) whilst others differentiate between shopping destination choice and patronage (e.g. Brown, 1978). Further, some treat shopping destination patronage and preference differently (e.g. Granbois, 1977), whereas others (e.g. Spiggle and Sewall, 1987) treat shopping destination preference, choice, and patronage differently. Spiggle and Sewall (1987: p.98) define these concepts as follows:

- Shopping destination choice refers to the result of a specific purchase task and to a purchase from a given store. It represents some degree of extended decision making, and outcome is binary – the consumer either purchases from the store or does not for a particular purchase task.



- Shopping destination patronage refers to a consumer's purchase pattern over a series of purchase tasks. It is not a binary outcome – a consumer may spend 75 per cent of expenditure at store X and the other 25 per cent elsewhere.
- Shopping destination preference refers to a consumer's statement of positive effect about a given store, which may or may not result in shopping destination choice or patronage.

In addition, reviewing relevant literature, shopping destination choice behaviour has been linked with several different concepts, namely, single-stop trip vs. multi-stop trip, simultaneous choice vs. hierarchical (or sequential) choice, aggregate scale vs. disaggregate scale, and different levels of shopping destination (e.g. a particular store, store chains, store types or retailer types, etc.). These concepts are discussed below.

- Single-stop trip vs. multi-stop trip: Most shopping destination choice behaviour studies have considered single-stop trips, although recently, a few studies have extended to multi-stop trips (e.g. Brown, 1978; Crask and Olshavsky, 1983; Arentze and Timmermans, 2001). A single-stop trip simply assumes consumers patronise a particular shopping centre in order to shop for specific types of goods (e.g. groceries on convenience goods shopping trips; durable goods on comparison goods shopping trips). In contrast, a multi-stop trip refers to several stops on a trip in order to visit different shopping centres (or locations) before returning home (or to any other base location). Basically, a multi-stop trip may be involved in a multipurpose trip. That is, different types of goods (e.g. groceries and durable goods) are

purchased in different shopping centres and on a single trip (Arentze and Timmermans, 2001: p.325).

- Simultaneous choice vs. hierarchical (or sequential) choice: Shopping destination choice results from a process whereby attributes (or information, knowledge) of various alternatives are evaluated by the consumer prior to the selection of one of the alternatives. Most shopping destination choice models assume that the decision process underlying shopping destination choice is a simultaneous one. That is, all possible alternatives are evaluated by an individual simultaneously. However, some studies have argued (e.g. Fotheringham, 1986, 1988<sup>b</sup>; Timmermans et al., 1992; Timmermans, 1996) that individuals initially evaluate clusters of alternatives and then only evaluate alternatives within a chosen process.
- Aggregate scale vs. disaggregate scale: Most shopping destination choice models have been developed based on either an aggregate or disaggregate level. If the model is used to predict (or explain) the behaviour of groups of individuals, then the application is said to be at an aggregate level. In contrast, if the model is used to predict (or explain) the behaviour of individuals, then the application is said to be at a disaggregate level. Fotheringham (1988<sup>a</sup>: p.135) contended that the disaggregate scale is more accurate because in dealing with groups of individuals, information tends to be lost in the aggregation procedure. Daly (1982: p.365) similarly stated that whatever the form of behaviour, whatever mechanism is believed to be determining it, the appropriate methodology for quantitative analysis should be based on disaggregate statistical models.

- Different levels of shopping destination: Based on specific research purposes, shopping destination choice models are operated at different levels of stores, namely, an individual store, store chains, stores types, or retailer types. For instance, Óscar (2002) modelled patronage behaviour at store chains level, while Volle (2001) modelled short-term effect of store-level promotions on grocery shopping destination choice at individual stores.

In this thesis, the author will regard shopping destination patronage and choice as referring to exactly the same concept – a decision-making process that leads a consumer to patronise a particular shopping destination from his/her consideration set of shopping centres, but different from preference. Further, considering the research questions, the study will assume the patronage decision process is a simultaneous one and investigate households' shopping destination choice behaviour at different levels of retailer types based on single-stop trips, namely, convenience and comparison goods shopping trips.

### **2.2.2 The Origin of Shopping Destination Choice Studies**

Shopping destination choice (or patronage) behaviour has been widely studied for many decades and numerous models have been built and revealed. Golledge and Stimson (1997: p.48) and Sinha (2000: p.23) stated that it is impossible to exhaust all the theories and models relevant to decision-making and choice behaviour. Therefore, the present study will briefly describe the origin of shopping destination studies and include those pertaining to this research.

Among the earliest approaches to this subject is that of Reilly (1931), who was concerned with defining market areas applying the law of retail gravitation (Golledge and

Stimson, 1997: p.348). Central place theory developed by Christaller (1933) was also relevant to understanding consumer patronage behaviour (Golledge and Stimson, 1997: p.348). At the same time, Huff (1964: pp.34-38) overcame some of the limitations of Reilly-type retail gravity models and proposed an alternative probabilistic retail gravity model. The premise of this model is that, in terms of the aggregate movements, consumers' propensity to patronise a particular shopping centre is directly proportional to the size of the area (i.e. the attractiveness of a shopping centre) and to a function of distance or time to the shopping centre (i.e. the deterrence measure).

Huff's model provided an innovative schema upon which many scholars began to build. Based on the promise of the model, various forms of gravity model have been developed and revealed. For example, in the earliest, Lakshmanan and Hansen (1965) evolved a model to predict the effects of several existent and proposed centres in the Baltimore area using the mass/attractive force measurement and the distance or interaction decay measure (Golledge and Stimson, 1997: pp. 353-354; McGoldrick, 2002: p.262). However, according to Timmermans et al. (1984: p.377), as a result of the unrealistic nature of the distance-minimising postulate of classical central place theory and criticisms of aggregate gravity-type models, there has been a trend towards developing disaggregate behavioural models, which aim at capturing the specific nature of individual decision-making processes in a spatial context.

Subsequent studies have been conducted with respect to identifying and estimating these behavioural models. Some of these behavioural approaches have been broadly reviewed by Shepherd and Thomas (1980: pp.18-94). They classified behavioural approaches into three categories as follows:

- The theoretical behavioural approach attempts to develop an alternative theory of consumer behaviour which subsumes the factors suggested by Huff

and is, therefore, somewhat similar in scope to the prior models, such as the central place theory and gravity-type models (pp.20-28).

- The empirical behavioural approach concentrates more specifically upon the classification of such factors as residential location and social stratification. It subsumes a rather diffuse range of studies, such as trade area studies, aggregate consumer behaviour studies, factors influencing shopping behaviour, constraints on shopping behaviour, and consumer behaviour within shopping centres (pp.33-61).
- The cognitive approach concentrates more on the perceptual dimensions of consumer decision-making. The basic assumption is that the most important stimulus to consumer decision-making is the perception of available alternatives. This forms the central theme of the cognitive behaviour approach, but an inherent difficulty has created problems for subsequent research. It is extremely difficult to distinguish whether an individual's perception of alternative shopping opportunities determines behaviour or is the result of spatial behaviour caused partly by intervening stimuli. Consequently, most recent research has been less ambitious in attempting only to provide information which might be used to show the relationship between the image of the shopping environment and behaviour (pp.61-74).

Similar reviews of behavioural approaches have been undertaken by Walmsley and Lewis (1993) and Golledge and Stimson (1997). The development of theories and models has not exactly been independent but mutually influential. Sometimes, development has derived from micro-economic theory or the advance of mathematical or statistical data analysis techniques, and a number of studies have been concerned

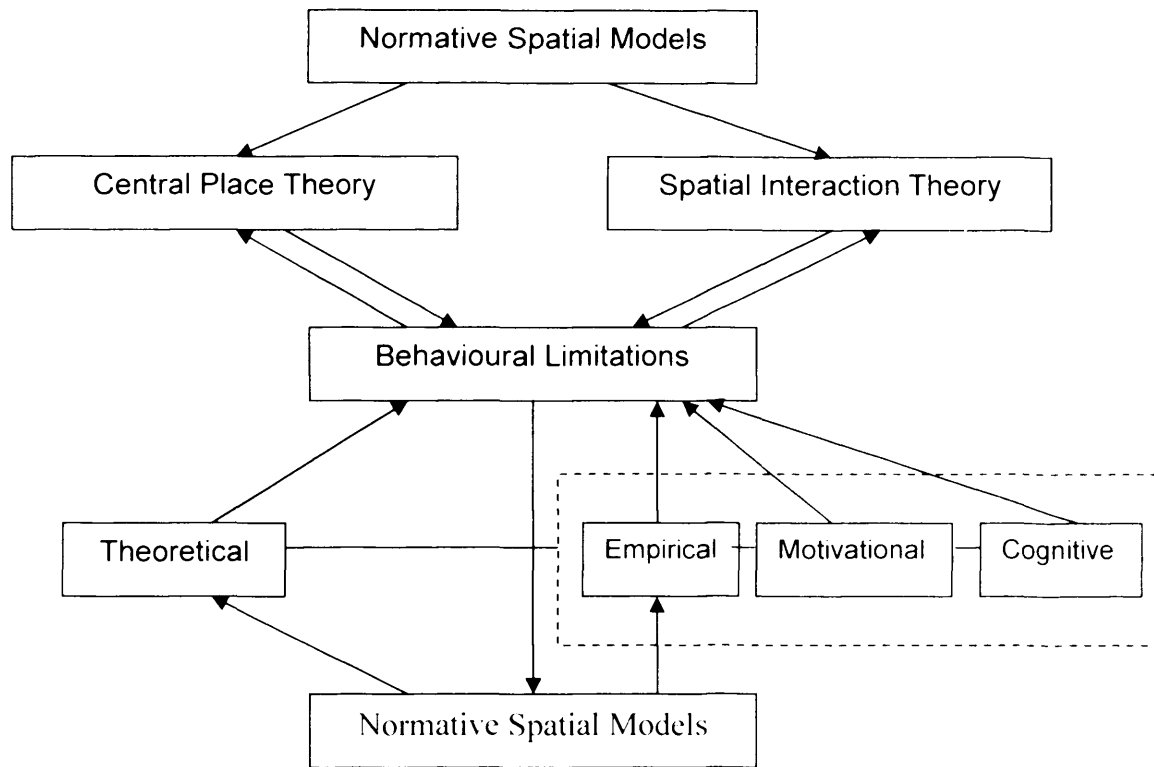
with developing probabilistic choice models which relate differences in attribute levels or scores on prospective utility (preference) functions to overt choice probabilities. Details will be specifically discussed in Section 2.2.4.

### **2.2.3 Classification of Shopping Destination Choice Studies**

In order to describe explicitly the evolution of shopping destination choice studies, some researchers have broadly summarised relevant models from their different academic disciplines/perspectives, for instance, Shepherd and Thomas (1980), Golledge and Stimson (1997), Fotheringham (1988<sup>a</sup>), and Popkowski and Timmermans (1997).

From the geography perspective, Shepherd and Thomas (1980: p.19) reviewed relevant models and categorised them as either normative spatial models or behavioural approaches (see Figure2-1). These two categories are described below:

- Normative spatial models represent an aggregate approach to the studies of consumer spatial behaviour, such as central place theory and spatial interaction theory (or gravity-types of models) (p.20).
- Behavioural approaches have contributed to the development of a theory of consumer behaviour based on information derived from the individual scale of investigation (p.29). These more detailed contents have been previously presented in Section 2.2.2.



**Figure 2-1 Interrelationships between Alternative Approaches to the Study of Consumer Shopping Behaviour**

Source: Shepherd and Thomas (1980: p.20)

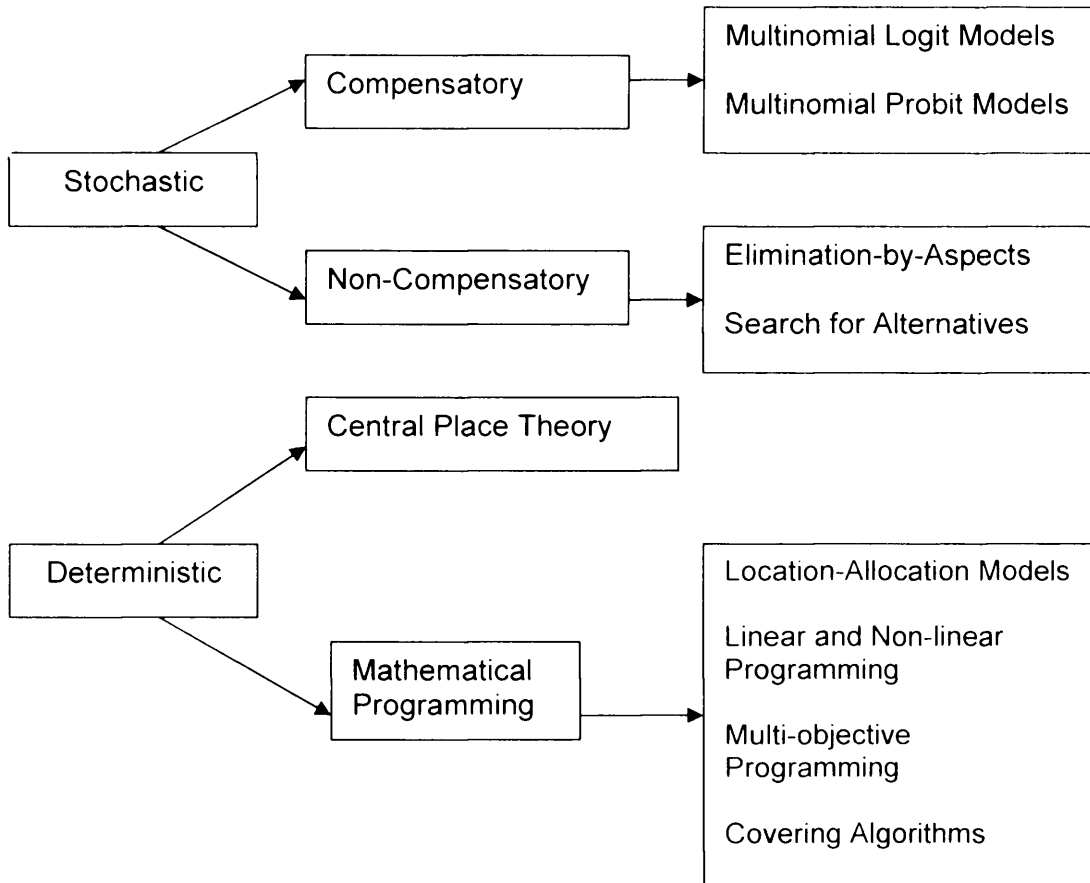
Concurrently, Golledge and Stimson (1997: pp.48-52) broadly categorised models involving decision-making and choice behaviour into four types, namely, classical normative models, descriptive models, behavioural models, and applied models using aggregate and disaggregate scales. In addition, based on applied decision models, Golledge and Stimson (1997: p.53) further introduced Timmermans' 1990 typology of decision-making processes tailored to some of the basic characteristics of patronage behaviour.

- Decision models that account for variety-seeking behaviour (e.g. recreational choice).
- Decision models that account for uncomplicated choice among limited alternatives (e.g. travel mode choice).
- Decision models that account for complex choice situations involving preference and attitude.
- Decision models that account for a choice by habit (e.g. stochastic models).
- Decision models that help simulate complicated choice outcomes (e.g. hybrid models).

Decision models that account for complex choice situations (e.g. preference and attitude measurements) or a choice by habit (e.g. stochastic models) have been adopted by many scholars in marketing research. For example, Fotheringham (1988<sup>a</sup>: p.121-122) referred to choice frequency analysis and market-share analysis for examining store choice and market behaviour. The former, store choice frequency models, are not primarily concerned with the store locations visited by consumers but with frequency of visits to certain types of store. A few well-known models, such as the Negative Binomial Distribution (NBD) and Dirichlet models, have been developed to explore this field (e.g. Keng and Ehrenberg, 1988; Wrigley and Dunn, 1988). However, as Popkowski, Sinha, and Timmermans (2000: p.327) have argued, these choice frequency analysis models provide good descriptions of market behaviour under equilibrium conditions, but do not provide information about the underlying causal variables explaining shopping behaviour. In contrast, the latter, market-share models, have been used to answer basic questions of 'Who shops where?' and 'What factors determine who shops where?' and are



presented in detail in Figure 2-2. These kinds of models can identify the cause-effect to explain patronage progress by way of mathematical approaches.



**Figure 2-2 Market Share Models**

Source: Fotheringham (1988<sup>a</sup>: p.126)

As shown in Figure 2-2, stochastic-compensatory models operate on the premise that a consumer's choice of a particular shopping destination is based on a variety of shopping centre attributes and there can be a trade-off between these attributes; that is, if a shopping destination scores poorly on some attributes (such as size), this, to some extent, can be compensated for by scoring highly on some other attribute (such as proximity to residence) so that a consumer may trade the advantages of shopping at a

large store, which is across town, to shop at a smaller but much closer store (Fotheringham, 1988<sup>a</sup>: p.127). Further, Fotheringham (1988<sup>a</sup>: pp.126-127) pointed out that the multinomial logit model, a stochastic-compensatory model, is appropriate for market-share modelling due to its easy application, ease of calibration, ease of interpretation, and strong theoretical basis.

Popkowski and Timmermans (1997: p.193) investigated studies with regard to consumers' shopping destination choice (or patronage) behaviour and identified four research directions:

- Most studies analyse the relationships between consumer store choice behaviour and a set of variables assumed to influence their shopping-choice behaviour.
- Some studies relate aspects of consumer choice behaviour to store or shopping centre attributes (e.g. Gautschi, 1981; Ghosh, 1984; Guy, 1987; Fotheringham, 1988<sup>b</sup>).
- Others take a more behavioural approach, arguing that it is not the physical attributes of the stores or shopping centres per se but rather consumers' perceptions and evaluations of these attributes that influence their shopping destinations (e.g. Timmermans, 1982; Louviere and Gaeth, 1987; Moore, 1990).
- Still other studies try to explain shopping patterns in terms of socio demographics.

#### 2.2.4 Discrete Data Analysis Technique Application

The term 'discrete' (also called non-metric or categorical) is used to refer to dichotomous and polytomous nominal variables as well as to dichotomous and polytomous ordinal variables (Fischer and Nijkamp, 1985: p.515). In the context of discrete choices, it is defined as decisions among a finite set of discrete alternatives. It is interesting to note that the concept was developed because of the inapplicability of the conventional marginalist microeconomic consumer theory (Fischer and Nijkamp, 1985: p.531; Golledge and Stimson, 1997: p.355). As Fischer and Nijkamp (1985: p.532) pointed out, the crucial difference is that in conventional microeconomic consumer theory, the utility is defined over a continuous commodity space and is assumed to be differentiable and convex with respect to these commodities, whereas in the human discrete choice case the feasible choice space is discrete.

Discrete choice models came to the fore in the 1970s. They are derived from two formal theories: Luce's choice axiom in 1959 and Thurstone's random utility theory in 1929 (Golledge and Stimson, 1997: p.55). Luce's theory assumes that the probability of choosing an alternative is equal to the ratio of utility associated with that alternative to the sum of the utilities for all the other alternatives in a choice set. His law is essentially a constant ratio decision rule. Thurstone's theory was developed as part of the basis of measurement scales for comparative judgement. Subsequently, random utility models, the foundation of discrete choice models, now assume there are unknown factors influencing a choice and that the utility component consists of a deterministic component and an error component due to the effect of unobserved factors that influence choice.

The family of discrete choice models includes the multinomial logit (MNL), the nested logit, the generalised extreme value (GEV), and the multinomial probit. Different distributions belonging to the parametric distributional family result in different additive

random utility choice models having different properties (Fischer and Nijkamp, 1985: p.534). Of all the discrete choice models, the most widely applied and tractable model is the multinomial logit model (Moore, 1990: p.122; Golledge and Stimson, 1997: p.355).

According to Solgaard and Hansen (2003: p.170), there are three important reasons for the widespread use of the MNL model in shopping destination choice research: (1) conceptual appeal being grounded in economic theory; (2) analytical tractability and ease of econometric estimation, and (3) excellent empirical performance as measured by model fit and other criteria. Concurrently, Suárez et al. (2004: p.120) also mentioned the MNL model has a strong theoretical base and is also easy to apply. Consequently, following similar decisions by Gautschi (1981); van der Heijden and Timmermans (1984); Fotheringham (1988<sup>b</sup>); Nisel (2001); Volle (2001); and Hansen and Solgaard (2004), the MNL model has been utilised in this study to examine consumers' shopping destination choice behaviour.

In order to derive and successfully apply the MNL model, Golledge and Stimson (1997: p.355-356) proposed six assumptions being satisfied:

- Each individual decision maker is assumed to be faced with a discrete set of choice alternatives. That is, discrete choices as  $A_{i1}$  through  $A_{ij}$ , where  $i$  denotes a given person, and  $j$  denotes a given choice. Thus,

$$A_i = (A_{i1} \dots A_{i1} \dots A_{ij})$$

- The choice rule for discrete choice models is utility maximisation. That is, an individual will choose that alternative yielding the highest utility (or  $U$ ). Therefore, alternative  $r$  will be selected if and only if,

$$U_r > U_g, \text{ for } g \neq r, g = 1, \dots, j$$

Specifically, the utility ( $U$ ) of choice  $r$  for person  $i$  is greater than choice  $g$ , where  $g$  stands for all choices other than  $r$ .

- The MNL is a model of probabilistic choice. In the event that the condition of competing alternatives holds, it will occur with the probability

$$P_{ri} = \text{prob} [U_{ri} > U_{gi} \text{ for } g \neq r, g = 1, \dots, j]$$

where  $P_{ri}$  is the probability of the individual  $i$  choosing alternative  $r$ .

- An individual's utility for each alternative is divided into two components,

$$U_{ri} = V_{ri} + E_{ri}$$

where:

$V_{ri}$  = the observed (or systematic) component of utility

$E_{ri}$  = an error (or disturbance) term that reflects the unobserved attribute of the choice alternative.

- Given the above definition of utility, the probability of choosing the  $r$ th alternative can now be written as:

$$P_{ri} = \text{prob} [V_{ri} + E_{ri} > V_{gi} + E_{gi} \text{ for } g \neq r, g = 1, \dots, j]$$

which can be rearranged to express the following:

$$P_{ri} = \text{prob} [E_{gi} - E_{ri} < V_{gi} - V_{ri} \text{ for } g \neq r, g = 1, \dots, j]$$

This is known as the random utility model. As already referred to, the equation states that the probability that individual  $i$  will choose alternative  $r$  can be defined in terms of the difference between the random utilities of alternative  $g$  and alternative  $r$  being less than the difference between the observed utility levels of alternative  $g$  and alternative  $r$ .

- The MNL model is derived by making assumptions regarding the random component of utility.  $E_{ri}$  is independently and identically distributed (IID). This leads to a computationally tractable form of the model:

$$P_{r,i} = \frac{e^{V(Z_r, S_i)}}{\sum_{g=1}^G e^{V(Z_g, S_i)}}$$

where:

$V(Z_r, S_i)$  is the deterministic part  $Z_r$  of the utility of choice alternative  $r$  of individual  $i$  with socio-economic characteristics  $S_i$ .

Although the MNL model has been widely used in shopping destination choice modelling, it has also been strongly criticised (e.g. Volle, 2001: p.67; Solgaard and Hansen, 2003: p.170; Suárez et al., 2004: p.119). For example, Suárez et al. (2004: p.119) presented two main drawbacks of the MNL model. First, it is assumed that sensitivity to variables of attraction and dissuasion can be considered the same for all consumers. Secondly, this model can only be applied to situations in which alternatives from which consumers can choose are totally independent.

### 2.3 DETERMINANTS OF SHOPPING DESTINATION CHOICE

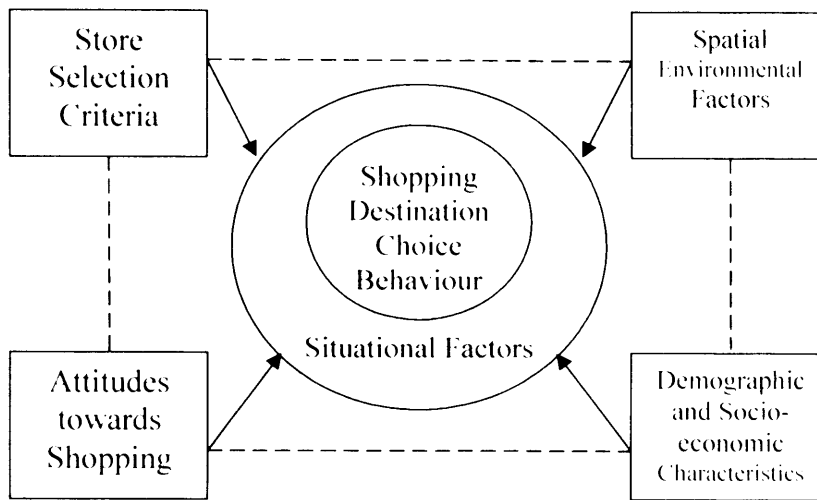
Most shopping destination choice studies focus on the relationships between consumers, shopping destination choice behaviour and a set of variables assumed to influence their patronage behaviour (Popkowski and Timmermans, 1997: p.193). A variety of determinants affecting shopping destination choice have been revealed and included in different research models.

For example, Arnold et al. (1996: p.230) concluded that among these models, shopping destination choice is modelled variously as a function of the importance and perception of store attributes, store attitudes, general shopping patterns, buyer/householder demographic and socio-economic characteristics, situational influences, and retail/marketing strategies. More recently, Ibrahim and McGoldrick (2003)

built their shopping destination choice models using social economic characteristics, shopping centre attributes, transport mode (or travel attributes), and buying situations.

However, as Rust and Donthu (1995: p.103) point out, it is a practical impossibility to include all of the variables that affect shopping destination choice behaviour. They gave several reasons for this. First, some variables may be very difficult to measure, and thus they are not practical to include. Second, some variables that affect choice may not have been conceptualised or identified by the researcher. Third, even if it were possible to identify and measure all relevant predictors, it would not be advisable, because the use of too many variables leads to parameter instability and a decline in predictive accuracy.

Therefore, the present study attempts to extract major determinants, but not all influential factors, because of the lack of prior empirical results related to shopping destination choice behaviour in Taiwan. Figure 2-3 shows selected determinants in this research, namely, situational factors, spatial environmental factors, store selection criteria, buyer/household demographic and socio-economic characteristics, and attitudes towards shopping.



**Figure 2-3 Determinants of Shopping Destination Choice**

### 2.3.1 Situational Factors

To understand consumer behaviour within retail environments, situational factors are of great importance (Hackett et al., 1993: p.378). Situational factors refer to the parameters or conditions of the shopping trip, which will define the weighting of the importance of the factors affecting the choice of shopping centre. Many studies, such as those of Mattson (1982), van Kenhove et al. (1999), and Ibranhim and McGoldrick (2003), have reported the significant influence of situational factors in consumers' shopping destination choice behaviour.

For instance, Mattson's study in 1982 (p.46) investigated the influence of two important shopping situational attributes – time pressure and shopping for a gift versus for oneself. Results showed that these situational attributes influenced store-visit likelihoods and store-attribute saliencies, and suggested their use in developing segmentation and positioning strategies.



More recently, Ibrahim and McGoldrick (2003: p.131-134) conducted exploratory research and found seven main situational factors which help explain different patronage behaviour, namely, type of shopping goods, anticipated load/amount of goods, type of requirements, accompanying structure, mood of shoppers, weather conditions, and time of shopping trip. In terms of type of shopping goods, for example, they found in shopping for convenience goods, shoppers travelling via public transport were more likely to choose the nearest shopping centres, with a reasonable choice of the goods they wished to purchase. In contrast, for clothing shopping, shoppers did not mind travelling further for greater choice, as wider choice seemed to be a relatively more important attribute in clothing shopping. Likewise, Arentze and Timmermans (2000: p.372) also indicated this two-goods system is essential for modelling shopping destination choice behaviour in impact studies.

### **2.3.2 Spatial Environmental Factors**

Spatial environmental factors relevant to shopping destination choice relate to the measurement of spatial separation. Factors, in terms of distance to be travelled or time for such a trip, have received much attention in research on shopping destination choice, see, for example, Stanley and Sewall (1976); Fotheringham (1988<sup>a</sup>); Fotheringham and Trew (1993); Tang et al. (2001); Baltas and Papastathopoulou (2003); Hansen and Solgaard (2004); and Suárez et al. (2004) regarding the importance of the location or distance variable in shopping destination choice.

More particularly, Fotheringham (1988<sup>a</sup>: p.137) identified different measures of spatial separation. They are:

- The interzonal separation of individuals and stores;
- The intrazonal separation of individuals and stores;

- The spatial separation between stores to calculate the store competition variable.

While travel time can be used for all three measures, it is generally not feasible to obtain accurate travel times for even a small urban system (Fotheringham, 1988<sup>a</sup>: p.137). Therefore, he suggested geographic distance as a travel proxy and, in particular at disaggregate scales, it can easily be obtained from coordinates by the following metric:

$$d_{ij} = (|x_i - x_j|^p + |y_i - y_j|^p)^{1/p}$$

where the coordinate of place  $i$  is  $(x_i, y_i)$ . If  $P=2.0$ , then the distance calculated is a straight line; if  $P=1.0$ , the distance is rectangular. Here, the study will adopt the simple straight line distance to measure the interzonal and intrazonal separation of individual households and shopping centres.

### 2.3.3 Store Selection Criteria

Store selection criteria are designed to investigate reasons why a consumer patronises a particular shopping destination. To be specific, these criteria indirectly reflect store attributes which are attractive to consumers when deciding where to shop. For instance, McGoldrick (2002: p.93-94) compared reasons for selecting a grocery shop and pointed out the importance of convenience, price, product assortment, and car parking. Baltas and Papastathopoulou (2003: p.504) reported store selection criteria to include store brands, price level, merchandise quality, merchandise variety, store atmosphere, service, and location. Further, Solgaard and Hansen (2003: p.170) reviewed relevant studies and identified a number of different attributes as important to the consumer's evaluation of stores, namely, merchandise assortment, merchandise

quality, service in general, personnel, store lay-out, convenience, cleanness and atmosphere. Other relevant studies are summarised in Table 2-1.

However, there is extensive evidence that the importance of these criteria is highly dependent upon situational factors, such as price, period, people, and purpose (McGoldrick, 2002: p.94). Thus, as previously indicated, this study will employ store selection criteria to investigate which are most influential when consumers decide where to shop for different types of shopping goods, namely, convenience and comparison goods.

**Table 2-1 Store Selection Criteria**

Store Selection Criteria	Authors/Date
Adequate rest area/ rest room/ knowledgeable salespeople/ liberal return policy/ guarantees/ credit/ delivery/ repair/ assembly	Burnett (1996)
Consumer service (service in general, waiting time at the checkout counter, fast check-out, etc.)	Burnett (1996); Home (2002); Broadbridge and Calderwood (2002); Baltas and Papastathopoulou (2003) ; Solgaard and Hansen (2003)
Convenience (proximity to home or public transportation, location/ easy to go to, etc.)	McGlodrick (2002); Solgaard and Hansen (2003)
Familiarity level with the store lay-out and product location	Tang et al. (2001); Solgaard and Hansen (2003)
Low price (price level, price format, attractive price, etc.)	Burnett (1996); Karande and Ganesh (2000); Home (2002); Tang et al. (2001); Broadbridge and Calderwood (2002); Baltas and Papastathopoulou (2003); Solgaard and Hansen (2003)
Merchandise assortment	Home (2002); Solgaard and Hansen (2003)
Merchandise quality (high quality, always fresh products, etc.)	Burnett (1996); Home (2002); Broadbridge and Calderwood (2002); Baltas and Papastathopoulou (2003);

Store Selection Criteria	Authors/Date
	Solgaard and Hansen (2003)
Merchandise variety	Burnett (1996); Home (2002); Broadbridge and Calderwood (2002); Baltas and Papastathopoulou (2003); Solgaard and Hansen (2003)
Modernity of the store	Home (2002)
Parking space (for the disabled parking)	Burnett (1996); McGoldrick (2002); Solgaard and Hansen (2003)
Personnel (friendliness of the employee, helpful personnel, etc.)	Home (2002); Solgaard and Hansen (2003)
Store atmosphere	Donovan and Rossiter (1982); Donovan et al. (1994); Baltas and Papastathopoulou (2003); Solgaard and Hansen (2003)
Store brands	Keng and Ehrenberg (1988); Baltas and Papastathopoulou (2003)
Store loyalty	Tang et al. (2001)
Store promotion (store-specific price discounts, coupons, loyalty rewards, loyalty cards, advertisements in local papers, relevant advertising, etc.)	Tang et al. (2001); Volle (2001); Home (2002); Broadbridge and Calderwood (2002); Solgaard and Hansen (2003)
Recreational	Karande and Ganesh (2000)
Fresh food counter/ longer opening hours/ bright and modern shop/ good own label range/ recycling facilities/ restaurant or coffee shop/ baby changing rooms/ opportunity to meet friends or neighbours/ reliable bus service	Broadbridge and Calderwood (2002)
Long opening hours/ many new product introductions/ often taste samples/ good variety of organic products/ good speciality department/ easy to access stores/ good variety of ready to eat products	Solgaard and Hansen (2003)

### **2.3.4 Buyer/Household Demographic and Socio-economic Characteristics**

Despite the obvious importance of detecting the general store attributes that influence consumer decisions, related studies, such as those of Moore and Mason (1969); Fotheringham and Trew (1993); Home (2002); Solgaard and Hansen (2003); and Ibrahim and McGoldrick (2003), suggest that demographic characteristics are also influential. Generally, these characteristics can be divided into two hierarchies, namely, buyers' (or individuals') and households' attributes.

For instance, Scott et al. (1990) reported individuals' social class differentiated patronage behaviours. Further, Solgaard and Hansen (2003: p.171) found household size, household number, and age of children influenced shopping destination choice behaviour. Also, household characteristics, such as income, working hours, and availability of a car, put restrictions on as well as provided opportunities for what was feasible for the household in terms of grocery purchasing. Sequentially, Ibrahim and McGoldrick (2003: p.135) mentioned, among others, main buyers' characteristics which affected shopping destination choice included sex, age, marital status, income, race, and transport ownership structure.

Home (2002: p.151) presented more detailed demographic characteristics in his study which investigated the shopping destination choice of rural consumers. Table 2-2 lists main demographic characteristics based on buyers' and households' attributes.

**Table 2-2 Main Demographic Characteristics**

Buyers' Attributes	Households' Attributes
Sex	Social-economic status
Age	Family size
Education	Family life cycle
Employment	Income level
Location of work place	Membership in a cooperative retail system
Health	Conditions for mobility
Attachment to the community	Standard of household appliances

Source: Home (2002: p.151)

### 2.3.5 Attitudes towards Shopping

The study of attitudes has a long and complex history in social psychology (Oppenheim, 1992: p.174). According to Thomas (1978: p.3), an attitude is considered to be a property of an individual personality, less enduring than temperament, but more enduring than a motive or a mood. From the cognitivism standpoint, it seems easy to identify a relationship between attitude and behaviour. East (1990: p.63) commented that, from the cognitivism perspective, in its strongest form, attitude controls behaviour, and reinforcement only acts by changing attitude. Therefore, through attitude measurement, consumer patronage behaviour is more likely to be predicted or explained (e.g. Korgaonkar, Lund, and Price, 1985; East, 1997).

Although the problem of attitude-behaviour inconsistency has been a widely debated issue over the decades, attitude research and behaviour prediction has applications well beyond the field of marketing (East, 1997: p.109). A review of relevant literature indicates some studies report little or no relationship between measures of attitude and behaviour, whereas others report a pronounced effect. One of the earliest examples of what is described as attitude-behaviour inconsistency was provided by LaPiere (1934), and Wrightsman (1966) and Wricker (1971) also pointed to the gap

between attitude and behaviour (Thomas, 1978: p.5). Thomas (1978: p.5) countered early studies arguing attitude was the sole predictor of behaviour. In his view, behaviour in any given instance is likely to be the result of multiple determinants, including attitude. Similarly, in their study, Korgonkar, Lund, and Price (1985) found attitude caused shopping destination choice but the reverse effect was insignificant, whereas East (1997: p.121) reported attitude influenced shopping destination choice but the reverse effect was significant.

Broadbridge and Calderwood (2002) employed attitude statements to uncover residents' shopping destination choice and their attitudes towards local shops. Findings revealed that although respondents held a positive overall view of their local shops, less than one-third purchased a high proportion of their food shopping in local shops. Karande and Ganesh (2000: p.36) used attitudes towards shopping to analyse who shopped at factory outlets. Hallsworth (1991: p.19) indicated that over a period of years, attitude statements had come to be incorporated as additional variables in surveys of grocery shopping behaviour. He quoted Guy's research in 1984, offering the most comprehensive analysis of shopper attitude data, with findings drawn from the Cardiff consumer panel (pp.19-20). Table 2-3 lists attitude statements for grocery shopping in Guy's research. The present study will develop similar attitude statements to measure respondents' attitudes towards shopping and predict their shopping destination choice behaviour. Further details will be found in Chapter 5, Section 5.3.

**Table 2-3 Attitude Statements for Grocery Shopping**

- (1) Getting shopping done quickly is important to me.
- (2) I try to avoid walking for more than five minutes with a bag of shopping.
- (3) I don't mind going out of my way to get to better shops.
- (4) I find the staff more friendly in small shops.
- (5) Chain stores and supermarkets make for better grocery shopping all round.
- (6) I would prefer to do all my shopping just once a week.
- (7) There's not much difference between shops these days.
- (8) The way a person shops for the household groceries is a good indication of how capable they are all round.
- (9) I prefer to shop at the "small man" type of shop.
- (10) I find shopping for my groceries very tiring.
- (11) I usually do a lot of comparing of prices for ordinary food purchases.
- (12) When I am shopping I am usually in a hurry.
- (13) The convenience of local shops is worth the extra it can cost.
- (14) I usually try hard to look for bargains.
- (15) Going grocery shopping gives you the chance to meet friends and acquaintances.
- (16) Shopping for groceries is usually enjoyable.
- (17) I like shopping because it gets me out of the house.
- (18) Given a choice between good shops and good parking facilities, I would choose to shop where there is better parking.
- (19) I usually do my grocery shopping on a journey when I do other errands or other shopping.
- (20) I find that shopping is a nuisance and I like to get it done as quickly as possible.
- (21) I always try to buy good quality food, even if prices are higher.
- (22) When it comes to buying food price is not important to me.

Source: Hallsworth (1991: p.21)



## **2.4 THE RELEVANCE OF SHOPPING DESTINATION CHOICE TO RETAIL IMPACT ASSESSMENT**

### **2.4.1 The Concept of Retail Impact Assessment**

The definition of retail impact and the way it is measured have been refined over recent decades, and only by the late 1990s did there come to be a generally accepted view of what retail impact means and how it should be interpreted (England, 2000: p.7). According to BDP Planning and the OXIRM (1992: p.33), impact is of legitimate concern, it can be argued, for five principal reasons:

- Understanding the effects of change: any change in an economy or a physical environment is of legitimate concern to constituent institutions, organisations or individuals;
- Control of public costs: unregulated private actions may give rise to undesirable public or environmental cost (such as an effect upon transport infrastructure);
- The efficiency argument: the planning system is concerned with the efficient use and allocation of resources, particularly land;
- The equity argument: the degree of accessibility of different types of retail outlet and of shopping centres directly affects the standard of living of all consumers;
- The quality of life argument: the degree of accessibility of different types of retail outlet and of shopping centres indirectly affects the quality of life of individuals and groups in the society (through changes in the quality of town centres and other places where people shop).

In prior studies, retail impact is narrowly defined as a percentage of existing turnovers diverted to a new or proposed retail development (Noel, 1989: p.11). More recently, because of technical advances in planners' understanding of the retail system and through learning from the past experience of the effects of new retail development, the content of retail impact studies has expanded considerably. Based on reviews of the BDP/OXIRM (1992: pp.37-38), three kinds of impact of major new retail developments upon town centres have been classified, namely, economic, social, and environmental. Briefly, economic impact is concerned with changes in retailing turnover or trading patterns in shopping centres as a result of new retail developments; social impact is concerned with the equity of different forms of major new retail development; and, finally, environmental impact is concerned with the effects upon the environment as a result of new retail development, particularly in terms of traffic implications.

All impact aspects can be important in assessing the overall effects of a development, but attention is always focused on economic impact. This is because retail impact is fundamentally an economic concept, concerned with the diversion of trade from an existing shopping centre to a new development (England, 2000: p.13). Similarly, CB Hillier Parker and Savell Bird Axon (1998: p.24) pointed out that, although the BDP/OXIRM indicates that the term 'retail impact' has a very wide range of interpretations, much of the existing literature deals with the term in a very limited sense.

Trade diversion studies have examined each broad type of major new retail development (BDP/OXIRM, 1992: p.45). Trade diversion can be defined as the loss of trade from an existing shopping centre (or facility) as a result of a new retail development taking place, usually measured as a percentage of its turnover (England, 2000: p.211). However, percentage trade diversion is usually based on subjective judgement and suffers serious criticism (Drivers Jonas, 1992: p.77; England, 2000: p.81).

Here, this study will use shopping destination choice models to measure trade diversion based on changes in individual behaviour after the new retail development, the Taiwan Sugar Mall, has entered the existing retailing system.

Moreover, Noel (1989: p.1) argued that impact assessment is useful only if it accurately predicts the likely impact and provides effective input into the decision-making process. Similarly, England (2000) stated that the importance of retail impact assessment in the British planning system lies in its application in the context of planning policy and decision (p.14), and the relevance of retail impact to urban planning lies in the need to assess the effects of new or proposed retail developments on existing shopping centres (p.7). The linkage between impact studies and the decision-making process has been successfully established in the U.K. For instance, since 1996 and the revised PPG6, the interpretation of retail impact has been broadened beyond trade diversion, to include wider considerations of impact on the vitality and viability of town centres and sustainability. Therefore, it is an essential part of retail impact studies to employ accurate techniques to scrutinise effects of new or proposed retail developments on existing shopping centres and then make informed judgements as a basis for planning decisions.

#### **2.4.2 Retail Impact Study Approaches**

A comprehensive research study on retail impact assessment (RIA) was carried out by Drivers Jonas for the Scottish Office (Drivers Jonas, 1992). After reviewing RIA methodologies, Drivers Jonas (1992: pp.59-60) summarised the 'common elements' of each approach as:

- (1) Identify the study and/or catchment area;
- (2) Estimate expenditure within the study and/or catchment area;

- (3) Estimate turnover of existing shopping centres;
- (4) Estimate turnover of the new retail proposal;
- (5) Estimate the amount of spending in each existing centre which will be diverted to make up the new store's turnover;
- (6) Express the amount of diverted trade from each centre.

Inevitably, disagreements as to how to calculate impact generally arise towards the end of the process, usually from stage (4) onwards. Drivers Jonas (1992: p.77) suggested that the 'science' of retail impact analysis rapidly transforms into subjective assessment at this stage in the assessing process. Consequently, it becomes an essential part of retail impact studies to employ appropriate approaches to calculate impact. A variety of approaches have been developed in order to accurately measure effects. In brief, Noel (1989: pp.12-13) categorised them into two groups:

- Retail gravity (Spatial interaction) models: these models rely on complex equations which rest on the gravitational law that large centres attract shoppers, and the friction of distance theory which sees travel time and cost as potential deterrents.
- Step-by-step approaches: these approaches have many branches, including the traditional approach, the market share approach, the trip rate approach, and other variants, and proceed in stages with simple calculations clearly presented in each case. There are even hybrid approaches which adopt some of the characteristics and assumptions of the gravity model but are calculated using a stage-by stage method.

Noel (1989: p.11) further indicated it is possible to identify three different types (distinct methods) of impact studies based on their application:

- Post-hoc studies of retail performance which attempt to draw a statistical picture of the trading patterns which emerge as a result of new retail development.
- Shopping models which use a mathematical formulation to reproduce existing trading patterns in a spatial system and assess the effect on expenditure flows of new retail development.
- Predictive impact assessments (or 'a priori studies') which are used to determine the likely effects of proposed retail developments.

The fundamental difference between the first two types and the third is that estimations of turnover and trading impact are made retrospectively in the former – using survey techniques, and by using modelling or projection in the latter (Noel, 1989: p.12). Among these approaches, are shopping models introduced in the 1960s and early 1970s. The models produced during these periods were very crude and were often inappropriate simplifications (England, 2000: p.67). Batty (1985, cited in England, 2000: pp.67-68) expressed four major criticisms of them: (1) the theory was at an extremely low level; (2) the data required by the theory was often unavailable, and sometimes not measurable; (3) the models often posed computational problems of size and solution; and (4) what could be theorised about and what could be modelled often did not match the precise requirement of the decision-makers.

However, through the advance of shopping destination choice models, some studies have expanded conventional shopping models or applied new mathematical (or statistical) approaches to supplement the deficiencies of prior shopping models in impact

studies (e.g. McGoldrick and Thompson, 1992; Timmermans, 1993; Birkin et al., 1996; Arentze and Timmermans, 2000, 2001; Arentze et al., 2000; Birkin et al., 2002). For instance, McGoldrick and Thompson (1992: pp.79-135) added the dimension of image to explain patronage behaviour between different shopping centres and identify possible impacts. Timmermans (1993: pp.342-377) reviewed the application of spatial shopping behaviour models for predicting the feasibility and impacts of retail development location plans. Birkin et al. (1996: p.103) indicated that appropriate spatial interaction models can be calibrated to assess the likely impact of a new store. In addition, Arentze and Timmermans (2001: p.334) suggested replacing conventional shopping models with their new multipurpose model system in order to improve the sensitiveness of retail impact analysis.

### **2.4.3 Empirical Evidence of Out-of-town Retail Development from Western Countries**

The evidence of retail impact varies between different types of retail development. In the UK, these types of retail development have evolved in a series of decentralisation waves (Schiller, 1986, 1987; Fernie, 1995). The first two phases of decentralisation are associated with the growth of superstores (or hypermarkets) developed initially by food and grocery retailers and sequentially by retail warehouses, or retail parks operators, selling DIY, carpet, electrical and furniture goods. According to reported relevant studies, such as Brent Council (1986); Noel (1989, 1990); Bromley and Thomas (1989); Thomas and Bromley (1993); CB Hillier Parker and Savell Bird Axon (1998); and England (2000), impacts derived from these two types of retail development do not have sufficiently adverse effects on existing shopping centres.

For instance, Thomas and Bromley (1993: p.127) concluded, that since the late 1970s initial fears about the potentially drastic effect of superstores (or hypermarkets) on established shopping centres have gradually declined. However, there are still issues about these effects on small towns, such as market towns or district centres (CB Hillier Parker and Savell Bird Axon, 1998: p.7), although the initial development of retail warehouses (or retail parks) in the late 1970s was considered unlikely to have an adverse effect on existing shopping centres (Thomas and Bromley, 1993: p.134). However, the BDP/OXIRM review (1992) considered the evolution of retail parks offered a greater potential threat to traditional town centres than out-of-town food and grocery retailing. Thomas et al. (2004) took a similar view, suggesting the impact of retail parks would depend on their size and the range of comparison shopping they offered.

The third wave, the advent of out-of-town shopping centres in the 1980s, was viewed as more of a direct threat to the town centre. As Schiller (1986: p.13) pointed out, the third wave of decentralisation involved clothing, quality comparison goods, and some supporting services traditionally found in the town centre. As relevant impact studies have showed, such as those of Howard (1989, 1993); Howard and Davies (1991, 1993); and Roger Tym and Partners (1993), the effects of regional shopping centres vary considerably and it is difficult to generalise about their impact. Nevertheless, key issues appear to be the strength of existing shopping centres and the extent of the regional centre's catchment area (England, 2000: p.157).

For instance, Howard and Davies (1993: p.148) found the impact of the Metro Centre had been most adverse, not in the largest centre or even centres nearest to the Metro Centre, but in weaker centres and the weaker parts of centres. Similarly, research on the impact of Merry Hill shows the scheme has been a success commercially but it has had a serious effect on existing centres (Roger Tym and Partners, 1993). Also

controversial was the proposal for a larger-scale extension to Merry Hill which was called by the Secretary of State in 1995 but finally refused in 1997. Lowe (1998: p.61) indicated that the timing of the decision process made Merry Hill an important test case for the revised Planning Policy Guidance: town centres and retail developments (PPG6). England (2000: p.159) concluded that government policy had effectively brought an end to the development of regional shopping centres.

The fourth wave of out-of-town retail development was factory outlet centre development in the UK. Fernie (1995) indicated that the fourth wave differed from previous waves because a more up-market but value for money image was portrayed to higher disposable income groups. However, as Fernie's later study in 1998 (p.310) reported, changing government policy, new planning guidelines, and the suitability of these US formats to the UK market conspired to slow down the development of factory outlet centres and warehouse clubs.

Planned shopping centres became widespread in North America and Europe from the 1950s and 1960s onwards, respectively. However, as England (2000: p.186) indicated, there is no clear preferred approach to assessing retail impact in North America or Europe, and the methodology is much less developed than in Britain. In the USA, out-of-town shopping centres have had a much longer history. In a short space of time, planned shopping centres spread rapidly outside towns and cities throughout the USA, generating increasing concern about the impact of large shopping centre developments on traditional downtown areas. The retail function of the central business district (CBD) has suffered a serious decline (Lord, 1985; Guy and Lord, 1993). Evidence from Europe shows there are lessons to be learnt for the application of RIA in Britain, particularly the way in which impact assessment was used as the basis of the implementation of the Loi Royer in France (England, 2000: p.177). Further, in the



Netherlands, several impact studies have been conducted to determine location policies (e.g. Arentze et al., 2000; Arentze and Timmermans, 2000). For instance, Arentze et al. (2000: pp.501-506) illustrated the application of the decision table (DT) model in combination with a consumer choice model for neighbourhood centres' impact studies in Dordrecht. In addition, Arentze and Timmermans (2000: p.371-377) employed shopping models to predict the impacts of expansion on travel demands of consumers and market shares of shopping centres in Veldhoven.

## **2.5 DEVELOPMENT OF WESTERN STYLE LARGER OUT-OF-TOWN RETAILING IN EAST ASIA**

East Asian markets became particularly attractive to Western retailers during the early 1990s. According to Akehurst and Alexander (1995: p.206), the major reasons for expanding internationally are not only push but also pull factors. Examining North American and West European retailers entering East Asian markets, the push factors are market concentration and saturation within retailers' domestic markets, the increasing and significant size and power of individual retail organisations, and the organisational philosophy of being an international operation (Alexander and Myers, 1999: p.92). For instance, Wal-Mart, which is the world's largest retailer, derives 13.7 per cent of its sales from retail locations outside the USA and, similarly, Carrefour, the world's second largest retailer, derives 38 per cent of its sales outside France (McGurr, 2002: p.146). The pull factors are the sheer size of a total population of 3.4 billion in this region, the continuous economic growth (for the region as a whole, GDP was estimated to be increasing at 8 per cent p.a. in 1997), rapid social change (i.e. there has been a rapidly emerging middle class with increasing per capita income level which has created a boom in consumer demand), a dynamic and flexible labour force, the increasing

liberalisation of regulations (e.g. the openness of the market to foreign entry, and low taxes), and the underdeveloped retail market in terms of Western retail structures (Alexander and Myers, 1999: pp.92-94).

Through internationalisation of retailing, Western retailers enter into the local East Asian retailing system and stimulate retailing innovation, for example, larger store size, new retailer types (or formats), effective information systems, modern management techniques, or different distribution systems, etc. In terms of new retailer types, many studies have been conducted to explore the process of international retailing in particular countries in East Asia. For instance, Terasaka (1998) examined the development of convenience stores introduced from the United States in the early 1970s to Japan. Hitoshi (2003) used Carrefour as a successful case to explore the development of foreign retailing in Taiwan. In the Asian market, Taiwan was the first country where Carrefour established retail outlets. Factors contributing to the company's success were the underdeveloped hypermarket business, the largest food company as its local business partner, and the suitable distribution system (p.39). Sternquist and Jin (1998) investigated the rapid growth of discount stores in South Korea and the government's interventions in retail liberalisation. In 1996, the Korean retail market was formally liberalised, Makro was the first foreign retailer joint venture to open in Korea, followed by Carrefour and Marks & Spencer (Sternquist and Jin, 1998: p.352). Korean discount stores encompass various retailer types, such as membership wholesale clubs, hypermarkets, and supercentres (Jin and Kim, 2003: p.398). Lo et al. (2001) discussed problems and prospects of supermarket development in China. The first supermarket in China was established in 1981 as the Guangzhou Friendship Store (p.69). During the 1980s, supermarkets were mainly serving visitors from overseas, but have since become a new power in the retailing industry in China (p. 66).

However, as Alexander and Myers (1999: p.94) have pointed out, the fundamental political, economic, social, cultural, and retail structural conditions do not universally support the assumption that these markets will move inextricably towards a Western retailer model. Moreover, *Chain Store Age* in 1996 (April) reported various markets have differing levels of sophistication, from the elaborate vertical mall of Singapore, to Taiwan, which has no United States style shopping malls at all due to zoning restrictions (p.146). As noted by Wong and Yu (2003: p.62), the most critical reasons behind the failures of Western retailers appears to be a lack of understanding of local consumers and simply trying to transplant Western practices into local culture without taking local customs/practices into account.

## 2.6 CHAPTER SUMMARY

Shopping destination choice behaviour has, traditionally, been viewed as a patronage decision process that leads a consumer to patronise a particular shopping destination from his/her consideration set of shopping centres. Taking the research questions into account, this study will assume the patronage decision process is a simultaneous one and investigate households' shopping destination choice behaviour at different levels of store type based on single-stop trips, namely, convenience goods and comparison goods shopping trips.

Shopping destination choice (or patronage) behaviour has been widely studied for many decades and numerous models have been built and revealed. Among the earliest approaches to this subject is that of Reilly's law of retail gravitation and Christaller's (1933) central place theory. Huff (1964) overcame some of the limitations of Reilly-type retail gravity models and proposed an alternative probabilistic retail gravity model. His model provided an innovative schema upon which many scholars began to

build. As a result of the unrealistic nature of the distance-minimising postulate of classical central place theory and criticisms of aggregate gravity-type models, there has been a growing trend towards developing disaggregate behavioural models, which aim at capturing the specific nature of individual decision-making processes in a spatial context.

Discrete choice models came to the fore in the 1970s. The development of discrete data analysis techniques advanced probabilistic choice models. Of all the discrete choice models, the most widely applied and tractable model is the multinomial logit (MNL) model. Considering its strong theoretical base and easy application, the MNL model will be utilised in this study to examine consumers' shopping destination choice behaviour.

Most shopping destination choice studies focus on the relationships between consumers, shopping destination choice behaviour and a set of variables assumed to influence their patronage behaviour. However, it is a practical impossibility to include all of the variables that affect shopping destination choice behaviour. Because of the lack of prior empirical results related to shopping destination choice behaviour in Taiwan, the present study attempts to extract major determinants, namely, situational factors, spatial environmental factors, store selection criteria, buyer/household demographic and socio-economic characteristics, and attitudes towards shopping.

The relevance of shopping destination choice to retail impact assessment lies in the need to calculate the trade diversion from an existing shopping centre to a new development. Although the content of retail impact has expanded considerably, many existing impact studies still deal with 'impact' in a very limited sense – the economic test. In spite of post-hoc studies and predictive impact assessments, shopping models are utilised most commonly in impact studies.

Evidence from Western Countries suggests that out-of-town retail developments are likely to have a serious impact on existing shopping centres. The extreme example is the rapid decline of traditional downtowns in the USA. Most Western Countries, in particular the UK, have adopted intervention policy to reduce the influence derived from retailing decentralisation. In contrast, in Taiwan, the government intends to bring about decentralisation by way of the **Industrial and Commercial Composite Area Establishment Law** (ICCAE Law) to loosen rigorous land-use control. As the out-of-town shopping centre enters the existing retailing system, is it likely to change original consumers' patronage behaviour? 'What are the main factors affecting shopping destination choice behaviour in Taiwan's urban area?' 'What are the factors affecting changes in shopping behaviour over time in this area?' This research will endeavour to answer these questions.

Sequentially, Chapter 3 will provide details of current retail development in Taiwan in order to provide background information for constructing research designs and further assessing a new type of retail innovation, out-of-town shopping centre development.

## Chapter 3

# Taiwan's Retail Development Context

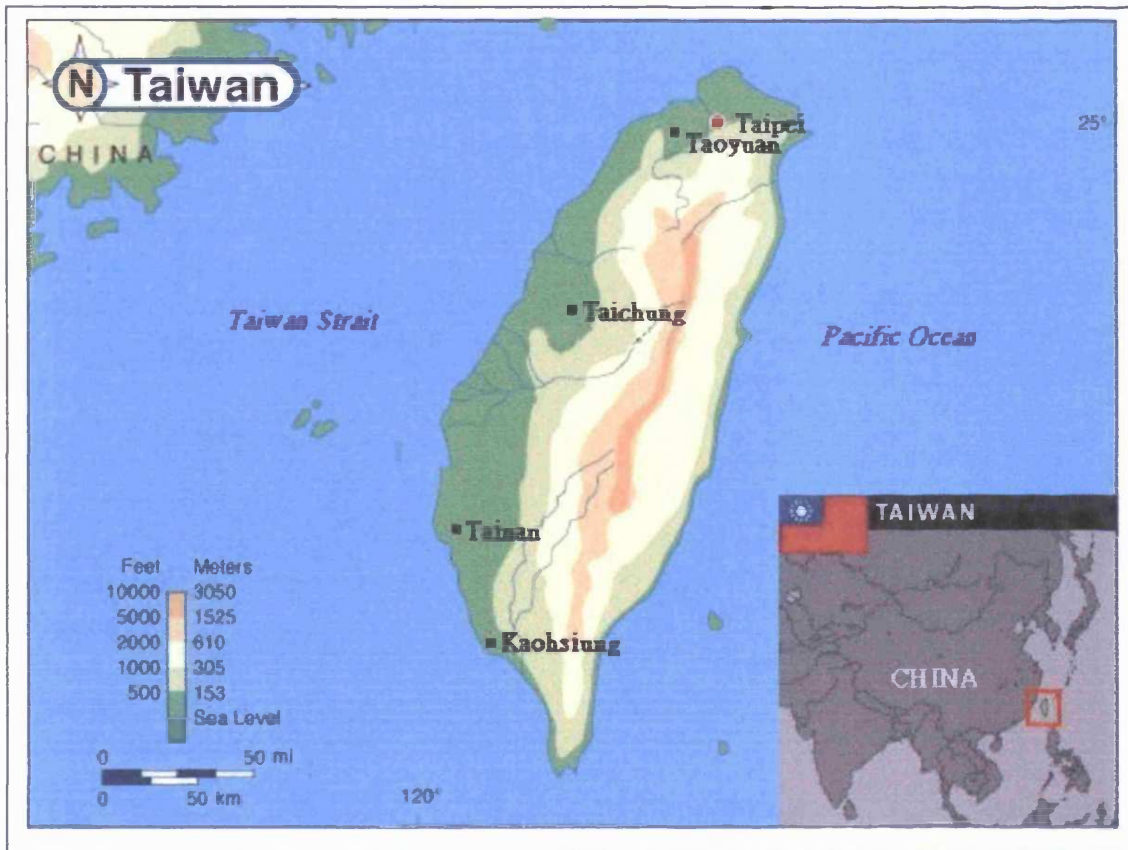
### 3.1 INTRODUCTION

Since the 1940s, Taiwan has experienced six stages of industrial development, namely, economic reconstruction, development of the consumer goods industry, rapid growth of light industry, development of capital and technology intensive industries, development of high-tech industries, and industrial restructuring in the 1940s, 1950s, 1960s, 1970s, 1980s, and 1990s, respectively (the Industrial Development Bureau of the Ministry of Economic Affairs, 2001). At the same time, the country has prospered to become one of East Asia's economic 'Tigers.' Following economic growth, there have been considerable changes in the nature of the retailing system and consumer behaviour on the island. In fact, the retailing system has been responsible for many changes and innovations, including the size, number, type and location of stores, the nature of ownership, and methods of selling, etc. All of these factors have contributed to enhanced profitability, reduced costs, and given consumers what they desire, since consumer behaviour is directly or indirectly affected by economic and social changes, including higher disposable incomes, improved educational levels, greater mobility, changing household sizes, employment conditions, etc.

This chapter details and explains current retail development in Taiwan in order to provide background information for constructing research strategies and further assessing a new type of retail innovation, out-of-town shopping centre development. The chapter commences with a brief description of Taiwan's location and geographic characteristics, pointing out its limited arable land. It then outlines the relationship between retail developments and planning policies in Taiwan. Here, the study presents the rigorous zoning regulations pertaining to land-use control and retail development, and then introduces major contents of the ***Industrial and Commercial Composite Area Establishment Law*** (ICCAE Law). The chapter subsequently focuses on the demand and supply sides of retail development. Demographics, household incomes, and expenditures, are examined to infer the capacity of retail demand in Taiwan. As regards the supply side, different types of retailers found in the retail system are discussed to reveal the development processes of traditional and modern retailers. Finally, a brief summary of the chapter's contents is provided.

### **3.2 GEOGRAPHIC CHARACTERISTICS OF TAIWAN**

Taiwan is located in Eastern Asia. Its main and smaller islands border the East China Sea, the Philippine Sea, the South China Sea, and the Taiwan Strait. It lies north of the Philippines, off the south eastern coast of China. Shaped roughly like a tobacco leaf, Taiwan is 394 kilometres (about 245 miles) long and 144 kilometres (about 89.5 miles) wide at its broadest point, and its total area is nearly 36,000 square kilometres (about 13,900 square miles) (GIO, 2002). Figure 3-1 shows Taiwan's location in Eastern Asia.



**Figure 3-1 Taiwan's Location**

Source: Modified from the Asia Society (1999)

The most important feature of Taiwan's topography is the central range of high mountains running from the north-eastern corner to the southern tip of the island, with the highest peak rising to over 4,000 metres (about 13,000 ft). Steep mountains over 1,000 metres high constitute about thirty-one per cent of the island's land area; hills and terraces between 100 to 1,000 metres high above sea level make up thirty-eight per cent; and alluvial plains below 100 metres in elevation account for the remaining thirty-one per cent (GIO, 2002). Figure 3-1 presents a topographical analysis of the island. As can be seen, most alluvial plains are distributed along the west coast, where most communities,



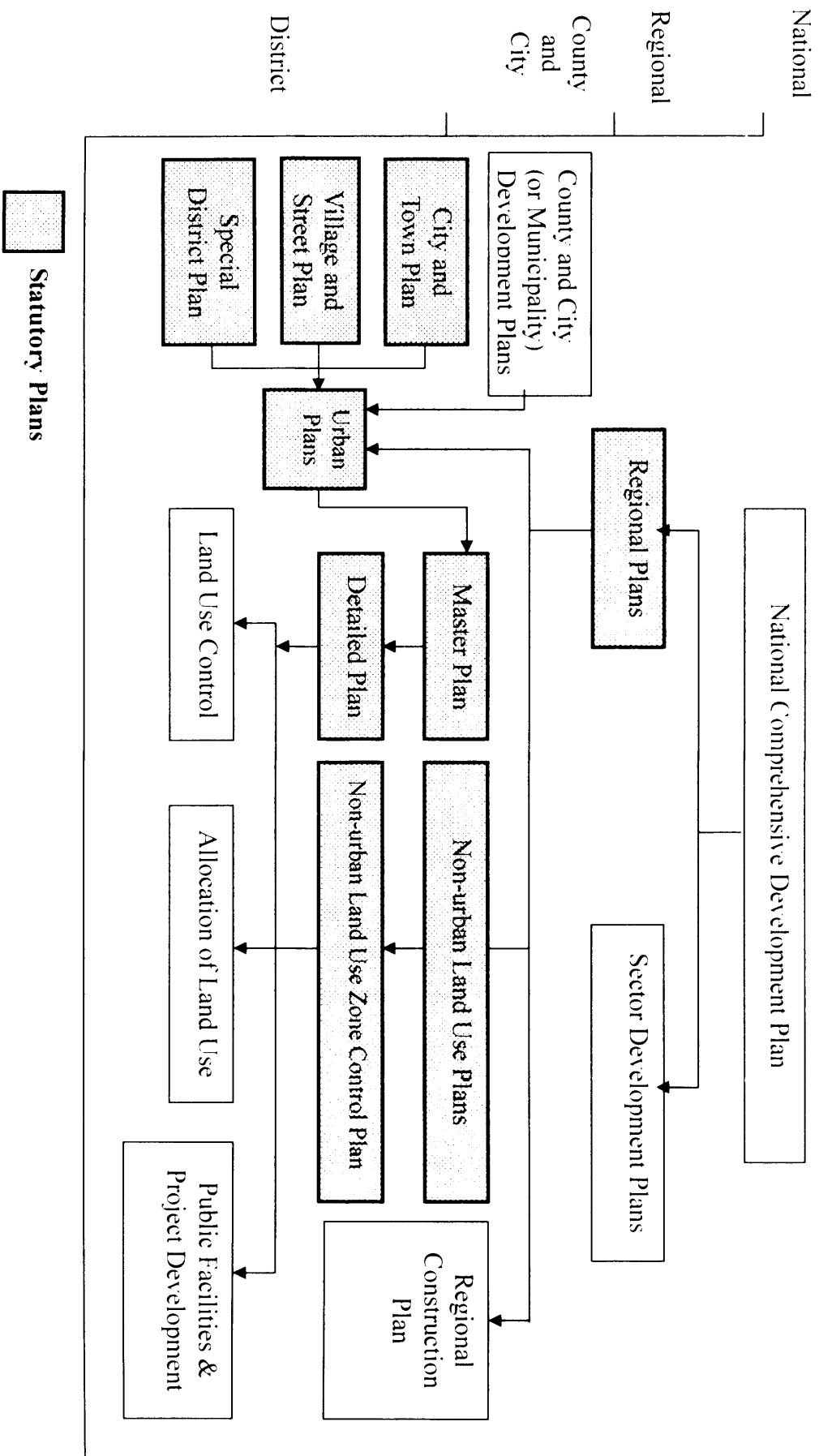
farming activities, and industries are concentrated. As a result of its geographic characteristics, the majority of the island's cities, such as Taipei City, Taichung City, Tainan City, and Kaohsiung City are located in this area.

### 3.3 PLANNING POLICIES TOWARDS LOOSENING RIGOROUS LAND-USE CONTROL

#### 3.3.1 Original Planning Policies and Rigorous Land-use Control in Taiwan

Planning policies in Taiwan are fulfilled by four tiers of loosely linked plans, i.e. national, regional, county and city, and district, consisting of specific statutory or non-statutory development plans (Ng, 1999: p.42). In 1997, the Construction and Planning Agency of the Ministry of the Interior (CPA, MOI) submitted draft proposals for the ***National Comprehensive Development Plan Law*** and the ***Urban and Suburban Planning Law*** to simplify the complex hierarchy of plans. To-date, these drafts remain in the legislating process. Therefore, there are still four tiers of linked development plans in the Taiwanese planning system as Figure 3-2 shows.

The top plan is the National Comprehensive Development Plan (NCDP), a non-statutory plan drawn up by the Department of Urban and Housing Development under the Council for Economic Planning and Development (CEPD) in 1979. This comprehensive development plan aims to promote a reasonable distribution of population and economic activities; to improve the living environment; and to conserve and develop natural resources (CEPD, 1987: p.2). Based on the NCDP, regional plans and other sector development plans are formulated. Regional plans and, statutory development plans, stipulated in ***Regional Planning Law*** and its ***Implementation Details***, are prepared by the CPA of the MOI. Regional planning divides Taiwan into four regions, namely, Northern, Central, Southern, and Eastern, using the objectives of the NCDP as guidance.



**Figure 3-2 Plan Hierarchies in Taiwan**  
 Source: Xin (1991)

Population growth and distribution, urban hierarchy, industrial location, land use, transportation system, natural resources, recreational facilities, and public works are well mapped out in time and space, and are developed, constructed, or conserved in accordance with the government's policies (CPA, MOI, 1985: p.1). Thus, the regional plan plays an intermediate, coordinating role in linking the NCDP with downstream development plans. Table 3-1 details the first promulgation and last overall review date of the four regional plans in Taiwan.

**Table 3-1 Promulgation and Last Overall Review Date of the Four Regional Plans**

Region	The First Promulgation <sup>1</sup>			The Last Overall Review <sup>2</sup>		
	Date	Target Year	Anticipated Population (Unit: 1,000 persons)	Date	Target Year	Anticipated Population (Unit: 1,000 persons)
Northern Region	9/5/1983	1996	9,290	24/11/1995	2005	7,786
Central Region	13/5/1982	1996	5,639	22/8/1996	2011	5,306
Southern Region	20/8/1984	2001	7,020	28/06/1996	2005	7,908
Eastern Region	23/7/1984	1996	766	24/6/1997	2011	876

Source: <sup>1</sup>CPA, MOI (1985: pp. 9-30); <sup>2</sup>CPA, MOI (2002<sup>a</sup>)

Following regional plans, county and city (or municipality) comprehensive development plans are derived. However, these development plans are not statutory in nature. According to the *Implementation Guidelines of the County and City Comprehensive Development Plan*, ratified by the Executive Yuan in 1987, the purposes of municipality or county and city comprehensive development plans are to promote economic development, improve the living environment, and allocate land for future development of public facilities, transport and communication, education and culture, medical services, tourism, environmental pollution prevention, industrial

development, social welfare, and so forth (Guideline 2). In brief, the county and city (or municipality) comprehensive development plan is a blueprint for the future development of municipalities, counties, and cities.

At the district level, statutory plans are made in accordance with **Urban Planning Law**. There are three types of urban plans: city (town) plans, rural-settlement plans, and special district plans. In addition, following each of these urban plans, two tiers of plans have to be prepared by local authorities based on **Urban Planning Law**: the master plan and the detailed plan. Except for the difference in scale, both master and detailed plans are zoning plans (Ng, 1999: p.44). According to **Urban Planning Law**, Section 15, the master plan is a land-use plan to allocate various types of zones. These zones include urban development districts and non-urban development districts. The former contains residential, commercial, industrial, public facility, cultural and educational, and administrative zones, etc. The latter contains agricultural, scenic, and protected zones, etc. Further, according to **Urban Planning Law**, Section 22, the detailed plan is a control plan to restrict the extent of land development by means of the building coverage ratio and floor space index, etc.

Table 3-2 shows the number of urban plan districts and the area of three types of urban plans in Taiwan Province, Taipei City, and Kaohsiung City. Although there were 456 urban plan districts in Taiwan up to the end of 2002, their planned area was merely 4,507 square kilometres, about 13 per cent of Taiwan's total area. However, according to figures released by the CPA of the MIO in 2002, about 78 per cent of the population lived in these districts, in contrast to 22 per cent of the population who lived in non-urban plan districts, about 87 per cent of the total area in Taiwan. This suggests that most urban plans in Taiwan, excluding special district plans, are prepared for high population density districts or rapid population growth districts. **Urban Planning Law** stipulates that districts

with populations more than 150,000 need to make city (town) plans (Section 10), while those with a population less than 150,000 need to draft rural-settlement plans if their populations have increased more than one-third from a population of at least 3,000 five years ago (Section 11).

**Table 3-2 Number of Urban Plan Districts and Area of Urban Plans in Taiwan**

	The Number of Urban Plan Districts	Area of Urban Plans (Unit: km <sup>2</sup> )			
		Total Area	City (Town) Plans	Village & Street Plans	Special District Plans
Total	456	4507.16	1,657.99	668.68	2180.49
Taiwan Province	437	4,091.52	1,270.45	668.68	2,152.39
Taipei City	1	271.80	271.80	-	-
Kaohsiung City	18	143.84	115.74	-	28.10

Source: CPA, MOI (2002<sup>b</sup>)

If authorities want to draw up new urban plans or amend existing ones, they need to calculate the legislated area for different types of land-use based on the current population and anticipated population in the target year. The anticipated population should follow upstream plans, such as regional plans and the NCDP. For instance, the commercial area for retail development in each urban plan should be strictly in accordance with *Urban Planning Law* and *its Implementation Details*, and the *Overall Review of Implementation Rules of the Urban Plan Period*. The *Overall Review of Implementation Rules of the Urban Plan Period*, Section 29, stipulates that the area of the commercial zone in each district should be calculated based on both the number of the population and the ratio of the area of the commercial zone to the area of the urban development district. Of note, the ratio also depends on urban hierarchies, such as regional centres, sub-regional centres, and district/local centres, etc. derived from

individual regional plans. Thus, urban plan districts having a dense population and belonging to a higher urban hierarchy are always allocated a larger area of the commercial zone. This is why, before the ICCAE Law was announced in 1994, large planned shopping centre development in Taiwan had been located in urban plan districts, especially in town (or city) centres belonging to a higher urban hierarchy (Pao, 2001; Thorne, 2002).

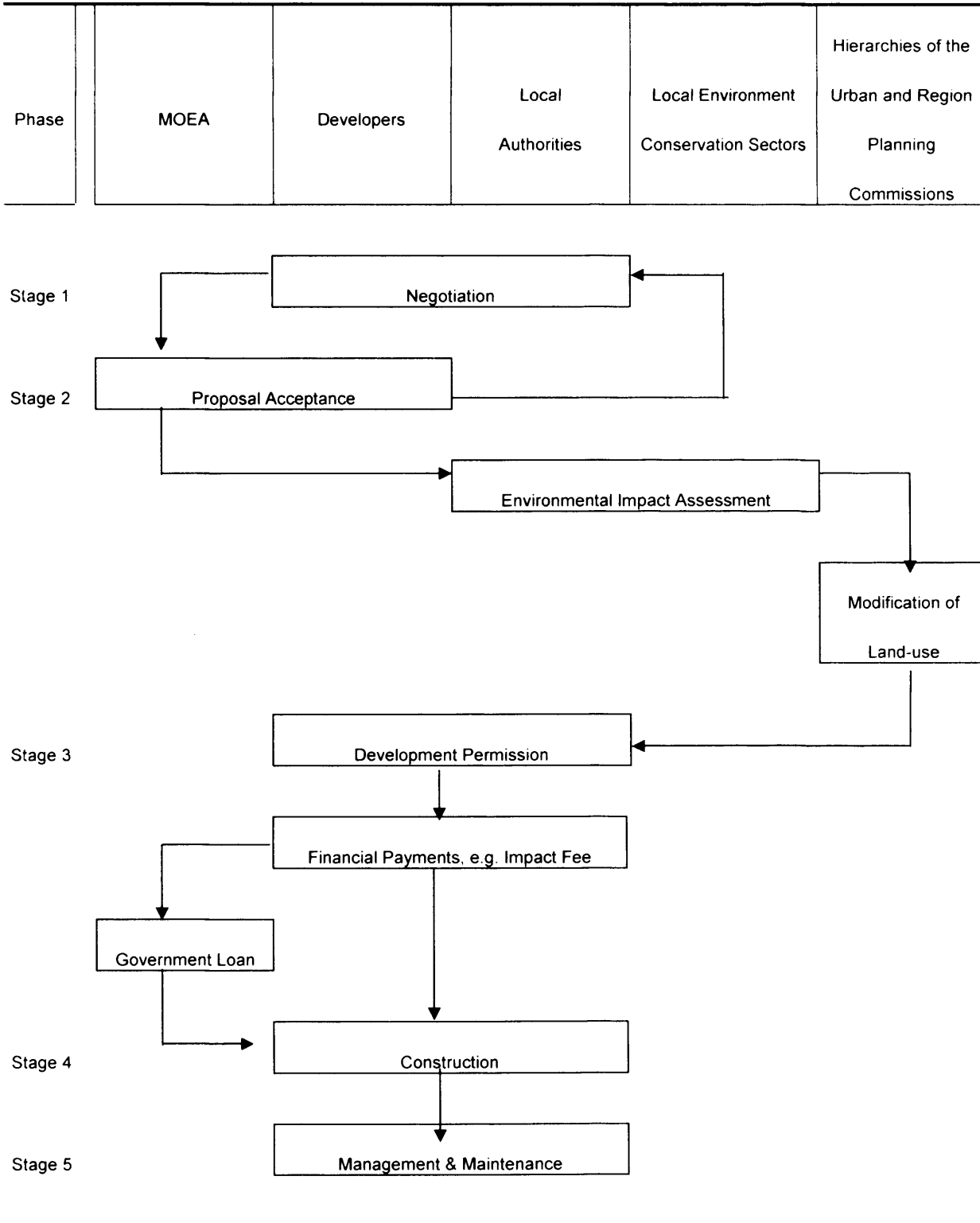
### 3.3.2 Advent of the ICCAE Law in 1994

As mentioned above, the planning system in Taiwan is fulfilled through the rigorous control of land-use. However, it is more likely to be economic driven, rather than driven by social goals. A review of the economic development process indicates that major economic policies have been made by the MOEA through specific laws linked to the planning system. Since 1960, three specific laws have been made to loosen the rigorous control of land-use, of which the ***Industrial and Commercial Composite Area Establishment Law*** (ICCAE Law) is the last (DOC, MOEA, 2002<sup>a</sup>). The ICCAE Law was promulgated by the MOEA and the MOI in 1994. Its aims are to promote economic development by promoting the modernisation of commercial activities, strengthening the distribution system between producing and selling to improve the quality of life, furthering the development of each local living space by efficiently utilising land resources, and cooperating with urban plans and regional plans in order to balance urban and suburban development (MOEA and MOI, 2003).

In addition, the ICCAE Law adopted the development permission concept, which differs from the traditional zoning control of land-use. Developers (or retailers) can now look for any potential site, either in urban or suburban areas, but require planning permission to establish mixed industrial-commercial districts. The only limitation is the

development area: five hectares in urban plan districts and ten hectares in non-urban plan districts. Further, in terms of the existing planning system, mixed industrial-commercial districts are special enterprise zones, derived from the *Urban Planning Law* (Section 32) pertaining to urban plan districts and the *Implementation Details of Regional Planning Law* (Section 13) related to non-urban districts. Based on the ICCAE Law, a mixed district can be planned for five different types of zone: a comprehensive industrial zone, distribution zone, business service and exhibition zone, repair service zone, and warehousing and shopping mall zone.

Figure 3-3 shows the planning application process for a mixed industrial-commercial district. The process can be classified into five stages: negotiation, recommendation, development permission, encouragement, donation and construction, and management and maintenance. First, the developer needs to negotiate with local authorities to obtain a development agreement. Second, the developer needs to prepare documents with details of the proposed development and send these to the MOEA. Before permission for development is granted, an environmental impact assessment (EIA) will be undertaken. If the proposed development is found to be environmentally viable, the developer will be required to follow the existing land-use modification process. This process is time consuming because of the four tiers of linked development plans in the Taiwanese planning system as mentioned above. According to figures published by the CPA of the MOI in 2002<sup>b</sup>, not taking into account possible delays, the estimated average working days are 150 days, almost 8 months. The developer can apply to the MOEA for a preferential loan based on the *Assignment Guidelines of the Preferential Loans for the Encouragement of Investment of Industrial and Commercial Composite Areas*. The developer will also be required to set aside part of the proposed land development as public facilities and green belt areas (approximately thirty per cent of the total



**Figure 3-3 Planning Application Process for  
A Mixed Industrial-Commercial District**

Source: Modified from the Department of Commerce of the MOEA (DOC, MOEA) (2002<sup>b</sup>)

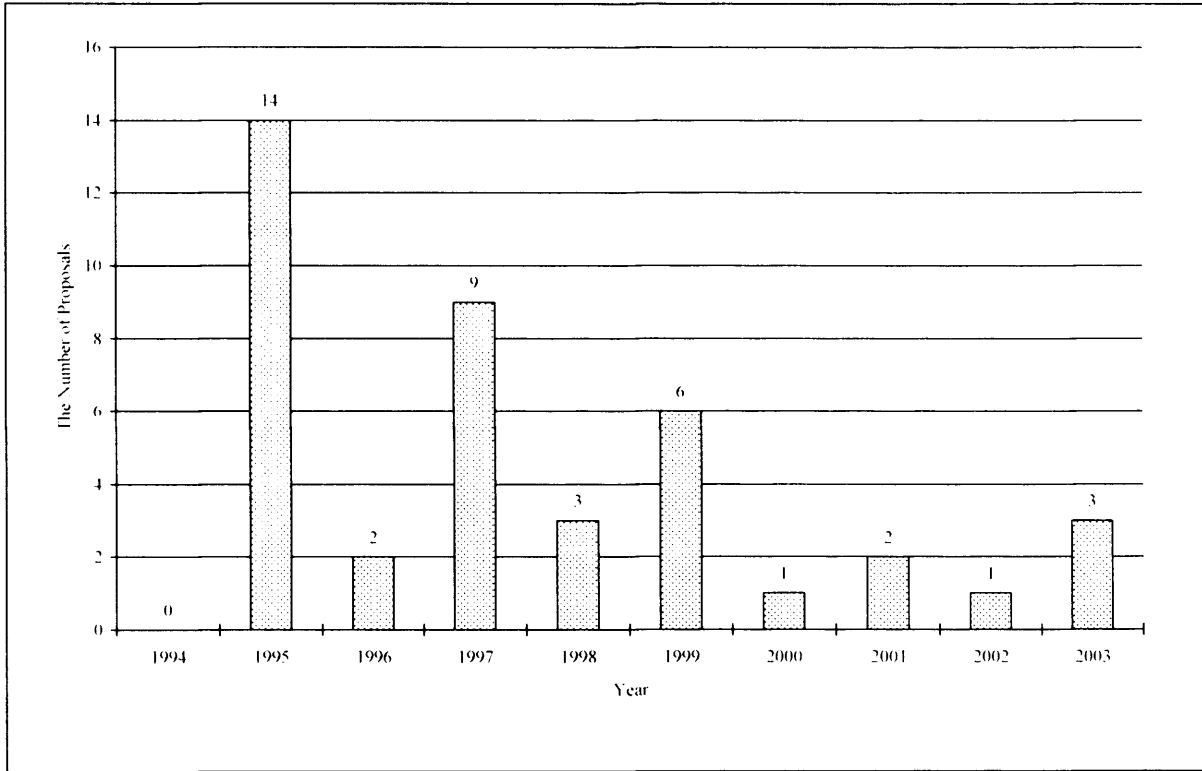


development area), pay a development impact fee, a specified sum for maintaining public facilities and greenbelt areas, and finance other items according to prior arrangements with local authorities. After all payment and construction arrangements have been followed, the developer must then apply to the local authority for a construction permit before commencing construction work. After all construction has been completed, the developer must then apply for a building use permit from the local authority and can then run his business operations.

However, reviewing the whole application process, there is no requirement that a retail developer or the authorities should carry out a retail impact assessment. As mentioned in Chapter 2, from Western Countries' experiences, larger out-of-town retail developments have been reported to have a serious impact on existing shopping centres, especially small shops in high streets (or town centres). Retail impact studies can reveal possible economic, environmental, and social issues in advance and provide feedback to planning policy and decision-makers. Thus, because of the lack of retail impact assessment of larger out-of-town retail developments in Taiwan, this present study was motivated to investigate the possible impacts of a new type of out-of-centre retail development, Taiwan Sugar Mall, entering the existing retail system.

### **3.3.3 Emergence of the New Type of Out-of-town Shopping Centre Development**

Since the ICCAE Law was promulgated in 1994, there have been sixty-six development proposals submitted to-date, comprising about 693 hectares, but only forty-one have been accepted, consisting of about 401 hectares (DOC, MOEA, 2004). Figure 3-4 shows the number of proposals accepted from 1994 to 2003. Most proposals were accepted in 1995, and since then the number of proposals has gradually decreased year by year.



**Figure 3-4 Development Proposals Accepted Between 1994 and 2003**

Source: DOC of the MOEA (2004)

According to figures published by the DOC of the MOEA in 2004, three of fourteen development proposals accepted in 1995 and one of nine accepted in 1997 have opened. That is, to-date four shopping malls have become operative. Three of them are located in Taoyuan in the North of Taiwan (see Figure 3-1), on the outskirts of Taipei Metropolitan Area, while another is located in the Tainan area. The first of the four to be opened was the Tai Mall Nankan Family Entertainment Shopping Centre on 4th July, 1999. The last of the four to be opened was the Taiwan Sugar Mall on 18th December, 2003.

Between 1994 and 2003, forty-one development proposals had received MOEA acceptance; of these, eleven had gained development permission but only four had been constructed and four were under construction. The remaining thirty-three were in the

development permission stage or the recommended development stage. A review of the relevant literature suggests four possible causes for the delay between acceptance of the development proposal and actual construction:

- Time-consuming development process: Thorne (2002) indicated much of this delay is the result of time-consuming zoning changes, permit processes of various kinds, and the vertical configuration of many malls, which means longer construction periods. For instance, the Tai Mall took almost five years to develop into a shopping mall, from 1995 to 1999, while the Taiwan Sugar Mall took almost eight years, from 1995 to 2003.
- Economic slumps: Most proposals have been evaluated optimistically based on a previous prosperous economic situation. However, Taiwan's national economic performance slowed sharply in the first quarter of 2001 and has continued to deteriorate. The results are starting to show in consumer habits, such as less spending, which influences development progress. For instance, in 2001, the growth rate of disposable income was -3.11 per cent and, similarly, consumption expenditure was -1.30 per cent. More detailed analysis is presented in Section 3.4.2.
- Lessons from opened centres: Turnover is the primary concern of retail development. According to Keliher (2001), the first opened mall, the Tai Mall, is already feeling the squeeze, as revenues for 2000 hit less than 30 per cent of projections, inferring consumers in Taiwan have not completely accepted this new type of shopping centre.
- Difficulty in looking for anchor stores: Many mall developers are actively seeking anchor stores and small tenants. However, in Taiwan, department stores have their own expanding strategies, for instance Shin Kong Mitsukoshi

Department Store had only 5 outlets in 1999 but 11 outlets in 2004. Further, hypermarkets have gradually changed their location strategies from off-centre to city centre (Chen, 2003). Thus, both department stores and hypermarkets are seemingly not willing to anchor at out-of-town shopping centres.

### **3.4 RETAIL DEVELOPMENT BACKGROUND DETAILS – DEMAND SIDE**

The preceding section has explained retail development and planning policies in Taiwan. This section will present further retail development background details, focusing on the demand and supply sides. With regard to the demand side, the study will briefly examine demographics, and household incomes and expenditures, to infer the capacity of retail demand in Taiwan. Regarding the supply side, the study will describe different types of retailers found in Taiwan's retail system, to reveal the development processes of traditional and modern retailers.

#### **3.4.1 Demographics**

The total area of Taiwan was 36,006 square kilometres in 2002. The island had a population of over 22 million people, average population density was 624 persons per square kilometre, the number of households was 6.90 million, and average household size was 3.25 persons (Urban and Housing Development Department, CEPD, 2003). Further, according to the *Bulletin of Statistics* of the Ministry of the Interior (MOI), the gender ratio was 104 males to 100 females, the birth rate was 11.02 per 1,000 persons, the death rate was 5.73 per 1,000 persons, and the social increase rate was -0.02 per cent. In other words, the difference between the birth rate and death rate was almost 0.53 per cent. When compared with the social increase rate, the total population increase rate was 0.51 per cent.

**Table 3-3 Area, Households, Population, Household Size, Density, and Age Structure in Taiwan, 1991-2002**

Year and Area	Area (km <sup>2</sup> )	Households (1000)	Population (1000 Persons)	Household Size	Density (Persons/km <sup>2</sup> )	Age Structure							
						0-14	%	15-64	%	65+	%		
Taiwan Area													
1991	36,000.02	5,216	20,557	3.94	571	5,412	26.33	13,804	67.15	1,341	6.52		
1992	36,000.02	5,344	20,752	3.88	576	5,347	25.76	13,995	67.44	1,411	6.80		
1993	36,000.02	5,485	20,944	3.82	582	5,265	25.14	14,193	67.77	1,486	7.10		
1994	36,000.02	5,636	21,126	3.75	587	5,156	24.41	14,413	68.22	1,557	7.37		
1995	36,000.02	5,805	21,304	3.67	592	5,062	23.76	14,616	68.61	1,626	7.63		
1996	36,000.02	6,007	21,471	3.57	596	4,970	23.15	14,816	69.00	1,686	7.85		
1997	36,006.18	6,185	21,683	3.51	602	4,901	22.60	15,037	69.35	1,745	8.05		
1998	36,006.18	6,351	21,871	3.44	607	4,803	21.96	15,265	69.80	1,803	8.24		
1999	36,006.18	6,513	22,034	3.38	612	4,722	21.43	15,454	70.14	1,858	8.43		
2000	36,006.18	6,662	22,216	3.33	617	4,691	21.11	15,612	70.27	1,914	8.62		
2001	36,006.18	6,782	22,340	3.29	620	4,649	20.81	15,725	70.39	1,965	8.80		
2002	36,006.18	6,904	22,453	3.25	624	4,586	20.42	15,844	70.57	2,023	9.01		
Northern Region	7,353.39	3,148	9,763	3.10	1,328	2,020	20.69	6,934	71.02	809	8.29		
Central Region	10,506.88	1,573	5,670	3.60	540	1,205	21.25	3,934	69.38	531	9.37		
Southern Region	10,002.08	2,000	6,424	3.21	642	1,245	19.38	4,564	71.04	616	9.59		
Eastern Region	8,143.82	184	596	3.25	73	116	19.46	413	69.30	67	11.24		

Source: Urban and Housing Development, CEPD (2003)

Table 3-3 presents details of area, households, population, household size, density, and age structure in Taiwan from 1991 to 2002. Examining the growth trend of the population, although the population has continued to increase, the percentage growth has gradually declined year after year, from 1 per cent in 1991 to 0.51 per cent in 2002. In contrast, the number of households has not only increased every year but the increase rate has also slowly increased. Based on these trends, household size would be expected to decrease year by year. Indeed, average household size was 3.25 in 2002, compared to 3.94 in 1991. According to a CEPD prediction in 1998, the population growth of the Eastern Region will be the first to reach zero in 2005, followed by the Southern Region in 2033, and the Northern Region in 2035. An examination of population age structure reveals a decrease in those aged 14 years and under, in contrast to an increase in those aged 65 or over. The former is due to a lower birth rate and the latter to a prolonged lifespan. According to the *Bulletin of Statistics* of the MOI, average life expectancy was 75.66 years in 2002, compared to 75.58 years in 2001. The 65 and over age group made up 9 per cent of the total population in 2002. This percentage is higher than the 7 per cent recognised threshold and points to a growing elderly population.

#### 3.4.2 Households' Income and Expenditure

Based on the *Survey of Family Income and Expenditure of 2003* (DGBAS, 2004<sup>a</sup>), the average income per household was NT\$ 1.13 million (almost £ 18,800). By deducting non-consumption expenditure, the average disposable income per household was NT\$ 0.8938 million (almost £ 14,890). Twenty-four per cent of the disposable income was retained as savings and the remaining seventy-six per cent was consumption expenditure.

Table 3-4 shows details pertaining to disposable income, consumption expenditure, and savings per household at the current price and 1996 constant price from 1971 to 2002. Removing the inflation effect, and based on the 1996 constant price, average disposable growth rate decreased from 7.34 per cent in the 1970s to 5.22 per cent in the 1980s, and went down to 3.65 per cent in the 1990s. Since 2001, Taiwan's economy has slumped and continues to deteriorate, particularly since the September 11 attacks on the United States (Thorne, 2002). Disposable income decreased further in 2001, to NT\$ 868,651 (about £14,478). However, an examination of the value of disposable income based on the 1996 constant price clearly shows that since the end of the 1990s, after the Asian financial crisis, the growth rate of disposable income has fluctuated. Similarly, consumption expenditures and savings follow the increase/decrease patterns of disposable income for this period.

**Table 3-4 Disposable Income, Consumption Expenditure, Savings Per Household, 1971-2003** **Unit: NT\$**

Year	At Current Price			At 1996 Constant Price		
	Disposable Income	Consumption Expenditure	Savings	Disposable Income	Consumption Expenditure	Savings
1971	50,280	45,526	4,754	203,412	184,179	19,233
1972	57,510	49,965	7,545	219,871	191,025	28,846
1973	71,054	60,311	10,743	236,134	200,432	35,702
1974	92,813	80,942	12,049	233,013	203,210	30,250
1975	101,821	86,849	15,173	249,997	213,237	37,254
1976	116,297	95,714	20,899	270,882	222,939	48,678
1977	130,830	104,640	26,473	286,657	229,273	58,004
1978	155,737	122,207	33,919	324,053	254,285	70,578
1979	188,407	147,459	41,565	351,649	275,223	77,578
1980	233,112	179,687	54,204	374,421	288,610	87,062
1981	266,433	199,523	67,846	381,868	285,968	97,241

Year	At Current Price			At 1996 Constant Price		
	Disposable Income	Consumption Expenditure	Savings	Disposable Income	Consumption Expenditure	Savings
1982	275,250	210,906	65,719	381,415	292,253	91,067
1983	295,887	226,234	71,459	402,291	307,590	97,156
1984	314,245	243,784	72,673	423,516	328,554	97,943
1985	320,495	246,277	75,749	429,378	329,946	101,483
1986	341,728	258,474	83,254	442,829	334,944	107,885
1987	366,487	275,104	91,382	472,275	354,514	117,760
1988	410,483	302,207	108,276	524,114	385,865	138,249
1989	464,994	336,875	128,119	574,785	416,415	158,370
1990	520,147	370,323	149,824	619,715	441,211	178,504
1991	587,242	411,760	175,482	673,721	472,397	201,324
1992	639,696	445,220	194,476	710,799	494,707	216,092
1993	727,879	504,133	223,747	780,774	540,769	240,007
1994	769,755	545,987	223,768	809,784	574,379	235,404
1995	811,338	591,035	220,303	836,611	609,445	227,165
1996	826,378	614,435	211,943	826,378	614,435	211,943
1997	863,427	634,477	228,951	849,121	623,965	225,158
1998	873,175	646,343	226,831	836,658	619,313	217,345
1999	889,053	655,282	233,770	864,149	636,927	227,222
2000	891,445	662,722	228,723	881,787	655,542	226,245
2001	868,651	657,872	210,779	854,333	647,028	207,305
2002	875,919	672,619	203,300	870,235	668,254	201,981
2003	881,662	666,372	215,290	894,488	676,066	218,422

Source: DGBAS, (2004<sup>a</sup>)

According to surveys carried out by the Directorate-General of Budget, Accounting and Statistics (DGBAS) in 2004<sup>a</sup>, consumption expenditure consisted of eight subcategories, namely, 'food, beverage, and tobacco'; 'clothing and footwear'; 'rent, fuel, and power'; 'family furniture, furnishing, household equipment, and household operations'; 'medical care, and health expenses'; 'transport, and communication'; 'recreation,



entertainment, education, and cultural services'; and 'miscellaneous' (DGBAS, 2004<sup>a</sup>). Figure 3-5 shows the percentage distribution of total consumption expenditure according to these eight categories. The largest single item within the consumption expenditure per household is the 'food, beverage, and tobacco' category from 1971 to 2003. This category accounted for almost half of total consumption expenditure in 1971. However, the spending ratio in this category gradually decreased year by year, its importance replaced by the 'rent, fuel, and power' category from 1971 to 2003. This item is related to housing expenses. This item grew faster than any other major category during this period, inferring

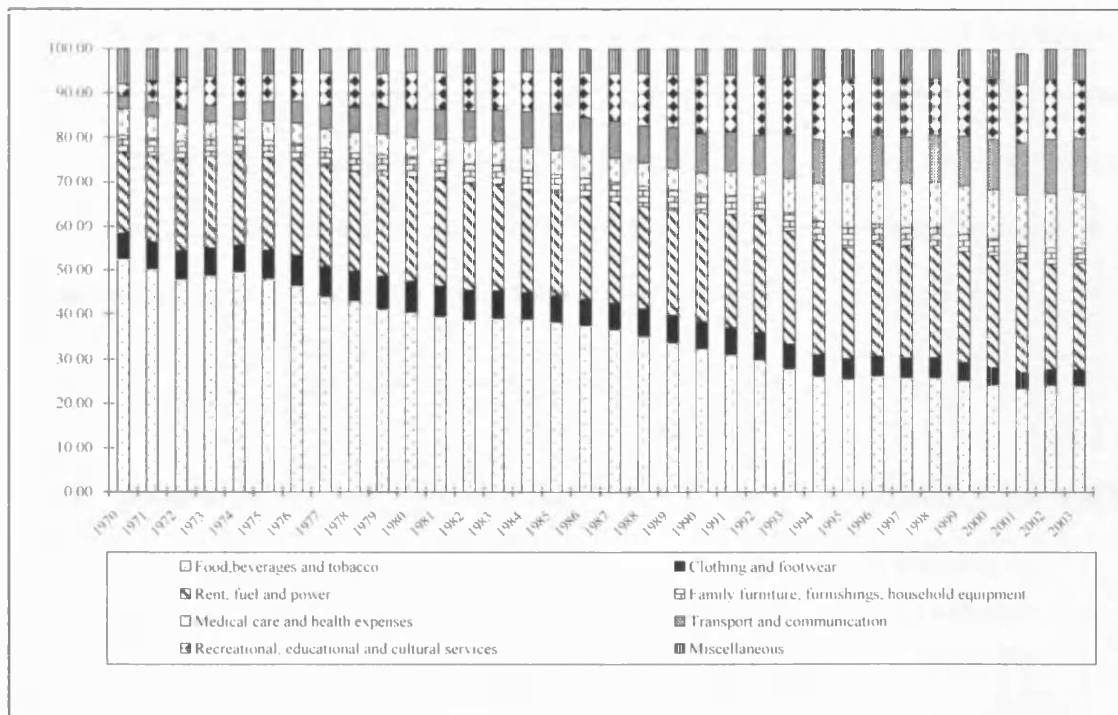


Figure 3-5 Percentage Distribution of Total Expenditures, 1970-2003

Source: DGBAS (2004<sup>a</sup>)

housing costs in Taiwan are high. The third large item, the 'recreation, entertainment, education, and cultural services' category, however, differs from that in the early period, which was 'clothing and footwear' in the 1970s. The current third large item is followed by 'medical care, and health expenses' and then 'transport, and communication'. Noticeably, the spending percentage in the 'clothing and footwear' category had gradually decreased from 6.13 per cent in 1971 to 3.52 per cent in 2003.

Table 3-5 shows the results of comparing 'food, beverage, and tobacco' and 'clothing and footwear' expenditures per household in 2003 by degree of urbanisation. Findings infer households living in higher urbanisation areas had higher consumption expenditures both in 'food, beverage, and tobacco' and 'clothing and footwear'. For instance, households living in city areas spent 1.25 times more on 'food, beverage, and tobacco' than those in village areas, and twice as much on 'clothing and footwear'. Further, there was a difference in ratio for consumption expenditure on 'food, beverage, and tobacco' and 'clothing and footwear' of 6.62 between households living in high urbanised areas and a ratio of 9.96 for those in village areas.

**Table 3-5 Average Expenditures per Household by Degree of Urbanisation in 2003**

Categories		Food, Beverage, and Tobacco (A)	Clothing and Footwear Items (B)	Ratio (A/B)
Average		159,949	23,480	6.81
Degree of Urbanisation	City	165,675	25,018	6.62
	Town	137,823	17,864	7.72
	Village	125,900	12,635	9.96

Source: DGBAS, (2004<sup>a</sup>)

### 3.5 RETAIL DEVELOPMENT BACKGROUND DETAILS – SUPPLY SIDE

This section will continue to explore retail development in Taiwan, but from the supply side. First, the study will investigate Taiwan's gross domestic product (GDP) by kinds of activity to analyse the contribution of the retail trade. Using *Trade and Eating-Drinking Places Activity Surveys*, the study will summarise annual retail trade sales by goods type. Finally, the study will briefly describe the development of traditional and modern retailers in Taiwan.

#### 3.5.1 The Contribution of the Retail Trade to Taiwan's GDP

Since the 1940s, through six stages of industrial development, Taiwan's GDP, which is the total value of goods and services produced within a country in a year, has continued to increase year by year. According to the *Statistical Abstract of National Income in the Taiwan Area* presented by the DGBAS in 2004<sup>b</sup>, GDP in 2003 was NT\$9,848 billion (almost £164 billion) at the current price, NT\$ 9,990 billion (about £166 billion) at the 1996 constant price, an average increase of five per cent per year based on the 1996 constant price. However, in 2001, Taiwan experienced its weakest economic performance and first experience of a negative growth rate of -2.18 per cent (at the 1996 constant price). Taiwan's average GDP per capita in 2003 was about NT\$ 0.45 million (about £7,500).

Analysing GDP by kind of activity, namely, agriculture, industries, and services, services, including 'wholesale trade, retail trade and eating-drinking places'; 'transport, storage and communication'; 'government services'; and 'finance insurance and business services', are the primary contributor to GDP, with a contribution rate of always more than fifty per cent. For instance, the contribution of services to GDP in 2003 was 67.78 per cent (63.34 per cent at the 1996 constant price) while that of 'wholesale trade, retail trade, and

eating-drinking places' was 19.84 per cent (17.20 per cent at the 1996 constant price). Thus, the 'wholesale trade, retail trade, and eating-drinking places' contributed almost one fifth to GDP. Further, based on survey data conducted by the Department of Statistics of the MOEA (2004), retail trade sales made up 30 per cent of total 'wholesale trade, retail trade, and eating-drinking places' sales, in 2003. That is, the retail trade contributed about six per cent to GDP. Figure 3-6 displays GDP by kinds of activity over the years based on the 1996 constant price.

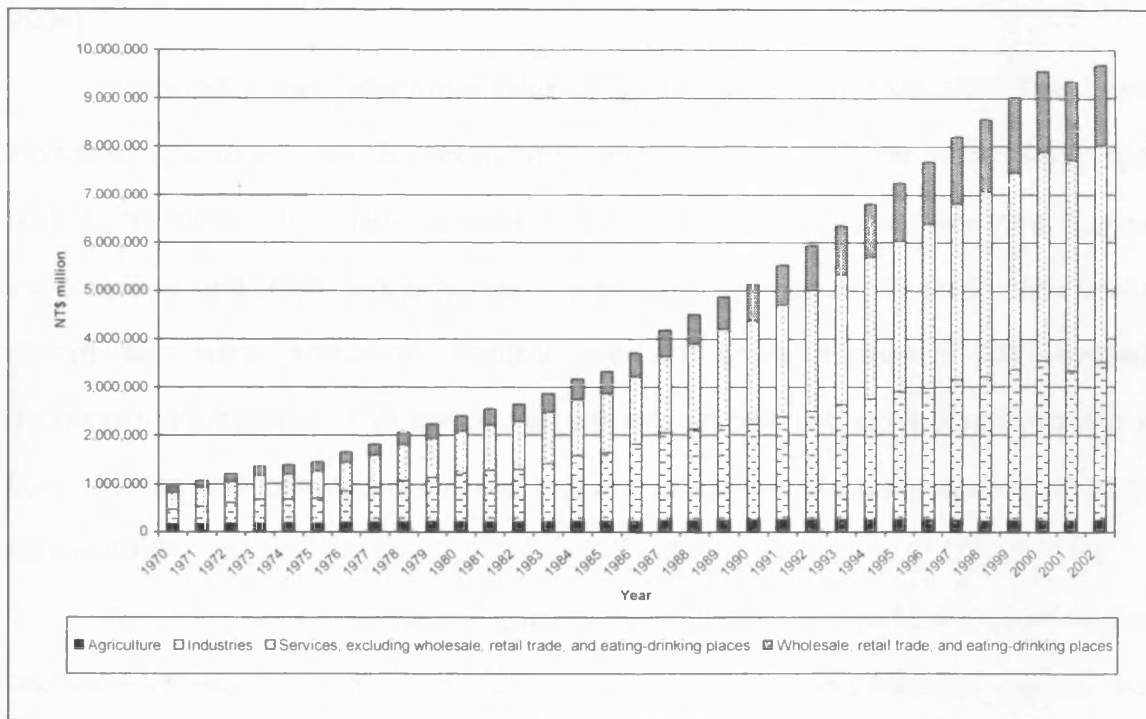


Figure 3-6 GDP by Kinds of Activity (at the 1996 constant price), 1970-2003

Source: DGBAS (2004<sup>b</sup>)

### 3.5.2 Retail Trade Sales by Different Goods Types

The *Trade and Eating-Drinking Places Activity Surveys* conducted by the Department of Statistics of the MOEA (2004) summarise the amount of retail trade sales by different goods types, namely, 'general merchandise', 'agricultural, husbandry and aquatic products, food products and groceries', and 'fabrics, clothes and apparel accessories', etc. 'General merchandise' retailers are those selling a combination of at least three of the different kinds of goods listed above, and can be categorised into five different retailer types, namely, department stores, hypermarkets/superstores, supermarkets, convenience stores, and others (the Department of Statistics of the MOEA, 2004).

Table 3-6 shows retail trade sales by goods types from 1999-2003. Retail sales increased at a steady rate, except in 2001, and for the whole retail market were about NT\$ 2,706 billion (about £45 billion) in 2003. Sales of retailers, derived from 'general merchandise' and 'food and groceries', continuously increased. Similarly, their annual growth rates were continuously positive, even though retail sales in 2001 suddenly decreased to a negative -1.99 per cent growth rate. In contrast, sales of retailers derived from 'clothing and footwear' decreased and annual growth rate was negative, -4.32 per cent in 2003.

Assuming sales of retailers of 'general merchandise' derived from modern retailers and sales of retailers of 'food and groceries' and 'clothing and footwear' derived from traditional retailers, modern retailers shared about forty-five per cent of the 'food and groceries' retail market and more than fifty per cent of the 'clothing and footwear' market, whereas traditional retailers shared fifty-five per cent and less than fifty per cent, respectively. However, traditional retailers' continuously decreasing sales of 'clothing and footwear' (see second column from the left in Table 3-6) and modern retailers' increasing

**Table 3-6 Retail Trade Sales by Goods Type, 1999-2003**

**Unit: Million NT\$**

Period	Total	Retail Trade						
		General Merchandises			Food and Groceries <sup>4</sup>	Clothing and Footwear <sup>2</sup>	Others <sup>5</sup>	
		Food and Groceries <sup>1</sup>	Clothing and Footwear <sup>2</sup>	Others <sup>3</sup>				
1999	2,382,966	523,234	262,290	177,791	83,153	262,290	177,791	1,419,651
2000	2,515,202	569,571	279,437	180,021	110,113	279,437	180,021	1,486,172
2001	2,465,069	592,781	297,288	174,938	120,555	297,288	174,938	1,400,062
2002	2,592,050	622,833	326,741	179,909	116,183	326,741	179,909	1,462,568
2003	2,706,432	644,794	346,999	172,141	125,654	346,999	172,141	1,542,497

Source: Department of Statistics, MOEA (2004)

Note:

1. 'Food and groceries' include 'food products and groceries';
2. 'Clothing and footwear' include 'fabrics, clothes and apparel accessories';
3. 'Others' include 'furniture and fixtures', 'household hardware utensils', 'household electrical components and appliances', 'stationery, toys, and art work', 'drugs and cosmetics', 'eating and drinking', and 'other';
4. 'Food and groceries' include 'agricultural, husbandry and aquatic products, food products and groceries';
5. 'Others' include 'furniture and fixtures', 'hardware articles and household utensils', 'drugs, cosmetics, and cleaning products', 'educational and entertainment activities', 'watches, clocks, and spectacles', 'jewellery and precious metals', 'building materials', 'fuel products', 'machinery and equipment', 'vehicles' and parts' supplies', 'other retail trades', and 'non-store retailers';

sales of 'clothing and footwear' (see middle column in Table 3-6) seemingly infer traditional small shops have suffered adversely from the impacts of modern retailers. In contrast, traditional retailers of 'food and groceries' appear to be continuously increasing their turnover and have seemingly not been adversely affected by the rapid expansion of modern retailers.

Table 3-7 shows sales of general merchandise by goods type. Department stores, a primary type of retailer, contributed most to general merchandise sales, about 26 per cent in 2003, but annual growth rate appeared negative, -1.79 in 2003. Further, the hypermarket market reached saturation point, its annual growth rate in 2003 was a 15 per cent decrease compared to that in 2000. Perhaps the Netherlands cash-and-carry chain Makro's decision to withdraw from Taiwan demonstrates the market's saturation. Makro was the first foreign retailer to open a store in Taiwan in late 1989 but unexpectedly shut down all its stores in the island in February 2003, citing high operating costs and keen competition. The supermarket market has slowly shrunk and its annual growth rate has fluctuated due to strong competition from hypermarkets, convenience stores, and traditional retail markets. Convenience stores are the retailers showing the most rapid expansion in sales. Their annual growth rate was an almost two digit increase and their sales exceeded those of hypermarkets in 2002 to become the second largest retailers of general merchandise. Finally, other retailers' annual growth rate went up dramatically in 2003, with an increase of 8.43 per cent. However, this does not mean other retailers' sales have gradually recovered. Their dramatic growth was due to their prior big loss between 2001/2002.

**Table 3-7 Sales of General Merchandise by Types of Retailing, 1999-2003**

Types of retailers	1999	2000	2001	2002	2003
Total retail sales (Million NT\$)	523,234	569,571	592,781	622,833	644,794
% increase	-	8.86	4.08	5.07	3.53
Department stores (Million NT\$)	136,933	148,834	154,746	172,411	169,328
% increase	-	8.69	3.97	11.42	-1.79
Hypermarkets/Superstores (Million NT\$)	110,431	129,124	136,671	141,680	143,040
% increase	-	16.93	5.85	3.66	0.96
Supermarkets (Million NT\$)	74,475	74,457	76,983	75,857	79,842
% increase	-	-0.02	3.39	-1.46	5.25
Convenience stores (Million NT\$)	105,346	115,113	128,092	141,778	153,802
% increase	-	9.27	11.27	10.69	8.48
Others (Million NT\$)	96,049	102,043	96,290	91,106	98,784
% increase	-	6.24	-5.64	-5.38	8.43

Source: Department of Statistics, MOEA (2004)

### 3.5.3 The Development of Modern Retailers

Modern retailers in Taiwan are mainly derived from Japanese or Western Countries' retail development experience. These retailers, namely, department stores, hypermarkets/superstores, supermarkets, and convenience stores, have been present in Taiwan for more than twenty years. Particularly, over the past ten years, throughout the 1990s, Taiwan's retailers have experienced a period of rapid expansion and increasingly fierce competition (Huynh, 2003: p.2). Based on Common Wealth's statistics in 2004, Table 3-8 shows the top ten retail companies' sales in 2003. 7-Eleven, a convenience store, was the top one retailer, with sales in excess of NT\$ 77 billion (about £1.28 billion). Carrefour, a hypermarket, was second with sales of NT\$ 50 billion (about £0.83 billion), followed by Shin Kong Mitsukoshi Department Store and Pacific SOGO Department Store. The latter two are run on the Japanese model. Noticeably, none of the top ten retail companies included supermarkets. Compared with previous years, when all top ten



companies belonged to store-type retailing, in 2003, the tenth top company was a non-store-type company, operated by a TV shopping network.

**Table 3-8 Top 10 Retail Companies, 2003**

Ranking	Company Name	Format	2003 Sales (Million NT\$)
1	7-Eleven	Convenience Store	77,634
2	Carrefour	Hypermarket	50,400
3	Shin Kong Mitsukoshi Department Store	Department Store	45,433
4	Pacific SOGO Department Store	Department Store	25,707
5	Taiwan Family Mart	Convenience Store	24,422
6	Tsann Kuen	3C Warehouses	23,217
7	RT Mart International	Hypermarket	20,500
8	Far Eastern Department Store	Department Store	17,763
9	Far Eastern Geant	Hypermarket	15,442
10	Eastern Home Shopping Network	TV Shopping	13,763

Source: Common Wealth (2004: pp.298-301)

Taiwan's first convenience store was 7-Eleven, and it opened in 1978. Table 3-9 shows the number of stores belonging to the top five convenience store chains between 1999 and 2003. In terms of number of stores (or annual sales), 7-Eleven continued to lead as the largest convenience store chain in Taiwan. In 2003, there were 7,371 convenience stores in Taiwan. 7-Eleven, with 3,500 stores, accounted for 46 per cent of the market, followed by Family Mark (1,454 stores: 19% of the market); Hi-Life (901 stores: 12% of the market); Circle K (739 stores: 10% of the market); and Niko Mark (320 stores: 5% of the market). These five convenience store chains altogether accounted for over 90 per cent of the total market. However, while the larger chains have continued to grow at a constant rate, the smaller chains have begun to stagnate. As Table 3-9 shows, the number of stores of the top five convenience store chains increased from 5,447 in

1999 to 7,371 in 2003, whereas the number of stores of other smaller convenience store chains sharply decreased from 1,060 stores in 1999 to 457 stores in 2003.

**Table 3-9 Top Five Convenience Store Chains**

Chains	Number of stores				Ownership
	1999 <sup>1</sup>	2000 <sup>1</sup>	2001 <sup>2</sup>	2003 <sup>3</sup>	
7-Eleven	2,248	2,641	2,813	3,500	President Enterprises (Taiwan)/Southland Corporation (US), since 1978 ( <a href="http://www.7-11.com.tw">http://www.7-11.com.tw</a> )
Family Mart	811	1,011	1,077	1,454	Chinese Automobile (Taiwan)/Seibu (Japan), since 1988 ( <a href="http://www.family.com.tw">http://www.family.com.tw</a> )
Hi-Life	612	712	696	901	Kun Chuan Dairy Farm (Taiwan), since 1988 ( <a href="http://www.hilife.com.tw">http://www.hilife.com.tw</a> )
Circle K	481	608	608	739	Holmsgreen Group (Taiwan)/Circle K (US), since 1988 ( <a href="http://www.okcvs.com.tw">http://www.okcvs.com.tw</a> )
Niko Mart	235	261	267	320	Taisun Enterprises (Taiwan)/Niko Mart (Japan), since 1990 ( <a href="http://www.nikomart.com.tw">http://www.nikomart.com.tw</a> )
Others	1,060	915	777	457	
Total	5,447	6,148	6,238	7,371	

Source: 1. Distribution Magazine (2000: p.55); 2. Cohen (2001: p.3); 3. Huynh (2003: p.4)

The first supermarket opened in the late 1980s in Taiwan. Currently, supermarkets are caught in a squeeze between hypermarkets, convenience stores, and traditional wet markets, which has reduced not only their sales but also the number of their stores. In 1999, there were estimated to be almost 1,000 outlets. In 2000, the number had decreased to nearly 700 outlets (Huynh, 2001: p.2). Table 3-10 presents the number of stores of major players. Comparing store number, the supermarket market is seen to be scattered, not concentrated among major players. Most outlets belong to small local supermarket chains or local farm organisations. Major players only share parts of the market. However, to speedily open new stores or to fast expand outlets, mergers are

becoming more frequent. For example, Wellcome, the largest supermarket chain, has twice participated in mergers. First, in 2000, it merged with 12 outlets of May-Chun Chain, a small local supermarket chain in the Central Region (Distribution Magazine, 2000: p.66); then, in 2002, it merged with 23 outlets of Kasumi Chain (Huynh, 2003: p.2). Thus, the major players are likely to continue to grow while small local chains will continue to decrease in number.

**Table 3-10 Major Supermarket Retailers**

Chains	Number of stores		Ownership
	1999	2000	
Wellcome	95	105	Hong-based Wellcome Supermarket, since 1987 ( <a href="http://www.wellcome.com.tw">http://www.wellcome.com.tw</a> )
Sung Ching/Marukyu	45	54	Wie Chuan Group (Taiwan)/Fressy (Japan ) /Marukyu (Japan), since 1986 ( <a href="http://www.sungching.com.tw">http://www.sungching.com.tw</a> )
Kasumi	17	21	Merged with Wellcome in 2002
Sinon	15	18	Sinon Corporation (Taiwan), since 1988 ( <a href="http://supermarket.com.tw">http://supermarket.com.tw</a> )
Total	-	983	Estimated total number of supermarkets in Taiwan

Source: Distribution Magazine (2000: p.67)

In Taiwan, growth of very large hypermarkets (or superstores) and cash-and carry stores has been rapid since the first, MaKro Taiwan, opened in late 1989. However, the rapid expansion of hypermarkets has slowed because of an overall economic slowdown in the past few years and intensifying competition. As previously indicated, the Netherlands cash-and-carry chain, Makro, decided unexpectedly to shut down all its remaining stores in Taiwan in early 2003, because the hypermarket market in Taiwan had been facing increasingly fierce competition. Tough competition comes not only from modern retailers but also from numerous street stalls and traditional wet markets, which

provide not only convenience foods but also cater to local taste. In 2002, there were about 110 hypermarkets in Taiwan, some foreign owned and some locally owned and operated (Huynh, 2003: 3). In general, foreign operators, including Carrefour, RT Mart/Auchan, Aimai Geant, Tesco, and Costco, continue to dominate the Taiwanese market, holding a 65 per cent market share (Huynh, 2003: p.3). Table 3-11 shows the number of stores of the top three major chains, which continue to open new outlets by merger or strategic alliance. For instance, RT Mart merged with two local chains, Big Buyer in 1997 and Yati Mart in 1998, and then quickly opened 6 stores in the Southern Region. The previous tendency had been to locate in suburban areas, now the current tendency is to compete with others for positioning new outlets in urban metropolitan areas as well as smaller areas.

**Table 3-11 Top Three Hypermarket Chains**

Chains	Number of stores			Ownership
	1999 <sup>1</sup>	2000 <sup>1</sup>	2003 <sup>2</sup>	
Carrefour	23	24	29	President Enterprises (Taiwan)/Carrefour (France), since 1989 ( <a href="http://carrefour.com.tw">http://carrefour.com.tw</a> )
RT Mart /Auchan	13	15	21	RT Mart Ruentex Enterprises Group (Taiwan), since 1996; RT Mart/Auchan Ruentex Enterprises Group (Taiwan)/Auchan (France), since 2001 ( <a href="http://www.rt-mart.com.tw">http://www.rt-mart.com.tw</a> )
Aimai Geant	9	10	13	Aimai Far Eastern Enterprises Group (Taiwan), since 1990; Aimai Geant Far Eastern Enterprises Group (Taiwan) /Geant (France) , since 2000 ( <a href="http://www.fe-geant.com.tw">http://www.fe-geant.com.tw</a> )

Source: 1. Distribution Magazine, (2000: p.46); 2. Retailing Mart Magazine, (2003: p.40)

Taiwan's department stores' development was earlier than that of other retailing types. In 1958, three independent retail stores merged into Taiwan's first contemporary department store, Da-Hsin (Chang and Sternquist, 1993: p.20). Notably, Taiwan's department store industry has been extensively influenced by the Japanese because of geographic proximity, cultural resemblance, and colonisation of Taiwan by Japan in the first half of the twentieth century (Chang and Sternquist, 1993: p.20). Most department stores are run on the Japanese model. That is, the bulk of the floor space is rented out to concessionaires who pay rent and a fixed percentage – about 20 per cent or so – of either their gross or net income. Although they purchase some merchandise on their own account, less than 10 per cent, most of their sales are through the concessionaires. In contrast, some local department stores are run differently. They rent part of their floor space to concessionaires, but reserve most floor space, more than 35 per cent, for selling their own merchandise (Huang, 2000). Moreover, in order to compete against the lower priced bulk quality selections available in larger modern retailers, Taiwan's department stores carry high-quality, upscale, and expensive merchandise. To-date, there are more than 50 department stores located throughout Taiwan but concentrated in large cities. Table 3-12 displays the number of stores by major department store groups. In 2003, the Far Eastern Group (Taiwan) merged with Pacific Sogo Department Store's 6 outlets to further strengthen its position as the leading chain in Taiwan.

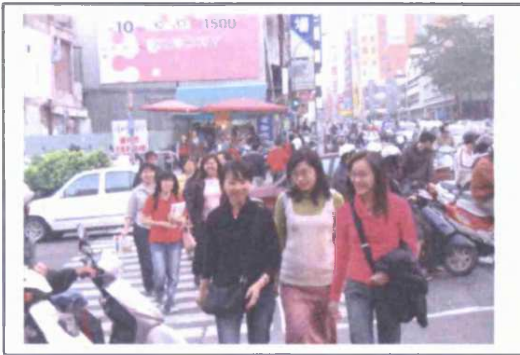
**Table 3-12 Major Department Store Groups**

Groups	Number of stores			Ownership
	1999 <sup>1</sup>	2000 <sup>1</sup>	2003 <sup>1</sup>	
Far Eastern	8	9	10	Far Eastern Group (Taiwan), since 1967 ( <a href="http://www.feds.com.tw">http://www.feds.com.tw</a> )
Shin Kong Mitsukoshi	5	8	10	Shin Kong Enterprises Group (Taiwan)/Mitsukoshi (Japan), since 1991
Pacific Sogo/Pacific Mall	3	5	6	Pacific Construction Enterprises (Taiwan)/Sogo (Japan), since 1987 ( <a href="http://www.sogo.com.tw">http://www.sogo.com.tw</a> ) Bought by Far Eastern Group (Taiwan) in 2003
	3	4	3	Pacific Construction Enterprises (Taiwan) ( <a href="http://www.pacific-mall.com.tw">http://www.pacific-mall.com.tw</a> )

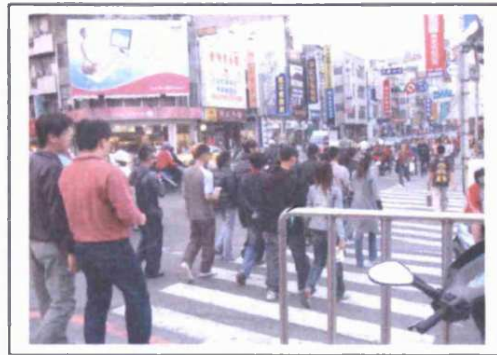
Source: 1. Distribution Magazine (2000: p.15); 2. Specific website.

### 3.5.4 The Development of Traditional Retailers

In Taiwan, traditional retailers are usually small shops in high streets, traditional retail markets, and street traders (or hawkers). In Taiwan, like most central shopping areas in Western Europe, small shops spread along main streets to form city (or town) centres. In terms of type of retail development, they belong to unplanned retailing areas, arising through the conversion of non-retail premises to retail. In particular, land-use types in city centres in Taiwan, are often a mix of commercial and residential purposes. Buildings may be designed with arcades (see Figure 3-7). Historically, central shopping areas were derived from temples (e.g. Buddhist or Taoist temples), traditional retail markets, or major traffic (or transfer) centres (e.g. central train stations). Lacking government intervention or control, the development of city centres has often led to serious traffic and environmental issues, such as heavy traffic, insufficient car parking facilities, no public transport service, lack of public toilets, no pedestrian areas, or an unkempt shopping environment.



Stream of Shoppers in a High Street:  
Tainan Station Shopping Area



Stream of Shoppers in a High Street:  
Jung-Jeng Shopping Area



Street Traders along a High Street:  
Tainan Station Shopping Area



High Street with Arcades:  
Tainan Station Shopping Area

**Figure 3-7 Small shops in High Streets with Arcades: Tainan, Taiwan**

Traditional retail markets are the oldest outlets in Taiwan. Trappey and Lai (1997: p. 212) defined them as markets (often referred to as wet markets or street markets) with little central control or organisation, that lack refrigeration equipment and do not process fresh foods into branded goods for resale. However, these are just parts of their characteristics. Actually, in Taiwan, traditional retail markets can be categorised by their different types of attributes, namely, time of operation, form, ownership, and function.

- Time of operation: markets can be identified in terms of the pattern of periodicity, for example, morning markets, dusk markets, night markets, weekend markets, etc. In Taiwan, most wet markets are morning markets because of the wholesale distribution system. As Dewar and Watson (1990: p.106) indicated, in Taiwan, wholesale markets occur at night between 2000 and 0500 hours: second-level wholesalers purchase from main markets and re-sell to retailers (wet markets) and the best timing for selling fresh products to consumers is in the morning (see Figure 3-8).
- Form: based on relevant legislation, markets can be classified as permanent or temporary. Both are legal and need to be authorised by the local authorities. The former allocates small traders (or stalls) to formal market-buildings at a specific market land-use based on the zoning control of the land-use system. The latter is conditionally approved. If market-buildings do not have sufficient space or non-market-buildings are available in the district, small traders can be allowed to set stalls (or kiosks) around the market-building or within a limited block. Sometimes, the agglomeration of these temporary small traders becomes so-called 'street markets' (see Figure 3-8).
- Ownership: in terms of the right to set a stall (or kiosk), markets can be divided into private and public ones. The former is controlled by a private landowner if the market is along a street or in a private market-building). The latter is controlled by the local authorities if the market is in a public market-building (see Figure 3-8).







Morning Markets: Youngkang Shih



Dusk Markets: East Chu



Night Markets: North Chu



Street Markets: East Chu



Public Market-Building: Yungkang Shih



Private Market-Building: East Chu

Figure 3-8 Traditional Retail Markets: Tainan, Taiwan

Trappey and Lai (1997: p.214) reported that the decline of the traditional retail market was accelerated in the 1980s with the introduction of Western-style supermarkets from Hong Kong and the introduction of chain convenience stores. During the early 1990s, the market share of traditional retail markets fell to 70 per cent as hypermarkets and warehouses entered the market (Trappey and Lai, 1997). However, based on the findings in Section 3.5.2, the traditional retail market has ceased to decline. In 1995, the MOEA implemented a five-year regeneration programme to aid traditional retail markets' recovery. Based on Retailing Mart's report, Table 3-13 presents the number of traditional retail markets in Taiwan in 2003.

**Table 3-13 Number of Traditional Retail Markets in 2003**

Type	Ownership		Total
	Public	Private	
Permanent Markets	451	238	689
Temporary Markets	110	82	192
Total	561	320	881

Source: Retailing Mart (2004: pp.31-32)

In Taiwan, street traders (or hawkers) are another type of retailer. They are visible along prosperous high streets and around traditional retail markets, even though the authorities attempt to move them on. As Dewar and Watson (1990: p.87) indicated, street selling occurs under a variety of conditions, ranging from canvas and umbrella cover to more permanent on-street kiosks and nucleated markets under low-cost roofing. The present study will not discuss this type of retailer independently from others. Instead it will consider street traders (or hawkers) as part of traditional retail markets or traditional high streets because of the difficulty of identifying them in some cases.

### 3.6 CHAPTER SUMMARY

Taiwan, shaped roughly like a tobacco leaf, is 394 kilometres (about 245 miles) long and 144 kilometres (about 89.5 miles) wide at its broadest point, and its total area is nearly 36,000 square kilometres (about 13,900 square miles). The most important feature of Taiwan's topography is the central range of high mountains running from the north-eastern corner to the southern tip of the island. It is mountainous and the remaining thirty-one per cent of its total area consists of alluvial plains, distributed along the west coast.

The planning system in Taiwan is economically rather than socially driven. Planning policies in Taiwan are fulfilled by four tiers of loosely linked plans, i.e. national, regional, county and city, and district, consisting of specific statutory or non-statutory development plans. All development plans have been limited by zoning restrictions. In 1994, the ICCAE Law was promulgated by the authorities to loosen the rigorous control of land-use and initiate more off-town developments in order to promote economic development, strengthen the distribution system between producing and selling, and balance urban and suburban development.

According to figures published by the DOC of the MOEA in 2004, forty-one development proposals had been submitted to the MOEA and accepted, covering 401 hectares. Four of these had been completed and opened by 2003. But why had so few centres been built? A review of the literature pointed to four possible reasons: the time-consuming development process; the recent economic slump; consumers' slow acceptance of these newly opened centres; and difficulty in looking for anchor stores.

Taiwan's population was over 22 million people and the number of households almost 7 million, in 2002. Although the population continues to increase, its growth rate is gradually slowing down. In contrast, the number of households continues to increase as does the rate of increase. Nine per cent of the total population of Taiwan is 65 years old

and over and continues to increase while the number of those under 14 continues to decrease. According to the CEPD prediction in 1998, the population growth of the Eastern Region will be the first to reach zero in 2005, followed by the Southern Region in 2033, and then the Northern Region in 2035.

The average current income per household was NT\$ 1.13 million (almost £ 18,800) in 2003. Deducting non-consumption expenditure, the average disposable income per household was NT\$ 0.8938 million (almost £ 14,890). Twenty-four per cent of disposable income was made up of savings and seventy-six per cent went on consumption expenditure. As regards changes in consumption expenditure per household, households were reported to have gradually decreased spending on 'food, beverage, and tobacco' and 'clothing and footwear' categories and to have increased their spending on 'rent, fuel, and power' and 'recreation, entertainment, education, and cultural services' implying that being wealthier, the Taiwanese are willing and able to spend more money on improving their living quality and investing in the next generation. The literature review also found large differences between households' spending in cities and villages. Therefore, if out-of-town shopping malls are planned, the low density of population in the surrounding area and their low spending habits may be insufficient to support their viability.

The retail supply side contributed about six per cent of Taiwan's GDP in 2003. Modern retailers shared about forty-five per cent of the 'food and groceries' retail market and more than fifty per cent of the 'clothing and footwear' market, whereas traditional retailers shared fifty-five per cent and less than fifty per cent, respectively. However, comparing modern and traditional retailers' sales of 'clothing and footwear', the study found traditional small shops had suffered adversely from the impact of modern retailers. In contrast, traditional retailers of 'food and groceries' would appear to be able to

continuously increase their turnover because of consumers' increasing spending in this category and a regeneration programme. They thus seem not to have been adversely affected by the rapid expansion of modern retailers.

Modern retailers in Taiwan can be categorised into department stores, hypermarkets/superstores, supermarkets, and convenience stores. After examining their developments, the study noted the following:

- Sales of modern retailers appear to be concentrated among the top retailers. For instance, in the hypermarket market, Carrefour occupies almost more than one-third of the market, while in the convenience store market, 7-Eleven has won almost half of the market.
- All types of modern retailers are rapidly expanding their outlets. For instance Shin Kong Mitsukoshi Department Store had only 5 outlets in 1999, but 11 outlets in 2004.
- Hypermarket retailers were previously located in suburban areas, now the current tendency is to compete with others similar retailer for positioning new outlets in urban areas.
- Non-store type shopping has grown rapidly recently.

Traditional retailers in Taiwan can be categorised into small stores in high streets, traditional retail markets, and street traders (hawkers). After examining their development, the study noted the following:

- Traditional small stores along high streets have encountered strong competition from the development of the modern retailer, in particular nearby department stores.
- Traditional retail markets still play a major role in the retail markets of 'food and groceries'.

Based on the review and analysis of government planning policy in Taiwan's retail development, the next Chapter will develop the research methodology to address the study's aims and research questions in as effective a manner as possible.

# Chapter 4

## Research Methodology

### 4.1 INTRODUCTION

This chapter will address and justify the research design adopted in this study. Creswell (2003: p.5) conceptualised Crotty's model of 1998 to highlight three questions central to research design, as follows:

- What paradigms (or knowledge claims) are being made by the researcher and how will they influence the research?
- What strategies of inquiry will inform the procedures?
- What methods of data collection and analysis will be used?

In other words, the preliminary steps in research design are to assess the research paradigms and how they will influence the research approach; to consider the strategy of inquiry that will be used; and to identify specific methods that will be employed. According to Creswell's three stages of research design (Creswell, 2003: p.6), this chapter will, first, briefly introduce research paradigms. Four philosophical orientations or paradigms, namely, positivism, post-positivism, constructivism, and pragmatism will be defined and their relative merits discussed. The superiority of two major social science

paradigms, the positivist/empiricist and constructivist/phenomenological approaches, has been widely debated in the literature (Tashakkori and Teddlie, 1998).

Based on these paradigms, the study will further identify different strategies of research, such as quantitative, qualitative, and mixed methods strategies. The situation today is less quantitative versus qualitative and more how research practices lie somewhere on a continuum between the two (Creswell, 2003: p.4). Thus, studies tend to be more quantitative or qualitative in nature. Accordingly, the study will adopt the mixed methods strategy to combine quantitative and qualitative approach.

Before continuing to present what methods the study proposes to use, brief details of the study area, Tainan urban area, as well as the selected case, Taiwan Sugar Mall, will be provided. The latter's location and access, development history, assortment of stores, and surrounding retailing developments will be discussed.

The chapter will subsequently address the research design, questionnaire development, data preparation and analysis techniques. The study will collect both quantitative and qualitative data. The chapter's contents will be summarised in the final section.

## **4.2 PARADIGMS OF RESEARCH**

Paradigms might be called knowledge claims, philosophical assumptions, or broadly conceived research methodologies (Creswell, 2003: p.6). Bryman (2001: p.446) indicated the term is derived from Kuhn's (1970) analysis of the revolution in science. The latter defined a paradigm as a cluster of beliefs and dictates which for scientists in a particular discipline influence what should be studied, how research should be done, and how results should be interpreted. Although paradigms remain largely 'hidden' in research (Slife and Williams, 1995), they still deeply influence the practice of research and need to



be carefully distinguished. Philosophically, researchers make claims about what is knowledge (ontology), how we know it (epistemology), what values go into it (axiology), how we write about it (rhetoric), and the processes for studying it (methodology) (Creswell, 2003: p.6).

During the past three decades, debates have raged in the social and behavioural sciences regarding the superiority of one or other of the two major social science paradigms (Tashakkori and Teddlie, 1998: p.3). These two paradigms are known as the positivist/empiricist approach or the constructivist/phenomenological orientation (Tashakkori and Teddlie, 1998; Bryman, 2001; Creswell, 2003). The former underlies quantitative strategies of research, while the latter underlies qualitative strategies. Therefore, the debate between these two paradigms has sometimes been called the qualitative–quantitative debate.

According to Tashakkori and Teddlie (1998: pp.6-13), the paradigm debate can be divided into four stages: (1) the debunking of positivism after World War II; (2) the pervasiveness of the post-positivist position; (3) the ascendance of constructivism; and (4) pragmatism and the compatibility thesis.

Positivism has origins dating back to the nineteenth-century French philosopher and sociologist August Comte (1798-1857), whose sought to distinguish science from both metaphysics and religion (Johnston et al., 2000: pp.606-608). In general, the paradigm of positivism contains several axioms, summarised as follows (Lincoln and Guba, 1985; Tashakkori and Teddlie, 1998):

- Ontology (nature of reality): it is believed there is a single reality.
- Epistemology (the relationship of the knower to the known): the knower and the known are independent.
- Axiology (role of values in inquiry): inquiry is value-free.

- Generalisations: time- and context-free generalisations are possible.
- Causal linkages: there are real causes that are temporally precedent to or simultaneous with effects.
- Deductive logic: there is an emphasis on arguing from the general to the particular, or an emphasis on a priori hypotheses (or theory).

However, dissatisfaction with the axioms of positivism (especially with regard to ontology, epistemology, and axiology) became increasingly widespread throughout the social and behavioural sciences during the 1950s and 1960s, giving rise to the post-positivism position (Tashakkori and Teddlie, 1998).

Post-positivism was a reaction to the widely discredited axioms of positivism and many of its tenets were in direct opposition to those of its predecessor (Tashakkori and Teddlie, 1998):

- Value-ladenness of inquiry: research is influenced by the values of investigators.
- Theory-ladenness of facts: research is influenced by the theory or hypothesis or framework that an investigator uses.
- Nature of reality: our understanding of reality is constructed.

The discrediting of positivism resulted in the increasing popularity of paradigms more radical than post-positivism. These paradigms have several names, namely, constructivism, interpretiveism, or naturalism, with constructivism being the most popular (Tashakkori and Teddlie, 1998). Referring back to the five axioms of positivism, this paradigm contains the following axioms (Lincoln and Guba, 1985; Tashakkori and Teddlie, 1998).

- Ontology (nature of reality): there are multiple, constructed realities.
- Epistemology (the relationship of the knower to the known): the knower and the known are inseparable.
- Axiology (the role of values in inquiry): inquiry is value-bound.
- Generalisations: time- and context-free generalisations are not possible.
- Causal linkages: it is impossible to distinguish causes from effects.
- Inductive logic: there is an emphasis on arguing from the particular to the general, or an emphasis on grounded theory.

As a result of these black-and-white contrasts, researchers who try to combine the two paradigms of positivism and constructivism are doomed to failure due to inherent differences in the philosophies underlying them. However, some researchers, such as Tashakkori and Teddlie (1998), and Creswell (2003), have stated that the differences between these two paradigms have been overdrawn. For instance, Tashakkori and Teddlie (1998) quoted Reichardt and Raillis' research in 1994 (p.85) which contended that there are several similarities in fundamental values between them, such as belief in the value-ladenness of inquiry, belief in the theory-ladenness of facts, belief that reality is multiple and constructed, belief in the fallibility of knowledge, and belief in the understanding of theory by fact. Therefore, based on these similarities, it can be argued that there is a common set of beliefs that many social and behavioural scientists have that under-girds a paradigm distinct from positivism, post-positivism, or constructivism, which has been labelled 'pragmatism' (Tashakkori and Teddlie, 1998). To be specific, pragmatism opens the door to mixed methods research (Tashakkori and Teddlie, 1998; Creswell, 2003).

### 4.3 STRATEGIES OF RESEARCH

Bryman (2001: p.507) defines the research strategy as a general orientation to the conduct of social research. According to the paradigm debates previously mentioned, there are three types of research strategies: quantitative derived from positivism; qualitative derived from constructivism; and mixed methods strategies derived from pragmatism (Tashakkori and Teddlie, 1998; Bryman, 2001; Creswell, 2003). The first two strategies are called mono-methods since they adopt purely quantitative or qualitative research, and often suffer from their own specific limitations, which affect the validity of the research results. According to Bryman (2001), quantitative research usually emphasises quantification in the collection and analysis of data, the qualitative research emphasises words rather than quantification. Mixed methods strategies are those that combine qualitative and quantitative approaches in the research methodology of a single study or multiphase study (Tashakkori and Teddlie, 1998).

Further, all mixed methods designs use triangulation techniques. Triangulation entails using more than one method or source of data in the study of social phenomena (Bryman, 2001: p.274). The term has been employed somewhat broadly by Denzin (1978) to refer to four different types of triangulation methods, namely, data triangulation, investigator triangulation, theory triangulation, and methodological triangulation. All types of triangulation methods involve the use of both qualitative and quantitative approaches and data to study the same phenomena within the same study or in different complementary studies.

Creswell (2003) referred to four questions that should be asked when choosing a mixed method:

- What is the implementation sequence of the quantitative and qualitative data collection in the proposed study?

- What priority will be given to the quantitative and qualitative data collection and analysis?
- At what stage in the research project will the quantitative and qualitative data and findings be integrated?
- Finally, will an overall theoretical perspective be used in the study?

Today, the situation is less quantitative versus qualitative but more how research practices lie somewhere on a continuum between the two (Creswell, 2003), that is, studies tend to be both quantitative and qualitative in nature. Based on these four questions, Creswell (2003: pp.213-219) further suggested six major strategies for mixed methods research: sequential explanatory strategy, sequential exploratory strategy, sequential transformative strategy, concurrent triangulation strategy, concurrent nested strategy, and concurrent transformative strategy.

Considering the three general research questions (mentioned in Chapter 1, Section 1.4.1) and the above tendency of research strategies, the study was designed as a mainly quantitative method based on two surveys and statistical analysis, with qualitative support. Table 4-1 shows the relationships between general research questions, research strategies, and research methods in the present study. As mentioned in the literature review (see Chapter 2, Section 2.4.2), recently, quantitative shopping models have been developed to examine consumers' patronage behaviour based on major determinants. Thus, the first two research questions are related to a quantitative strategy. Further, fundamentally, retail impact assessment is a quantitative economic concept but it is advised to move away from the quantitative assessment to the more qualitative approach (e.g. Norris and Jones, 1993; England, 2000). Here, to support the quantitative impact analysis, the study employed the qualitative approach to explore

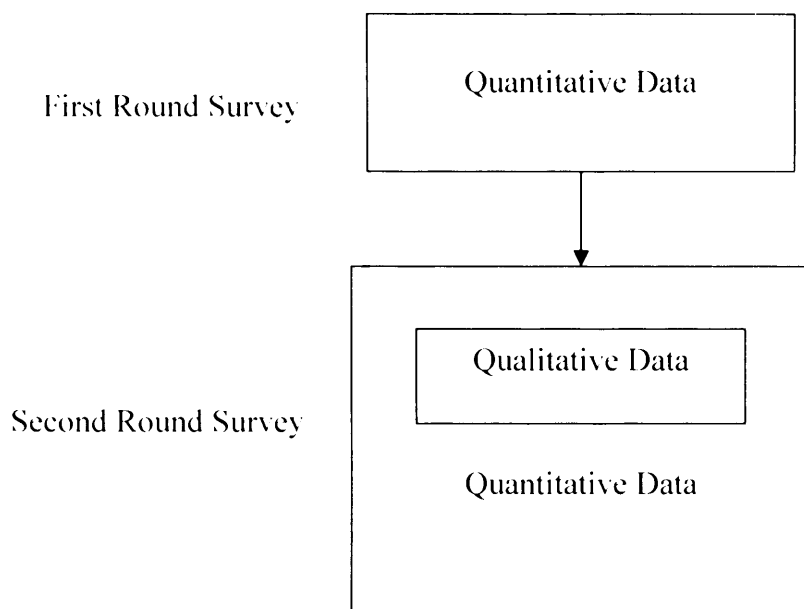
respondents' opinions about Taiwan Sugar Mall and reasons for changing their patronage behaviour. Thus, the third question combines quantitative and qualitative strategies together. In terms of research methods, questionnaires were used to collect both quantitative and qualitative data for relevant statistical analysis and qualitative analysis approaches.

**Table 4-1 Relationships between Research Questions, Strategies, and Methods**

General Research Questions	Research Strategies	Research Methods (Collection/Analysis Data)
What are the main factors affecting shopping destination choice behaviour within the study area?	Quantitative Strategy	Questionnaires/Statistical Analysis
What are factors affecting changes in shopping behaviour over time?	Quantitative Strategy	Questionnaires/Statistical Analysis
When the Taiwan Sugar Mall opens, in what ways will the new type of out-of-town retail development be likely to change original shopping patterns within the study area?	Quantitative and Qualitative Strategies	Questionnaires/Statistical Analysis and Qualitative Analysis Approaches

From Table 4-1, a quantitative strategy will be employed to answer the first two research questions and both quantitative and qualitative strategies will be used to answer the third research question. According to Creswell's six major strategies for mixed methods research, concurrent nested strategy is defined as a predominant (quantitative or qualitative) method that guides the project and then the method (qualitative or quantitative) given less priority is embedded within the predominant method (Creswell, 2003: p.218). In this study, the quantitative approach predominates in the first to second

survey round, whereas the qualitative approach is embedded (or nested) within the predominantly quantitative approach in the second round survey. Figure 4-1 shows the research strategy adopted in this study.



**Figure 4-1 Research Strategy for This Study**

According to Creswell (2003: pp.218), the concurrent nested strategy has many strengths, such as it enables the collection of two types of data simultaneously, and different perspectives can be gained from the different types of data gathered within the study. However, there are also limitations which need to be considered and overcome when choosing this approach. For instance, there is little written to guide a researcher as to how to transform and integrate the two types of data within the analysis phase. In addition, there is little advice to be found for how a researcher should resolve discrepancies that occur between the two types of data (Creswell, 2003: pp.218-219).

#### 4.4 STUDY AREA – TAINAN URBAN AREA, TAIWAN

Before proceeding with the detailed description of quantitative and qualitative approaches adopted in this study, it is apt at this stage to give a brief account of the study area and the selected case, the Taiwan Sugar Mall (for more details see **Appendix A**). Tainan was selected as the study area for two main reasons. First, the author had taught in a local college for over five years and is familiar with local retail development in Tainan. Second, it was hoped that, the Taiwan Sugar Mall, located in a suburban area of Tainan, was one of the first out-of-town shopping centre developments in Taiwan, and had therefore been established sufficiently long enough for conducting longitudinal research.

Historically, Tainan was the earliest developed city in the island. Today, in terms of population, it is the fourth largest city in Taiwan, with more than 0.7 million people and more than 0.2 million households. When combining the populations of nearby cities/towns/villages (called Shihs, Chens, and Hsiangs), its population is more than 1 million (under the county system, Shihs are cities (large towns) with a population between 150,000 and 600,000; Chens are towns with a population below 150,000 and Hsiangs are villages (rural townships) with a population below 150,000 and a lower population density than Chens). Figure 4-2 (B) shows the built-up area and the geographic locations of Tainan City and nearby Hsiangs/Chens/Shihs, belonging to Tainan County and Kaohsiung County. The study area will be precisely delimited by the catchment of Taiwan Sugar Mall and will be described in Section 4.5.2.





Figure 4-2 (A) Locations of Major Shopping Centres  
in Tainan and Nearby Hsiangs/Chens/Shihs

Figure 4-2 (B) Locations of Tainan City and its Hsiangs/Chens/Shihs

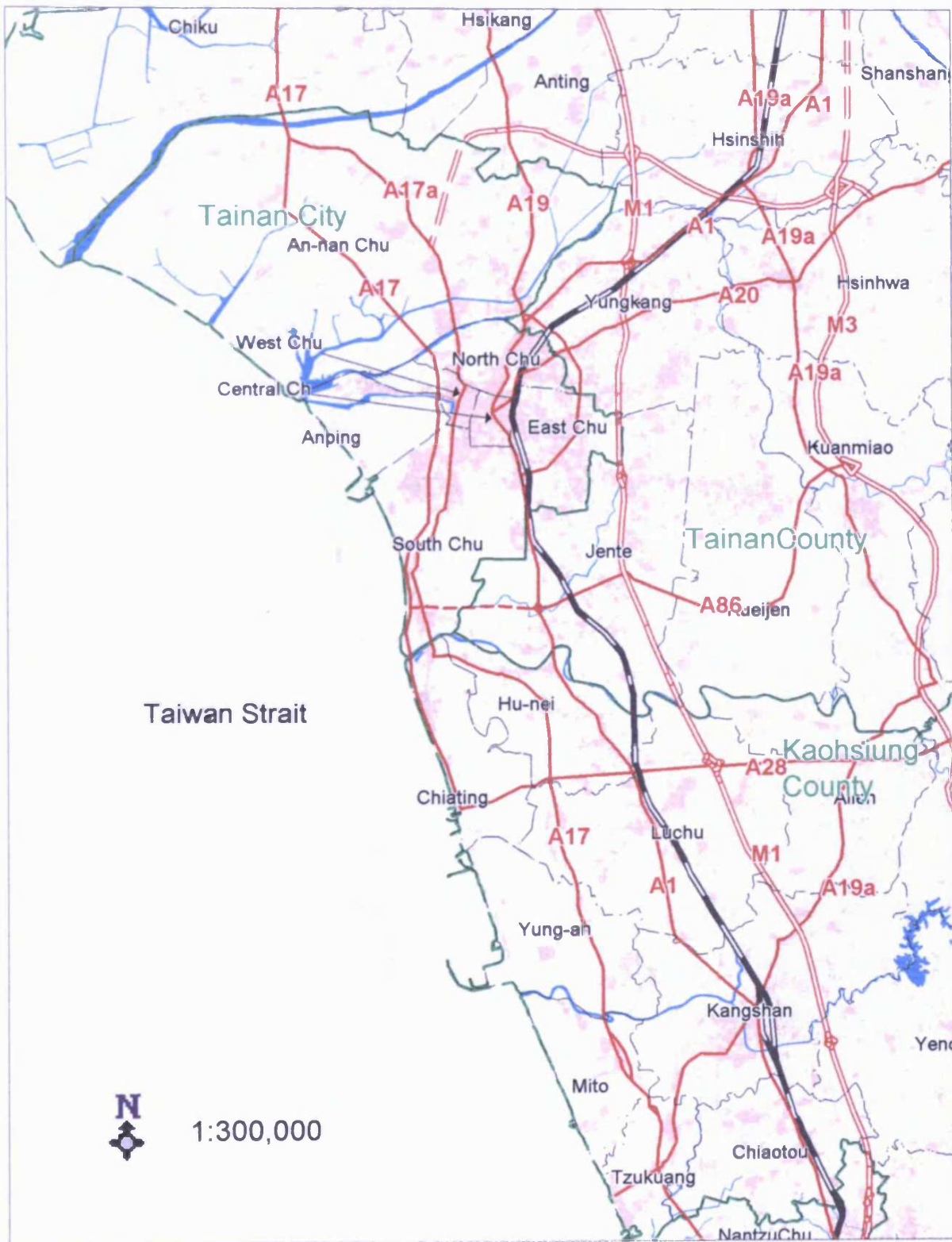


Figure 4-2 (B) Locations of Tainan City and Nearby Hsiangs/Chens/Shihs

Figure 4-2 (A) shows the locations of department stores and hypermarkets in Tainan City and nearby Hsiangs/Chens/Shihs. There are five department stores, namely, two Far Eastern Department Stores, two Shin Kong Mitsukoshi Department Stores, and the Focus Department Store, all located in central shopping areas. Since the Makro closed down all its outlets in Taiwan, there are currently seven hypermarkets, namely, two Carrefours, two RT-Marts, and one Geant, Tesco, and Taisuco hypermarket, respectively, located either at the edge of Tainan's city centre or in nearby residential areas. In addition, according to Retailing Mart Magazine's report in 2004, there are about thirty supermarkets in Taiwan City. Taiwan Sugar Mall is the last modern retailer to enter the market, anchored by Taisuco Hypermarket.

Table 4-2 shows the number of traditional retailers in Tainan City and nearby Tainan and Kaohsiung Counties. In terms of shopping areas, there are four major shopping areas in Tainan City, namely, Jung-Jeng shopping area, Hsiao-Pei shopping area, Tung-Ning shopping area, and the Central Train Station shopping area (see Figure 4-2 (A)). In addition, in suburban areas, there are smaller shopping areas which have always been associated with traditional retail markets. As regards retail markets, the number of traditional retail markets in Tainan City is smaller than in nearby Counties, but the ratio of permanent to temporary retail markets is higher than in nearby Counties. This suggests that most temporary retail markets are located in suburban areas.

**Table 4-2 Number of Traditional Retailers in Tainan City and Nearby Counties**

Items	Taiwan	Tainan City	Tainan County	Kaohsiung County
Shopping Areas	N/A	4	N/A	N/A
Permanent Retail Markets	689	49	57	82
Temporary Retail Market	192	4	7	19
Total Retail Market	881	53	64	101

Source: Retailing Mart (2004: pp.31-32)

Figure 4-3 displays the number and density of population within Tainan City and nearby Hsiangs/Chens/Shihs in 2003. In terms of population density, Central Chu has the highest population density, 15,521 persons per kilometre, followed by East Chu, West Chu, North Chu, Yung kang Shih, South Chu, and Anping Chu with 14,114, 12,247, 11,725, 5,029, 4,853, and 4,816 persons per square kilometre, respectively. Historically, Central Chu and West Chu were the earliest developed districts because of the convenience of canal and train transport (see Figure 4-2 (B)), and, today, are the core of the central business district in Taiwan City. East Chu, North Chu, Yung kang Shih, South Chu, and Anping Chu, were prosperously developed as industrial and agriculture districts. Through the process of urban development, these districts have gradually become residential districts and contain more concentrated populations. Outside Tainan City, Hsiangs (or Chens) have lower population densities, below 3,000 persons per square kilometre.

Examining the spatial distribution of the population in 2003, the majority of people were still living in Taiwan City and nearby Yung kang Shih in Tainan County. Of the top five districts with the largest number of people, four were located in Tainan City (i.e. 189,344, 166,867, 132,345, and 122,337 people in East Chu, An-nan Chu, South Chu, and North Chu, respectively), and one in Tainan County (i.e. 202,552 people in Yung kang Shih). Outside Tainan City, except for a few districts with a population of between 50,000

and 100,000 people (i.e. Kangshan Chen, Jente Hsiang, Kueijen Hsiang, and Luchu Hsiang with 94,822, 66,682, 64,278, and 54,103 people, respectively), the others were all districts with below 50,000 people.

Considering the growth of population in each district, Figure 4-4 shows the changing patterns from 1993 to 2003. In terms of the growth ratio, Yungkang Shih, Anping Chu, East Chu, and An-nan Chu have rapidly increased in population during this period with more than 20 per cent of growth rate. By contrast, Central Chu, West Chu, South Chu, and North Chu have gradually decreased in population, even though they still have high population densities. In terms of population increase, of those districts with populations increasing to over 20,000 people, three were located in Taiwan City (i.e. 28,945, 28,138, and 24,650 people in Anping Chu, East Chu, and An-nan chu, respectively) and one (i.e. 46,807 people in Yungkang Shih) was located in Tainan County. By contrast, Central Chu, South Chu, West Chu, and North Chu have experienced serious population loss, 13,480, 9,215, 6,933, and 2,947 people, respectively, seemingly inferring that although the central business district (i.e. Central Chu and West Chu) and nearby districts (i.e. North Chu and South Chu) had the larger population number and highest population densities, these districts had been gradually losing their residents year by year. By contrast, surrounding districts (i.e. Anping Chu, An-nan Chu, East Chu, and Yungkang Shih) had been rapidly gaining residents.



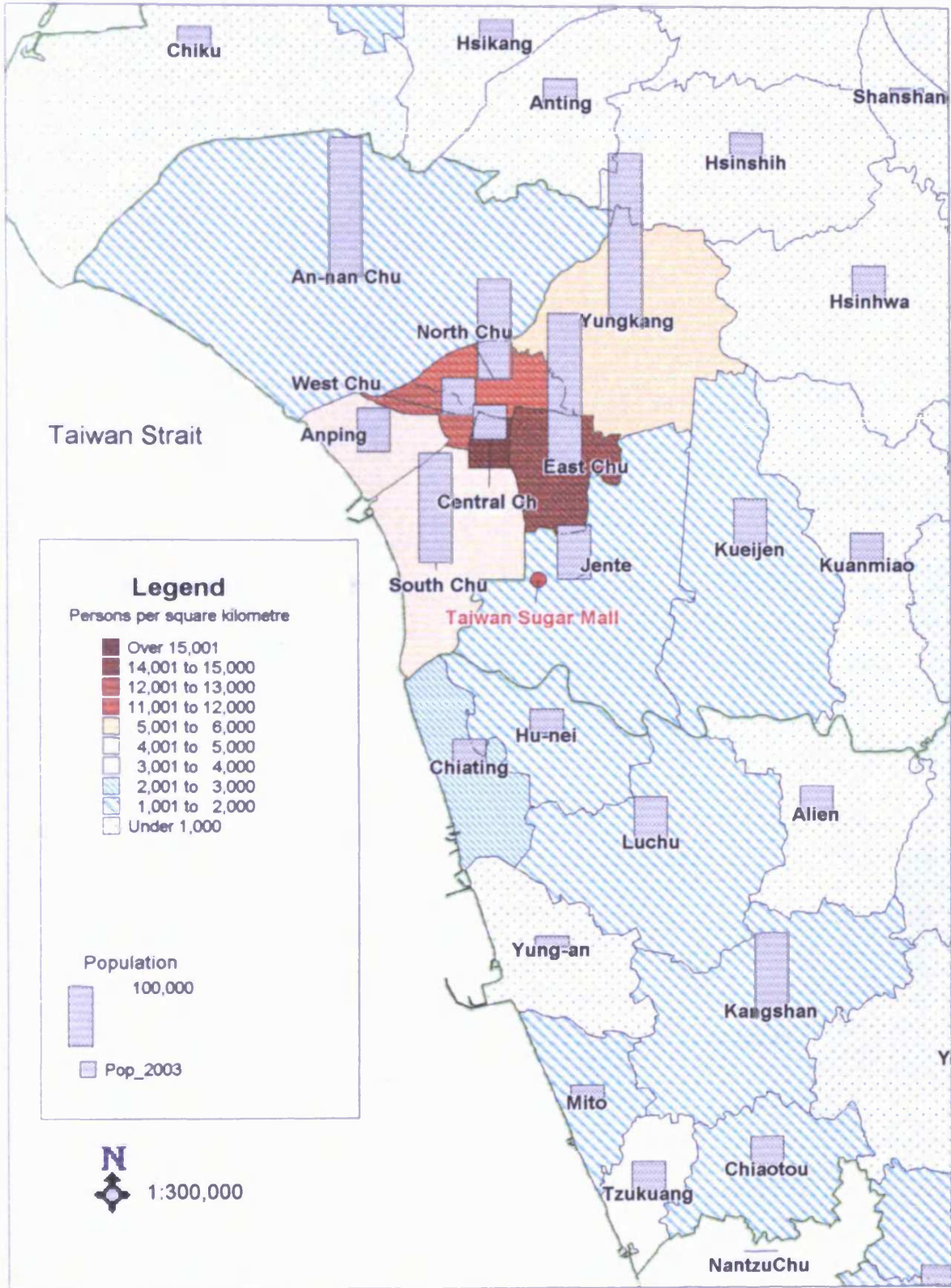


Figure 4-3 Population and Density within Tainan City and Nearby Hsiangs/Chens/Shih in 2003  
(Source: MOI, 2003)

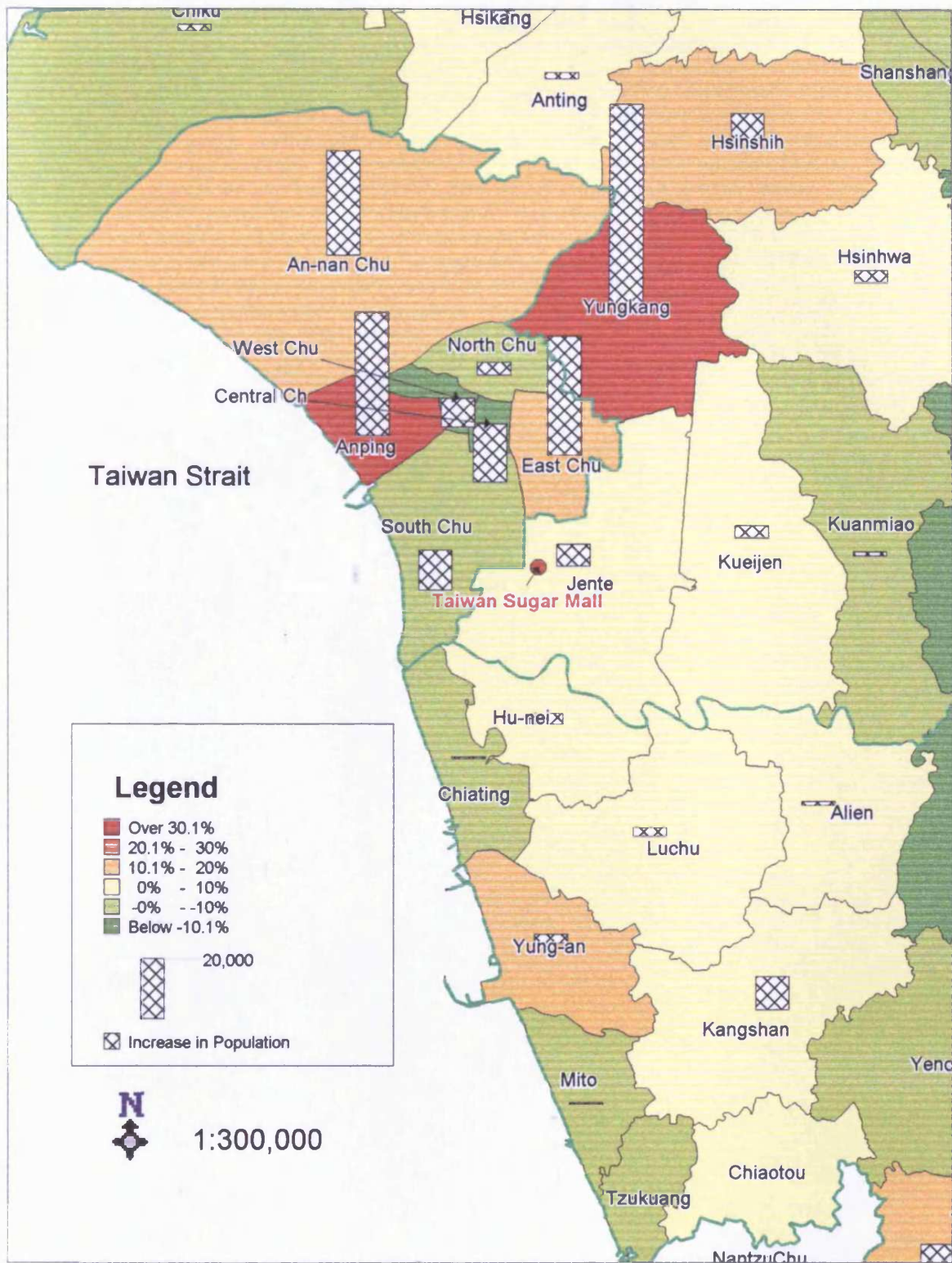


Figure 4-4 Changing Population within Tainan City and Nearby Hsiangs/Chens/Shih between 1993 and 2003 (Source: MOI, 1993; 2003)

Figure 4-5 shows the occupations of the employed population within the study area from 1990 to 2000. According to the report of '*Population and Housing Census*' conducted by DGBAS in 1990 and 2000, the employed population over 15 years old could be classified as primarily engaged in agriculture, industry, and services. In general, districts within the study area have the same trend, a gradual increase in those engaged in services and a steady decline in those engaged in agriculture and associated activities. Most districts with a high ratio of agricultural workers are located further away from Tainan City, either near the sea shore or the central range of mountains. By contrast, most districts with a high percentage of their population engaged in the services sector are located in Taiwan City, such as Central Chu, East Chu, West Chu, Anping Chu, and North Chu, with 86.88, 72.41, 72.39, 71.62, and 71.57 per cent, respectively. This seemingly infers that people living in urban areas are more likely to be employed in the services sector than in industry and agriculture. In terms of employment in industry, the trend differs according to individual districts. Figure 4-5 shows Hsinshih Hsiang, Jente Hsiang, An-nan Chu, and Anting Hsiang have the highest percentage of the population engaged in industry (i.e. 55.32, 52.12, 51.38, and 50.45 per cent, respectively. Notably, the Taiwan Sugar Mall is located in Jente Hsiang. Examining neighbouring districts to its west and south, for instance, Kueijen Hsaing, Kuanmiao Hsiang, Chiating Hsiang, Hu-nei Hsiang, and Luchu Hsiang, the percentage of population engaged in industry ranges between 40 to 50 per cent, seemingly inferring that those employed in industry are potential customers which the Mall wants to attract.



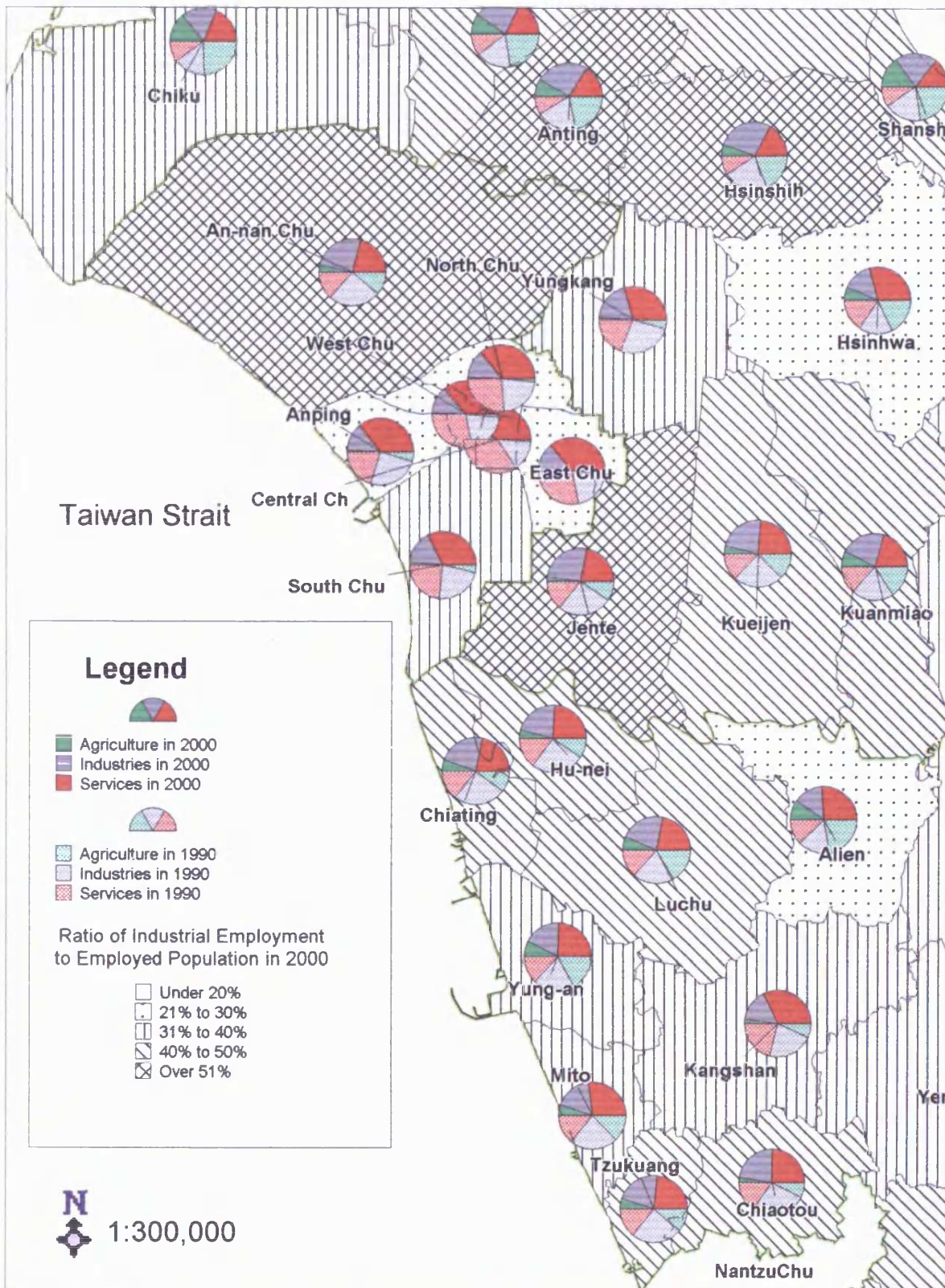


Figure 4-5 The Occupation of the Employed Population within Tainan City and Nearby Hsiangs/Chens/Shihs between 1990 and 2000  
 (Source: DGBAS, 1990; 2000)

Table 4-3 shows relevant households' income and expenditure in Tainan City and nearby Counties. Examining households' disposable income and expenditure, a household in Tainan City has higher disposable income and expenditure than one in nearby Counties. As regards households' consumption power per square kilometre, if shopping centres attract only local residents (or shoppers unwilling to travel further afield) either for 'food and groceries' or 'clothing and footwear' shopping trips and have the same ratio of turnover to floor space, centres in Tainan County have a 10 times larger catchment area than ones in Tainan City, and a 13 times larger catchment area than centres in Kaohsiung County. This suggests off-centres are likely to find it difficult to advance their turnover if they cannot extend their catchment area. Figure 4-2 (A), which shows the actual locations of larger retailers within Tainan City and nearby Hsiangs/Chens/Shihs, clearly illustrates the situation.

**Table 4-3 Households' Income and Expenditure in Tainan City and Nearby Counties**

Items	Taiwan	Tainan City	Tainan County	Kaohsiung County
<b>Households' Income and Expenditure in 2003 (Unit: NT\$)</b>				
Disposable Income per Household	881,662	849,733	741,752	667,189
Consumption Expenditure per Household	666,372	653,103	533,672	491,959
Spending on Food & Groceries per Household	159,942	164,748	136,354	123,623
Spending on Clothing and Footwear per Household	23,480	20,731	15,923	15,232
Households' Consumption Power per square kilometre by Food & Groceries (Million NT\$)	30.67	223.12	22.46	17.09
Households' Consumption Power per square kilometre by Clothing and Footwear (Million NT\$)	4.50	28.08	2.62	2.11

Source: DGBAS, (2004<sup>a</sup>)

## 4.5 RESEARCH DESIGN

### 4.5.1 Designing Survey Research

Bryman (2001) defined a research design as a framework for the collection and analysis of data. Employing a mixed method strategy, the study will design a survey to collect both quantitative and qualitative data and then integrate them in the analytical progress. The quantitative approach will dominate the project and a qualitative approach will be nested in the quantitative survey process. Creswell (2003: pp.154-155) recommended a standard format for designing survey research, which includes four typical components, namely, (1) to identify the purpose of the survey, (2) to indicate why a survey is the preferred type of data collection procedure for the study; (3) to indicate whether the survey will be cross-sectional, with the data collected at one point in time, or whether it will be longitudinal, with data collected over time; and (4) to specify the form of data collection. The study will describe the survey design framework in accordance with these four components.

The first component is to identify the purpose of the survey. It is imperative to relate the purpose of the survey to the objective of the study. This is to ensure the measurement instruments are appropriate for achieving the objectives of the study at the end of the survey research process. In the present context, the research aims to investigate the relationship between consumers' patronage behaviour and the retailing system in Taiwan's urban area and, drawing on changes in behaviour, to infer possible retail impact derived from a new retailing type, an out-of-town shopping centre development, the Taiwan Sugar Mall in Tainan, Taiwan. Therefore, the purpose of the survey is to ascertain the relationships between consumers' shopping destination choice behaviour and a set of variables assumed to influence their patronage behaviour in order

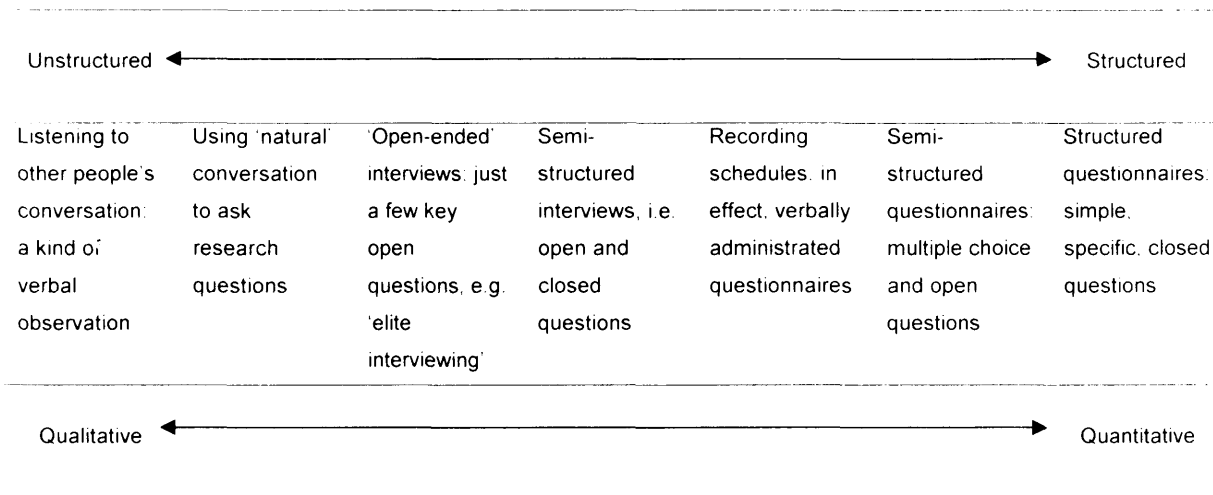
to identify possible retail impact derived from a new type of retail development based on changed patronage behaviour.

The next component is to indicate why the survey is the preferred type of data collection procedure for the study. As mentioned above, the recent development of shopping destination choice model is intended to capture the specific nature of individual decision-making processes in a spatial context. Thus, a survey is the preferred method to collect disaggregate data in order to achieve the present research aims.

According to the third component, in order to examine change in patronage behaviour and explore the possible retail impact, the study will be longitudinal, with data collected over time. Bryman (2001) defined longitudinal research as a kind of research design in which data are collected from samples (people, documents, etc.) on at least two occasions. Moreover, a longitudinal design can allow insight into the time order of variables and therefore may allow causal inferences to be made, thus, it will be easier to investigate changes in patronage behaviour and explore possible retail impact. Further, there are two types of longitudinal design: the panel study and the cohort study. The study will adopt the former type, that is, a sample is the focus of data collection on two occasions, before and after the Taiwan Sugar Mall opened.

Finally, questionnaires are frequently used as tools for collecting data in human geography and related areas of research (Parfitt, 1997; de Vaus 2002). The study will utilise semi-structured questionnaires to collect quantitative data and qualitative data. According to Gillham's (2000: p.3) classification, methods of verbal data collection can be categorised as unstructured and structured. Silverman (2001: p.12) indicated that in terms of interview methods, qualitative research is relevant to open-ended questions, while quantitative research mainly poses fixed-choice questions to a random sample. Figure 4-6 presents this range schematically. When methods are more unstructured, they are

relatively more qualitative, and vice versa. A semi-structured questionnaire is positioned between 'unstructured' and 'structured', and between 'qualitative' and 'quantitative'.



**Figure 4-6 Verbal Data Dimension**

Source: Modified from Gillham (2000: p.3)

#### 4.5.2 Population and Sample

Before undertaking sampling, the study must first define the survey area. To conduct a study examining the impact derived from Taiwan Sugar Mall it is necessary to consider its catchment area. England (2000) defined the catchment area as an area from which shoppers tend to use a particular store (or shopping centre) in preference to other stores (or shopping centres). There are two ways of determining a catchment area: using household survey data or directly defining isochrones at different time intervals from the location of the proposed development (England, 2000: p.74). Because of lack of previous

survey data, the study will use the travelling time to measure the intervals from each individual administrative district to the site of Taiwan Sugar Mall, in Jente Hsiang, Tainan County. Travelling time data are derived from information provided by the Institute of Transportation at the Ministry of Transportation & Communications (MOTC), based on the 1998 Census. Travel time results are summarised in **Appendix B**. Further, the catchment area is separated into three bands, i.e. ten-, twenty-, and thirty- minute intervals from the location of Taiwan Sugar Shopping Mall. These three time bands related to seven Chus (under the city system, Chus are city districts), nine Hsiangs, and one Shih belonging to three different Cities or Counties, namely, Tainan City, Tainan County, and Kaohsiung County (See Figure 4-7).



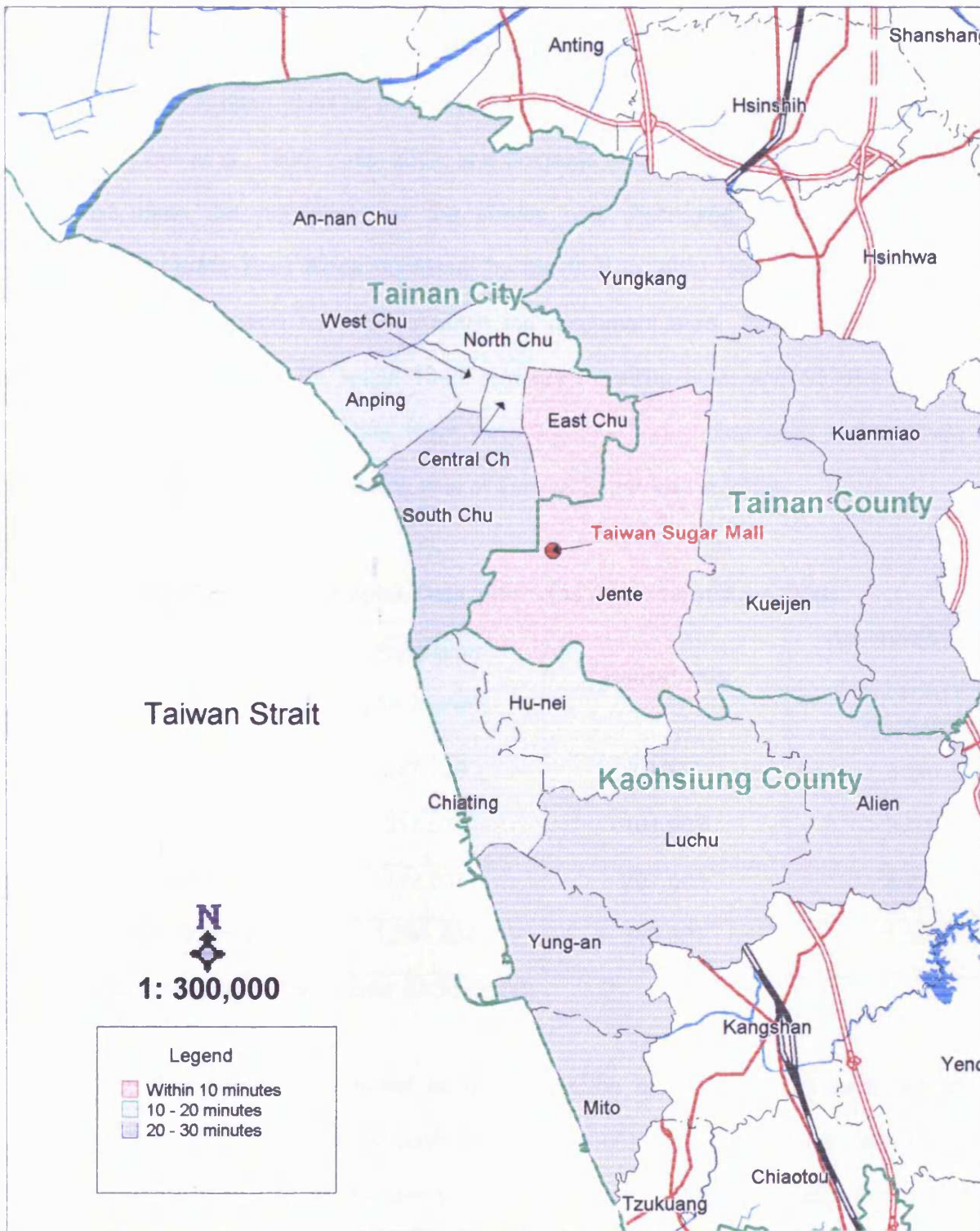


Figure 4-7 The Catchment Area of Taiwan Sugar Mall

A review of relevant shopping destination choice models shows an individual household is often used as a survey unit (see, for example, Popkowski and Timmernans 1997; Bell et al., 1998; Volle, 2001; and Solgaard and Hansen, 2003). Similarly, the study also uses the household as the survey unit. According to the *Taiwan–Funkien Demographic Fact Book* published by the MOI in 2000 (see Table 4-4), there were almost 0.39 million households within the catchment area, 20.54% within 10 minutes travelling time, 26.17% within 10-20 minutes travelling time, and 53.29% within 20-30 minutes travelling time. Thus, there were 389,387 households living in the survey area between 0-30 minutes travelling time of Taiwan Sugar Mall in 2000.

**Table 4-4 Basic Demographic Data within the Catchment Area, 2000**

Driving Time	Population (Unit: Pearson)	Households	Household Size (Unit: Person per household)
0 – 10 minutes	247,720	79,977	3.10
11 – 20 minutes	317,575	101,907	3.12
21 – 30 minutes	719,007	207,503	3.47
Total 0 – 30 minutes	1,284,302	389,387	3.30

Source: Ministry of the Interior (MOI) (2000)

The sample size is set as 540 under the assumed 30 per cent rate of non-response and the acceptable confidence interval of plus-or-minus 5 per cent. In terms of descriptive research, the sample size is sufficient to produce estimates that are precise enough to be useful (Henry, 1998: p.123). According to Formula 4-1 (see Bryman, 2000: p.94; Ibrahim and McGoldrick, 2004: p.97), under the assumption of an allowed error of 5



per cent, (i.e. a sampling error of 1.96), and a population proportion of 50 per cent, the required sample size will be 384:

$$\text{Sample Size } (N) = \frac{(Z_{\alpha})^2 P(1 - P)}{\alpha^2} \quad (\text{Formula 4-1})$$

where  $Z_{\alpha}$  is the sampling error (or called the standard error of the mean at  $\alpha$  allowed error) (=1.96)

$\alpha$  is the allowed error (=0.05)

P is the population proportion (=50%)

However, a larger sample size would give a better estimate of population parameters than a smaller one, for instance, plus-or-minus 2 per cent for a sample of 2,000 or 6.5 per cent for a sample of 200 (Oppenheim, 1992: p.43). Increasing the size of a sample also increases the precision of a sample but also increases the survey time and cost.

The non-response rate will be considered as non-response and lost samples in first and second round surveys. Non-response means that some samples did not agree to participate in the research. Lost samples mean that some samples were successful in the first round but were unavailable in the second round. According to empirical survey experience, different survey techniques will influence the non-response rate: postal self-administered questionnaires or telephone interviews are associated with higher non-response rate, such as 36 per cent in Fotheringham and Trew (1993: p.181), 65 per cent in Broadbridge and Calderwood (2002: p.397), and 58 per cent in Solgaard and Hansen (2003: p.175); and face-to-face interviews are associated with a lower non-response rate, such as 6 per cent in Ibrahim and McGoldrick (2003: p.180). In the present study, to ensure as far as possible 384 households were interviewed, a higher 30 per cent non-response rate was considered, therefore it was considered advisable to sample 540

households, on the grounds that approximately 156 might be non-respondents and lost samples.

A stratified random sampling strategy was employed to select 540 samples from the population. Bryman (2001: p.90) defined sampling strategy as a sample in which units are randomly sampled from a population that has been divided into categories (or strata), such as faculties in a study of university students. Here, the study used three travelling time bands as sampling categories. Based on the estimated sampling ratio in each band, samples were randomly selected from each Lii (a small administrative unit under the city system; in general, a Lii consists of 1,000 to 4,000 households depending on its density) or Tsuen (a small administrative unit under the county system, in general, consisting of 400 to 1,000 households depending on its density). As regards hierarchies of administrative divisions, in Taiwan there are five tiers, namely, Province (or Municipality), City (or County), Chus (Hsiangs, Chens, or Shihs), Liis (or Tsuens), and Lins (smallest administrative units under both city and county systems, consisting of 100 to 200 households under the city system and 20 to 50 households under the county system) (see Figure 4-8). Due to the limited availability of statistical data and geographic maps, the study adopted Liis (or Tsuens) as basic units for sampling purposes.

Moreover, the study uses the gravity model concept to calculate the attraction power in different travelling time bands. Assuming no attraction elements, the study merely considered the obstructed factor, the travelling time, to evaluate the allocated proportion of samples to different travelling time bands. Table 4-5 displays the attraction power by different travelling time bands. The first band has the highest proportion of samples, 55 per cent: 295 samples; the second has 27 per cent: 147 samples; and the third has 18 per cent: 98 samples. Further, Table 4-6 shows sampling ratio in each travelling time band.

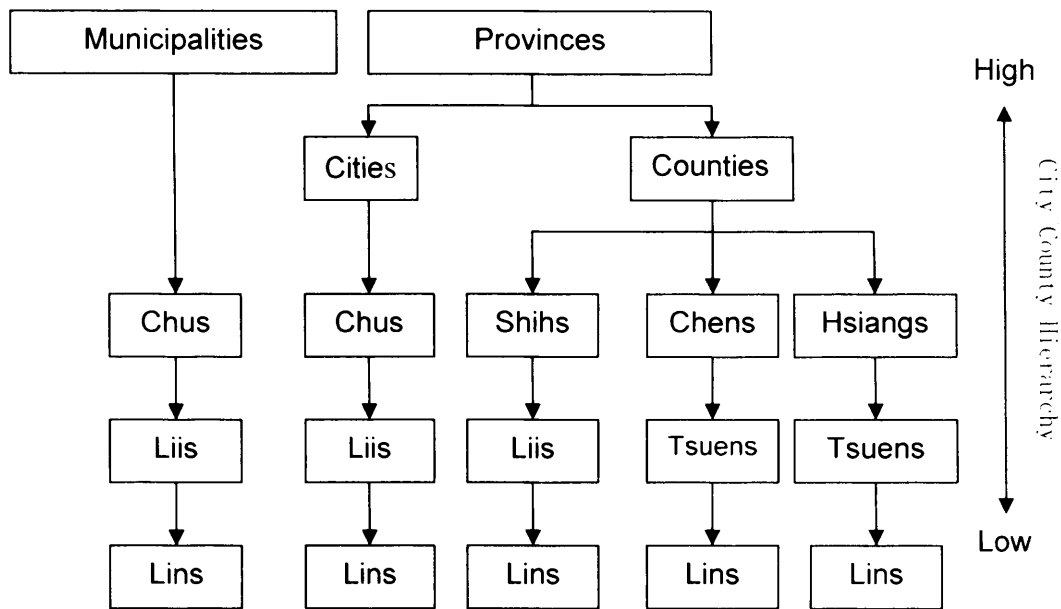


Figure 4-8 Framework of Administrative Districts in Taiwan

Table 4-5 Attracting Power by Travelling Time Bands

Travelling Time	Attraction Power	Note
0-10 minutes	0.55	$(1/10) / [(1/10)+(1/20)+(1/30)]$
10-20 minutes	0.27	$(1/20) / [(1/10)+(1/20)+(1/30)]$
20-30 minutes	0.18	$(1/30) / [(1/10)+(1/20)+(1/30)]$

Table 4-6 Sampling Ratios by Travelling Time Bands

Travelling Time	Sampling Ratio(1 in X)	(Household/Samples)
0-10 minutes	1 in 271 = 0.369%	$\frac{79,977}{(540 \times 0.55)} = 271$
10-20 minutes	1 in 693 = 0.144%	$\frac{101,907}{(540 \times 0.27)} = 693$
20-30 minutes	1 in 2,117 = 0.047%	$\frac{207,503}{(540 \times 0.18)} = 2,117$

Based on the ratios illustrated in Table 4-6, the samples selected in each individual administrative unit were calculated by multiplying the sampling ratio by number of households. For instance, there are 59,818 households in East Chu which is within 0-10 minutes travelling distance of Taiwan Sugar Mall. Therefore, selecting one sample in every 271 households gives a total of 220 samples (for more details see Table 4-7).

Using available government sources from local authorities, the study collected the number of households by individual Liis/Tsuens. Statistically, there were 416 Liis/Tsuens in 2000 within the catchment area of Taiwan Sugar Mall, belonging to seventeen different Chus/Hsiangs/Chens/Shihs. Of these 416 Liis/Tsuens, 253 were selected for the study. One hundred and sixty-three of the 416 Liis/Tsuens were eliminated because of their small number of households and further distance from the Taiwan Sugar Mall. For instance, a Lii (or Tsuen) was eliminated if it was located in the 0-10 minutes travelling time band and had less than 271 households; if it was located in the 10-20 minutes travelling time band and had less than 693 households; and if it was located in the 20-30 minutes travelling time band and had less than 2,117 households. In detail all 63 Liis/Tsuens located in the 0-10 minutes travelling time band were selected; 100 of the 148 Liis/Tsuens (67.57 per cent) located in the 10-20 minutes travelling time band were selected; and 90 of the 205 Liis/Tsuens (43.90 per cent) located in the 20-30 minutes travelling time band were selected. Due to the lack of relevant social geography data based on Liis/Tsuens in Taiwan, the study cannot further examine whether the omission of these Liis/Tsuens was detrimental to shopping destination choice models (see Chapter 6, Sections 6-3, 6-4, and 6-5). However, because eliminated Liis/Tsuens were located in

more distant travelling time bands, the influence of these omissions on the study was anticipated to be minor. Table 4-7 shows the final sample distribution in each Chu/Hsiang/Shih (see Figure 4.4 for the location of each area).

The study utilised the Household Register Book as the sampling frame. The Household Register Office is located in individual administrative districts and records residential registered data on the Lii (or Tsuen) basis. The Household Register Book includes each individual household's registered address, the name of the registered head of the household, and details of other household members' names, date of birth, marriages, etc. Thus, the official Household Register Book provided the best population description for the sampling frame. Samples were randomly selected from the Register Books.

Table 4-7 Sample Distribution

Travelling Time Bands	City/County	Chu/Hsiang/Shih	Number of Households In 2000	%	Samples	%
0-10 mins	Tainan City	East Chu	59,818	15.36	220	40.80
	Tainan County	Jente Hsiang	20,159	5.18	74	13.75
	<b>Total</b>		<b>79,977</b>	<b>20.54</b>	<b>295</b>	<b>54.55</b>
11-20 mins	Tainan City	Anping Chu	16,417	4.22	24	4.39
		West Chu	14,222	3.65	21	3.81
		Central Chu	15,111	3.88	22	4.04
		North Chu	38,387	9.86	55	10.27
	Kaohsiung County	Hu-nei Hsiang	8,321	2.14	12	2.23
		Chiating Hsiang	9,449	2.43	14	2.53
<b>Total</b>		<b>101,907</b>	<b>26.17</b>	<b>147</b>	<b>27.27</b>	
21-30	Tainan City	An-nan Chu	44,128	11.33	21	3.87
		South Chu	40,949	10.52	19	3.59
	Tainan County	Kueijen Hsiang	17,422	4.47	8	1.53
		Yungkang Shih	61,352	15.76	29	5.38
		Kuanmiao Hsiang	10,047	2.58	5	0.88
	Kaohsiung County	Alien Hsiang	8,387	2.15	4	0.73
		Luchu Hsiang	13,932	3.58	7	1.22
		Yung-an Hsiang	5,204	1.34	2	0.46
		Mito Hsiang	6,082	1.56	3	0.53
<b>Total</b>		<b>207,503</b>	<b>53.29</b>	<b>98</b>	<b>18.18</b>	
<b>Total</b>			<b>389,387</b>	<b>100</b>	<b>540</b>	<b>100</b>

### 4.5.3 Developing Questionnaires

Tull and Hawkins (1993) outlined eight steps to develop questionnaires, namely, (1) decide on the required information, (2) decide on the interviewing method, (3) decide on the content of individual questions, (4) decide on the phrasing of individual questions, (5) decide on the response format structure, (6) decide on the sequence of questions, (7) decide on the form and layout, and (8) pre-test and then revise the questionnaire. Following these steps, the study briefly presents the process of developing the study questionnaire.

The first stage was to decide on the required information. Based on prior literature reviewed in Chapter 2, the author extracted five major determinants assumed to influence consumers' shopping destination choice behaviour, namely, situational factors, spatial environmental factors, store selection criteria, buyer/household demographic and socio-economic characteristics, and attitudes towards shopping (see Figure 2-3). In addition, other essential elements were included, such as shopping destination choice sets, general shopping behaviour, Taiwan Sugar Mall shopping experience, and reasons for changed (or unchanged) patronage behaviour.

The next stage was to decide on the interviewing method. Based on the literature review, several interview methods could be used to elicit research data, namely, face-to-face interviews, telephone interviews, postal self-administered questionnaires, and internet surveys (such as e-mail or web pages), etc. (Bryman, 2001; de Vaus, 2002). de Vaus (2002) indicated that the choice between interview methods will depend on the nature of the survey, the sample, time and cost constraints, the importance of response rate and types of questions. Taken overall, face-to-face surveys are normally better at obtaining representative samples and produce the fewest constraints in terms of

questionnaire construction and question design (de Vaus, 2002). Hence, the author decided to adopt face-to-face interviews.

Next, it was necessary to decide on the content and phrasing of individual questions, the response format structure, the sequence of questions, and their form and layout in order to develop the questionnaire itself. A review of relevant studies (e.g. Parfitt, 1997; Gillham, 2000; Bryman, 2001; de Vaus, 2002), revealed numerous rules (or rules of thumb) had been devised in connection with the construction of questionnaires. For instance, Bryman (2001) pointed to three simple rules of thumb, namely, always bear in mind your research question(s), what do you want to know?, and how would you answer it? He further gave further specific rules when designing questions:

- Avoid ambiguous terms in questions
- Avoid long questions
- Avoid double-barrelled questions
- Avoid very general questions
- Avoid leading questions
- Avoid questions that are actually asking two questions
- Avoid questions that include negatives
- Avoid technical terms
- Does the respondent have the requisite knowledge?
- Make sure there is a symmetry between a closed question and its answer
- Take into account possible memory problems

Under this direction, the author constructed the draft questionnaire for pre-testing. Questionnaires were designed in English first and then translated into Chinese as it is the



first language in Taiwan. Further, respondents were limited to the main shopper only in each selected household to investigate his/her major shopping behaviour.

As noted above, the researcher decided to adopt a semi-structured questionnaire consisting of multiple choice and open questions to gather socio-economic characteristics, general shopping behaviour, and shopping experience at the Taiwan Sugar Mall. Specifically, the study utilised dichotomous questions to elicit store selection criteria. Additionally, to collect qualitative data, the study designed several open-ended questions to accumulate shopping experience details at the Taiwan Sugar Mall and reasons for changed (or unchanged) patronage behaviour. Bryman (2001) indicated the Likert scale is one of the most frequently encountered formats for measuring attitudes, thus, the study employed the Likert scale to measure attitude questions.

Pre-testing and revision of questionnaires are final steps in constructing questionnaires. In general, pre-testing should cover all aspects, including overall design, content, phrasing, sequence, instructions, form, layout and the manner in administering the questionnaire (Gillham, 2000). de Vaus (2002) suggested four aspects should be carefully checked when pre-testing questionnaires, namely, flow, question skips, timing, and respondent interest and attention. For this study, pre-testing was conducted in February and March 2002 in Tainan, Taiwan. Ninety-six respondents were involved in the pre-testing exercise based on convenience sampling. After making the necessary amendments, the study constructed the final questionnaires shown in **Appendix C** and **Appendix D** for first round and second round surveys, respectively.

Table 4-8 shows relationships between specific research questions, required information, and designed questions. Ten specific research questions were derived from three general research questions based on the previously mentioned five research objectives (for more details see Chapter 1, Sections 1.4.1 and 1.4.2). In order to collect

relevant data for answering these research questions, questionnaires were developed based on the required information. As mentioned above, concurrent nested strategy was employed in the present study, that is, close-ended questions were designed to collect quantitative data in the first and second round surveys and dominated the whole survey process, whereas a few qualitative open-ended questions were embedded in the second round survey. These open-ended question numbers are shown in bold type in Table 4-8.

**Table 4-8 Relationships between Research Questions, Required Information, and Designed Questions**

Specific Research Questions	Required Information <sup>1</sup>	Question Numbers
1. What kinds of factors are useful for explaining and predicting households' convenience goods patronage behaviour based on unplanned and planned retailers?	1, 2, 3, 4, 5, and 6	First Round: Q6, Q15, Q29, and Q30-Q44
2. What kinds of factors are useful for explaining and predicting households' comparison goods patronage behaviour based on unplanned and planned retailers?	1, 2, 3, 4, 5, and 6	First Round: Q16, Q26, Q29, and Q30-Q44
3. What kinds of factors are useful for explaining and predicting households' convenience goods patronage behaviour based on four categories?	1, 2, 3, 4, 5, and 6	First Round: Q6, Q15, Q29, and Q30-Q44
4. What kinds of factors are useful for explaining and predicting households' convenience goods patronage behaviour based on four categories?	1, 2, 3, 4, 5, and 6	First Round: Q16, Q26, Q29, and Q30-Q44
5. Are there differences (or associations) between first and second round surveys in regard to the major factors affecting households' shopping destination choice behaviour?	2, 3, and 4	First Round: Q6, Q15, Q16, Q26, Q30-Q44 Second Round: Q5, Q14, Q16, Q26, and Q36-Q47

Specific Research Questions	Required Information <sup>1</sup>	Question Numbers
6. Dividing shopping destinations into unplanned and planned retailers, what factors explain changes in households' convenience goods patronage behaviour over time?	1, 2, 3, 4, 5, and 6	First Round: Q6, Q15, and Q29 Second Round: Q5, Q14, and Q36-Q47
7. Dividing shopping destinations into unplanned and planned retailers, what factors explain changes in households' comparison goods patronage behaviour over time?	1, 2, 3, 4, 5, and 6	First Round: Q16, Q26, and Q29 Second Round: Q16, Q26, and Q36-Q47
8. What is the changed patronage percentage by different retailer types after the Taiwan Sugar Mall enters (and the Makro leaves) the market? Does the Mall cause serious trade diversion from existing shopping centres?	6	First Round: Q6, Q16, and Q21 Second Round: Q5, Q16, and Q21
9. What are households' responses to the new type of out-of-town shopping centre, the Taiwan Sugar Mall?	7 and 8	Second Round: Q5, Q8, Q11, Q16, Q19, Q23, Q29-Q32, <b>Q33<sup>2</sup></b> , <b>Q34<sup>2</sup></b> , and Q35
10. In terms of convenience goods shopping trips, do households switch their original shopping habit to shop at the new development and why (or why not?)	9	First Round: Q6 Second Round: Q5, <b>Q15<sup>2</sup></b>

Note: 1. Required information: 1. situational factors; 2. spatial environmental factors; 3. store selection criteria; 4. buyer/household demographics and socio-economic characteristics; 5. attitudes towards shopping; 6. shopping destination choice sets; 7. general shopping behaviour; 8. Taiwan Sugar Mall shopping experience; and 9. reasons for changed (or unchanged) patronage behaviour.

2. This question is designed as a qualitatively open-ended question to collect respondents' opinions.

#### 4.5.4 Survey Administration

Good survey administration will benefit response rates, interview quality, and smooth implementation of interviews (de Vaus, 2002: p.131-134). A face-to-face interview method was employed to carry out household surveys. Using this method, interviewers administered the questionnaire personally to respondents and recorded and coded answers as the interview proceeded. In order to maximise response rates, the study adopted the following techniques:

- A statement of the survey purpose was presented on the front page of the questionnaire with the author's name and contact information.
- All interviewers used a student card to identify their position when introducing themselves.
- The timing of the visit took into account household characteristics. Daytime was considered appropriate for suburban households and evening (or night time) for urban households. Suburban households tend to be early risers, elderly, agricultural workers, or housewives with small children, therefore are at home during the day. Urban householders are, in contrast, usually younger or working couples, and more mobile.
- If a respondent was not at home a copy of the questionnaire was left and an interviewer called back on up to two occasions to conduct an interview.
- Addresses where an interview had been initially refused was given to more experienced interviewers. In general, female interviewers conducted more interviews than their male counterparts.

Further, de Vaus (2002) indicated that training and supervision are important to ensure quality in personal interviews. In the present study, twenty college students

(including the author) conducted the two rounds of household surveys. Most lived in the survey area and had attended training sessions prior to the pilot study (or the first round interviews). Interviewers were asked to record details of date/time of visit, call back time(s), length of interview, etc. Each questionnaire's contents were confirmed by telephone back checking after interviewers had returned their questionnaires. To overcome access problems, administrative officials of Liis (or Tsuens) were notified that interviewing would be taking place in certain suburban areas and advised householders in advance that they would be contacted for interview purposes.

Finally, the first round of interviews was carried out in June and July, 2002, before the Taiwan Sugar Mall opened, and the second round conducted in December, 2003 and January, 2004., after the Taiwan Sugar Mall had opened.

#### **4.5.5 Data Preparation and Analysis Techniques**

As regards quantitative approaches, data preparation is required to convert interviewers' records into codes and numbers, whereas in terms of qualitative approaches, texts are categorised and coded. The study followed de Vaus's (2002) six steps for dealing with quantitative data preparation, namely, classifying responses, allocating a code to each variable, allocating a column number to each variable, producing a codebook, checking for coding errors, and entering data. Similarly, all open-ended question responses were summarised into texts, categorised, and coded.

The following provides a brief overview of the quantitative and qualitative techniques used in the analysis of the survey data, including descriptive statistics, bivariate analysis, factor analysis, logistic regression analysis, and the qualitative analysis methods. Through these analysis techniques, responses to specific research questions

could be examined and analysed. Table 4-9 shows relationships between research questions, strategies, and methods.

**Table 4-9 Relationships between Research Questions, Strategies, and Methods**

Research Questions	Research Strategies	Research Methods
1. What kinds of factors are useful for explaining and predicting households' convenience goods patronage behaviour based on unplanned and planned retailers?	Quantitative Strategy	Descriptive Statistics Factor Analysis Logistic Regression Analysis
2. What kinds of factors are useful for explaining and predicting households' comparison goods patronage behaviour based on unplanned and planned retailers?	Quantitative Strategy	Descriptive Statistics Factor Analysis Logistic Regression Analysis
3. What kinds of factors are useful for explaining and predicting households' convenience goods patronage behaviour based on four categories?	Quantitative Strategy	Descriptive Statistics Factor Analysis Logistic Regression Analysis
4. What kinds of factors are useful for explaining and predicting households' convenience goods patronage behaviour based on four categories?	Quantitative Strategy	Descriptive Statistics Factor Analysis Logistic Regression Analysis
5. Are there differences (or associations) between first and second round surveys in regard to the major factors affecting households' shopping destination choice behaviour?	Quantitative Strategy	Descriptive Statistics Bivariate Analysis
6. Dividing shopping destinations into unplanned and planned retailers, what factors explain changes in households' convenience goods patronage behaviour change over time?	Quantitative Strategy	Descriptive Statistics Factor Analysis Bivariate Analysis

Research Questions	Research Strategies	Research Methods
7. Dividing shopping destinations into unplanned and planned retailers, what factors explain changes in households' comparison goods patronage behaviour change over time?	Quantitative Strategy	Descriptive Statistics Factor Analysis Bivariate Analysis
8. What is the changed patronage percentage by different retailer types after the Taiwan Sugar Mall enters (and the Makro leaves) the market? Does the Mall cause serious trade diversion from existing shopping centres?	Quantitative Strategy	Descriptive Statistics Bivariate Analysis
9. What are households' responses to the new type of out-of-town shopping centre, the Taiwan Sugar Mall?	Quantitative and Qualitative Strategies	Descriptive Statistics Bivariate Analysis Categorisation of Meaning Approach
10. In terms of convenience goods shopping trips, do households switch their original shopping habit to shop at the new development and why (or why not?)	Quantitative and Qualitative Strategies	Descriptive Statistics Categorisation of Meaning Approach

In terms of quantitative research methods, before any analysis technique was carried out, descriptive statistics were employed to present all the data collected from the survey and provide primary information about each variable. Descriptive statistics, namely, frequency distributions, mean, median, mode, range, sum, and standard deviation, were used to summarise all the information that had been collected. Following the presentation of descriptive statistics, different statistical techniques were used to answer specific research questions (see above Table 4-9). These techniques are described below:

- Bivariate analysis: this analysis approach is relevant to exploring differences or associational relationships between two variables (Bryman and Cramer, 2001: pp.113-196; Morgan et al., 2001: p.77). In deciding which statistical test is the

most appropriate to use, it is necessary to identify the nature of the various kinds of variables, namely, nominal (categorical), ordinal, and interval/ratio. If the variable is of a nominal (or categorical) nature, it is only possible to use what is referred to as a non-parametric test. In contrast, if the variable is of a non-categorical nature, it is necessary to decide whether it is more appropriate to use a parametric or non-parametric test. Table 4-10 summarises the statistical tests employed in the present study. In Table 4-10, in the column 'type of data', unrelated data refers to data which was compared and came from different cases at the same time point, whereas related data came from the same cases at two different time points.

**Table 4-10 Statistical Test Methods Employed in the Present Study**

Nature of Variables	Type of Test	Type of Data	Number of Comparison Groups	Name of Test
Categorical	Non-parametric	Unrelated	2	Chi-square Phi or Cramer's <i>V</i>
		Related	2	McNemar
Non-categorical	Non-parametric	Unrelated	3+	Kruskal-Wallis <i>H</i>
	Parametric: means	Unrelated	1	<i>t</i> test
			2+	One-way analysis of variance
		Related	2	the related <i>t</i> test

Source: modified from Bryman and Cramer (2001: p.116) and Morgan et al. (2001: p.77)

The Chi-Square (or  $\chi^2$ ) test can be employed to compare the frequency of cases found in one variable in two (or more) unrelated samples (or categories) of another variable based on comparing the expected with observed frequency in each cell (Bryman and Cramer, 2001: p.122-125). If the value of the Chi-Square is not significant (i.e. its significance level is more than



0.05), this means that the null hypothesis – there is no relationship between the two variables - cannot be rejected based on the present survey data, that is, the frequency of cases is the same between the two variables. However, the Chi-Square only examines whether the relationship is statistically significant, the size of the chi-square does not indicate the strength of the relationship (Morgan, et al., 2001: p.90). Phi and Cramer's  $V$  also provide a test of statistical significance, but in addition indicate the strength of the relationship (Morgan, et al. 2001: p. 91). In general, 0.1, 0.3, and 0.5 of Phi (or Cramer's  $V$ ) is considered a small, medium, and larger size effect, respectively (Morgan et al., 2001: p. 82)

The McNemar test is used to compare the frequencies of a dichotomous variable from the same cases at two points in time (Bryman and Cramer, 2001: p.126). If the value of the McNemar test is not significant (i.e. its significance level is more than 0.05), this means that the null hypothesis – there is no difference between the frequencies of the variable from the same cases at two time points - cannot be rejected, that is, the similar frequencies of the variable from the same cases at two time points are confirmed.

The Kruskal-Wallis  $H$  test is used to compare scores in more than two groups. If the value of Kruskal-Wallis  $H$  is not significant (i.e. its significance level is greater than 0.05), there is no difference in scores between the groups. In the present study, the Kruskal-Wallis  $H$  test was used instead of one-way ANOVA due to the unequal group numbers and the unequal variances (Bryman and Cramer, 2001: p. 146).

The  $t$  test for one sample is used to determine if the mean of a sample is similar to that of the population (Bryman and Cramer, 2001: p. 138). For

instance, if its significance level is greater than 0.05, this means there is a significant difference between the population mean and the sample mean at the two-tailed probability level of 0.05.

One-way ANOVA is used to compare the means of three (or more) unrelated samples (Bryman and Cramer, 2001: pp. 144-149). This is essentially an  $F$  test in which an estimate of the between-group variance (or mean-square as the estimate of variance is called in analysis of variance) is compared with an estimate of the within-groups variance by dividing the former by the latter. However, if the number of participants in each group and the variances are unequal and it is not possible to make the variances equal, a non-parametric test, such as the median or Kruskal-Wallis  $H$  test, should be used instead (Bryman and Cramer, 2001: p.146).

The related  $t$  test is used to compare the means of the same participants at two points in time (Bryman and Cramer, 2001: pp.149-151). For instance, if its significance level is greater than 0.05, this means there is a significant difference in means of respondents at the two time points based on the two-tailed probability level of 0.05.

- Factor analysis: factor analysis is defined generally as a method for simplifying a complex set of data (Kline, 1994: p.12). Bryman and Cramer (2001: pp.261-262) indicated the technique is used for three purposes to assess the degree to which items are tapping the same concept, to reduce a larger number of variables to a smaller set, and to make sense of the bewildering complexity of social behaviour by reducing it to a more limited number of factors. In the present study, the technique was employed to condense respondents' attitude

statements and then construct factorial scores (for more details see Chapter 5, Section 5.3).

- Logistic regression analysis: the technique is used to predict the categorical dependent variable from a set of independent variables (Norušis, 1999: p.35). In the literature on logistic regression, for a dependent variable with two categories, the resulting models are called binary or dichotomous logistic regression models; for more than two categories, the resulting models are called multinomial, polytomous, or polychotomous logistic regression models (Menard, 2002: p.91). In the present study, the technique was employed to develop consumer's shopping destination choice models (for more details see Chapter 6).

In terms of qualitative analysis methods, Kvale (1996: pp.193-204) suggested five main approaches, as follows:

- Condensation of meaning: this approach entails an abridgement of the meanings expressed by interviewees into shorter formulations. The form of the results will mainly be in words.
- Categorisation of meaning: this approach implies that long statements are reduced to simple categories. Generally, the outcome of categorisation is presented in the form of numbers, which can be subjected to statistical analysis.
- Structuring of meaning through narratives: narrative structuring entails the temporal and social organisation of a text to bring out its meaning. It focuses on the stories told during an interview and works out their structures and their plots.

- Interpretation of meaning: this approach goes beyond structuring of the manifest meanings of a text to deeper and more or less speculative interpretations of the text. Examples of meaning interpretation are found in the humanities, such as in a critic's interpretation of a film or a play.
- Ad hoc methods for generating meaning: this approach is an eclectic approach, using different approaches and techniques for meaning generation.

According to Kvale's (1996) five major approaches, in the present study, the categorisation of meaning approach was employed to answer specific research questions (see above Table 4-9). Through this approach, respondents' opinions about the Mall and their reasons for changed and unchanged patronage behaviour could be explored as parts of evidence to investigate possible retail impacts derived from the Taiwan Sugar Mall. The main reasons for choosing this approach were: ad hoc methods for generating meaning lack a standard operation process compared with condensation and categorisation of meaning approaches (Kvale, 1996: p.203); the interview data type in this study differed from that in the above narrative structuring and interpretation of meaning approaches; and the numerical form of the results is easier to interpret and integrate than pure texts.

#### **4.6 CHAPTER SUMMARY**

During the past three decades, several debates have raged in the social and behavioural sciences regarding the superiority of one or other of the two major social science paradigms. These two paradigms are known as the positivist/empiricist approach and the constructivist /phenomenological orientation. However, emerging pragmatism has opened the door to mixed methods research.

Mixed methods refer to the use of more than one approach (or source of data) to study the same phenomena in the same study. Based on different integrated situations, Creswell (2003) summarised six different strategies for mixed methods research. The present study adopts the mixed methods strategy by way of the concurrent nested strategy. In the first to second survey round, the quantitative approach predominates; whereas the qualitative approach is embedded, or nested, within the quantitative approach in the second round survey. This enables the collection of two types of data simultaneously, and different perspectives can be gained from different types.

Following the concurrent nested strategy, the study designed a survey schema to realise consumers' patronage behaviour over time and investigate possible retail impact on changed behaviour. A panel shopping behaviour survey of households was deemed necessary. In order to collect both quantitative and qualitative data, semi-structured questionnaires were developed. The survey area was identified by delimiting the catchment area of Taiwan Sugar Mall and separating it into three bands, i.e. ten-, twenty-, and thirty- minute intervals from the Mall's location. According to travelling time bands, seventeen administrative districts (Chus, Hsiangs, and Shihs) were included in the catchment area, comprising in total about 1.3 million people and 0.39 million households.

A stratified random sampling technique was used for selecting samples within the study area. Under the assumed 30 per cent rate of non-response and the acceptable confidence interval of plus-or-minus 5 per cent, the sample size was set as 540. Based on the literature review, the study designed the questionnaires to elicit information on general shopping patterns, attitude towards shopping, store selection criteria, and households' demographic and socio-economic characteristics, based on specific shopping situations: convenience and comparison goods shopping trips. In addition, after the Taiwan Sugar

Mall opened, the study examined shopping experience at the Taiwan Sugar Mall and reasons for changed (or unchanged) patronage behaviour.

The first round of interviews was carried out in June and July, 2002, before the Taiwan Sugar Mall opened, and the second round in December, 2003, and January, 2004 after it had opened. After quantitative and qualitative data were collected, the study employed several statistical techniques, namely, descriptive statistics, bivariate analysis, factor analysis, logistic regression analysis, and qualitative analysis techniques to analyse the survey data.

# Chapter 5

## Sample Composition

### And Attitude Measurement

#### 5.1 INTRODUCTION

This chapter consists of two parts, namely, sample composition and attitude measurement. In the first part, the study presents response rates and sample composition. Response rates are estimated to compare relevant studies and previous assumptions. Sample composition includes respondents'/households' demographic and socio-economic characteristics. As mentioned above (see Chapter 2, Section 2.3.4), they are primary determinants for modelling shopping destination choice behaviour. Therefore, in addition to introducing them, the study examines the difference (or relationship) between these characteristics in the two surveys.

The second part focuses on attitude measurement. Here, the study is concerned with how to construct factorial scores for condensing attribute statements. First, the study introduces chosen attitude statements in the first round survey and then tests for reliability and validity. Sequentially, factor analysis is employed to eliminate unsuitable attitude statement variables, extract the final factors, and then construct factorial scores for further modelling.

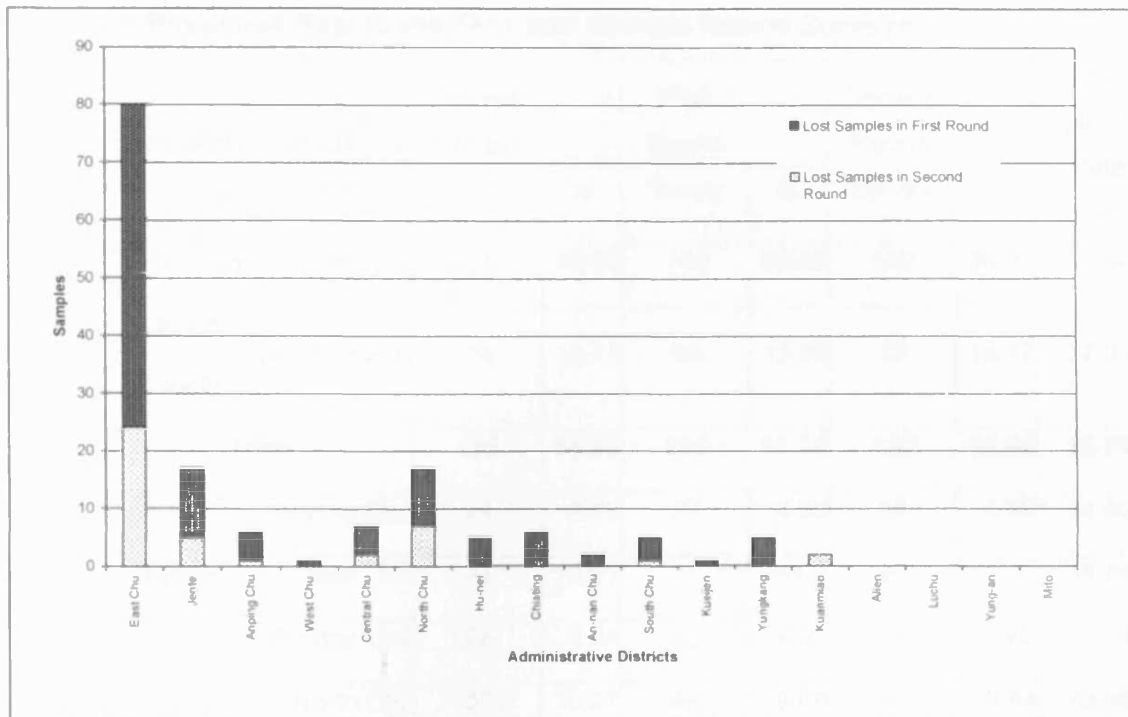
## 5.2 SAMPLE COMPOSITION

### 5.2.1 Response rate

The study issued 540 questionnaires to conduct a longitudinal panel survey based on the design previously described in Chapter 4, Section 4.5.2. First round surveys were carried out in June and July, 2002 and second round survey in December, 2003 and January, 2004. As Bryman (2001: p.96) indicated, the response rate is the percentage of a sample that agrees to participate in a study. The present study obtained a 71.48 per cent response rate in the second round survey. Overall, there were 154 non-response samples, 42 in the first round and 112 in the second round survey, almost 2.7 times more than the former, due to searching for exactly the same interviewees who had participated in the first round survey. Non-response samples in the first round were primarily derived from non-contact samples and, in the second round, from selected samples refusing to participate further in the survey. The households of non-contacts were visited twice and access frequently gained on the second visit. The advantage of adopting face-to-face interviews was the elimination of 'unsuitable samples', i.e. respondents unwilling /unable to completely answer questions or providing short, uninformative responses. Figure 5-1 displays the distribution of total lost samples by different administrative districts. Most non-response samples were located in East Chu, North Chu, and Jente Hsiang, and comprised 74 per cent of total non-response samples.

Table 5-1 details response samples by different administrative districts. Of 540 interviewees, 498 were willing to participate in interviews in the first round survey, and 386 out of 498 interviewees in the second round survey. Thus, the study obtained a 92.22 per cent response rate in the first round and a 71.48 per cent rate of response in





**Figure 5-1 Lost Samples between the First and Second Round Surveys**

the final round survey. Ibrahim and McGoldrick's (2003: p.180) indicated that the 94.9 per cent response rate in their study could be considered very good. Accordingly, the response rate in my first round survey can be considered good. However, the second round survey response rate was much lower. Notwithstanding, as noted above, the study is a longitudinal panel survey, not a cohort survey (see Bryman, 2001: p.46). Moreover, in practical terms, it is very difficult to track down the same interviewees for interview purposes one and a half years later. On the other hand, the number of final survey round interviewees was sufficient to interpret the results with a confidence interval of plus-or minus 5 per cent. Thus, a 71.48 response rate was considered acceptable.

Table 5-1 Response Rate in the First and Second Round Surveys

Time Bands	City/County	Chu /Hsiang /Shih	Targeted		First Round		Second Round		Final Response Rate (%)
			Sample Size	%	Survey	%	Survey	%	
0-10 mins	Tainan City	East Chu	220	40.80	196	39.40	140	36.27	63.64
	Tainan County	Jente Hsiang	74	13.75	69	13.90	57	14.77	77.03
	<b>Total</b>		<b>295</b>	<b>54.55</b>	<b>265</b>	<b>53.30</b>	<b>197</b>	<b>51.04</b>	<b>66.78</b>
11-20 mins	Tainan City	Anping Chu	24	4.39	23	4.60	18	4.66	75.00
		West Chu	21	3.81	21	4.02	20	5.18	95.24
		Central Chu	22	4.04	20	4.00	15	3.89	68.18
		North Chu	55	10.27	48	9.60	38	9.84	69.09
	Kaohsiung County	Hu-nei Hsiang	12	2.23	12	2.40	7	1.81	58.33
		Chiating Hsiang	14	2.53	14	2.80	8	2.07	57.14
<b>Total</b>		<b>147</b>	<b>22.27</b>	<b>138</b>	<b>27.60</b>	<b>106</b>	<b>27.46</b>	<b>72.11</b>	
21-30 mins	Tainan City	An-nan Chu	21	3.87	21	4.20	19	4.92	90.48
		South Chu	19	3.59	18	3.60	14	3.63	73.68
	Tainan County	Kueijen Hsiang	8	1.53	8	1.60	7	1.81	87.50
		Yung-kang Shih	29	5.38	29	5.80	24	6.22	82.76
		Kuanmiao Hsiang	5	0.88	3	0.60	3	0.78	60.00
	Kaohsiung County	Alien Hsiang	4	0.73	4	0.80	4	1.04	100.00
		Luchu Hsiang	7	1.22	7	1.40	7	1.81	100.00
		Yung-an Hsiang	2	0.46	2	0.40	2	0.52	100.00
		Mito Hsiang	3	0.53	3	0.60	3	0.78	100.00
<b>Total</b>		<b>98</b>	<b>18.18</b>	<b>95</b>	<b>19.10</b>	<b>83</b>	<b>21.50</b>	<b>84.69</b>	
<b>Total</b>		<b>540</b>	<b>100</b>	<b>498</b>	<b>100</b>	<b>386</b>	<b>100</b>	<b>71.48</b>	

### 5.2.2 Respondents' Demographic and Socio-economic Characteristics

This section and the following present the sample composition in the study. As previous literature has indicated (for more details see Chapter 2, Section 2.3.4), respondents' and their households' demographic and socio-economic characteristics are essential determinants in modelling shopping destination choice behaviour. Respondents' demographic and socio-economic characteristics were compared between first and second round surveys. Table 5.2 presents the details. In summary, most respondents were female, 85.3 per cent and 87 per cent in first and second round surveys, respectively. This is consistent with the generally accepted concept that women carry out the major shopping work in households (O'Brien and Harris, 1991). The majority of respondents were married, 80.7 per cent and 81.1 per cent in first and second surveys, respectively. In terms of educational level, there was a varied distribution: 21.3 per cent and 20.7 per cent in the low level, 42.6 per cent and 43 per cent in the middle level, and 36.1 per cent and 36.3 per cent in the high level, in first and second round surveys, respectively. Respondents' average age was about 41 years in the first round survey, 58.4 per cent and 59.3 per cent of respondents in first and second round surveys were employed, and average personal income was below NT\$ 20,000 (£333) per month.

Table 5-2 also presents information about lost samples in the second round survey. Examining these lost samples, apart from gender, all other demographic and socio-economic characteristics seemingly showed similar trends. In terms of gender, there was a higher proportion of male than female respondents among lost samples in first and second round surveys.

Table 5-2 Respondents' Demographic and Socio-economic Characteristics

Items	The First Round Survey	The Second Round Survey	Lost Samples
<b>Gender</b>			
Male	14.7%	13.0%	20.5%
Female	85.3%	87.0%	79.5%
<b>Marital Status</b>			
Single	19.3%	18.9%	21.4%
Married/Living Together	80.7%	81.1%	78.6%
<b>Educational Level</b>			
Low Level (up to 6 years)	21.3%	20.7%	23.2%
Middle Level (7-12 years)	42.6%	43.0%	41.1%
High Level (over 13 years)	36.1%	36.3%	35.7%
<b>Age Group</b>			
Up to 30 years	16.9%	14.5%	17.0%
31-40 years	31.1%	28.5%	33.0%
41-50 years	34.1%	35.0%	32.1%
Over 51 years	17.5%	21.8%	17.1%
Missing	0.4%	0.3%	0.9%
<b>Average Age</b>	41 years old	42 years old	41.02
<b>Employment Status</b>			
Employed	58.4%	59.3%	58.9%
Unemployed	41.6%	40.7%	41.1%
<b>Personal Monthly Income</b>			
No income	23.9%	22.5%	27.76%
Up to NT\$20,000	27.0%	25.9%	25.0%
NT\$20,0001~\$30,000	22.7%	24.1%	17.9%
More than NT\$30,001	26.4%	27.5%	29.5%
<b>Total Samples</b>	<b>498</b>	<b>386</b>	<b>112</b>

### 5.2.3 Households' Socio-economic Characteristics

The following introduces households' socio-economic characteristics. Table 5-3 presents the details. In summary, the average household size was 4.44 persons and 4.51 persons in first and second round surveys, respectively, higher than the average 3.25 in the Southern Region in 2002 according to the Urban and Housing Department, CEPD (2003) (see Chapter 3, Section 3.4.1, Table 3-3). This difference was possibly due to inconsistent informational data. The official figure was based on registered number, not actual occupancy number in each household.

The occupation of the head of the household (or main earner) was divided into five categories and results seemed to show a varied distribution among respondents: 16.5 per cent and 14.5 per cent were public sector employees; 33.9 per cent and 35 per cent were business/store owners; 24.1 per cent and 25.4 per cent were private sector employees; 10.4 per cent and 11.4 per cent were managers/professional workers; and 15.1 per cent and 13.7 per cent were in other occupations, in first and second round surveys, respectively.

On average, each household owned 1.2 cars and 2.2 motorbikes, both figures are higher than official figures, 0.64 and 1.74 in Tainan City, 0.68 and 1.49 in Tainan County, and 0.58 and 1.63 in Kaohsiung county, respectively (DGBAS, 2004<sup>a</sup>). The discrepancy in figures may have been due to respondents' unwillingness to reveal true ownership status in government surveys, the present study's smaller sample size, and most samples were derived from high density areas where residents are wealthier. A comparison of household size indicated that, on average, two people in a household owned a motorbike. Unlike in Western countries, most people in Taiwan travel by motorbike and do not use the public transportation system.

Average household income was about NT\$ 63,000 (£1,050) per month. Here, the missing data in Table 5-3 refers to respondents who either refused to disclose this information or did not know it.

In terms of housing tenure, most households owned their own houses (or flats), 85.7 per cent and 87.8 per cent in first and second surveys, respectively. This percentage concurs with official figures: 82.11 per cent in Tainan city, 90.25 per cent in Tainan County, and 85.28 per cent in Kaohsiung County (DGBAS, 2004<sup>a</sup>).

Average residential duration was about 14 years. As regards house type, percentage distribution was varied: 37.3 per cent and 37.8 per cent of respondents lived in (semi-) detached houses; 39.4 per cent and 40.4 per cent lived in terraced houses; and 23.3 per cent and 21.8 per cent lived in blocks of flats (or other house types) in first and second round surveys, respectively.

Finally, the last column in Table 5-3 shows lost samples between first and second survey rounds. Examining these lost samples, average household size was 4.25 persons; 22.3 per cent had pre-school children; 21.4 per cent, 24.1 per cent, 23.2 per cent, 12.5 per cent, and 18.8 per cent were public sector employees, business/store owners, private sector employees, managers/professional workers, and in other occupations, respectively; on average, each household owned 1.16 cars and 2.04 motorbikes; average household income was NT\$48,060 (£801) per month; 77.75 per cent of households owned their own houses (or flats); average residential duration was 12.57 years; and 35.7 per cent, 35.7 per cent, and 28.6 per cent lived in (semi-) detached houses, terraced houses, and blocks of flats (or other house types), respectively

Table 5-3 Households' Socio-economic Characteristics

Items	The First Round Survey	The Second Round Survey	Lost Samples
<b>Household Composition</b>			
Average Size	4.44 persons	4.51 persons	4.25 persons
With Pre-school Children	15.5%	26.4%	22.3%
<b>Occupation of the Head of the Household</b>			
Public Sector	16.5%	14.5%	21.4%
Business/Store Owner	33.9%	35.0%	24.1%
Private Sector Employee	24.1%	25.4%	23.2%
Manager/ Professional Worker	10.4%	11.4%	12.5%
Others	15.1%	13.7%	18.8%
<b>Transport Ownership</b>			
Cars	1.22	1.25	1.16
Motorbikes	2.22	2.25	2.04
<b>Household Monthly Income</b>			
Up to NT\$40,000	28.1%	27.5%	25.0%
NT\$40,001~\$70,000	34.3%	38.1%	26.8%
NT\$70,001~\$100,000	20.9%	22.8%	12.5%
Over NT\$100,001	11.8%	11.7%	14.3%
Missing	4.8%	0.00%	21.4%
<b>Housing Tenure</b>			
Own	85.7%	87.8%	77.75
Rent/Other	14.3%	12.2%	22.35
<b>Residential Duration</b>			
Average Duration (years)	13.59	13.78	12.57
<b>Type of House</b>			
(Semi-) Detached House	37.3%	37.8%	35.7%
Terraced House	39.4%	40.4%	35.7%
Block of Flats/Other Types	23.3%	21.8%	28.6%
<b>Total Samples</b>	<b>498</b>	<b>386</b>	<b>112</b>

To fulfil the research aim, it was essential to examine whether there was a significant difference in a household's socio-economic characteristics between first and second round surveys. If there was no significant difference then changed patronage behaviour was likely derived from other influential elements, such as store selection criteria or attitude towards shopping.

The study employed two types of statistics to test the difference (or relationship) and the strength of the relationship (Kinnear and Gray, 2000; Morgan, et al. 2001; Bryman and Cramer, 2001). Since variables of socio-economic characteristics are categorical, Chi-Square ( $X^2$ ) was used to test the null hypothesis: there is no relationship between households' socio-economic characteristics in first and second surveys. Sequentially, Phi (or Cramer's V) was used to measure the strength of the relationship. Similarly, because variables were scale data, a *t* test was used to test the null hypothesis: there is no difference between households' socio-economic characteristics in first and second round surveys. Pearson's *r* was used to measure the strength of the difference. Table 5-4 shows the results. All Chi-Square tests significantly rejected the null hypothesis and all paired sample tests significantly accepted the null hypothesis. This means, statistically, that all categorical variables between first and second round surveys showed no significant difference and with strong association.



Table 5-4 Differences between First and Second Round Interviews based on 386

## Samples

Item	2002	2003	Trend	Chi-Square (or t) Test	Phi ( $\phi$ ) (or Cramer's V) Coefficient
<b>Employment</b>					
Employed	41.7%	40.7%	-1.00%	$X^2(1)=330.527$ $p=0.000$	$\phi=0.925$ $p=0.000$
Unemployed	58.3%	59.3%	1.00%		
<b>Personal Monthly Income</b>					
No income	22.8%	22.5%	-0.30%	$X^2(1)=885.820$ $p=0.000$	Cramer's $V=0.879$ $p=0.000$
Up to NT\$20,000	27.2%	25.9%	-1.30%		
NT\$20,000.01~\$30,000	23.8%	24.1%	0.30%		
More than NT\$30,001	25.1%	27.5%	2.40%		
<b>Household Composition</b>					
Household Size	4.49	4.51	0.02	$t(385)=-0.320$ $p=0.749$	$r^2=0.907$ $p=0.000$
With Pre-school Children	25.1%	26.4%	1.30%	$X^2(1)=321.425$ $p=0.000$	$\phi=0.913$ $p=0.000$
<b>Occupation of the Head of the Household</b>					
Public Sector	15.0%	14.5%	-0.50%	$X^2(16)=1211.953$ $p=0.000$ 1 cell (4%) has expected count less than 5.	Cramer's $V=0.886$ $p=0.000$
Business/Store Owner	36.8%	35.0%	-1.80%		
Private Sector Employee	24.4%	25.4%	1.00%		
Manager/Professional	9.8%	11.4%	1.60%		
Worker	9.8%	11.4%	1.60%		
Others	14.0%	13.7%	-0.30%		
<b>Transport Ownership</b>					
Cars	1.24	1.25	0.01	$t(385)=-0.525$ $p=0.600$	$r^2=0.891$ $p=0.000$
Motorbikes	2.27	2.25	-0.02	$t(385)=-0.612$ $p=0.541$	$r^2=0.917$ $p=0.000$
<b>Household Monthly Income</b>					
Up to NT\$40,000	29.0%	27.5%	-1.50%	$X^2(9)=978.691$ $p=0.000$	Cramer's $V=0.919$ $p=0.000$
NT\$40,001~\$70,000	36.5%	38.1%	1.60%		
NT\$70,001~\$100,000	23.3%	22.8%	-0.50%		
Over NT\$100,001	11.1%	11.7%	0.60%		
Missing	0.00%	0.00%	0.00%		
<b>Housing Tenure</b>					
Own	88.1%	87.8%	-0.30%	$X^2(1)=322.810$ $p=0.000$	$\phi=0.914$ $p=0.000$
Rent/Other	11.9%	12.2%	0.30%		

## 5.3 ATTITUDE MEASUREMENTS

### 5.3.1 Developing Attitude Statements

Attitude measurements have come to be incorporated as additional variables in shopping behaviour surveys over a period of years. Based on the literature review, the study categorised them into twelve key concepts, namely, loyalty, fashion, price, brand, quality, planned shopping, combined shopping, shopping time, shopping duration, shopping leakage, preferred destinations, and shopping as a social (or leisure) activity, and then developed twenty-four attitude statements from these concepts (see Table 5-5).

In order to verify the consistency of respondents' answers, the study asked parts of the same attitude statement twice using different verbalisation. Further, the study adopted Oppenheim's (1992: p.181) suggestion to add six innocuous questions at the beginning (or end) of the attitude measurement table to facilitate the response process. In addition, a Likert scale was employed to assess attitude statements, ranging from 'strongly agree' to 'agree', 'uncertain', 'disagree', and 'strongly disagree'. These five options were given simple weights of 5, 4, 3, 2, and 1, respectively, for scoring purposes. Question 29 in Appendix C shows all the attitude statements.

**Table 5-5 Chosen Attitude Statements in the Study**

1. I have a fixed budget while shopping.
2. Shopping is troublesome.
3. I usually shop at the weekends.
4. I like haggling over prices while shopping.
5. I often buy food/groceries on a weekly basis.
6. To meet shopping needs, I often go to larger shopping centres further away.
7. I usually shop with family and friends.
8. The quality of well-known brands is trustworthy.
9. I like shopping at night markets, rather than department stores.
10. I combine social calls with the shopping trip.
11. I am willing to pay more for branded goods.
12. I often visit several stores for the best price.
13. I usually shop at different centres.
14. I try to combine refreshing activities and hobbies with the shopping trip.
15. It does not matter if the store is located far away if it is otherwise a good place to shop.
16. Fashionable clothing is very important to me.
17. I buy goods I like as long as the price is low, while quality comes second.
18. I often chat with shop assistants/shopkeepers.
19. I like to go shopping in my leisure time.
20. I buy groceries during the shopping trip.
21. I like shopping at department stores, rather than warehouses/superstores.
22. I usually buy merchandise with well-known brands.
23. I prefer shopping at traditional markets to superstores/hypermarkets.
24. I usually buy new products before my friends do.

Before turning to condensation of the attitude statements, attention must be paid to reliability and validity. In briefly, reliability means consistency (Oppenheim, 1992: p.159). de Vaus (2002: p.184) indicated two approaches to test for the reliability of attitude statements, the test-retest and Cronbach's alpha coefficient. Bryman and Cramer (2001: p.63) indicated that a test-retest approach is one of the main ways of

checking reliability by administering a test on two occasions to the same group of subjects, but it is difficult to implement. An alternative approach, Cronbach's alpha coefficient, is a means to look at the consistency of a person's response to an item compared with another scale item (i.e. item-item correlation) (de Vaus, 2002: p.184). In terms of overall reliability of scale, Cronbach's alpha coefficient is a suitable statistic to test for reliability (Oppenheim, 1992; Bryman and Cramer, 2001; de Vaus, 2002). The range of the Cronbach alpha coefficient value is between 0 and 1. In the present study, based on twenty-four attribute statement variables, Cronbach's alpha coefficient was 0.7049, over a rule of thumb 0.7 (Litwin, 1995: p.31). Thus, the chosen attitude statements in the study were likely to be reliable.

Unlike testing for reliability, Oppenheim (1992: p.148) pointed out that the chief difficulty in assessing the validity of attitude statements is the lack of criteria. In principle, validity indicates the degree to which an instrument measures what it is intended to measure (Oppenheim, 1992: p.160). As Litwin (1995: p.35) defined, content validity is not quantifiable using statistics and is a subjective measure of how appropriate the items are to the researcher and associated experts. Because the chosen attribute statements in my study were derived from relevant studies and reviewed by my supervisor, they seemingly possessed content validity.

### **5.3.2 Condensing Attitude Statements**

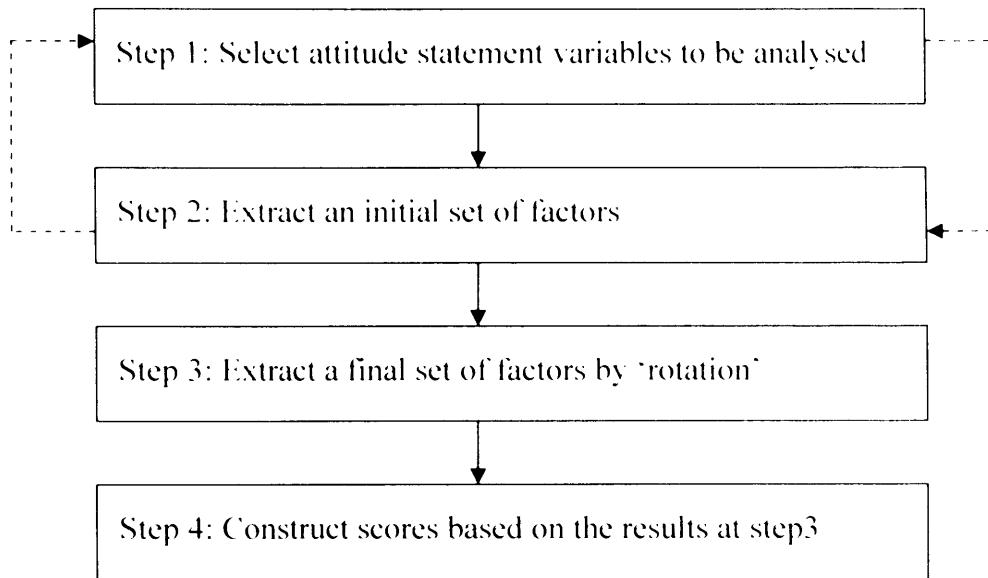
Factor analysis is an appropriate method for scale development when analysing a set of interval-level, non-dichotomous variables (de Vaus, 2002: p.186). Oppenheim

(1992: p.201) stated that in the case of a set of attitude statements, when we are looking for a single score to express an individual's position on an attitude continuum, we will want to use factor analysis for score-building purposes, in order to eliminate statements that do not belong and to keep statements that have high 'loadings' on the attitude that we want to measure. Here, a 'factor' means a dimension or construct which is a condensed statement of the relationships between a set of variables (Kline, 1994, p.5). 'Loadings' are the correlations of variables with factors.

This study follows de Vaus's (2002: p.186) four steps to build factor scores. Figure 5-2 shows the process of condensing attitude statements. The first two steps are a circuitous process, shown as a dotted line. Firstly, based on selected variables, a correlation matrix is built to test the data structure is appropriate for factor analysis to group variables. A Kaiser-Meyer-Olkin (KMO) statistic is employed to test the suitability. de Vaus (2002: p.188) indicated that the KMO statistic ranges from 1 to 0. If this statistic yields high values above 0.7, then the correlations, on the whole, are sufficiently high to make factor analysis suitable. Additionally, a statistical test, the Bartlett test of sphericity, provides the statistical probability that the correlation matrix has significant correlations among at least some of the variables (Hair et al., 1998: p.99). If the data structure is suitable for analysis, then factor analysis begins.

The attribute measurements table (see Question 29 in Appendix C) shows fifty attribute statement variables, including six innocuous questions, twenty repeat attribute statements, and twenty-four chosen attribute statements. The KMO statistic was 0.789

for the twenty-four attribute chosen statements and Bartlett's test was significant with  $p$  equal to 0.000, suggesting suitability for factor analysis.



**Figure 5-2 Process of Condensing Attitude Statements**

Based on selected variables at step 1, the initial factor can be extracted and the explained variance can be measured. Here, principal component analysis is employed to condense a matrix of correlations. Kim and Mueller (1978: p.86) defined principal component analysis as a method to linearly combine observed variables. In addition, the number of selected factors will be affected by the eigenvalues (or latent roots) and the amount of total variance accounted for. The eigenvalue is a measure that attaches to factors and indicates the amount of variance in the pool of original variables that the factors explain (de Vaus, 2002: p.188). The higher the value, the more variance the factor explains. To be retained, selected factors must have an eigenvalue greater than 1 (de Vaus, 2002: p.188; Hair et al., 1998: p.103). In general, the amount of total

explained variance is required to be over 60 per cent of total variance to be satisfactory (Hair et al., 1998: 104). In the study, six factors were extracted and fifty per cent of variance was explained based on the initial twenty-four variables. Clearly, the result was not satisfactory due to the proportion of explained variance being less than sixty per cent. It was therefore necessary to return the process and go back to step 1.

de Vaus (2002: p.188) maintained that the best factor analysis model will be the simplest (i.e. with the fewest factors) and explain the most variance in the original set of variables. But, it is clear that to maximise the amount of explained variance, we need to increase the number of factors used. Therefore, it is a trade-off between maximising explained variance and minimising the number of factors required. One way of both maximising explained variance and minimising the number of factors required is to drop variables with very low communality figures (de Vaus, 2002: p.190). de Vaus (2002: p.189) indicated the communality of the variable is obtained by squaring each of the coefficients for a particular variable in the factor matrix and adding them together. Communality figures range from 0 to 1; the higher the figure the better the set of selected factors explains the variance for that variable.

Table 5-6 shows the process of eliminating variables from the initial twenty-four attribute statements. After eliminating seven variables, the study extracted six factors. The KMO value was 0.737 and the extracted factors explained about 60 per cent of the variance. As noted above, in order to maximise the proportion of explained variance and minimise the required number of factors, the study needed to eliminate the variable with the lowest communality figure in each run, until the proportion of explained variance was over sixty per cent. The first eliminated variable was 'I buy goods I like as long as price is low, while quality comes second', with the lowest communality figure of 0.311. After eliminating the variable, the proportion of explained variance increased to 52 per cent.

**Table 5- 6 Processes Eliminating Variables from the Initial Set**

Runs	Eliminated Attitude Statements	Remaining Number of Variables	KMO	Number of Extracted Factors	Explained Variance
1	None (A initial set of variables)	24	0.79	6	50%
2	I buy goods I like as long as the price is low, while quality comes second	23	0.79	6	52%
3	I often chat with shop assistants/ shopkeepers.	22	0.79	6	53%
4	I prefer shopping at traditional markets to superstores/hypermarkets.	20	0.79	6	55%
5	I usually buy new products before my friends do.	19	0.78	6	56%
6	I try to combine refreshing activities and hobbies with the shopping trip.	17	0.75	6	57%
7	The quality of well-known brands is trustworthy.	16	0.74	6	58%
8	I like shopping at night markets, rather than department stores.	15	0.74	6	60%

Based on previous processes (see Table 5-6), six factors were extracted. The study subsequently employed factor rotation to clarify which variables belonged to which factor and to make the factors more interpretable. In summary, results identified factors on which only some variables loaded and variables that loaded on only one factor. There are a number of methods for rotating variables (e.g. Kline, 1994: pp.56-79), but the most commonly used methods are orthogonal rotation, which produces factors that are unrelated to or independent of one another, and oblique rotation, in which the factors are



correlated (Bryman and Cramer, 2002: p.268-271). Here, the study adopted orthogonal rotation using Varimax methods.

Table 5-7 shows the rotated component matrix. For an orthogonal solution, the pattern matrix is equivalent to correlations between factors and variables (Kim and Mueller, 1978: p.84). Thus, high loading variables belong to the factor on which they load. In addition, de Vaus (2000: p.190) pointed out that although there is no absolute rule as to how high a coefficient should be before a variable is said to load on a factor, it is unusual to use variables with coefficients below 0.3. Based on the rule of 0.3, the study grouped individual high loading variables to a specific factor, shown in italics. At this stage, the main statistical work had been done. The final step was to name each factor and construct scores. This will be presented in Section 5.4.3.

Before moving to the next section, the study examined importance of the seven eliminated attitude statements. Examining the specific component matrix, the study found the main reason for eliminating these attitude statements was due to low and vague loading among factors. For instance, the attitude statement 'I buy goods I like as long as the price is low, while quality comes second' had low and vague loadings scattered among factors 2, 3, and 5, of 0.299, 0.379, and 0.270, respectively. In addition, although the study eliminated these attributes, a structure of six factors still remained. Therefore, most attributes of attribute statements were included in the factor structure.

Table 5-7 Rotated Component Matrix

Attribute Statements	Component					
	Factor 1	Factor2	Factor3	Factor4	Factor5	Factor6
I usually buy merchandise with well-known brands.	<b>0.851</b>	0.028	-0.022	0.082	0.042	0.036
I like shopping at department stores, rather than warehouses/superstores.	<b>0.693</b>	0.004	0.199	0.234	-0.132	-0.087
I am willing to pay more for branded goods.	<b>0.687</b>	0.064	0.032	-0.264	0.090	0.068
Fashionable clothing is very important to me.	<b>0.588</b>	0.094	0.103	<b>0.330</b>	0.133	0.233
I often buy food/groceries on a weekly basis.	0.059	<b>0.764</b>	0.132		-0.036	-0.156
To meet shopping needs, I often go to larger shopping centres further away.	0.112	<b>0.701</b>	0.134	0.041	0.037	0.130
I buy groceries during the shopping trip.	-0.237	<b>0.527</b>	-0.044	0.091	0.221	<b>0.416</b>
I usually shop at the weekends.	0.076	<b>0.473</b>	<b>0.459</b>	0.183	0.009	-0.262
I usually shop with family and friends.	0.065	0.089	<b>0.798</b>	0.111	0.025	0.049
I combine social calls with the shopping trip.	0.130	0.137	<b>0.661</b>	0.268	0.223	0.024
Shopping is troublesome.	0.062	0.004	-0.246	<b>-0.724</b>	0.013	0.032
I like to go shopping in my leisure time.	0.245	0.175	0.103	<b>0.705</b>	0.055	0.083
I usually shop at different centres.	0.056	-0.112	0.109	-0.008	<b>0.762</b>	0.083
I often visit several stores for the best price.	-0.029	0.108	0.114	-0.028	<b>0.743</b>	-0.065
I like haggling over prices while shopping.	0.155	<b>0.389</b>	-0.204	0.261	<b>0.496</b>	-0.105
It does not matter if the store is located far away if it is otherwise a good place to shop.	0.209	0.121	<b>0.400</b>	-0.193	-0.022	<b>0.641</b>
I have a fixed budget while shopping.	-0.102	0.224	0.281	<b>-0.328</b>	0.096	<b>-0.585</b>

Note Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalisation.

A Rotation converged in 21 iterations.

### 5.3.3 Naming Extracted Factors and Constructing Factorial Scores

The final step was to name extracted factors and construct factorial scores. Table 5-8 shows the attributes of each factor based on their correlations with individual attitude statements. Each factor is named by its correlated attribute statements. For example, Factor 1 contained four different attributes all related to respondents' attitude towards brand, thus is named '**well-known brand followers**'. Similarly, Factors 2, 3, 4, 5, and 6 are named '**weekly routine shoppers**', '**shopping associated with social activities**', '**fervent shoppers**', '**price hunters**', and '**impulse buyers**', respectively, based on their specific attitude statements' attributes.

**Table 5-8 Named Extracted Factors by Correlated Attitude Statements**

Named Factors	Attributes	Correlations With Factors
<b>Factor 1: Well-known Brand Followers</b>	I usually buy merchandise with well-known brands.	0.851
	I like shopping at department stores, rather than warehouses/superstores.	0.693
	I am willing to pay more for branded goods.	0.687
	Fashionable clothing is very important to me.	0.588
<b>Factor 2 Weekly Routine Shoppers</b>	I often buy food/groceries on a weekly basis.	0.764
	To meet shopping needs, I often go to larger shopping centres further away.	0.701
	I buy groceries during the shopping trip.	0.527
	I usually shop at the weekends.	0.473
	I like haggling over prices while shopping.	0.389
<b>Factor 3 Shopping Associated with Social Activities</b>	I usually shop with family and friends.	0.798
	I combine social calls with the shopping trip.	0.661
	I usually shop at the weekends.	0.459
	It does not matter if the store is located far away if it is otherwise a good place to shop.	0.400

Named Factors	Attributes	Correlations With Factors
<b>Factor 4 Fervent Shoppers</b>	Shopping is troublesome.	-0.724
	I like to go shopping in my leisure time.	0.705
	Fashionable clothing is very important to me.	0.330
	I have a fixed budget while shopping.	-0.328
<b>Factor 5 Price Hunters</b>	I usually shop at different centres.	0.762
	I often visit several stores for the best price.	0.743
	I like haggling over prices while shopping.	0.496
<b>Factor 6 Impulse Buyers</b>	It does not matter if the store is located far away if it is otherwise a good place to shop.	0.641
	I have a fixed budget while shopping.	-0.585
	I buy groceries during the shopping trip	0.416

Subsequently, the study attended to constructing factorial scores. The term factorial 'scores', here, is the same concept as 'scales' in other studies, for instance, Oppenheim (1992) and de Vaus (2000). In order to construct factorial scores, firstly, the component score coefficients needed to be estimated. As Kim and Mueller (1978: p.72) have indicated, component scores are obtained by combining the raw variables with weights that are proportional to their component (or factor) loading. They also detailed the formula for computing component scores. Table 5-9 displays the component scores' coefficients matrix. Through these coefficients, the study could construct six formulas to estimate respondents' factorial scores, instead of their raw data as follows:

$$\begin{aligned} \text{Factor 1} = & 0.006V_1 + 0.120V_2 - 0.007V_3 + 0.061V_4 + 0.016V_5 + 0.011V_6 - 0.056V_7 - \\ & 0.030V_8 + 0.352V_9 - 0.031V_{10} + 0.000V_{11} + 0.023V_{12} + 0.221V_{13} + \\ & 0.030V_{14} - 0.177V_{15} + 0.311V_{16} + 0.408V_{17} \end{aligned}$$

$$\begin{aligned} \text{Factor 2} = & 0.091V_1 + 0.094V_2 + 0.193V_3 + 0.198V_4 + 0.456V_5 + 0.409V_6 - 0.099V_7 \\ & - 0.081V_8 + 0.28V_9 - 0.041V_{10} - 0.181V_{11} + 0.029V_{12} - 0.006V_{13} + \\ & 0.033V_{14} + 0.321V_{15} - 0.051V_{16} - 0.008V_{17} \end{aligned}$$

$$\begin{aligned} \text{Factor 3} = & 0.193V_1 - 0.086V_2 + 0.199V_3 - 0.278V_4 - 0.052V_5 - 0.048V_6 + 0.518V_7 \\ & + 0.380V_8 - 0.019V_9 + 0.036V_{10} + 0.064V_{11} + 0.271V_{12} - 0.040V_{13} - \\ & 0.071V_{14} - 0.119V_{15} + 0.051V_{16} - 0.106V_{17} \end{aligned}$$

$$\begin{aligned} \text{Factor 4} = & -0.247V_1 - 0.491V_2 + 0.045V_3 + 0.156V_4 - 0.066V_5 - 0.055V_6 - \\ & 0.038V_7 + 0.076V_8 - 0.270V_9 - 0.062V_{10} - 0.049V_{11} - 0.248V_{12} + \\ & 0.141V_{13} + 0.445V_{14} + 0.028V_{15} + 0.082V_{16} - 0.028V_{17} \end{aligned}$$

$$\begin{aligned} \text{Factor 5} = & 0.056V_1 + 0.042V_2 - 0.070V_3 + 0.295V_4 - 0.119V_5 - 0.070V_6 - 0.030V_7 \\ & + 0.100V_8 + 0.049V_9 + 0.501V_{10} + 0.535V_{11} - 0.057V_{12} + 0.049V_{13} - \\ & 0.018V_{14} + 0.082V_{15} - 0.118V_{16} + 0.008V_{17} \end{aligned}$$

$$\begin{aligned} \text{Factor 6} = & -0.498V_1 + 0.056V_2 - 0.238V_3 - 0.129V_4 - 0.129V_5 + 0.121V_6 + \\ & 0.045V_7 + 0.003V_8 + 0.010V_9 - 0.068V_{10} + 0.052V_{11} + 0.579V_{12} + \\ & 0.139V_{13} + 0.020V_{14} + 0.400V_{15} - 0.151V_{16} - 0.053V_{17} \end{aligned}$$

Through these formulas, the study obtained six new variables of attitude towards shopping, instead of twenty-four raw attribute statements. All respondents' raw data were transferred into these six variables, with standardised factorial scores. These variables would be saved and applied to the shopping destination choice behaviour model.

**Table 5-9 Component Scores' Coefficient Matrix**

Attribute Statements	Component					
	Factor1	Factor2	Factor3	Factor4	Factor5	Factor6
V <sub>1</sub> : I have a fixed budget while shopping.	0.006	0.091	0.193	-0.247	0.056	-0.498
V <sub>2</sub> : Shopping is troublesome.	0.120	0.094	-0.086	-0.491	0.042	0.056
V <sub>3</sub> : I usually shop at the weekends.	-0.007	0.193	0.199	0.045	-0.070	-0.238
V <sub>4</sub> : I like haggling over prices while shopping.	0.061	0.198	-0.278	0.156	0.295	-0.129
V <sub>5</sub> : I often buy food/groceries on a weekly basis.	0.016	0.456	-0.052	-0.066	-0.119	-0.129
V <sub>6</sub> : To meet shopping needs, I often go to larger shopping centres further away.	0.011	0.409	-0.048	-0.055	-0.070	0.121
V <sub>7</sub> : I usually shop with family and friends.	-0.056	-0.099	0.518	-0.038	-0.030	0.045
V <sub>8</sub> : I combine social calls with the shopping trip.	-0.030	-0.081	0.380	0.076	0.100	0.003
V <sub>9</sub> : I am willing to pay more for branded goods.	0.352	0.028	-0.019	-0.270	0.049	0.010
V <sub>10</sub> : I often visit several stores for the best price.	-0.031	-0.041	0.036	-0.062	0.501	-0.068
V <sub>11</sub> : I usually shop at different centres.	0.000	-0.181	0.064	-0.049	0.535	0.052
V <sub>12</sub> : It does not matter if the store is located far away if it is otherwise a good place to shop.	0.023	0.029	0.271	-0.248	-0.057	0.579
V <sub>13</sub> : Fashionable clothing is very important to me.	0.221	-0.006	-0.040	0.141	0.049	0.139
V <sub>14</sub> : I like to go shopping in my leisure time.	0.030	0.033	-0.071	0.445	-0.018	0.020
V <sub>15</sub> : I buy groceries during the shopping trip.	-0.177	0.321	-0.119	0.028	0.082	0.400
V <sub>16</sub> : I like shopping at department stores, rather than warehouses/superstores.	0.311	-0.051	0.051	0.082	-0.118	-0.151
V <sub>17</sub> : I usually buy merchandise with well-known brands.	0.408	-0.008	-0.106	-0.028	0.008	-0.053

Note: Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalisation.

#### 5.4 CHAPTER SUMMARY

The study issued 540 questionnaires to carry out a longitudinal panel survey as described in Chapter Four, Section 4.5.1, and managed to obtain a 71.48 per cent response rate in the second round of interviews. It was practically difficult to interview exactly the same interviewees after a gap of more than one year, however, based on previous assumptions, the final survey sample of 386 was considered sufficient to interpret and analyse results at the confidence interval of plus-or-minus 5 per cent.

The study subsequently examined respondents' demographics and socio-economic characteristics between the first and second round surveys. The study found most respondents were female, about 85 per cent. The majority were married, about 80 per cent. Based on educational level, respondents were unevenly distributed: 20 per cent, 45 per cent, and 35 per cent had attained a low, middle and high educational level, respectively. The average age was about 41 years. Almost 60 per cent of respondents were employed, with a below NT\$ 20,000 (£333) average personal income per month.

As regards households' socio-economic characteristics, the study found average household size was about 5 persons. Concerning occupation categories, respondents varied, with 15 per cent, 35 per cent, 25 per cent, 10 per cent, and 15 per cent working in the public sector, as business/store owners, private sector employees, managers/professional workers, and in other types of occupation, respectively. On average, each household owned 1.2 car and 2.2 motorbikes. Households' average income was about NT\$ 63,000 (£1,050) per month. In terms of housing tenure, most households owned their own houses (or flats), more than 85 per cent. Average residential duration was about 14 years. As regards type of house, there was a varied distribution in that 37 per cent, 40 per cent, and 23 per cent lived in (semi-) detached

houses, terraced houses, and blocks of flats (or other types of residential accommodation), respectively.

Twenty-four different attitude statements derived from relevant attitude studies were developed. Cronbach's alpha coefficient was employed to measure their reliability. A value of 0.7049 was achieved, affirming their reliability. Moreover, a consideration of relevant literature and review by the author's supervisor supported the content validity of these attribute statements.

Factor analysis is an appropriate method for factorial scores' development. The study followed de Vaus's four steps: select attitude statement variables for analysis, extract an initial set of factors, extract a final set of factors by 'rotation', and construct scores based on the rotated final factors. An initial set of factors were extracted from the twenty-four attitude statements using the principal component method and then continued to run the loop until the final six factors were extracted, which contained fifteen attitude statements. Using orthogonal rotation, six factors were rotated to clarify which attitude statement belonged to which factor. The KMO value was 0.737 and the extracted factors explained 60 per cent of the variance.

The next step was to name the extracted factors. Each factor was named according to its correlated attribute statements. As a result, Factors 1 to 6 were named 'well-known brand followers', 'weekly routine shoppers', 'shopping associated with social activities', 'fervent shoppers', 'price hunters', and 'impulse buyers', respectively. Finally, the study built six formulas to condensing individual respondents' raw data into standardised factorial scores.



## Chapter 6

# Modelling Shopping Destination Choice Behaviour in Taiwan

### 6.1 INTRODUCTION

This chapter is designed to answer the research question, 'what are the main factors affecting shopping destination choice behaviour within study area?' As noted above (see Chapter 2, Section 2.3), five different determinants, namely, situational factors, spatial environmental factors, store selection criteria, demographic and socio-economic characteristics, and attitudes towards shopping, are used to explain (or predict) consumers' shopping destination choice behaviour.

In consideration of the stated research question, this chapter will be divided into four parts. After this initial introduction, the second section will focus on shopping destination choice sets and chosen determinants. Subsequently, the third and fourth main sections will model consumers' shopping destination choice behaviour using logistic regression analysis based on dichotomous and polytomous dependent variables by different shopping trip types. Finally, the fifth section will discuss the best type of model to use and interpret the findings based on the empirical survey data.

## 6.2 CHOICE SETS AND CHOSEN DETERMINANTS

### 6.2.1 Definition of Shopping Destination Choice Sets

As noted in Chapter 2, Section 2.2.1, shopping destination choice behaviour is, traditionally, viewed as a patronage decision process that leads a consumer to patronise a particular shopping destination from his/her consideration set of shopping centres. In order to develop choice models, the study first needs to identify shopping destination choice sets. Based on the research design, shopping destination choice sets were investigated by two situational factors: convenience and comparison goods shopping trips

As regards convenience goods shopping trips, shopping destination choice sets are defined as the centres most frequently used for shopping. For comparison goods shopping trips, the shopping destination choice sets are defined as centres where respondents made their last shopping trip. However, Popkowski and Timmermans (1997: p.195) argued that asking respondents only where they shopped during their last shopping trip or shop most frequently may produce biased and invalid results, but did not provide solutions for this situation. Nevertheless, a review of relevant impact and choice model studies, such as those of Howard (1989: p.31; 1993: p.103), Howard and Davies (1993: p.157), Fotheringham and Trew (1993: p.181), Sinha (2000: p.28), and Broadbridge and Calderwood (2002: p.397), indicates that most empirical reports still examine respondents' shopping destination choice this way.

Table 6-1 shows all retailing facilities for convenience goods shopping in Tainan's urban area, Taiwan. As noted in Chapter 3, Section 3.5.2, although recently planned retailers are rapidly expanding, unplanned retailers still dominate Taiwan's food and groceries' markets. According to my survey data, similar trends are shown - unplanned retailers shared 67.3 per cent of food and groceries markets and planned retailers 32.7 per cent. In unplanned retailers, wet markets are the primary outlets, occupying about 50

per cent of total markets, while in planned retailers, hypermarkets are the major outlets, occupying 19.1 per cent of total markets. Thus, the study divided choice sets into two categories, namely, unplanned and planned retailers, and further divided these into four categories, namely, wet markets, other unplanned retailers, hypermarkets, and other planned retailers.

**Table 6-1 Retailing Facilities for Convenience Goods Shopping Trips in Tainan**

Choice Sets Of Unplanned/Planned Retailers		Facilities	Administrative Districts
Unplanned Retailers (67.3%)	Other Unplanned Retailers (0.8%)	Corner Shops/Stalls (0.8%)	Individual Districts
	Wet Markets (50%)	Wet Markets (50%)	
	Other Unplanned Retailers (16.5%)	Dusk Markets (15.7%)	
		Night Markets (0.8%)	
	Other Unplanned Facilities (0%)		
Planned Retailers (32.7%)	Other Planned Retailers (11.6%)	Convenience Stores (3.4%)	Yungkuang Shih Yungkuang Shih Yungkuang Shih Anping Chu North Chu Anping Chu Jente Shih North Chu East Chu Central Chu Central Chu Central Chu Individual Districts
		Supermarkets (8.2%)	
	Hypermarkets (19.1%)	Carrefour – A Store (2%)	
		Carrefour – B Store (3.4%)	
		Geant (1.8%)	
		RT-Mart – A Store (2.8%)	
		RT-Mart – B Store (3.6%)	
		Tesco (2.2%)	
		Makro- A Store (3%)	
	Makro – B Store (0.2%)		
	Other Planned Retailers (2%)	Far Eastern Department Store (0.6%)	
		Far Eastern Department Store (0%)	
		Sing Kong Mitsukoshi Department Store (1.4%)	
		Sing Kong Mitsukoshi Tainan Shopping Mall (0%)	
Other Planned Facilities (0%)			

Note: based on survey data in 2002

Table 6-2 shows all retailing facilities for comparison goods shopping trips in Tainan's urban area, Taiwan. According to my survey data, unplanned and planned retailers shared almost equal markets, 48.8 per cent and 51.2 per cent, respectively. In unplanned retailers, the two major outlets, i.e. high streets and wet markets, occupied 41 per cent of total markets, while in planned retailers, the two major outlets, i.e. department stores and hypermarkets, occupied 50.2 per cent of total markets. Thus, the study divided choice sets into two categories, namely, unplanned and planned retailers, and further divided them into four categories, namely, high streets, other unplanned retailers (mainly related to wet markets), department stores, and other planned retailers (mainly related to hypermarkets).

**Table 6-2 Retailing Facilities for Comparison Goods Shopping Trips in Tainan**

Choice Sets of Unplanned/Planned Retailers		Facilities	Administrative Districts
Unplanned Retailers (48.8%)	High Streets (23.3%)	Shops in High Streets Near Home (8%)	Individual Districts
		Shops in Jung-Jeng Shopping Area (6.2%)	West & Central Chu
		Shops in Hsiao-Pei Shopping Area (1.2%)	North Chu
		Shops in Tung-Ning Shopping Area (6.8%)	East Chu
		Shops in Tainan Station Shopping Area (1.0%)	Central Chu
	Other Unplanned Retailers (25.5%)	Wet Markets (17.7%)	Individual Districts
		Dusk Markets (3.0%)	
		Night Markets (4.6%)	
		Other Unplanned Retailers (0.2%)	
	Planned Retailers (51.2%)	Other Planned Retailers (18.1)	Convenience Stores (0.2%)
Supermarkets (0.4%)			
Carrefour – A Store (1.4%)			
Carrefour – B Store (3.6%)			
Geant (0.8%)			
RT-Mart – A Store (2.6%)			
RT-Mart – B Store (3.8%)			
Tesco (2.4%)			
Makro- A Store (1.8%)			
Makro – B Store (1.0%)			
Department Stores (32.7%)		Far Eastern Department Stores (6.4%)	East Chu Central Chu
		Sing Kong Mitsukoshi Department Store & Sing Kong Mitsukoshi Tainan Shopping Mall (25.3%)	Central Chu
		Focus Department Store (1%)	Central Chu
Other Planned Retailers (0.4%)	Other Planned Retailers (0.4%)	Individual Districts	

Note: based on survey data in 2002

### 6.2.2 Origin of Shopping Trips

Based on households' actual shopping destination choice, the study further examines their start and end points for their convenience and comparison goods shopping trips. Table 6-3 shows the results. In terms of convenience goods shopping trips, of 498 households, 439 (88.2 per cent) shop for their convenience goods from their home and 50 (10 per cent) from their workplace. After shopping, 441 households (88.6 per cent) return directly to their home and 27 (5.4 per cent) return to their workplace. In terms of comparison goods shopping trips, of 498 households, 430 (86.3 per cent) shop for their comparison goods from their home and 51 (10.2 per cent) from their workplace. After shopping, 364 households (73.1 per cent) return directly to their home and 60 (12 per cent) go to restaurants. Because the proportion travelling from home is very high, the study will use distance-from-home as an explanatory variable, and ignore distance-from-work.

**Table 6-3 Origin of Shopping Trips**

Start/End Points	Convenience Goods Shopping Trips				Comparison Goods Shopping Trips			
	Start		End		Start		End	
Home	439	88.2%	441	88.6%	430	86.3%	364	73.1%
Work	50	10%	27	5.4%	51	10.2%	24	4.8%
Social Activities	2	0.4%	6	1.2%	8	1.6%	17	3.4%
Service Facilities	2	0.4%	4	0.8%	2	0.4%	2	0.4%
Non-Food Shopping	1	0.2%	13	2.6%	-	-	-	-
Food Shopping	-	-	-	-	0	0%	9	1.8%
Restaurants	1	0.2%	5	1.0%	4	0.8%	60	12%
Leisure/Entertainment	2	0.4%	2	0.4%	3	0.6%	22	4.4%
Other	1	0.2%	0	0%	0	0%	0	0%
Total	498	100%	498	100%	498	100%	498	100%

### 5.2.3 Chosen Determinants

Based on the literature review, the study chose five determinants, namely, situational factors, spatial environmental factors, store selection criteria, demographic and socio-economic characteristics, and attitudes towards shopping (see Figure 2-3) for further modelling of consumers' shopping destination choice behaviour. Excluding situational factors, the remaining four determinants will operate as explanatory (or independent) variables in following logistic regression models. Situational factors are treated as external variables to identify consumers' different shopping trips.

As Bryman and Cramer (2001: p.56) indicated, one of the most important features of an understanding of statistical operations is an appreciation of when it is permissible to employ particular tests. In addition, different statistical tests presume certain kinds of variables. Statistically, these variables can be categorised into four types, namely, nominal (categorical), ordinal, interval, and ratio (Bryman and Cramer, 2001; Morgan et al., 2001). Depending on these categories, the study specifically identifies variables for further statistical analysis.

Spatial environmental factors, as mentioned above, are concerned with geographic distance. Here, the study adopts the simple straight line distance to measure the separation of individual households and shopping centres. This variable is identified as an interval type.

Store selection criteria are derived to investigate reasons why a consumer patronises a particular shopping destination. Based on different shopping trips, these criteria are developed and summarised in Tables 6-4 and 6-5. The former presents reasons for patronising a particular shopping centre for convenience goods shopping trips while the latter presents reasons for patronising a particular shopping centre for

comparison goods shopping trips. All are derived from relevant studies and the prior pilot study and designed as categorical dichotomous variables.

**Table 6-4 Reasons to Patronise a Particular Shopping Centre for Convenience Goods Shopping Trips**

1. Near or nearest home
2. Convenient location/Easy to travel to the area/Easy to get to the place from another
3. Good parking facilities
4. Wide selection
5. Quality products/ Fresh products
6. Allocation of products
7. Lower prices
8. Able to haggle over and beat down the price
9. Good consumer services
10. Store loyalty card/Promotion/Coupons
11. Store business hours
12. Habit (e.g. always go there; like shopping at familiar stores)
13. One stop shopping (e.g. I can combine clothing/footwear shopping; I can get all I need at the same place)



**Table 6-5 Reasons to Patronise a Particular Shopping Centre for Comparison Goods Shopping Trips**

1. Near or nearest home
2. Convenient location/Easy to travel to the area/Easy to get to the place from another
3. Good parking facilities
4. Wide selection
5. Appearance/Style
6. Quality products/High-class products
7. Store atmosphere
8. Promotion/Advantageous special offers
9. Favourite brands
10. Lower prices
11. Able to haggle over and beat down the price
12. Good consumer services
13. Childcare facilities
14. Restaurants/cafes in the same area
15. Store loyalty card scheme
16. Store business hours
17. Newly opened stores
18. Habit (e.g. I always go there; I like shopping at familiar stores)
19. Lots of novelties
20. No particular reason (e.g. I just like shopping there)
21. One stop shopping/ I can get all I need at the same place
22. For a day out/ I can combine shopping with leisure activities

Respondents' and their households' demographic and socio-economic characteristics have been analysed in Chapter 5, Sections 5.2.2 and 5.2.3. These include gender, marital status, educational level, age group, employment status, personal monthly income, transport ownership, household composition, occupation of the head of the household, household monthly income, housing tenure, residential duration, type of house etc. Table 6-6 shows respondents' and households' demographic and socio-economic characteristics and variables' type.

**Table 6-6 Types of Variable – Demographic and Socio-economic Characteristics**

Respondents	Type of Variable	Households	Type of Variable
Gender	Categorical	Has Pre-school Children	Interval
Age	Interval	Occupation of the Head of the Household	Categorical
Marital Status	Categorical	Household Income	Categorical
Educational Level	Categorical	Household Size	Interval
Employment Status	Categorical	Number of Cars	Interval
Personal Income	Categorical	Number of Motorbikes	Interval
		Housing Tenure	Categorical
		Residential Duration	Interval
		Type of House	Categorical

Attitudes towards to shopping is the final determinant and is condensed into six factorial scores, namely, well-known brands followers, weekly routine shoppers, shopping associated with social activities, fervent shoppers, price hunters, and impulse buyers. As Oppenheim (1992: p.157) pointed out, in strict measurement terms, it is wrong to transfer five-point order scales of attitude statements to interval scales but it is possible to 'bend the rules' for parametric technique analysis. Here, the study also bends the rules to employ parametric technique analysis for constructing factorial scores.

## 6.3 DEVELOPING LOGISTIC REGRESSION MODELS

### 6.3.1 Introduction to Logistic Regression Models

As mentioned in Chapter 2, Section 2.2.4, recently, a number of choice models have been developed in probabilistic forms and the most widespread application is the multinomial logit (MNL) model. Mathematically, the linear logistic regression model is formally equivalent to the MNL model (Fischer and Nijkamp, 1985: p.535). As Kinnear and Gray (2000: p.332) indicated, the purpose of the logistic regression model is to estimate the probability of an event occurring by exploiting the association between the dependent and independent variables with the greatest possible accuracy. The logistic regression model can be written as (Formulas 6-1 and 6-2) based on the logistic function:

$$\text{Prob(event)} = \frac{1}{1 + e^{-Z}} \quad (\text{Formula 6-1})$$

or equivalently

$$\text{Prob(event)} = \frac{e^Z}{1 + e^Z} \quad (\text{Formula 6-2})$$

where  $Z$  is the linear combination

$$Z = \alpha + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_p X_p$$

and  $p$  is the number of independent variables.

The probability of the event not occurring is estimated as:

$$\text{Prob (no event)} = 1 - \text{Prob (event)} \quad (\text{Formula 6-3})$$

As Klienbaum and Klein (2002: p.7) point out, the function  $\text{Prob(event)}$  has two major characteristics: first, the function, ranging from 0 to 1, is appropriate to describe a probability, which is always some number between 0 and 1; and second, the shape of the logistic function is an elongated S-shaped curve.

In the logistic regression model, the primary parameters are estimated by the odds ratio. Following Formula 6-2, the logistic model can be rewritten in terms of odds of an event occurring (i.e. Prob(event) / Prob(no event)). Here, the odds of an event occurring are defined as the ratio of the probability that it will occur to the probability that it will not. The study subsequently presents a logit transformation, taking the natural log of the odds ratio (see Formula 6-4) and then deriving the Z function.

$$\begin{aligned}
 \text{Logit}\left(\frac{\text{Prob}(\text{event})}{\text{Prob}(\text{no event})}\right) &= \log_e\left(\frac{\text{Prob}(\text{event})}{1 - \text{Prob}(\text{event})}\right) && \text{(Formula 6-4)} \\
 &= \log_e\left(\frac{e^z}{1 - \frac{1 + e^z}{1 + e^z}}\right) \\
 &= \log_e\left(\frac{e^z}{1 + e^z - e^z}\right) \\
 &= \log_e(e^z) \\
 &= \alpha + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_p X_p
 \end{aligned}$$

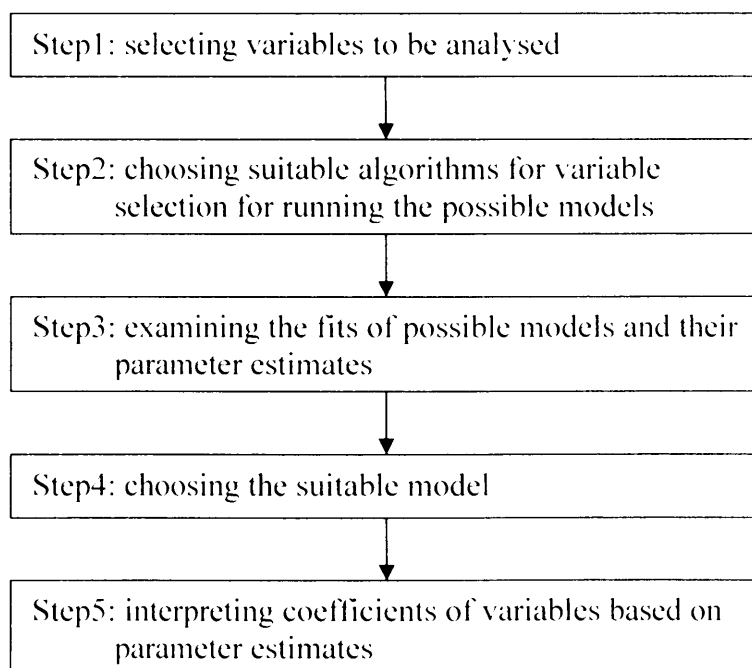
From Formula 6-4, it is clear that the final outcome of taking the logit of the odds of an event occurring is equal to the linear Z function. The linear Z function explains the relationship between the independent variables ( $X_p$ ) and the natural log of the ratio of probability. Sequentially, interpreting these coefficients,  $\alpha$  can be seen as the natural log odds for an individual with zero values for all  $X_p$  or the natural log of the reference (or baseline) categories, and  $\beta_p$  can be seen as the change in the natural log odds that would result from a one unit change in the variable  $p$  when other variables are fixed (Klienbaum and Klein, 2002: pp.19-21). Finally, considering the parameter estimates, the maximum

likelihood (ML) method is employed using an iterative algorithm (Norusis, 1999: p.37), rather than the least square method.

### 6.3.2 Modelling Shopping Destination Choice Behaviour for Convenience Goods

#### Shopping

The logistic regression model is employed to model consumers' shopping destination choice behaviour based on 2002 survey data within the study area. From the previous definition of choice sets, the study firstly identifies shopping destinations as planned and unplanned retailers. Subsequently, SPSS is utilised as an analysis technology for variable selection and parameter estimates. Figure 6-1 displays major steps adopted in the following analysis.



**Figure 6-1 Processes for Constructing Logistic Regression Models**

The first step is to select the variables to be analysed. According to the previous chosen determinants, there are thirty-five independent variables. Considering the lack of prior empirical results related to shopping destination choice behaviour in Taiwan, the study will conduct exploratory logistic regression analysis. Therefore, all of these thirty-five variables are included in the analysis.

The next step is to choose a suitable algorithm for variables' selection and running the models. As Norušis (1999: p.51) pointed out, variable selection algorithms are a problem when conducting logistic regression because none of the algorithms result in a best model in any statistical sense. Several algorithms for variable selection have been developed to build possible models, such as direct (or simultaneous), sequential and stepwise (Kinnear and Gray, 2000: p.341). Here, the stepwise approach with the likelihood ratio (LR) test is employed for selecting variables, taking into account the exploratory analysis. Norušis' (1999: p.52) suggested that the LR test is better than the Wald statistic for determining variables to be removed from the model.

Table 6-7 shows the possible models derived from forward (Model1) and backward (Model2) stepwise with the likelihood ratio test. The classification table evaluates how well the models predict choice outcomes compared to the observed outcomes. Model1, which includes 9 variables, correctly predicts 86.1% of choice outcome, while Model2, which includes 12 variables, correctly predicts 84.9 per cent. The probability of the observed results is known as the likelihood. Since the likelihood is a small number less than 1, it is customary to use -2 times the log of the likelihood (-2LL) as a measure of how well the estimated model fits the data (Norušis, 1999: p.45). The -2LL value is 593.763 for Model1 containing only the constant, while it is 341.469 for the completing model. Similarly, the -2 LL value is 331.833 for Model2, the completing model.

Sequentially, the model Chi-square ( $X^2$ ) tests the null hypothesis that the coefficients for all of the terms in the current model, except the constant, are zero (Norušis, 1999: p.47). This is comparable to the overall  $F$  test for regression. Both reject the null hypothesis, that is, coefficients in both models significantly differ from zero. In addition, the Cox and Snell  $R$  Square and Nagelkerke  $R$  Square are used to examine how much per cent of the variation in the dependent variable is explained by the chosen variables (Kinnear and Gray, 2000: p.339). For instance, the Nagelkerke  $R$  Square value explains 57.9 per cent of the variance in Model1 and 59.6 per cent in Model2.

**Table 6-7 Possible Models for Interpreting Convenience Goods Shopping Trips**

Items	Model1	Model2
Selection Methods	Forward	Backward
Model Classification Table (Overall Percentage)	86.1%	84.9%
Number of Variables in the Model	9	12
Initial -2 Log Likelihood	593.763	593.763
Final -2 Log Likelihood	341.649	331.833
The Model Chi Square ( $X^2$ ) Test	$X^2_{(11)}=252.115; p=0.000$	$X^2_{(14)}=261.930; p=0.000$
Cox & Snell $R^2$	0.416	0.428
Nagelkerke $R^2$	0.579	0.596

Kinnear and Gray (2000: p.341) indicated that with regression analysis, it is often highly desirable to account for a set of data in terms of a minimum number of independent variables. Similarly, Norušis (1999: p.51) pointed out the basic rules for choosing a model, namely, interpretability, parsimony, and ease of variable acquisition. Based on these rules, this study chose Model1 because of the higher correctly assigned rate of predicting

consumers' shopping destination choice and fewer variables required. Model2 is also presented in Appendix E (see Table E-1).

The last step is to interpret coefficients of variables based on parameter estimates. Table 6-8 shows estimated coefficients derived from the logistic regression model. B and S.E represent coefficients and their standard error. Wald is the Wald statistic, derived from the square of an individual coefficient over its standard error. The Wald statistic, which has a Chi-Square distribution, is used to test whether the coefficient differs from zero. From Table 6-8, it is clear that all chosen predictor variables differ from zero based on the 0.05 significance level. The final column, headed Exp (B), is derived from the exponent of the coefficient.

**Table 6-8 Shopping Destination Choice Model for Convenience Goods Shopping by Way of Forward Stepwise based on 2002 Survey Data**

Independent Variables		B	S.E.	Wald	df	Sig	Exp (B)
Distance	<b>Spatial Separation Distance</b>	0.526	0.082	40.906	1	0.000**	1.691
	<b>Good Parking Facilities</b>	1.559	0.379	16.938	1	0.000**	4.754
Store Selection Criteria	<b>Quality Food/Fresh Products</b>	-1.205	0.321	14.117	1	0.000**	0.300
	<b>Able to Haggle over the Price</b>	-3.097	0.854	13.162	1	0.000**	0.045
	<b>Store Loyalty Card/Coupons</b>	3.476	0.919	14.296	1	0.000**	32.345
	<b>Habit</b>	-0.626	0.290	4.668	1	0.031**	0.535
	<b>Female</b>	-1.383	0.363	14.518	1	0.000**	0.251
Demographic and Socio-economic Characteristics	<b>Educational Level</b>						
	<i>Low Educational Level</i>	-	-	14.594	2	0.001**	-
	Middle Educational Level	1.520	0.472	10.375	1	0.001**	4.571
	High Educational Level	1.806	0.474	14.515	1	0.000**	6.088
Attitude towards Shopping	<b>Well-known Brand Followers</b>	0.379	0.145	6.807	1	0.009**	1.462
	<b>Constant</b>	-2.346	0.602	15.193	1	0.000**	0.096

Note: \*\*  $p \leq 0.05$ ; \*  $p \leq 0.10$



The study first examines the constant ( $\alpha_0$ ). As noted above, it is derived from the natural log of the reference (or baseline) categories. Here, only one variable, educational level has a reference category, lower educational level. As the coefficient of the constant is negative, -2.346, the study seemingly infers, when other variables are fixed, that a respondent with a lower educational level is less likely to shop at planned retailers than a respondent with a middle (or higher) educational level. The following will present the coefficients of selected independent variables ( $\beta_p$ ) and interpret findings. They are:

- **Spatial separation distance:** the simple straight line distance between an individual household and his/her shopping destination was measured as the spatial separation distance. Since the variable coefficient is positive, 0.526, this seemingly infers that as shopping travel distance increases, respondents are more likely to shop at planned retailers than unplanned retailers. In detail, as the travelling distance increases one unit, the probability of respondents selecting planned retailing is 1.69 times more likely than the probability of respondents selecting unplanned retailers.
- **Good parking facility:** the variable coefficient is positive, 1.559, inferring that when considering the criterion of good parking facilities, respondents are more likely to shop at planned retailers than unplanned retailers. The probability of selecting planned retailers is 4.754 times more likely than the probability of selecting unplanned retailers.
- **Quality products/ Fresh products:** the variable coefficient is negative, -1.205. This seemingly infers that when considering the criterion of quality of products, respondents are less likely to shop at planned retailers than unplanned

retailers. The probability of selecting planned retailers is 0.300 times less likely than the probability of selecting unplanned retailers.

- **Able to haggle over the price:** the variable coefficient is negative, -3.097, suggesting that when considering the criterion of able to haggle over the price, respondents are less likely to shop at planned retailers than unplanned retailers. The probability of selecting planned retailers is 0.045 times less likely than the probability of selecting unplanned retailers.
- **Store loyalty card/Promotion/Coupons:** the variable coefficient is positive, 3.476, inferring that when considering the criterion of store loyalty card, respondents are more likely to shop at planned retailers than unplanned retailers. The probability of selecting planned retailers is 32.345 times more likely than the probability of selecting unplanned retailers.
- **Habit:** the variable coefficient is negative, -0.626, indicating that when considering the criterion of habit, respondents are less likely to shop at planned retailers than unplanned retailers. The probability of selecting planned retailers is 0.535 times less likely than the probability of selecting unplanned retailers.
- **Gender:** the variable coefficient is negative, -1.383, implying that females are less likely than males to shop at planned retailers than unplanned retailers. In detail, females are 0.251 times less likely than males to shop at planned retailers than unplanned retailers.
- **Education level:** middle and high educational level coefficients are positive, 1.520 and 1.806, respectively. This seemingly infers that respondents with a higher educational level are more likely to shop at planned retailers than respondents with low educational levels. Examining the  $\text{Exp}(B)$ , the probability

of respondents with middle and higher educational levels shopping at planned retailers is 4.571 and 6.088 times more likely, respectively, than respondents with lower educational levels.

- **Well-known brand followers:** the variable coefficient is positive, 0.379, implying that the stronger their attitudes towards well-known brands, the more likely respondents are to shop at planned retailers than unplanned retailers. In detail, as the attitude score increases one unit, the probability of selecting planned retailers is 1.462 times more likely than the probability of selecting unplanned retailers.

### 6.3.3 Modelling Shopping Destination Choice Behaviour for Comparison Goods

#### Shopping

The study follows the previous processes to build choice models for comparison goods shopping. Two categories of dependent variable are identified and forty-four independent variables are included. The stepwise approach together with the likelihood ratio (LR) test is employed to select variables and the results are shown in Table 6-9.

Table 6-9 shows two possible models developed from forward (Model3) and backward (Model4) stepwise together with the likelihood ratio test. Model3, which includes 13 variables, correctly predicts 83.1% of outcomes, while Model4, which includes 17 variables, correctly predicts 82 per cent. The  $-2LL$  value is 655.106 for Model3 containing only the constant and 390.424 for the completing model. The  $-2LL$  value is 376.872 for Model4, the completing model. Examining model Chi-square ( $X^2$ ) tests, both models reject the null hypothesis, that the coefficients for all the terms in the current model, except the constant, are zero. Further, the Nagelkerke  $R$  Square value explains 57.2 per cent and 59.3 per cent of the variation in Model3 and Model4, respectively. Based on Kinnear and

Gray's (2000: p.341) suggestions, the study chose Model3 because similar variance is explained by less variables. Model4 is presented in Appendix E (see Table E-2).

**Table 6-9 Possible Models for Interpreting Comparison Goods Shopping Trips**

Items	Model3	Model4
Selection Methods	Forward	Backward
Model Classification Table (Overall Percentage)	83.1%	82.0%
Number of Variables in the Model	13	17
Initial -2 Log Likelihood	655.106	655.106
Final -2 Log Likelihood	390.424	376.872
The Model Chi Square ( $X^2$ ) Test	$X^2_{(13)}=264.682; p=0.000$	$X^2_{(17)}=278.235; p=0.000$
Cox & Snell $R^2$	0.429	0.445
Nagelkerke $R^2$	0.572	0.593

Table 6-10 shows estimated coefficients of the logistic regression model. Firstly, the study examines the constant ( $\alpha_0$ ). As noted above, it is derived from the natural log of the reference (or baseline) categories. Secondly, the study interprets the coefficients of selected independent variables ( $\beta_p$ ), as follows:

- **Spatial separation distance:** the simple straight line distance between an individual household and his/her shopping destination was measured as the spatial separation distance. The variable coefficient is positive, 0.133, inferring that as travelling distance increase, respondents are more likely to shop at planned retailers than unplanned retailers. In detail, as travelling distance increase one unit, the probability of respondents selecting planned retailers is 1.143 times more likely than the probability of respondents selecting unplanned retailers.

**Table 6-10 Shopping Destination Choice Model for Comparison Goods Shopping by Way of Forward Stepwise based on 2002 Survey Data**

Dependent Variable = Last Shopping Place, coded 1 = Planned Retailers; 0 = Unplanned Retailers							
Independent Variables		B	S.E.	Wald	df	Sig	Exp (B)
Distance	<b>Spatial Separation Distance</b>	0.133	0.050	7.019	1	0.008**	1.143
	<b>Near or Nearest Home</b>	-1.345	0.275	23.912	1	0.000**	0.260
	<b>Good Parking Facilities</b>	1.309	0.305	18.453	1	0.000**	3.703
Store Selection Criteria	<b>Quality Products</b>	1.159	0.399	8.420	1	0.004**	3.187
	<b>Advantageous Special Offers</b>	1.183	0.343	11.900	1	0.001**	3.265
	<b>Favourite Brands</b>	0.901	0.353	6.512	1	0.011**	2.463
	<b>Able to Haggle over the Price</b>	-2.661	0.696	14.612	1	0.000**	0.070
	<b>Newly Opened Stores</b>	1.979	0.707	7.841	1	0.005**	7.239
	<b>Habit</b>	-0.685	0.271	6.404	1	0.011**	0.504
	<b>No Particular Reason</b>	-1.017	0.415	6.009	1	0.014**	0.362
Demographic and Socio-economic Characteristics	<b>High Personal Income</b> (More than NT\$20,000 per month)	0.905	0.257	12.362	1	0.000**	2.472
Attitudes towards Shopping	<b>Well-known Brand Followers</b>	0.342	0.134	6.514	1	0.011**	1.407
	<b>Fervent Shoppers</b>	0.302	0.127	5.694	1	0.017**	1.353
<b>Constant</b>		-0.761	0.334	5.194	1	0.023**	0.467

Note: \*\*  $p \leq 0.05$ ; \*  $p \leq 0.10$

- **Near and nearest home:** the variable coefficient is negative, -1.345, suggesting that when considering the criterion of near home, respondents are less likely to shop at planned retailers than unplanned retailers. The probability of selecting planned retailers is 0.260 times less likely than the probability of selecting unplanned retailers.
- **Good parking facilities:** the variable coefficient is positive, 1.309, implying that when considering the criterion of good parking facilities, respondents are

more likely to shop at planned retailers than unplanned retailers. The probability of selecting planned retailers is 3.703 times more likely than the probability of selecting unplanned retailers.

- **Quality products:** the variable coefficient is positive, 1.159, suggesting that when considering the criterion of quality of products, respondents are more likely to shop at planned retailers than unplanned retailers. The probability of selecting planned retailers is 3.187 times more likely than the probability of selecting unplanned retailers.
- **Advantageous special offers:** the variable coefficient is positive, 1.183, implying that when considering the criterion of advantageous special offers, respondents are more likely to shop at planned retailers than unplanned retailers. The probability of selecting planned retailers is 3.265 times more likely than the probability of selecting unplanned retailers.
- **Favourite brands:** the variable coefficient is positive, 0.901, seemingly inferring that when considering the criterion of favourite brands, respondents are more likely to shop at planned retailers than unplanned retailers. The probability of selecting planned retailers is 2.463 times more likely than the probability of selecting unplanned retailers.
- **Able to haggle over the price:** the variable coefficient is negative, -2.661, implying that when considering the criterion of able to haggle over the price, respondents are less likely to shop at planned retailers than unplanned retailers. The probability of selecting planned retailers is 0.070 times less likely than the probability of selecting unplanned retailers.
- **Newly opened stores:** the variable coefficient is positive, 1.979, inferring that when considering the criterion of newly opened stores, respondents are more

likely to shop at planned retailers than unplanned retailers. The probability of selecting planned retailers is 7.239 times more likely than the probability of selecting unplanned retailers.

- **Habit:** the variable coefficient is negative, -0.685, suggesting that when considering the criterion of habit, respondents are less likely to shop at planned retailers than unplanned retailers. The probability of selecting planned retailers is 0.504 times less likely than the probability of selecting unplanned retailers.
- **No particular reason (e.g. I just like shopping there):** the variable coefficient is negative, -1.017, implying that when considering the criterion of no particular reason, respondents are less likely to shop at planned retailers than unplanned retailers. The probability of selecting planned retailers is 0.362 times less likely than the probability of selecting unplanned retailers.
- **Personal income (more than NT\$ 20,000 per month):** the variable coefficient is positive, 0.905, inferring that respondents with a higher personal income are more likely to shop at planned retailers than unplanned retailers. The probability of such respondents selecting planned retailers is 2.472 times more likely than the probability of selecting unplanned retailers.
- **Well-known brand followers:** the variable coefficient is positive, 0.342, inferring that the stronger their attitudes towards well-known brands, the more likely respondents are to shop at planned retailers than unplanned retailers. In detail, as the attitude score increases one unit, the probability of selecting planned retailers is 1.407 times more likely than the probability of selecting unplanned retailers.

- **Fervent shoppers:** the variable coefficient is positive, 0.302, suggesting that fervent shoppers are more likely to shop at planned retailers than unplanned retailers. In detail, as the attitude score increases one unit, so the probability of fervent shoppers selecting planned retailers is 1.353 times more likely than the probability of selecting unplanned retailers.

## 6.4 EXTENDING TO POLYTOMOUS LOGISTIC REGRESSION MODELS

### 6.4.1 Introduction to Polytomous Logistic Regression Models

Logistic regression analysis may be extended beyond the analysis of dichotomous variables to the analysis of categorical dependent variables with more than two categories (Menard, 2002: pp.91-102; Norušis, 1999: pp.66-82). Mathematically, the extension of the dichotomous logistic regression model to polytomous dependent variables is straightforward (Menard, 2002: p.91). One value (the last in my research) of the dependent variable is designed as the reference (or baseline) category, e.g.  $Y = h_0$ , and probability of membership in other categories is compared to the probability of membership in the reference category. To conduct such a comparison, coefficients of the reference category are all zero (Norušis, 1999: p.66).

Based on this situation, the logistic regression model (Formula 6-1) can be modified as Formulas 6-5 and 6-6. The probability that  $Y$  is equal to any value  $h$  other than the excluded value  $h_0$  is

$$P(Y = h) = \frac{e^{Z_h}}{1 + \sum_{h=1}^{M-1} e^{Z_h}} \quad h = 1, 2, \dots, M-1, \quad (\text{Formula 6-5})$$

where the subscript  $h$  refers to specific values of the dependent variable,  $M$  is the number of categories of dependent variables, and  $Z_h$  is the linear combination  $Z_h = \alpha_h + \beta_{h1}X_1 + \beta_{h2}X_2 + \dots + \beta_{hp}X_p$  with  $h = 1, 2, \dots, M-1$ , and the subscript  $p$  = the number of



independent variables. Further, the probability that  $Y$  is equal to  $h_0$  (the baseline dependent variable) is

$$P(Y = h_0) = \frac{1}{1 + \sum_{h=1}^{M-1} e^{\beta_h}} \quad h = 1, 2, \dots, M-1, \quad (\text{Formula 6-6})$$

In terms of logit function, if the dependent variable contains  $M$  variables, this requires the calculation of  $M-1$  equations, one for each category relative to the reference category, to describe the relationship between the dependent variable and the independent variables. Taking the natural log of the odds ratio of  $\text{Prob}(Y=h)$  to  $\text{Prob}(Y=h_0)$ , the study can present a logit transformation as follows (see Formula 6-7).

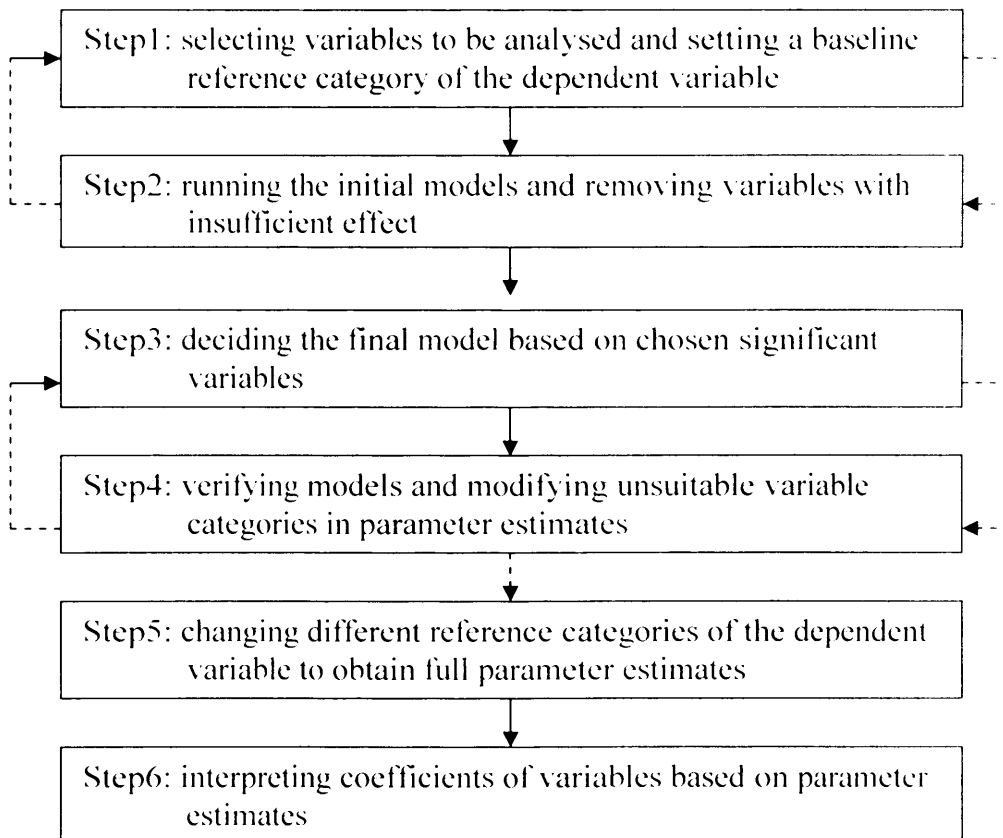
$$\begin{aligned} \text{Logit}\left(\frac{\text{Prob}(Y = h)}{\text{Prob}(Y = h_0)}\right) &= \log_e \left( \frac{1 + \sum_{h=1}^{M-1} e^{\beta_h}}{1} \right) && (\text{Formula 6-7}) \\ &= \log_e \left( \frac{1 + \sum_{h=1}^{M-1} e^{\beta_h}}{1 + \sum_{h=1}^{M-1} e^{\beta_h}} \right) \\ &= \log_e \left( \frac{e^{\beta_h} \times (1 + \sum_{h=1}^{M-1} e^{\beta_h})}{1 \times (1 + \sum_{h=1}^{M-1} e^{\beta_h})} \right) \\ &= \log_e (e^{\beta_h}) \\ &= \alpha_h + \beta_{h1}X_1 + \beta_{h2}X_2 + \dots + \beta_{hp}X_p \quad h = 1, 2, \dots, M-1 \end{aligned}$$

From Formula 6-7, the interpretation of each parameter can be used to explain the relationship between the dependent variable and the independent variables.

### 6.4.2 Modelling Shopping Destination Choice Behaviour for Convenience Goods

#### Shopping

As noted above, the logistic regression analysis can be extended to more than two categories of the dependent variable. Accordingly, the study can further examine the difference between different retailer types, namely, wet markets, other unplanned retailers, hypermarkets, and other planned retailers (for more details, see Section 6.2.1). Similarly, SPSS is employed as the technology for analytical purposes. Unlike the previous dichotomous logistic regression analysis, several effective approaches have been developed for selecting variables. Polytomous models need to be analysed by examining individual variables. Figure 6-2 displays the processes for constructing polytomous logistic regression models.



**Figure 6-2 Processes for Constructing Polytomous Logistic Regression Models**

The first step is to select the variables to be analysed and assume the baseline reference category of the dependent variable. Thirty-five independent variables are first considered and their last value (or option) is assumed to be the reference category if they are polytomous categorical variables. 'Wet markets' is assumed to be the reference category of the dependent variable.

The next step is to run the initial model and then examine these variables. Here, the first two steps are a loop, one-by-one removing variables with insufficient effect from the final model. The Chi-Square ( $\chi^2$ ) statistic is employed to test the null hypothesis that all of the coefficients associated with the particular variable effect are 0. The statistic is derived from the difference in -2 log-likelihoods between the final model and a reduced model (Norusis, 1999: p.73). The processes will be continued until the Chi-Square ( $\chi^2$ ) statistic of all remaining variables differs from 0 based on the 0.05 significance level.

After running twenty-five rounds, the final model is achieved, containing eleven variables. Its -2 log-likelihood is 819.210, while the intercept value is 1233.014. When considering the significant Chi-Square ( $\chi^2$ ) test, the study seemingly infers the final model is significantly better than the intercept-only model. That is, all chosen variables are significantly related to consumers' shopping destination choice results. As regards the proportion of variability in the dependent variable, Cox and Snell's R Square is 0.564. Nagelkerke's R Square is 0.616, and McFadden's R Square is 0.336, respectively.

Sequentially, the study examines the initial coefficients of chosen variables based on parameter estimates. All categories of chosen variables are suitable for further interpretation and none needs to be adjusted. Continuously, the study changes different reference categories of the dependent variable to release full information for parameter

estimates. Table 6-11 shows the results of parameter estimates the reference category 'hypermarkets'. Other Tables with different reference categories are summarised in Appendix E, Tables E-3, E-4, and E-6.

Based on these parameter estimates, the study can interpret the relationships between the logit (the natural log of odds of the probability of choosing different retailer types) and independent variables (determinants). Below, the study interprets each chosen determinant.

- **Spatial separation distance:** the simple straight line distance between an individual household and his/her shopping destination was measured as the separation distance. The variable is vital in the model with hypermarkets as a reference category (see Table 6-11). Since all coefficients are negative, the study seemingly infers that as travelling distance increases, respondents are less likely to shop at wet markets, other unplanned retailers, and other planned retailers than hypermarkets. In more detail, the Exp(B) column shows that as the travelling distance increases one unit, the probability of respondents selecting wet markets, other unplanned retailers, and other planned retailers is 0.364, 0.400, and 0.418 times less likely than the probability of selecting hypermarkets, respectively.

Table 6-11 Parameter Estimates for the Reference Category "Hypermarkets"

Dependent Variable Categories	Determinants	B	S.E.	Wald	df	Sig.	Exp(B)
Wet Markets	<b>Intercept</b>	4.466	0.701	40.625	1	0.000**	
	<b>Spatial Separation Distance</b>	-1.009	0.135	55.521	1	0.000**	0.364
	<b>Good Parking Facilities</b> (Selected)	-1.891	0.497	14.502	1	0.000**	0.151
	(Unselected)	0.000			0		
	<b>Quality/Fresh Products</b> (Selected)	1.249	0.468	7.137	1	0.008**	3.487
	(Unselected)	0.000			0		
	<b>Able to Haggle over the Price</b> (Selected)	5.650	1.465	14.876	1	0.000**	284.303
	(Unselected)	0.000			0		
	<b>Male</b> (Selected)	-2.043	0.516	15.673	1	0.000**	0.130
	<i>Female (Reference)</i>	0.000			0		
	<b>Low Educational Level</b> (Selected)	2.469	0.717	11.844	1	0.001**	11.812
<i>High Educational Level (Reference)</i>	0.000			0			
<b>Well-known Brand Followers</b>	-0.525	0.205	6.575	1	0.010**	0.592	
<b>Weekly Routine Shoppers</b>	-0.755	0.221	11.636	1	0.001**	0.470	
Other Unplanned Retailers	<b>Intercept</b>	3.738	0.737	25.751	1	0.000**	
	<b>Spatial Separation Distance</b>	-0.916	0.146	39.213	1	0.000**	0.400
	<b>Loyalty Card/Promotion</b> (Selected)	-2.260	0.919	6.047	1	0.014**	0.104
	(Unselected)	0.000			0		
	<b>One Stop Shopping</b> (Selected)	-1.892	0.591	10.229	1	0.001**	0.151
	(Unselected)	0.000			0		
	<b>Convenient Location</b> (Selected)	1.212	0.440	7.595	1	0.006**	3.359
	(Unselected)	0.000			0		
	<b>Good Parking Facilities</b> (Selected)	-1.695	0.546	9.627	1	0.002**	0.184
	(Unselected)	0.000			0		
	<b>Quality/Fresh Products</b> (Selected)	1.249	0.496	6.334	1	0.012**	3.488
	(Unselected)	0.000			0		
	<b>Able to Haggle over the Price</b> (Selected)	5.136	1.488	11.920	1	0.001**	170.003
	(Unselected)	0.000			0		
<b>Male</b> (Selected)	-2.099	0.593	12.519	1	0.000**	0.123	
<i>Female (Reference)</i>	0.000			0			
<b>Low Educational Level</b> (Selected)	1.375	0.748	3.382	1	0.066*	3.956	
<i>High Educational Level (Reference)</i>	0.000			0			
<b>Weekly Routine Shoppers</b>	-0.681	0.238	8.206	1	0.004**	0.506	
Other Planned Retailers	<b>Intercept</b>	3.649	0.713	26.212	1	0.000**	
	<b>Spatial Separation Distance</b>	-0.872	0.141	38.012	1	0.000**	0.418
	<b>Male</b> (Selected)	-0.902	0.488	3.417	1	0.065*	0.406
	<i>Female (Reference)</i>	0.000			0		
<b>Weekly Routine Shoppers</b>	-0.590	0.224	6.973	1	0.008**	0.554	

Note: \*\*  $p \leq 0.05$ ; \*  $p \leq 0.10$

- **Convenient location/Easy to travel to the place from another:** the variable is vital in the model with other unplanned retailers as a reference category (see Appendix E, Table E-4). Since all coefficients are negative, the study seemingly infers that when considering the criterion of convenient location, respondents are less likely to shop at wet markets, hypermarkets, and other planned retailers than unplanned retailers. In fact, from the Exp(B) figure, the probability of respondents selecting wet markets, hypermarkets, and other planned retailers is 0.524, 0.298, and 0.377 times less likely than the probability of selecting other unplanned retailers, respectively.
- **Good parking facilities:** the variable is vital in the model with wet markets and other unplanned retailers as reference categories (see Appendix E, Table E-3 and E-4). Since the coefficients of both categories are positively related to selecting hypermarkets and other planned retailers, the study seemingly infers that when considering the criterion of good parking facilities, respondents are more likely to prefer to shop at planned retailers than unplanned retailers. From Table E-3, considering this criterion, the probability of respondents selecting hypermarkets and other planned retailers is 6.625 and 4.713 times more likely than the probability of selecting wet markets, respectively. In Table E-4, the probability of respondents selecting hypermarkets and other planned retailers is 5.446 and 3.875 times more likely than the probability of selecting other unplanned retailers, respectively.
- **Quality products/Fresh foods:** the variable is vital in the model with wet markets and other unplanned retailers as reference categories (see Appendix E, Tables E-3 and E-4). Based on the negative coefficients of hypermarkets and other planned retailers, -1.249 and -1.259, respectively, the study

seemingly infers that considering the criterion of quality products, respondents are less likely to shop at planned retailers. From Table E-3, when considering the criterion of quality products, the probability of respondents selecting hypermarkets and other planned retailers is 0.287 and 0.284 times less likely than the probability of selecting wet markets, respectively. In Table E-4, the probability of selecting hypermarkets and other planned retailers is 0.287 and 0.284 times less likely than the probability of selecting other unplanned retailers, respectively.

- **Able to haggle over and beat down the price:** the variable is vital in the model with wet markets and other unplanned retailers as reference categories (see Appendix E, Tables E-3 and E-4). Based on the negative coefficients of hypermarkets and other planned retailers, the study seemingly infers that when considering the criterion of able to haggle over the price, respondents are less likely to shop at planned retailers than unplanned retailers. However, the probability ratio is close to 0. From Table E-3, when considering the criterion, the probability of respondents selecting hypermarkets and other planned retailers is only 0.004 and 0.034 times less likely than the probability of selecting wet markets, respectively. In Table E-4, the probability of respondents selecting hypermarkets and other planned retailers is 0.006 and 0.057 times less likely than the probability of selecting other unplanned retailers, respectively.
- **Store loyalty card/Coupon/Promotion scheme:** the variable presents a significant relationship only between hypermarkets and other unplanned retailers only as significant (see Table 6-11). With other unplanned retailers as a reference category, its coefficient is positive. The study therefore seemingly

infers that when considering this criterion, respondents are more likely to shop at hypermarkets than other unplanned retailers. Further, when considering the criterion, the probability of respondents selecting hypermarkets is 9.579 times more likely than the probability of selecting other unplanned retailers. This suggests that through the adoption of a promotion scheme, hypermarkets can attract more shoppers from other unplanned retail markets.

- **One stop shopping:** the variable is vital in the model with other unplanned retailers as a reference category (see Appendix E, Table E-4). Since all coefficients are positive, the study seemingly infers that when considering the criterion of one stop shopping, respondents are more likely to shop at hypermarkets, wet markets, and other planned retailers than other unplanned retailers. In detail, when considering the criterion, the probability of respondents selecting hypermarkets, wet markets, and other planned retailers is 6.630, 3.894, and 3.244 times more likely, respectively, than the probability of selecting other unplanned retailers.
- **Gender:** the variable is vital in the model with wet markets and other unplanned retailers as reference categories (see Appendix E, Tables E-3 and E-4). Since the coefficients of hypermarkets and other planned retailers are positive, the study seemingly infers that males are more likely than females to shop at planned retailers than unplanned retailers. From Table E-3, a male is 7.715 times more likely than a female to shop at hypermarkets than wet markets, and 3.130 times more likely than a female to shop at other planned retailers than wet markets. Table E-4 shows, a male is 8.159 times more likely than a female to shop at hypermarkets than other unplanned retailers, and



3.310 times more likely than a female to shop at other planned retailers than other unplanned retailers.

- **Educational level:** the variable is vital in the model with wet markets as a reference category (see Appendix E, Table E-3). In terms of low educational level, since all coefficients are negative, the study seemingly infers that respondents with a low educational level are less likely than those with high educational levels to shop at other unplanned retailers, hypermarkets, and other planned retailers than wet markets. In detail, a respondent with a low educational level is 0.335, 0.085, and 0.168 times less likely than a respondent with high educational levels to shop at other unplanned retailers, hypermarkets, and other planned retailers, respectively, than wet markets. As regards middle educational level, since the coefficients of other unplanned and planned retailers are negative, a similar interference can be made, i.e. those with a middle educational level are less likely than those with a high educational level to shop at other unplanned and planned retailers than wet markets. In detailed, a respondent with a middle education level is 0.4569 and 0.293 times less likely than a respondent with a high educational level to shop at other unplanned and planned retailers than wet markets, respectively.
- **Well-known brand followers:** the variable is vital in the model with wet markets as a reference category (see Appendix E, Table E-3). Since the coefficients of hypermarkets and other planned retailers are positive, the study seemingly infers that a respondent with a positive attitude towards well-known brands is more likely to shop at hypermarkets and other planned retailers than wet markets. In addition, as the attitude score increases one unit, the probability of a respondent selecting hypermarkets and other planned retailers

is 1.690 and 1.756 times more likely than the probability of selecting wet markets, respectively.

- **Weekly routine shoppers:** the variable is vital in the model with hypermarkets as a reference category (see Table 6-11). Since all coefficients are negative, the study seemingly suggests that a respondent more inclined towards weekly routine shopping is less likely to shop at wet markets, other unplanned retailers, and other planned retailers than hypermarkets. Further, when the attitude score increases one unit, the probability of a respondent selecting wet markets, other unplanned retailers, and other planned retailers is 0.470, 0.506, and 0.554 times less likely than the probability of selecting hypermarkets, respectively.

In summary, the study found most independent variables influencing consumers' shopping destination choice behaviour for convenience goods shopping explained only the relationship between unplanned and planned retailers, due to little difference between wet markets and other unplanned retailers. These variables included gender, attitude towards well-known brands, and consideration of good parking facilities, quality products, and ability to haggle over the price.

Modifying equations (i.e.  $Z_1$ ,  $Z_2$ , and  $Z_3$ ) derived from Table 6-11, the study is better able to predict the probability of a respondent selecting different retailer types. Based on the model with hypermarkets as a reference category in Table 6-11, Formulas 6-8 to 6-15 are presented below:

$$\begin{aligned}
 Z_1 &= \log_e \left( \frac{\text{Prob(Wet Markets)}}{\text{Prob(Hypermarkets)}} \right) \\
 &= 4.466 - 1.009X_1 - 1.891X_3 + 1.249X_4 + 5.650X_5 - 2.043X_8 \\
 &\quad + 2.469X_9 - 0.525X_{10} - 0.755X_{11}
 \end{aligned}
 \tag{Formula 6-8}$$

$$Z_2 = \log_e \left( \frac{\text{Prob(Other Unplanned Retailers)}}{\text{Prob(Hypermarkets)}} \right) \quad (\text{Formula 6-9})$$

$$= 3.738 - 0.916X_1 + 1.212X_2 - 1.695X_3 + 1.249X_4 - 5.136X_5$$

$$- 2.260X_6 - 1.892X_7 - 2.099X_8 + 1.375X_9 - 0.681X_{11}$$

$$Z_3 = \log_e \left( \frac{\text{Prob(Other Planned Retailers)}}{\text{Prob(Hypermarkets)}} \right) \quad (\text{Formula 6-10})$$

$$= 3.649 - 0.872X_1 - 0.902X_8 - 0.590X_{11}$$

$$Z_4 = 0 \quad (\text{Formula 6-11})$$

$$\text{Prob(Wet Markets)} = \frac{e^{Z_1}}{1 + e^{Z_1} + e^{Z_2} + e^{Z_3}} \quad (\text{Formula 6-12})$$

$$\text{Prob(Other Unplanned Retailers)} = \frac{e^{Z_2}}{1 + e^{Z_1} + e^{Z_2} + e^{Z_3}} \quad (\text{Formula 6-13})$$

$$\text{Prob(Other Planned Retailers)} = \frac{e^{Z_3}}{1 + e^{Z_1} + e^{Z_2} + e^{Z_3}} \quad (\text{Formula 6-14})$$

$$\text{Prob(Hypermarkets)} = \frac{1}{1 + e^{Z_1} + e^{Z_2} + e^{Z_3}} \quad (\text{Formula 6-15})$$

where

$x_1$ = spatial separation distance

$x_8$ = gender (male=1)

$x_2$ = convenient location

$x_9$ = low educational level ( =1)

$x_3$ = good parking facilities

$x_{10}$ = attitude towards well-known

$x_4$ = quality products

brands

$x_5$ = able to haggle over the price

$x_{11}$ = attitude towards weekly routine

$x_6$ = store loyalty card

shopping

$x_7$ = one stop shopping

Statistically, based on these equations, the study can correctly predict 65.8 per cent of overall outcome, specifically, 86.7 per cent, 25.6 per cent, 77.9 per cent, and 23.5

per cent of wet markets', other unplanned retailers', hypermarkets', and other planned retailers' patronage, respectively.

### 6.4.3 Modelling Shopping Destination Choice Behaviour for Comparison Goods

#### Shopping

The study further examines the difference between different retailer types, namely, high streets, other unplanned retailers, department stores, and other planned retailers (for more details see Section 6.2.1) for comparison goods shopping trips. Following the processes shown in Figure 6-2, the study first selects forty-four independent variables and assumes their last value (or option) as the reference category if they are polytomous categorical variables. Further, 'high streets' is assumed to be a reference category of the dependent variable.

The study runs the first two steps to select variables. After running twenty-five rounds, the final model is achieved, containing twenty variables. Its -2 log-likelihood is 800.897, while the intercept term is 1360.055. When considering the Chi-Square ( $\chi^2$ ) test, the result seemingly infers the final model is significantly better than the intercept-only model, that is, all chosen variables are significantly related to consumers' shopping destination choice results. As regards the proportion of variability in the dependent variable, Cox and Snell's R Square value is 0.675, Nagelkerke's R Square value is 0.722, and McFadden's R Square value is 0.411, respectively.

Sequentially, the study examines the initial coefficients of chosen variables based on parameter estimates. All chosen variable categories are suitable for further interpretation and none needs to be adjusted. Continuously, the study changes different reference categories of the dependent variable to release full information for parameter estimates. Table 6-12 shows the results of parameter estimates with the reference

category of 'other unplanned retailers'. Other Tables with different reference categories are summarised in **Appendix E**, Tables E-7, E-9, and E-10.

Based on parameter estimates, the study can interpret the relationships between the logit (the natural log of odds of the probability of choosing different retailer types) and independent variables (determinants). Below, the study interprets each chosen determinant.

- **Spatial separation distance:** the simple straight line distance between an individual household and his/her shopping destination was measured as the separation distance. The variable is vital in the model with other unplanned retailers as a reference category (see Table 6-12). Since all coefficients are positive, the study seemingly infers that as travelling distance increases, respondents are more likely to shop at other planned retailers, high streets, and department stores than other unplanned retailers. Further, the  $\text{Exp}(B)$  column shows that as the travelling distance increases one unit, the probability of respondents selecting other planned retailers, high streets, and department stores is 1.382, 1.265, and 1.160, times more likely than the probability of respondents selecting other unplanned retailers, respectively.

**Table 6-12 Parameter Estimates for the Reference Category “Other Unplanned Retailers”**

Dependent Variable Categories	Determinants	B	S.E.	Wald	df	Sig.	Exp(B)
High Streets	Intercept	1.066	0.612	3.035	1	0.081*	
	Spatial Separation Distance	0.235	0.080	8.703	1	0.003**	1.265
	Lower Prices (Selected)	-0.572	0.344	2.764	1	0.096*	0.564
	(Unselected)	0.000			0		
	Able to Haggle over the Price (Selected)	-0.712	0.418	2.904	1	0.088*	0.491
	(Unselected)	0.000			0		
	Loyalty Card (Selected)	2.853	1.174	5.909	1	0.015**	17.343
	(Unselected)	0.000			0		
	Convenient Location (Selected)	-0.769	0.322	5.723	1	0.017**	0.463
	(Unselected)	0.000			0		
	Quality Products (Selected)	1.902	0.934	4.148	1	0.042**	6.701
	(Unselected)	0.000			0		
	Favourite Brands (Selected)	1.430	0.680	4.427	1	0.035**	4.179
	(Unselected)	0.000			0		
Department Stores	Household Size	-0.212	0.101	4.374	1	0.037**	0.809
	Well-known Brand Followers	0.603	0.185	10.649	1	0.001**	1.828
	Weekly Routine Shoppers	0.254	0.149	2.880	1	0.090*	1.289
	Shopping Associated with Social Activities	0.357	0.163	4.793	1	0.029**	1.429
	Intercept	1.390	0.724	3.683	1	0.055*	
	Spatial Separation Distance	0.148	0.089	2.807	1	0.094*	1.160
	Near or Nearest Home (Selected)	-2.119	0.465	20.719	1	0.000**	0.120
	(Unselected)	0.000			0		
	Lower Prices (Selected)	-2.565	0.649	15.621	1	0.000**	0.077
	(Unselected)	0.000			0		
	Able to Haggle over the Price (Selected)	-2.591	1.133	5.229	1	0.022**	0.075
	(Unselected)	0.000			0		
	Loyalty Card (Selected)	3.097	1.229	6.353	1	0.012**	22.138
	(Unselected)	0.000			0		
Store Business Hours (Selected)	-3.463	1.777	3.796	1	0.051*	0.031	
(Unselected)	0.000			0			
Newly Opened Stores (Selected)	3.037	1.244	5.964	1	0.015**	20.841	
(Unselected)	0.000			0			
Convenient Location (Selected)	-1.450	0.441	10.815	1	0.001**	0.235	
(Unselected)	0.000			0			
Quality Products (Selected)	3.224	0.952	11.463	1	0.001**	25.123	
(Unselected)	0.000			0			
Advantageous Special Offers (Selected)	2.023	0.551	13.456	1	0.000**	7.558	
(Unselected)	0.000			0			
Favourite Brands (Selected)	2.380	0.713	11.137	1	0.001**	10.809	

Dependent Variable Categories	Determinants	B	S.E.	Wald	df	Sig.	Exp(B)
	<i>(Unselected)</i>	0.000			0		
	<b>Household Size</b>	-0.480	0.132	13.287	1	0.000**	0.619
	<b>Number of Owned Cars</b>	0.734	0.267	7.542	1	0.006**	2.084
	<b>Well-known Brand Followers</b>	1.173	0.224	27.412	1	0.000**	3.232
	<b>Shopping Associated with Social Activities</b>	0.595	0.206	8.332	1	0.004**	1.812
	<b>Spatial Separation Distance</b>	0.324	0.085	14.567	1	0.000**	1.352
	<b>Near or Nearest Home (Selected)</b>	-0.794	0.396	4.019	1	0.045**	0.452
	<i>(Unselected)</i>	0.000			0		
	<b>Able to Haggle over the Price (Selected)</b>	-2.908	1.091	7.103	1	0.008**	0.055
	<i>(Unselected)</i>	0.000			0		
	<b>Loyalty Card (Selected)</b>	3.106	1.237	6.302	1	0.012**	22.326
	<i>(Unselected)</i>	0.000			0		
	<b>Store Business Hours (Selected)</b>	2.809	1.438	3.817	1	0.051*	16.600
	<i>(Unselected)</i>	0.000			0		
	<b>Habit (Selected)</b>	-1.198	0.408	8.640	1	0.003**	0.302
	<i>(Unselected)</i>	0.000			0		
Other Planned Retailers	<b>Convenient Location (Selected)</b>	-0.719	0.396	3.307	1	0.069*	0.487
	<i>(Unselected)</i>	0.000			0		
	<b>For a Day out (Selected)</b>	-4.114	1.829	5.058	1	0.025**	0.016
	<i>(Unselected)</i>	0.000			0		
	<b>Good Parking Facilities (Selected)</b>	1.256	0.444	8.006	1	0.005**	3.512
	<i>(Unselected)</i>	0.000			0		
	<b>Advantageous Special Offers (Selected)</b>	1.014	0.517	3.844	1	0.050**	2.757
	<i>(Unselected)</i>	0.000			0		
	<b>Male (Selected)</b>	1.312	0.512	6.572	1	0.010**	3.712
	Female (Reference)	0.000			0		
	<b>Household Size</b>	-0.233	0.123	3.610	1	0.057*	0.792
	<b>Weekly Routine Shoppers</b>	0.501	0.188	7.082	1	0.008**	1.651

Note: \*\*  $p \leq 0.05$ ; \*  $p \leq 0.10$

- **Near or nearest home:** the variable is vital in the model with department stores as a reference category (see Appendix E, Tables E-9). Since all coefficients are positive, the study seemingly infers that when considering the criterion of near or nearest home, respondents are more likely to shop at other unplanned retailers, high streets, and other planned retailers than shop at department stores. In fact, from the  $\text{Exp}(B)$  figures, when considering the criterion, the probability of respondents selecting other unplanned retailers, high streets, and other planned retailers is 8.320, 6.453, and 3.762 times more likely, respectively, than the probability of selecting department stores.
- **Convenient location/Easy to travel to the place from another:** the variable is vital in the model with department stores as a reference category (see Appendix E Table E-9). Since all coefficients are positive, the study seemingly implies that when considering the criterion of convenient location, respondents are more likely to shop at other unplanned retailers, other planned retailers, and high streets than department stores. In detail, when considering the criterion, the probability of respondents selecting other unplanned retailers, other planned retailers, and high streets is 4.262, 2.076, and 1.975 times more likely, respectively, than the probability of selecting department stores.
- **Good parking facilities:** the variable is vital in the model with other planned retailers as a reference category (see Appendix E, Table E-10). Since all coefficients are negative, the study seemingly suggests that when considering the criterion of good parking facilities, respondents are less likely to shop at high streets, other unplanned retailers, and department stores than other planned retailers. In detail, when considering the criterion, the probability of respondents selecting high streets, other unplanned retailers, and department



stores is 0.188, 0.285, and 0.321 times less likely, respectively, than the probability of selecting other planned retailers.

- **Quality products/High-class products:** the variable is vital in the model with department stores as a reference category (see Appendix E, Table E-9). Since all coefficients are negative, the study seemingly implies that when considering the criterion of quality products, respondents are less likely to shop at other unplanned retailers, other planned retailers, and high streets than department stores. In detail, when considering the criterion, the probability of respondents selecting other unplanned retailers, other planned retailers, and high streets is 0.040, 0.117, and 0.267 times less likely, respectively, than the probability of selecting department stores.
- **Promotion/Advantageous special offers:** the variable is vital in the model with department stores as a reference category (see Appendix E, Table E-9). Since all coefficients are negative, the study seemingly infers that when considering the criterion of promotion, respondents are less likely to shop at high streets, other unplanned retailers, and other planned retailers than department stores. In detail, from Table E-7, when considering the criterion, the probability of respondents selecting high streets, other unplanned retailers, and other planned retailers is 0.103, 0.132, and 0.365 times less likely, respectively, than the probability of selecting department stores.
- **Favourite brands:** the variable is vital in the model with department stores as a reference category (see Appendix E, Table E-9). Since all coefficients are negative, the study seemingly suggests that when considering the criterion of favourite brands, respondents are less likely to shop at other unplanned retailers, other planned retailers, and high streets than department stores. In

detail, when considering the criterion, the probability of respondents selecting other unplanned retailers, other planned retailers, and high streets is 0.093, 0.243, and 0.387 times less likely, respectively, than the probability of selecting department stores.

- **Lower prices:** the variable is vital in the model with department stores as a reference category (see Appendix E, Table E-9). Since all coefficients are positive, the study seemingly implies that when considering the criterion of lower price, respondents are more likely to shop at other unplanned retailers, other planned retailers, and high streets than department stores. In detail, when considering the criterion, the probability of respondents selecting other unplanned retailers, other planned retailers, and high streets is 13.001, 9.880, and 7.338 times more likely, respectively, than the probability of selecting department stores.
- **Able to haggle over and beat down the price:** the variable is vital in the model with other unplanned retailers as a reference category (see Table 6-12). Since all coefficients are negative, the study seemingly infers that when considering the criterion of able to haggle over the price, respondents are less likely to shop at other planned retailers, department stores, and high streets than other unplanned retailers. In detail, when considering the criterion, the probability of respondents selecting other planned retailers, department stores, and high streets is 0.055, 0.075, and 0.491 times less likely, respectively, than the probability of selecting other unplanned retailers.
- **Store loyalty card:** the variable is vital in the model with other unplanned retailers as a reference category (see Table 6-12). Since all coefficients are positive, the study seemingly suggests that when considering the criterion of

store loyalty card, respondents are more likely to shop at other planned retailers, department stores, and high streets than other unplanned retailers. In detail, when considering the criterion, the probability of respondents selecting other planned retailers, department stores, and high streets is 22.326, 22.138, and 17.343 times more likely, respectively, than the probability of selecting other unplanned retailers.

- **Store business hours:** the variable is vital in the model with other planned retailers as a reference category (see Appendix E, Table E-10). Since all coefficients are negative, the study seemingly infers that when considering the criterion of store business hours, respondents are less likely to shop at department stores, other unplanned retailers, and high streets than other planned retailers. In detail, when considering the criterion, the probability of respondents selecting department stores, other unplanned retailers, and high streets is 0.002, 0.060, and 0.092 times less likely, respectively, than the probability of selecting other planned retailers.
- **Newly opened stores:** the variable is vital in the model with department stores as a reference category (see Appendix E, Table E-9). Since all coefficients are negative, the study seemingly implies that when considering the criterion of newly opened stores, respondents are less likely to shop at other unplanned retailers, high streets, and other planned retailers than department stores. In detail, when considering the criterion, the probability of respondents selecting other unplanned retailers, high streets, and other planned retailers is 0.048, 0.088, and 0.197 times less likely, respectively, than the probability of selecting department stores.

- **Habit (e.g. always go there):** the variable is vital in the model with other planned retailers as a reference category (see Appendix E, Table E-10). Since all coefficients are positive, the study seemingly suggests that when considering the criterion of habit, respondents are more likely to shop at other unplanned retailers, department stores, and high streets than other planned retailers. In detail, when considering the criterion, the probability of respondents selecting other unplanned retailers, department stores, and high streets is 3.314, 3.294, and 3.110 times more likely, respectively, than the probability of selecting other planned retailers.
- **For a day out:** the variable is vital in the model with department stores and other planned retailers as reference categories (see Appendix E, Tables E-9 and E-10). In Table E-9, since the coefficients of both categories are negative, the study seemingly infers that when considering the criterion of for a day out, respondents are less likely to shop at other planned retailers and high street than department stores. In detail, when considering the criterion, the probability of respondents selecting other planned retailers and high streets is 0.011 and 0.160 times less likely than the probability of selecting department stores, respectively. In Table E-10, in contrast, since the coefficients of both categories are positive, the study seemingly suggests that when considering the criterion of for a day out, respondents are more likely to shop at department stores and other unplanned retailers than other planned retailers. In detail, when considering the criterion, the probability of respondents selecting department stores and other unplanned retailers is 89.564 and 61.217 times more likely than the probability of selecting other planned retailers, respectively.

- **Gender:** the variable is vital in the model with other planned retailers as a reference category (see Appendix E, Table E-10). Since all coefficients are negative, the study seemingly implies that males are less likely than females to shop at other unplanned retailers, high streets, and department stores than other planned retailers. In detail, a male is 0.269, 0.375, and 0.392 times less likely than a female to shop at other unplanned retailers, high streets, and department stores than other planned retailers, respectively.
- **Household size:** the variable is vital in the model with other unplanned retailers as a reference category (see Table 6-12). Since all coefficients are negative, the study seemingly infers that as household size increases, respondents are less likely to shop at department stores, other planned retailers, and high streets than other unplanned retailers. Further, as household size increases one unit, the probability of respondents selecting department stores, other planned retailers, and high streets is 0.619, 0.792, and 0.809 times less likely, respectively, than the probability of selecting other unplanned retailers.
- **Number of owned cars:** the variable is vital in the model with department stores as a reference category (see Appendix E, Table E-9). Since all coefficients are negative, the study seemingly infers that as the number of owned cars increases, respondents are less likely to shop at high streets, other planned retailers, and other unplanned retailers than department stores. Further, as the number of owned cars increases one unit, the probability of selecting high streets, other planned retailers, and other unplanned retailers is 0.467, 0.472, and 0.480 times less likely, respectively, than the probability of selecting department stores.

- **Well-known brand followers:** the variable is vital in the model with department stores as a reference category (see Appendix E, Table E-9). Since all coefficients are negative, the study seemingly implies that a respondent more oriented towards well-known brands is less likely to shop at other unplanned retailers, other planned retailers, and high streets than department stores. In addition, when the attitude score increases one unit, the probability of respondents selecting other unplanned retailers, other planned retailers, and high streets is 0.309, 0.331, and 0.566 times less likely, respectively, than the probability of selecting department stores
- **Weekly routine shoppers:** the variable is vital in the model with other planned retailers as a reference category (see Appendix E, Table E-10). Since the coefficients of both categories are negative, the study seemingly implies that a respondent more inclined towards weekly routine shopping is less likely to shop at other unplanned retailers and department stores than other planned retailers. Further, as the attitude score increases one unit, the probability of a respondent selecting other unplanned retailers and department stores is 0.606 and 0.711 times less likely than the probability of selecting other planned retailers, respectively.
- **Attitude towards shopping associated with social activities:** the variable is vital in the model with other unplanned retailers and department stores as reference categories (see Table 6-12 and Appendix E, Table E-9). In Table 6-12, since the coefficients of high streets and department stores are positive, the study seemingly suggests that a respondent more inclined towards shopping associated with social activities is more likely to shop at department stores and high streets than other unplanned retailers. Further, as the attitude

score increases one unit, the probability of a respondent selecting department stores and high streets is 1.812 and 1.429 times more likely than the probability of selecting other unplanned retailers, respectively. In Table E-9, in contrast, since the coefficients of other unplanned and planned retailers are negative, the study seemingly refers that a respondent inclined more towards shopping associated with social activities is less likely to shop at other unplanned and planned retailers than department stores. Further, as the attitude score increases one unit, the probability of a respondent selecting other unplanned and planned retailers is 0.552 and 0.634 times less likely than the probability of selecting department stores, respectively.

After modifying the equations shown in Table 6-12, the study can predict the probability of respondents selecting different retailer types. Statistically, findings showed the logistic regression models could correctly predict 67.7 per cent of overall choice outcome, specifically, 36.2 per cent, 78.0 per cent, 85.3 per cent, and 62.0 per cent of high streets', other unplanned retailers', department stores', and other planned retailers' patronage, respectively.

## **6.5 COMPARISON BETWEEN DICHOTOMOUS AND POLYTOMOUS LOGISTIC REGRESSION SHOPPING MODELS**

### **6.5.1 Models for Convenience Goods Shopping**

As mentioned in previous Sections 6.3.2 and 6.4.2, two logistic regression shopping models were developed to analyse consumers' patronage behaviour for convenience goods shopping trips based on two (unplanned and planned retailers) and four (wet markets, other unplanned retailers, hypermarkets, and other planned retailers)

choice sets. An examination of the significant independent (or explanatory) variables selected by the two models (see Tables 6-8 and 6-11, and Tables E-3, E-4, and E-5 in Appendix E), revealed nine and eleven variables in the dichotomous (DLR) and polytomous logistic regression (PLR) models, respectively. Comparing the DLR and PLR models, eight variables (i.e. spatial separation distance, gender, educational level, attitude towards well-known brands, and the store selection criteria of good parking facilities, fresh products, able to haggle over the price, and store loyalty card/promotion/coupons) remained unchanged in both models, and one (i.e. habit) in the DLR model was eliminated and three (i.e. one stop shopping, weekly routine shoppers, and convenient location) were added to the PLR model. However, the three additional variables in the PLR model showed poor explanatory effects, ranking as the least three influential determinants (see Table 6-13). Based on the findings, it seems the complex PLR models did not add much understanding of consumers' choice behaviour.

Table 6-13 shows individual variable effects in the final models. The column headed  $-2 LL$  ( $-2$  times the log of the likelihood) indicates the change in the  $-2 LL$  value if the individual variable is removed from the final model. In other words, if the  $-2 LL$  value of the individual variable is large, its explanatory effect on choice outcome is relatively strong; in contrast, if the  $-2 LL$  value of the individual variable is small, its explanatory effect on choice outcome is relatively weak.



**Table 6-13 Individual Variables' Effects in the Final Convenience Goods Shopping Models**

Individual Independent Variables		DLR Model		PLR Model	
		-2LL	Rank	-2LL	Rank
Distance	Spatial Separation Distance	85.08	1	106.19	1
	Convenient Location	-	-	10.80	11
Store Selection	Good Parking Facilities	18.56	5	20.28	5
	Quality Food/Fresh Products	23.60	4	17.36	7
	Able to Haggle over the Price	17.76	6	34.54	3
Criteria	Store Loyalty Card	33.79	3	42.75	2
	Habit	4.76	9	-	-
	One Stop Shopping	-	-	12.99	9
Demographic and Socio-economic Characteristics	Gender	14.63	7	19.37	6
	Educational Level	46.06	2	33.96	4
Attitude towards Shopping	Well-known Brand Followers	7.88	8	14.14	8
	Weekly Routine Shoppers	-	-	12.26	10

From Table 6-13, since the  $-2LL$  value of distance is the largest, this seemingly infers that distance is the primary determinant affecting consumers' patronage behaviour. This result supported prior studies, for example, those of Timmermans (1982), Fotheringham (1988<sup>a</sup>), Tang et al. (2001), Óscar (2002), Suárez et al. (2004) and Hansen and Solgaard (2004), who employed distance as a major determinant to predict shopping destination choice behaviour. Thus, based on the findings, if the new retail development intends to catch more convenience goods shoppers, its location should be close to residential areas due to shoppers' primary consideration of short travelling distance.

In contrast, unlike Hallsworth's (1991), or Broadbridge and Calderwood's (2002) findings, the present study found attitude statements failed to adequately explain well consumers' convenience goods shopping behaviour as reflected by low  $-2LL$  values. The findings seemingly implied that planned retailers primarily attracted shoppers with a

positive attitude towards well-known brands and weekly routine shoppers, whereas unplanned retailers did not.

Further, when considering the high number of selected variables, store selection criteria are likely to be more active than demographic and socio-economic characteristics. Five and six criteria were selected in the DLR and PLR models, respectively, to answer reasons for respondents shopping at either planned or unplanned retailers. Reviewing relevant studies, most have used these criteria to analyse shoppers' patronage of planned retailers. For instance, Broadbridge and Calderwood (2002: p. 398) indicated that, when choosing a grocery outlet in Scotland, the primary influential factors were a clean and tidy shop, and quality of products sold. Further, Baltas and Papastathopoulou (2003: p. 503) found merchandise quality and variety were the most important store selection criteria in Greek grocery shopping. Comparing previous study findings with the present, different outcomes are presented: in Taiwan, when shoppers considered patronising planned retailers, major considerations were store loyalty card /promotion/coupons, good parking facility, and one stop shopping. When deciding to patronise unplanned retailers, their main considerations were quality product, able to haggle over price, and convenient location/easy to travel to the place from another. Here, store loyalty card /promotion/coupons was presented as the first store selection criterion consideration for shopping at planned retailers, seemingly inferring that the most effective attractant is to reduce the price of merchandise. Most fresh products are sold unbranded by way of the wholesale distribution system (Dewar and Watson, 1990: pp.104-111), and most groceries carry the manufacturers' labels not retailers' own-brand labels, that is, all retailers sell similar groceries derived from the major manufacturers. Therefore, in this situation, price is the most important consideration to shoppers and they are willing to travel further afield to search for lower cost merchandises. As regards quality of products

(or fresh foods), this criterion was the major consideration for shoppers patronising unplanned retailers. Similar, to Hsu and Chang's (2002: p.423) findings, although planned retailers sell chilled and frozen meat products, the majority of grocery shoppers in Taiwan still prefer purchasing fresh meat product from unplanned retailers where meat is displayed on counters or hung on hooks.

Finally, only two demographic and socio-economic variables are represented in the final models, namely, gender and educational level. These two variables have also been utilised in prior studies, such as Kim and Park (1997), Popkowski and Timmermans (1997), and Baltas and Papastathopoulou (2003). According to this study's findings, males or those with higher educational level were likely to patronise planned retailers for their convenience goods shopping trips. Shoppers with higher educational level are likely to be half of a double-income couple, belong to affluent families, have a higher social status, and have greater mobility. Both gender and educational level were statistically significant. As regards market segments, there were too few demographic and socio-economic variables to answer the question 'who shops where?' with certainty.

### **6.5.2 Models for Comparison Goods Shopping**

As mentioned previously in Sections 6.3.3 and 6.4.3, two logistic regression shopping models were developed to analyse consumers' patronage behaviour for comparison goods shopping trips based on two (unplanned and planned retailers) and four (high streets, other unplanned retailers, department stores, and other planned retailers) choice sets. An examination of the significant independent (or explanatory) variables selected by the two models (see Tables 6-10 and 6-12, and Tables E-7, E-9, and E-10 in Appendix E), revealed thirteen and twenty variables in the dichotomous (DLR) and polytomous logistic regression (PLR) models, respectively. Comparing the DLR and

PLR models, three variables (i.e. no particular reason, personal income, and fervent shoppers) were eliminated from the DLR model and ten variables (i.e. convenient location, lower prices, store loyalty card, store business hours, for a day out, gender, household size, number of owned cars, weekly routine shoppers, and attitude towards shopping associated with social activities) were added to the PLR model to explain choice behaviour in detail. Table 6-14 shows individual variables' explanatory effects in the final models, presenting different ranking results. These results suggest that the complex PLR models contain more variables and thus contribute greater understanding of consumers' choice behaviour.

From Table 6-14, near or nearest home and well-known brand followers have the largest  $-2 LL$  values in the DLR and PLR models, respectively. In particular, the attitude variable well-known brand followers was the primary factor influencing consumers' choice behaviour in the PLR model, but was the least influential factor in the DLR model according to ranking results, seemingly indicating that individual variables' explanatory effects varied widely between the two models. Nevertheless, based on the outcomes presented in Table 6-14, four interpretations could be drawn as below:

First, unlike consumers shopping for convenience goods, consumers shopping for comparison goods were not strongly influenced by the spatial separation factor, measured by the straight line distance between individual households and shopping centres. This perhaps derives from the zoning control of land-use in Taiwan under which most retailers (e.g. small shops or speciality shops in high streets, or department stores) are confined to developing in the commercial zone, usually in city (town) centres (for more details see Chapter 3, Section 3.3.1). Therefore, if consumers intend to patronise either small shops in high streets or individual department stores, they need to go to city (or town) centres and travel a similar distance.

**Table 6-14 Individual Variables' Effects in the Final Comparison Goods Shopping Models**

Individual Independent Variables		DLR Model		PLR Model	
		-2LL	Rank	-2LL	Rank
Distance	Spatial Separation Distance	4.948	11	22.322	6
Store Selection Criteria	Near or Nearest Home	96.885	1	26.395	4
	Convenient Location	-	-	11.954	17
	Good Parking Facilities	15.085	5	20.589	7
	Quality Products	19.208	4	27.003	3
	Advantageous Special Offers	25.139	3	30.351	2
	Favourite Brands	8.972	8	17.763	9
	Lower Prices	-	-	22.461	5
	Able to Haggle over the Price	37.779	2	17.513	10
	Store Loyalty Card	-	-	12.304	16
	Store Business Hours	-	-	19.756	8
	Newly Opened Stores	12.184	7	14.341	14
	Habit	8.188	9	12.847	15
	No Particular Reason	5.746	12	-	-
	For a Day out	-	-	16.293	11
Demographic and Socio-economic Characteristics	Gender	-	-	8.872	19
	Personal Income	19.213	6	-	-
	Household Size	-	-	14.506	13
	Number of Owned Cars	-	-	14.553	12
Attitude towards Shopping	Well-known Brand Followers	5.494	13	42.683	1
	Weekly Routine Shoppers	-	-	8.205	20
	Shopping Associated with Social Activities	-	-	10.753	18
	Fervent Shoppers	5.338	10	-	-

Second, store selection criteria were the major influential factors in both models. Of twenty-two criteria, nine and thirteen were identified as having significant influences on consumers' choice behaviour in the DLR and PLR models, respectively. Reviewing relevant studies, different criteria have been presented as important determinants based on their specific research objectives. For instance, in their empirical survey in the Netherlands, Oppewal et al. (1997: p.1083) reported the most important determinant in the decision where to buy clothing and shoes was the total number of store units, followed by location convenience and accessibility. Karande and Ganesh (2000: p.36) identified four reasons, namely, price/value, quality and selection of merchandise, time saving and deal seeking, and recreation, for shopping at outlet malls in the northeastern United States. In the present study, advantageous special offers and quality products were the major considerations for respondents shopping at planned retailers, whereas near or nearest home and able to haggle over the price, and near or nearest home and lower prices were main considerations in the DLR and PLR models, respectively, for shopping at unplanned retailers. The findings seemingly imply that pricing strategy is the most important approach to attract more customers' patronage. Further, if the quality of merchandise is an important consideration, whether retailers (planned or unplanned) are near or nearest shoppers' home does not matter. If quality of merchandise is not an important consideration, location proximity to residential area is essential.

Third, attitude variables, namely, fervent shoppers and well-known brand followers, had poor explanatory effects in the DLR model since their  $-2LL$  values were relatively smaller than those of other variables. Further, with the exception of well-known brand followers, ranked the most important influential factor, the remaining variables had poor explanatory effects in the PLR model. However, when comparing the models for

convenience goods shopping, the results seemingly indicated that attitude variables were better able to explain or predict consumers' comparison goods' patronage behaviour.

Finally, in terms of demographic and socio-economic characteristics, personal income was identified as an influential factor in the DLR model, whereas number of owned cars, household size, and gender were identified as influential factors in the PLR model. Reviewing relevant studies, different characteristics have been investigated for their influence on consumer behaviour. For instance, Moye and Kincade (2003: p. 68) examined US female apparel consumers' age, education, employment, and household income characteristics, and found household income only had a statistically significant effect on their purchase behaviour.

## **6.6 CHAPTER SUMMARY**

In order to answer the stated research question, the study employed logistic regression analysis to identify the relationships between different determinants and choice sets. Different logistic regression models were developed based on dichotomous and polytomous dependent variables by different shopping trip types.

In terms of convenience goods shopping trips, the study found spatial separation distance best explained respondents' shopping destination choice behaviour, followed by store selection criteria. In contrast, demographic and socio-economic characteristics and attitudes towards shopping were less explanatory. Utilising dichotomous logistic regression, nine out of thirty-five variables were included in the final model, namely, spatial separation distance, gender, educational level, attitude towards well-known brands, and the store selection criteria of good parking facilities, fresh products, able to haggle over the price, store loyalty card (or promotion/coupons), and habit. Employing a polytomous logistic regression model, eleven variables were selected, namely, spatial

separation distance, gender, educational level, attitude towards well-known brands, and the store selection criteria of convenient location, good parking facilities, fresh products, able to haggle over the price, store loyalty card (or promotion/coupons), and one stop shopping. Findings seemingly infer that the complex polytomous logistic regression model did not contribute much understanding of consumers' choice behaviour. Table 6-15 summarises influential factors by retailer types.

In terms of comparison goods shopping trips, the study found individual variables' explanatory effects widely varied in the two models. In general, spatial separation distance showed poor explanatory effect compared with convenience goods shopping trips. Similarly, store selection criteria were more powerful determinants than spatial separation distance, attitudes towards shopping, and demographic and socio-economic characteristics in terms of the high number of selected variables. Attitude towards shopping had better explanatory ability than convenience goods shopping trips. Demographic and socio-economic characteristics were less explanatory. Utilising dichotomous logistic regression analysis, thirteen out of forty-four variables were included in the final model, namely, spatial separation distance, personal income, attitude towards well-known brands, fervent shoppers, and the store selection criteria of near home, good parking facilities, quality products, advantageous special offers, favourite brands, able to haggle over the price, newly opened stores, habit, and no particular reason. In the polytomous logistic regression model, twenty variables were selected, namely, spatial separation distance, gender, household size, number of owned cars, attitude towards well-known brands, attitude towards weekly routine shopping, attitude towards shopping associated with social activities, and the store selection criteria of near home, convenient location, good parking facilities, quality products, advantageous special offers, favourite brands, lower prices, able to haggle over the price, store loyalty card, store business



hours, newly opened stores, habit, and for a day out. Thus, differences were highlighted between the two models and the polytomous model appeared to better explain and differentiate between the four dependent variable categories. Table 6-16 summarises influential factors by retailer type.

**Table 6-15 Factors Influencing Consumers' Choice Behaviour for Convenience Goods Shopping**

Retailer Types		Influential Factor	
		Polytomous Logistic Regression Model	Dichotomous Logistic Regression Model
Planned Retailers	Hypermarkets	<ul style="list-style-type: none"> <li>▪ Willing to travel a further distance</li> <li>▪ Store loyalty card/coupons/ promotional activities</li> <li>▪ Attract male shoppers</li> <li>▪ Attract weekly routine shoppers</li> </ul>	<ul style="list-style-type: none"> <li>▪ Willing to travel a further distance</li> <li>▪ Good parking facilities</li> <li>▪ Store loyal card/ coupons/ promotional activities</li> </ul>
	Other Planned Retailers <sup>1</sup>	<ul style="list-style-type: none"> <li>▪ Store loyalty card/ coupons/ promotions</li> <li>▪ Attract male shoppers</li> </ul>	<ul style="list-style-type: none"> <li>▪ Attract middle or higher education level shoppers</li> <li>▪ Attract well-known brand followers</li> </ul>
Unplanned Retailers	Wet Markets	<ul style="list-style-type: none"> <li>▪ Lack parking facilities</li> <li>▪ Fresh merchandise</li> <li>▪ Able to haggle over the price</li> <li>▪ Attract lower educational level shoppers</li> <li>▪ Do not attract well-known brand followers</li> </ul>	<ul style="list-style-type: none"> <li>▪ Not willing to travel a further distance</li> <li>▪ Fresh merchandise</li> <li>▪ Able to haggle over the price</li> <li>▪ Habit (i.e. I always go there)</li> <li>▪ Attract female shoppers</li> </ul>
	Other Unplanned Retailers <sup>2</sup>	<ul style="list-style-type: none"> <li>▪ Convenient location/ easy accessibility</li> <li>▪ Lack parking facilities</li> <li>▪ Fresh merchandise</li> <li>▪ Able to haggle over the price</li> <li>▪ Unable to conduct one stop shopping</li> </ul>	

Note: 1. Other planned retailers included convenience stores, supermarkets, department stores, and other planned facilities.

2. Other unplanned retailers included corner shops/stalls, dusk markets, night markets and other unplanned facilities.

**Table 6-16 Factors Influencing Consumers' Choice Behaviour for Convenience Goods Shopping**

Retailer Types		Influential Factor	
		Polytomous Logistic Regression Model	Dichotomous Logistic Regression Model
Planned Retailers	Department Stores	<ul style="list-style-type: none"> <li>▪ Willing to travel a further distance</li> <li>▪ Quality merchandise</li> <li>▪ Promotional/advantageous special offers</li> <li>▪ Favourite brands</li> <li>▪ Newly opened stores/shops</li> <li>▪ Able to spend a day out</li> <li>▪ Attract owned car shoppers</li> <li>▪ Attract well-known brand followers</li> <li>▪ Attract shoppers who combine shopping with social activities</li> </ul>	<ul style="list-style-type: none"> <li>▪ Willing to travel a further distance</li> <li>▪ Good parking facilities</li> <li>▪ Quality merchandise</li> <li>▪ Promotional/ advantageous special offers</li> <li>▪ Favourite brands</li> <li>▪ Newly opened stores/shops</li> <li>▪ Attract high personal income shoppers</li> <li>▪ Attract well-known brand followers</li> <li>▪ Attract fervent shoppers</li> </ul>
	Other Planned Retailers <sup>1</sup>	<ul style="list-style-type: none"> <li>▪ Good parking facilities</li> <li>▪ Suitable business hours</li> <li>▪ Have a store loyalty card</li> <li>▪ Able to shop briefly</li> <li>▪ Attract male shoppers</li> <li>▪ Attract weekly routine shoppers</li> </ul>	
Unplanned Retailers	High Streets	None	<ul style="list-style-type: none"> <li>▪ Not willing to travel a further distance</li> </ul>
	Other Unplanned Retailers <sup>2</sup>	<ul style="list-style-type: none"> <li>▪ Near or nearest home</li> <li>▪ Have convenient location/ easy accessibility</li> <li>▪ Able to haggle over the price</li> <li>▪ Have lower prices</li> <li>▪ Have a habit</li> <li>▪ Attract larger household size shoppers</li> </ul>	<ul style="list-style-type: none"> <li>▪ Near or nearest home</li> <li>▪ Able to haggle over the price</li> <li>▪ Habit (e.g. I always go there)</li> <li>▪ No particular reason (e.g. I just like shopping there)</li> </ul>

Note: 1. Other planned retailers included convenience stores, supermarkets, hypermarkets, and other planned facilities.

2. Other unplanned retailers included wet markets, dusk markets, night markets, and other unplanned facilities.

## Chapter 7

# Longitudinal Changes in Shopping

# Destination Choice Behaviour in Taiwan

### 7.1 INTRODUCTION

This chapter aims to answer the stated question – ‘What are factors affecting changes in patronage behaviour over time?’ Changes in patronage behaviour might derive from external retailing systems, respondents themselves, or random (unexplained) factors. Based on the previous background analysis (for more details, see Chapter 3, Section 3.5.3), external factors could be identified as Makro Warehouse suddenly leaving, and Sing Kong Mitsukoshi Shopping Mall and Taiwan Sugar Mall entering the retailing system, and other changes, such as convenience stores, supermarkets, and other unplanned retailers entering or leaving during the interview period. The internal factors can be measured by respondents’ travelling distance, demographic and socio-economic characteristics, patronage considerations, and attitudes towards shopping. The following is intended to explain and identify the relationships between changes in patronage behaviour and influential factors.

As mentioned in Chapter 5, Section 5.2.1, the study obtained 386 respondents who agreed to participate in the survey twice. Based on these panel survey data, three sections are designed to answer the stated question. In the first section, the study investigates differences in interviewees’ responses in relation to major determinants

assumed to influence their shopping destination choice behaviour over time. Subsequently, based on convenience and comparison goods shopping trips' data, the study examines respondents' choice results between first and second round surveys, and then analyses the influence derived from changes in the retailing system. Further, according to choice results, the study probes into differences between steady and changed shoppers, utilising increased spatial separation distance, store selection criteria, attitudes towards shopping, and demographic and socio-economic attributes to analyse their characteristics.

## **7.2 CHANGES IN MAJOR DETERMINANTS OVER TIME**

Before discussing changes in shopping destination choice behaviour, it is essential to examine variations in interviewees' responses over time. If no differences are revealed, this seemingly infers respondents in the selected samples are consistent between the two surveys. In addition to attitudes towards shopping and situational factors, three other determinants are measured from the same individual at two points in time, namely, spatial environmental factors, store selection criteria, and demographic and socio-economic characteristics. Taking into account debates using attitude to measure behaviour (for more details, see Chapter 2, Section 2.3.5) and failure to predict consumers' convenience goods shopping behaviour in prior analysis (for more details, see Chapter 6, Sections 6.3.2 and 6.5.1), the study collected attitude statements only in the first round survey and assumed respondents' attitudes towards shopping remained unchanged during the remainder of the study period. Further, situational factors were designed to separate consumers' shopping trips into convenience and comparison goods in survey processes. Thus, the study will subsequently examine differences in spatial environmental factors, store selection criteria, and demographic and socio-

economic characteristics between first and second round surveys based on consumers' convenience and comparison goods shopping trips.

### 7.2.1 Differences in Spatial Environmental Factors

Here, the simple straight line distance was used to measure the spatial separation distance from individual households to shopping centres. Depending on respondents' shopping destination choice in the two surveys, the distance could increase or decrease. Table 7-1 presents descriptive statistics of spatial separation distance by shopping trip. Based on normal distribution properties, the study seemingly infers that 95 per cent of respondents would choose shopping centres within 7 km for their convenience goods shopping trips, and those within 10 km for their comparison goods shopping trips. The related  $t$  test was subsequently employed to compare the mean of spatial separation distance over time. According to Bryman and Cramer (2001: p.149), the advantage of using the related  $t$  test is the amount of error deriving from differences between respondents is reduced. Statistically, since  $t=1.591$ ,  $df=385$ ,  $p=0.112$  and  $t=-0.358$ ,  $df=385$ ,  $p=0.721$ , for convenience and comparison goods shopping trips, respectively, the result reveals the spatial separation distance mean between first and second round survey does not significantly differ. On average, respondents would be willing to travel about 3 km for their convenience goods shopping and up to 4 km for their comparison goods shopping.

**Table 7-1 Descriptive Statistics of Spatial Separation Distance**

Descriptive Statistic	Convenience Goods		Comparison Goods	
	First Round	Second Round	First Round	Second Round
Mean	3.08 km	2.92 km	3.90 km	3.96 km
Std. Deviation	2.08 km	2.06 km	2.97 km	2.99 km
95% Respondents Shopping within	7.16 km	6.96 km	9.72 km	9.82 km

### 7.2.2 Differences in Store Selection Criteria

Store selection criteria were designed to reveal reasons for patronising a particular shopping centre. According to Bryman and Cramer (2001: p.126), the McNemar test is suitable for comparing the frequencies of a dichotomous variable from the same cases at two points in time. Thus, the McNemar test was employed to examine differences in selected frequencies of each particular criterion over time. In terms of convenience goods shopping trips, of thirteen store selection criteria, the selected frequencies of wide selection and one stop shopping were found to significantly differ between the two surveys at the 0.05 significance level (see Table 7-2). In detail, 162 respondents considered wide selection a major reason to shop at a particular shopping centre in the first round survey, but this number decreased to 125 respondents in the second round survey. Similarly, the number of respondents considering one stop shopping a major reason for shopping at a shopping centre dropped from 91 in the first round survey to 67 over time.

In terms of comparison goods shopping trips, of the twenty-two store selection criteria, the selected frequencies of three were found to significantly differ between the two surveys at the 0.05 significance level, namely, wide selection, childcare facilities, and one stop shopping (see Table 7-2). In detail, 182 respondents considered wide selection a major reason to shop at a particular shopping centre in the first round survey

but this number decreased to 142 respondents in the second round survey. In contrast, respondents considering childcare facilities a major reason increased from 3 to 13, and those considering one stop shopping similarly increased, from 28 to 53 over time.

**Table 7-2 Store Selection Criteria with Significantly Different Selected Frequencies between First and Second Round Surveys**

Convenience Goods Shopping Trips		Comparison Goods Shopping Trips	
Criteria	McNemar Test	Criteria	McNemar Test
Wide Selection	Chi-Square <sup>†</sup> = 8.583; $p = 0.003$	Wide Selection	Chi-Square <sup>†</sup> = 9.627 $p = 0.002$
One Stop Shopping	Chi-Square <sup>†</sup> = 4.809; $p = 0.028$	Childcare Facilities	$P^2 = 0.013$
		One Stop Shopping	Chi-Square <sup>†</sup> = 6.877. $p = 0.009$

Note: 1. The one-sample chi-square test is used (Bryman and Cramer, 2001: p.127).

2. If fewer than twenty-six cases change from one sample to another, as happened here the binomial test is computed instead of the McNemar test (Bryman and Cramer, 2001: p.127).

In summary, respondents showed differences in some store selection criteria over time. This may have derived from inconsistent interpretations of the study questions, changes in perception or actual change in patronage behaviour from one shopping centre to another. Subsequent Sections 7.4 and 7.5 will examine differences in store selection criteria between steady and changed shoppers.



### **7.2.3 Differences in Demographic and Socio-economic Characteristics over Time**

Changes in demographic and socio-economic characteristics were discussed in Chapter 5, Section 5.2.3 (see Table 5-4). In brief, through chi-square and Phi (or Cramer's *V*) tests, the results showed that all variables did not significantly differ over time. In other words, the study suggested respondents'/households' demographic and socio-economic characteristics were similar between the two surveys.

## **7.3 FACTORS AFFECTING PATRONAGE BEHAVIOUR FOR CONVENIENCE**

### **GOODS SHOPPING TRIPS**

#### **7.3.1 Changes in Shopping Destination Choice**

As mentioned in Chapter 6, Section 6.2.1, shopping destination choice sets could be categorised into two and four categories based on the retailing hierarchy. In this section, taking into account the limitation of sample size, the author will analyse changes in shopping destination choice using two categories, unplanned and planned retailers. Reviewing changes in the retailing system, in addition to the Makro Warehouses suddenly leaving, the Taiwan Sugar Mall was the latest larger retailer to enter the market within the Tainan area during the study period (see more details in Chapter 3, Section 3.5.3). As a result of these changes, choice sets were modified in the second round survey to eliminate two Makro outlets and add one, Taiwan Sugar Mall. In the following, the study will examine whether the change in the retailing had influenced respondents' shopping destination choice.

Table 7-3 shows change in shopping destination choice for convenience goods shopping trips over time. Of 386 respondents, 261 (67.6 per cent) patronised unplanned retailers in the first round survey, and 270 (69.9 per cent) patronised unplanned retailers in the second round survey. The result seemingly suggests that 2.3 per cent of

respondents had switched to patronising unplanned retailers rather than planned retailers.

From Table 7-3, first and second round survey data indicate that of 261 unplanned retailer shoppers, 48 (18.4 per cent) had changed their shopping destinations to planned retailers. Of these, only one respondent had changed from wet markets in the first round survey to shop at the new shopping centre, Taiwan Sugar Mall in the second round survey. Notably, this respondent was the only sample attracted to the new shopping centre for convenience goods shopping trips. In contrast, of 125 planned retailer shoppers, 57 (45.6 per cent) had changed their shopping destinations to unplanned retailers. Of these increased shoppers, seven respondents (almost 13 per cent) were derived from fifteen original shoppers at the two closed Makro outlets.

**Table 7-3 Changes in Shopping Destination Choice for Convenience Goods Shopping Trips over Time**

Cross Tabulation			Second Round		
			Unplanned Retailers	Planned Retailers	Total
First Round	Unplanned Retailers	Count	213	48	261
		% within First Round	81.6%	<b>18.4%</b>	100%
		% within Second Round	78.9%	41.4%	67.6%
	Planned Retailers	Count	57	68	125
		% within First Round	<b>45.6%</b>	54.4%	100%
		% within Second Round	21.1%	58.6%	32.4%
	Total	Count	270	116	386
		% within First Count	69.9%	30.1%	100%
		% within Second Round	100%	100%	100%

However, when changing retailing systems, do respondents change their shopping destination choice? Statistically, based on the two choice set categories, the study found no significant change in respondents' shopping destination choice between first and second round surveys. First, Pearson's chi-square ( $X^2$ ) was employed to test the null hypothesis: there will be a significant difference in respondents' shopping destination choice between first and second round surveys. Since  $X^2=52.137$ ,  $df=1$ ,  $p=0.000$ , the study seemingly rejected the null hypothesis at the five per cent significance level and further inferred that a respondent's shopping destination choice in the first round survey was more likely to influence his/her choice in the following survey. Further, *Phi* ( $\phi$ ) (or *Cramer's V*) was utilised, in different ways, to measure the strength of the association between these two choice results. According to Bryman and Cramer (2001: p.168), if both variables are nominal (like a 2x2 cross tabulation in Table 7-5), *Phi* is the appropriate statistic to use in the symmetric measure table, and for larger cross tabulations (like a 3x3 cross tabulation), *Cramer's V* is the appropriate statistic. Morgan et al. (2001: p.94) indicated that if the association between variables is weak, the value of the statistic will be close to zero (usually  $<0.20$ ), and the significance level (sig. or  $p$ ) will be greater than 0.05, which is the usual cutoff to signify an association is statistically significant. In the present study, since *Phi*=0.368,  $p=0.000$ , the result seemingly inferred that the strength of the association between the two choice results was statistically significant and the effect was medium to large (see Morgan et al., 2001: p.82).

In terms of the McNemar test, since  $p=0.435$ , the result rejected the null hypothesis, inferring there was no significant change in frequencies of respondents' choice, either in relation to unplanned or planned retailers over time. In other words, it could be concluded that although choice sets were adjusted as a result of Makro leaving

and Taiwan Sugar Mall entering the retailing system, respondents were more likely to continue to patronise their most frequently shopped shopping centres.

Based on Table 7-3 results, the study can categorise all respondents into four groups, namely, steady unplanned retailer shoppers, changed-to-unplanned retailer shoppers, changed-to-planned retailer shoppers, and steady planned retailer shoppers. Sequentially, the study will discuss differences in major influential factors between steady unplanned retailer and changed-to-planned retailer shoppers, and steady planned retailer and changed-to-unplanned retailer shoppers, respectively. The following sections will present the details.

### **7.3.2 Differences between Steady Unplanned Retailer and Changed-to-Planned Retailer Shoppers**

Of 261 unplanned retailer shoppers in the first round survey, 213 (81.60 per cent) remained steady patronising unplanned retailers, whereas 48 (18.40 per cent) had changed to shop at planned retailers in the second round survey. The former are named steady unplanned retailer shoppers, and the latter are called changed-to-planned retailer shoppers. In this present section, four major determinants, namely, spatial environmental factors, store selection criteria, attitudes towards shopping, and demographic and socio-economic characteristics, are used to explain differences between steady unplanned retailer and changed-to-planned shoppers in turn.

In terms of spatial environmental factors, a new variable, increased spatial separation distance, was measured through estimating the difference between straight line distances from individual households to shopping centres between the first and second round surveys. On average, the mean of increased spatial separation distance of steady unplanned retailer shoppers was close to zero, -0.009 km; in contrast, the

mean of changed-to-planned retailer shoppers was 1.37 km. A *t* test was employed to examine the difference between steady unplanned retailer and changed-to-planned retailer shoppers. Table 7-4 shows the result of *t* test. Since the Levene's *F* test result is significant (the significant level of *F* test less than 0.05, i.e.  $F=71.545$  and  $p=0.000$ ), the assumption that variances between the two groups are equal is rejected. The output of the *t* test ( $t = -3.433$ ,  $df = 49$ , and  $p = 0.001$ ) was selected to test differences in increased spatial distance between steady unplanned retailer and changed-to-planned retailer shoppers. Because this *t* test was statistically significant, the result seemingly inferred that changed-to-planned retailer shoppers needed to travel an additional 1.46 km more than steady unplanned retailer shoppers.

**Table 7-4 Differences in Increased Spatial Separation Distance**

	Levene Test		<i>t</i> -test			Mean Difference
	for Equality of variances		for Equality of Means			
	<i>F</i>	Sig.	<i>t</i>	Df	Sig.	
Equal variances assumed	71.545	0.000	-6.085	259	0.000	-1.46 km
Equal variances not assumed			-3.433	49.2	0.001	-1.46 km

In terms of demographic and socio-economic characteristics, fifteen variables were examined, namely, gender, age, marital status, educational level, employment status, personal income, household size, the occupation of the head of the household, household income, number of cars/motorbikes, housing tenure, residential duration, and type of house. Taking into account variable attributes, two statistical tests were employed to examine the differences between steady unplanned retailer and changed-to-planned retailer shoppers, a *t* test for non-categorical variables, and Pearson's chi-square ( $\chi^2$ ) and Phi (or Cramer's *V*) for categorical variables. Table 7-5 shows the

outcome of *t* tests, seemingly implying that only two variables (shown in bold type in Table 7-5), age and residential duration, were significant at the 0.05 significance level. On average, steady unplanned retailer and changed-to-planned retailer shoppers were 44.56 years old and 38.02 years old, respectively. Age difference between the two groups was 6.54 years, seemingly suggesting that steady unplanned retailer shoppers were, on average, 6.54 years older than changed-to-planned retailer shoppers. Further, the mean of residential duration of steady unplanned retailer and changed-to-planned retailer shoppers was 14.67 years and 11.41 years, respectively. The difference between the two groups was 3.27 years, seemingly inferring that steady unplanned retailer shoppers had lived 3.27 years longer in their residential areas than changed-to-planned retailer shoppers.

**Table 7-5 Differences in Non-categorical Demographic and Socio-economic Variables**

Variables	Mean		<i>t</i> Test
	Steady Unplanned Retailer Shoppers	Changed-to-Planned Retailer Shoppers	
<b>Age</b>	<b>44.56</b>	<b>38.02</b>	<b>Equal Variance; <math>t(259)=4.164, p=0.000^{**}</math></b>
Household Size	4.66	4.21	Equal Variance; $t(259)=1.568, p=0.118$
Number of Cars	1.24	1.02	Equal Variance; $t(259)=1.777, p=0.077^*$
Number of Motorbikes	2.3	2.1	Equal Variance; $t(259)=1.000, p=0.318$
<b>Residential Duration</b>	<b>14.67</b>	<b>11.41</b>	<b>Unequal Variance; <math>t(91)=2.560, p=0.012^{**}</math></b>

Note:  $^{**} p \leq 0.05$ ;  $^* p \leq 0.10$

Table 7-6 shows the outcome of Chi-square and Phi (or Cramer's  $V$ ) tests. Based on the 0.05 significance level, five variables (shown in bold type in Table 7-6), namely, marital status, educational level, employment status, personal income, and type of house, were found to be significantly associated with the two groups. According to Morgan et al. (2001: p.94), if the Phi value (or Cramer's  $V$ ) is between 0.1 and 0.3, this means the associations between variables are of a small to medium effect. In this present study, the five variables' associations were therefore of a small to medium effect (i.e.  $0.1 \leq \text{Phi or Cramer's } V \leq 0.3$ ). Examining frequency distributions (for more details, see Appendix F, Tables F-1, F-2, F-3, F-4, and F-5), 14.5 per cent of 221 married respondents, 40.0 per cent of 40 single respondents, 5.6 per cent of 71 respondents with a low educational level, 17.2 per cent of 116 respondents with a middle educational level, 32.4 per cent of 74 highly educated respondents, 12.9 per cent of 124 unemployed respondents, 23.4 per cent of 137 employed respondents, 13.7 per cent of 73 respondents with no income, 9.6 per cent of 73 respondents with a low personal income, 28.3 per cent of 60 respondents with a middle personal income, 25.5 per cent of 55 respondents with a high personal income, 10.6 per cent of 94 respondents who lived in detached (or semi-detached) houses, 21.8 per cent of 110 respondents who lived in terraced houses, and 24.6 per cent of 57 respondents who lived in blocks of flats belonged to changed-to-planned retailer shoppers. Results thus seemingly suggested that respondents who were single, employed, with a higher educational level, middle to high personal income, lived in terraced house, or blocks of flats were more likely to belong to the changed-to-planned shoppers group than those who were married, unemployed, with a low to middle educational level, no or low personal income, or lived in detached (or semi-detached) houses.

**Table 7-6 Differences in Categorical Demographic and Socio-economic Variables**

Variables	Pearson's Chi-Square Test	Phi or Cramer's V Test
Gender <sup>1</sup>	$\chi^2(1)=1.878$ , $p=0.171$	Phi=-0.085, $p=1.710$
<b>Marital Status</b>	<b><math>\chi^2(1)=14.698</math></b> , <b><math>p=0.000^{**}</math></b>	<b>Phi =0.237, <math>p=0.000^{**}</math></b>
<b>Educational Level</b>	<b><math>\chi^2(2)=17.522</math></b> , <b><math>p=0.000^{**}</math></b>	<b>Cramer's V=0.259, <math>p=0.000^{**}</math></b>
<b>Employment Status</b>	<b><math>\chi^2(1)=4.740</math></b> , <b><math>p=0.029^{**}</math></b>	<b>Phi =0.135, <math>p=0.029^{**}</math></b>
<b>Personal Income</b>	<b><math>\chi^2(3)=10.619</math></b> , <b><math>p=0.014^{**}</math></b>	<b>Cramer's V=0.202, <math>p=0.014^{**}</math></b>
Has Pre-school Children	$\chi^2(1)=2.887$ , $p=0.089^*$	Phi=-0.105, $p=0.089^*$
Occupation of HoH	$\chi^2(4)=6.948$ , $p=0.139$	Cramer's V=0.163, $p=0.139$
Household Income <sup>2</sup>	$\chi^2(3)=0.871$ , $p=0.833$	Cramer's V=0.058, $p=0.833$
House Tenure	$\chi^2(1)=0.042$ , $p=0.838$	Phi=0.013, $p=0.838$
<b>Type of House</b>	<b><math>\chi^2(2)=6.071</math></b> , <b><math>p=0.048^{**}</math></b>	<b>Cramer's V=0.153, <math>p=0.048^{**}</math></b>

Note: **\*\***  $p \leq 0.05$ ; **\***  $p \leq 0.10$

1. 1 cell (25%) has expected count less than 5.
2. 1 cell (12.5%) has expected count less 5.

In terms of attitudes towards shopping, six attitude variables, namely, well-known brand followers, weekly routine shoppers, shopping associated with social activities, fervent shoppers, price hunters, and impulse buyers, were used to analyse the differences between steady unplanned retailer and changed-to-planned retailer shoppers by way of a *t* test. Table 7-7 shows the output of *t* tests, indicating that no attitude variables significantly differed between the two groups, seemingly inferring they did not influence changes in shoppers' convenience goods' patronage behaviour.



**Table 7-7 Differences in Attitude towards Shopping**

Variable	Mean		t Test
	Steady Unplanned Retailer Shoppers	Changed-to- Planned Retailer Shoppers	
Well-known Brand Followers	-0.105	-0.001	Equal Variance, $t(259)=-0.664$ , $p=0.507$
Weekly Routine Shoppers	-0.119	0.023	Equal Variance, $t(259)=-0.865$ , $p=0.388$
Shopping with Social Activities	-0.092	0.130	Equal Variance, $t(259)=-1.381$ , $p=0.169$
Fervent Shoppers	-0.042	0.043	Equal Variance, $t(259)=-0.537$ , $p=0.591$
Price Hunters	-0.001	0.032	Equal Variance, $t(259)=-0.205$ , $p=0.838$
Impulse Buyers	0.009	0.015	Equal Variance, $t(259)=-0.034$ , $p=0.973$

Note: \*\*  $p \leq 0.05$ ; \*  $p \leq 0.10$

In terms of store selection criteria, thirteen criteria were examined, namely, near or nearest home, convenient location, good parking facilities, wide selection, fresh products, allocation of products, lower prices, able to haggle over the price, good consumer services, store loyalty card/promotion/coupons, business hours, habit, and one stop shopping. Here, the McNemar test was employed to examine differences in the frequency distribution between the two groups over time. Table 7-8 shows significant variables, in other words, the importance respondents attached to them for patronising a particular shopping centre differed between first and second round surveys. Through examining these frequency distributions (for more details, see Appendix F, Tables F-6, F-7, F-8, F-9, F-10, F-11, and F-12), changed-to-planned retailer shoppers were more concerned about good parking facilities, business hours, and store loyalty card/promotion/coupons and less concerned about fresh products and able to haggle

over the price. On the other hand, steady unplanned retailer shoppers were less concerned about wide selection and one stop shopping.

**Table 7-8 Significant Differences in Store Selection Criteria between First and Second Round Surveys**

Steady Unplanned Retailer Shoppers		Changed-to-Planned Retailer Shoppers	
Criteria	McNemar Test	Criteria	McNemar Test
Wide Selection	Chi-Square <sup>1</sup> = 5.333; $p = 0.021$	Good Parking Facilities	$P^2 = 0.000$
One Stop Shopping	Chi-Square <sup>1</sup> = 4.170; $p = 0.041$	Fresh Products	$P^2 = 0.017$
		Able to haggle over the Price	$P^2 = 0.031$
		Store Loyalty	$P^2 = 0.008$
		Card/Promotion/Coupons	
		Business Hours	$P^2 = 0.004$

Note: 1. The one-sample chi-square test is used (Bryman and Cramer, 2001: p.127).

2. If fewer than twenty-six cases change from one sample to another, as happened here,

the binomial test is computed instead of the McNemar test (Bryman and Cramer, 2001: p.127).

### 7.3.3 Differences between Steady Planned Retailer and Changed-to-Unplanned

#### Retailer Shoppers

Of 125 planned retailer shoppers in the first round survey, 68 (54.40 per cent) remained steady patronising planned retailers, whereas 57 (45.60 per cent) had changed to shop at unplanned retailers in the second round survey. The former are named steady planned retailer shoppers, and the latter are called changed-to-unplanned retailer shoppers. Four major determinants, namely, spatial environmental factors, store selection criteria, attitudes towards shopping, and demographic and socio-economic characteristics, were used to explain differences between steady planned retailer and changed-to-unplanned retailer shoppers in turn.

In terms of spatial environmental factors, as previously mentioned, a new variable, increased spatial separation distance, was measured through estimating the difference between straight line distances from individual households to shopping centres between the first and second round surveys. On average, the mean of increased spatial separation distance of steady planned retailer shoppers was -0.37 km; in contrast, the mean of changed-to-unplanned retailer shoppers was -1.51 km. A *t* test was employed to examine the difference between steady planned retailer and changed-to-unplanned retailer shoppers. Table 7-9 presents the *t* test result which indicated that increased distance significantly differed between the two groups ( $t = 2.504$ ,  $df = 123$ , and  $p = 0.014$ ), seemingly inferring that changed-to-unplanned retailer shoppers had changed their shopping destination from planned to unplanned retailers due to shorter travel distance, reduced on average by 1.13 km per shopping trip.

**Table 7- 9 Differences in Increased Spatial Separation Distance**

Variables	Mean		t Test
	Steady Planned Retailer Shoppers	Changed-to-Unplanned Retailer Shoppers	
Increased Distance	-0.37 km	-1.51 km	Equal Variance: $t(123)=2.504, p=0.014^{**}$

Note:  $^{**} p \leq 0.05$ ;  $^{*} p \leq 0.10$

In terms of demographic and socio-economic characteristics, five non-categorical variables were examined by *t* tests. Table 7-10 shows the outcome of *t* tests, seemingly implying that no variable was significant at the 0.05 significance level, that is, all non-categorical demographic and socio-economic variables did not influence changed shopping behaviour between steady planned retailer and changed-to-unplanned retailer shoppers.

**Table 7-10 Differences in Non-categorical Demographic and Socio-economic Variables**

Variables	Mean		t Test
	Steady Planned Retailer Shoppers	Changed-to-Unplanned Retailer Shoppers	
Age	38.26	41.16	Equal Variance $t(122)=-1.633, p=0.105$
Household Size	4.10	4.65	Equal Variance $t(123)=-1.534, p=0.128$
Number of Cars	1.40	1.28	Equal Variance $t(123)=0.719, p=0.473$
Number of Motorbikes	2.38	2.05	Unequal Variance $t(123)=1.575, p=0.118$
Residential Duration	12.38	14.09	Equal Variance $t(123)=-0.878, p=0.382$

Note:  $^{**} p \leq 0.05$ ;  $^{*} p \leq 0.10$

Sequentially, Table 7-11 shows the outcomes of Chi-square and Phi (or Cramer's  $V$ ) tests. Based on the 0.05 significance level, five variables (shown in bold type in Table 7-11), namely, marital status, educational level, employment status, personal income and household income, were found to be significantly associated with the two groups. According to Morgan et al. (2001: p 94), all these variables' associations were of a small to medium effect (i.e.  $0.1 \leq \text{Phi or Cramer's } V \leq 0.3$ ), with the exception of household income which had a medium to large size effect (i.e.  $0.3 \leq \text{Phi or Cramer's } V \leq 0.5$ ).

Examining the proportion of frequency distributions (for more details, see Appendix F, Tables F-13, F-14, F-15, F-16, and F-17) 51.1 per cent of 92 married respondents, 30.3 per cent of 33 single respondents, 83.9 per cent of 9 respondents with a low educational level, 46.0 per cent of 50 respondents with a middle educational level, 39.4 per cent of 66 highly educated respondents, 60.6 per cent of 33 unemployed respondents, 40.22 per cent of 92 employed respondents, 42.9 per cent of 14 respondents with no income, 70.37 per cent of 27 respondents with a low personal income, 45.5 per cent of 33 respondents with a middle personal income, 33.3 per cent of 51 respondents with a high personal income, 61.5 per cent of 26 respondents with a low household income, 50.0 per cent of 46 respondents with a low-middle household income, 17.24 per cent of 29 respondents with a middle-high household income, and 54.17 per cent of 24 respondents with a high household income belonged to the changed-to-unplanned retailer shoppers category. The results seemingly suggested that married or unemployed respondents, with a low educational level, low personal income, or low, low-middle, or high household income were more likely to belong to the changed-to-unplanned shoppers group than those who were single, employed with a middle to high

educational level, no or middle to high personal income, or middle-high household income.

**Table 7-11 Differences in Categorical Demographic and Socio-economic Variables**

Variables	Pearson's Chi-Square Test	Phi or Cramer's V Test
Gender	$\chi^2(1)=0.368, p=0.544$	Phi=0.054, $p=0.544$
<b>Marital Status</b>	<b><math>\chi^2(1)=4.229, p=0.040^{**}</math></b>	<b>Phi=-0.184, <math>p=0.040^{**}</math></b>
<b>Educational Level</b>	<b><math>\chi^2(2)=7.817, p=0.020^{**}</math></b>	<b>Cramer's V=0.250, <math>p=0.020^{**}</math></b>
<b>Employment Status</b>	<b><math>\chi^2(1)=4.070, p=0.044^{**}</math></b>	<b>Phi=-0.180, <math>p=0.044^{**}</math></b>
<b>Personal Income</b>	<b><math>\chi^2(3)=9.815, p=0.020</math></b>	<b>Cramer's V=0.280, <math>p=0.020^{**}</math></b>
Has Pre-school Children	$\chi^2(1)=0.696, p=0.404$	Phi=0.075, $p=0.404$
Occupation of HoH	$\chi^2(4)=3.398, p=0.494$	Cramer's V=0.165, $p=0.494$
<b>Household Income</b>	<b><math>\chi^2(3)=13.133, p=0.004^{**}</math></b>	<b>Cramer's V=0.324, <math>p=0.004^{**}</math></b>
House Tenure	$\chi^2(1)=0.083, p=0.774$	Phi=0.020, $p=0.774$
Type of House	$\chi^2(2)=0.355, p=0.837$	Cramer's V=0.053, $p=0.837$

Note: **\*\***  $p \leq 0.05$ ; **\***  $p \leq 0.10$

In terms of attitudes towards shopping, six attitude variables, namely, well-known brand followers, weekly routine shoppers, shopping with social activities, fervent shoppers, price hunters, and impulse buyers, were used to examine the difference between steady planned retailer and changed-to-unplanned retailer shoppers by way of *t* tests. Table 7-12 shows the outputs. Since all *t* tests showed statistically insignificant differences, this seemingly inferred that attitude variables were unlikely to influence changes in shoppers' convenience goods' patronage behaviour.

**Table 7-12 Differences in Attitude towards Shopping**

Variables	Mean		t Test
	Steady Planned Retailer Shoppers	Changed-to-Unplanned Retailer Shoppers	
Well-known Brand Followers	0.128	0.099	Equal Variance, $t(123)=0.155, p=0.877$
Weekly Routine Shoppers	0.406	0.221	Equal Variance, $t(123)=1.088, p=0.279$
Shopping with Social Activities	0.075	0.169	Equal Variance, $t(123)=-0.629, p=0.531$
Fervent Shoppers	0.086	0.087	Equal Variance, $t(123)=-0.003, p=0.997$
Price Hunters	-0.083	-0.058	Equal Variance, $t(123)=-0.154, p=0.878$
Impulse Buyers	-0.011	-0.119	Equal Variance, $t(123)=0.609, p=0.543$

Note: \*\*  $p \leq 0.05$ ; \*  $p \leq 0.10$

In terms of store selection criteria, thirteen criteria were investigated, namely, near or nearest home, convenient location, good parking facilities, wide selection, fresh products, allocation of products, lower prices, able to haggle over the price, good consumer services, store loyalty card/promotion/coupons, business hours, habit, and one stop shopping. The McNemar test was employed to examine differences in their frequency distribution between the two groups over time. Table 7-13 shows significant variables, in other words, the importance respondents attached to them for patronising a particular shopping centre differed between first and second round surveys. Through examining their frequency distributions (for more details, see Appendix F, Tables F-18, F-19, F-20, F-21, F-22, and F-23), changed-to-unplanned retailer shoppers were more

concerned about habit, near or nearest home, and quality products, and less concerned about good parking facilities, one stop shopping, and store loyalty card/promotion/coupons. On the other hand, there were no significant differences in store selection criteria among steady unplanned retailer shoppers over time.

**Table 7-13 Significant Differences in Store Selection Criteria between First and Second Round Surveys**

Steady Planned Retailer Shoppers		Changed-to-Unplanned Shoppers	
Criteria	McNemar Test	Criteria	McNemar Test
None	None	Near or Nearest Home	$P^2 = 0.000$
		Good Parking Facilities	$P^2 = 0.003$
		Fresh Products	Chi-Square <sup>1</sup> =3.115 $P = 0.078$
		Store Loyalty	$P^2 = 0.021$
		Card/Promotion/Coupons	
		Habit	Chi-Square <sup>1</sup> =9.031 $P = 0.003$
		One Stop Shopping	$P^2 = 0.023$

Note: 1. The one-sample chi-square test is used (Bryman and Cramer, 2001, p.127).

2. If fewer than twenty-six cases change from one sample to another, as happened here, the binomial test is computed instead of the McNemar test (Bryman and Cramer, 2001, p.127).



## **7.4 FACTORS AFFECTING PATRONAGE BEHAVIOUR FOR COMPARISON GOODS SHOPPING TRIPS**

### **7.4.1 Changes in Shopping Destination Choice**

This section will analyse changes in shopping destination choice using two categories: unplanned and planned retailers. As noted above, as a result of changes in the retailing system, choice sets were modified in the second round survey to eliminate two Makro outlets and add the Taiwan Sugar Mall. The study subsequently examines whether these changes had influenced respondents' shopping destination choice.

Table 7-14 shows changes in shopping destination choice for comparison goods shopping trips. Of 386 respondents, 196 (50.8 per cent) patronised unplanned retailers in the first round survey, and 181 (46.9 per cent) patronised unplanned retailers in the second round survey. The 3.9 per cent decrease in patronage of unplanned retailers, seemingly suggests that more respondents switched to patronising planned retailers than unplanned retailers.

From Table 7-14, first and second round survey data indicate that of 196 unplanned retailer shoppers, 74 (37.8 per cent) had changed their shopping destinations to planned retailers. In detail, of these 74, three (4.29 per cent) had changed to shop at Taiwan Sugar Mall. In contrast, of 190 planned retailer shoppers in the first round survey, 59 (31.1 per cent) had changed to shop at unplanned retailers in the second round survey. Of these, four respondents (6.78 per cent) were derived from nine shoppers from two closed Makro outlets.

**Table 7-14 Changes in Shopping Destination Choice for Comparison Goods Shopping Trips over Time**

Cross Tabulation			Second Round		
			Unplanned Retailers	Planned Retailers	Total
First Round	Unplanned Retailers	Count	122	74	196
		% within First Round	62.2%	<b>37.8%</b>	100%
		% within Second Round	67.4%	36.1%	50.8%
	Planned Retailers	Count	59	131	190
		% within First Round	<b>31.1%</b>	68.9%	100%
		% within Second Round	32.6%	63.9%	49.2%
	Total	Count	181	205	386
		% within First Count	46.9%	53.1%	100%
		% within Second Round	100%	100%	100%

Statistically, no significant changes were found in respondents' shopping destination choice between first and second round surveys. Based on cross tabulation between first and second round survey data, the results were  $\chi^2=37.693$ ,  $df=1$ ,  $p=0.000$ , seemingly rejecting the null hypothesis (there are no differences in respondents' shopping destination choice between first and second round surveys) and inferring that a respondent's shopping destination choice in first round interviews would likely influence his/her choice in the second round survey. Moreover, the  $Phi=0.312$ ,  $p=0.000$  result infers the association between the twice choice set results was statistically significant and a medium to large effect was revealed. Finally, the McNemar test revealed no significant difference in the number of respondents choosing unplanned and planned retailers between first and second round surveys, at the  $p=0.225$  significance level. It could thus be concluded that although choice sets were adjusted by Makro leaving and Taiwan Sugar Mall entering the retailing system this change did not

statistically significantly influence respondents' last shopping destination choice at the 0.05 significance level.

Based on Table 7-14 results, the study categorised all respondents into four groups, namely, steady unplanned retailer shoppers, changed-to-unplanned retailer shoppers, changed-to-planned retailer shoppers, and steady planned retailer shoppers. Sequentially, the study will discuss major influential differences between steady unplanned retailer and changed-to-planned retailer shoppers, and steady planned retailer and changed-to-unplanned retailer shoppers, respectively. The following sections will present the details.

#### **7.4.2 Differences between Steady Unplanned Retailer and Changed-to-Planned Retailer Shoppers**

Of 196 unplanned retailer shoppers in the first round survey, 122 (62.20 per cent) remained steadily patronising unplanned retailers, whereas 74 (37.80 per cent) had changed to shop at planned retailers in the second round survey. The former are named steady unplanned retailer shoppers, and the latter are called changed-to-planned retailer shoppers. In this section, four major determinants, namely, spatial environmental factors, store selection criteria, attitudes towards shopping, and demographic and socio-economic characteristics, are used to analyse differences between steady unchanged retailer and changed-to-planned shoppers.

In terms of spatial environmental factors, as noted above, a new variable, increased spatial separation distance, was measured through estimating the difference between straight line distances from individual households to shopping centres between the first and second round surveys. On average, the mean of increased spatial separation distance of steady unplanned retailer shoppers was -0.35 km; in contrast, the

mean of changed-to-planned retailer shoppers was 2.23 km. A *t* test was employed to examine the difference between steady unplanned retailer and changed-to-planned retailer shoppers. Table 7-15 shows the result of the *t* test. Since Levene's test showed a significant unequal variance between the two groups, and the outcome of  $t = -5.209$ ,  $df = 112$ , and  $p = 0.000$  was statistically significant, the result seemingly inferred that changed-to-planned retailer shoppers needed to travel 2.58 km more than steady unplanned retailer shoppers.

**Table 7- 15 Differences in Increased Spatial Separation Distance**

Variables	Mean		<i>t</i> Test
	Steady Unplanned Retailer Shoppers	Changed-to-Planned Retailer Shoppers	
Increased Distance	-0.35 km	2.23 km	Unequal Variance: $t(112)=-5.209$ , $p=0.000^{**}$

Note: \*\*  $p \leq 0.05$ ; \*  $p \leq 0.10$

In terms of demographic and socio-economic characteristics, fifteen variables were used to explain the differences between steady unplanned retailer and changed-to-planned retailer shoppers by way of a *t* test for non-categorical variables, and Pearson's chi-square ( $\chi^2$ ) and Phi (or Cramer's *V*) for categorical variables. Table 7-16 shows the outcome of *t* tests, seemingly implying that only two variables (shown in bold type in Table 7-16), age and residential duration, were significant at the 0.05 significance level. On average, steady unplanned retailer and changed-to-planned retailer shoppers were 44.92 years old and 40.18 years old, respectively. The difference between the two groups was 4.74 years, seemingly suggesting that steady unplanned retailer shoppers were, on average, 4.74 years older than changed-to-planned retailer shoppers. Further,

the mean of residential duration of steady unplanned retailer shoppers was 16.49 years and the mean of changed-to-planned retailer shoppers was 13.12 years. The difference between the two groups was 3.37 years, seemingly inferring that steady unplanned retailer shoppers had lived 3.37 years longer in their residential areas than changed-to-planned retailer shoppers.

**Table 7-16 Differences in Non-categorical Demographic and Socio-economic Variables**

Variables	Mean		t Test
	Steady Unplanned Retailer Shoppers	Changed-to-Planned Retailer Shoppers	
<b>Age</b>	<b>44.92</b>	<b>40.18</b>	Unequal Variance; $t(130)=2.905, p=0.004^{**}$
Household Size	4.80	4.51	Equal Variance; $t(194)=0.976, p=0.330$
Number of Cars	1.20	1.07	Unequal Variance; $t(190)=1.330, p=0.185$
Number of Motorbikes	2.27	2.35	Equal Variance; $t(194)=-0.479, p=0.633$
<b>Residential Duration</b>	<b>16.49</b>	<b>13.12</b>	<b>Equal Variance; <math>t(194)=2.236, p=0.027^{**}</math></b>

Note:  $^{**} p \leq 0.05$ ;  $^* p \leq 0.10$

Table 7-17 shows the outcomes of Chi-square and Phi (or Cramer's  $V$ ) tests. Based on the 0.05 significance level, four variables (in bold type in Table 7-19), namely, marital status, educational level, personal income and household income, were found to be significantly associated with the two groups. According to Morgan et al. (2001: p.94), all these variables' associations were of a small to medium effect (i.e.  $0.1 \leq \text{Phi or Cramer's } V \leq 0.3$ ), with the exception of educational level which had a medium to large effect (i.e.  $0.3 \leq \text{Phi or Cramer's } V \leq 0.5$ ). Examining the frequency distributions (for

more details, see Appendix F, Tables F-24, F-25, F-26, and F-27). 33.13 per cent of 160 married respondents, 58.83 per cent of 36 single respondents, 14.55 per cent of 55 respondents with a low educational level, 38.46 per cent of 91 respondents with a middle educational level, 62.00 per cent of 50 highly educated respondents, 18.87 per cent of 53 respondents with no income, 43.08 per cent of 65 respondents with a low personal income, 31.58 per cent of 38 respondents with a middle personal income, 60.00 per cent of 40 respondents with a high personal income, 30.51 per cent of 59 respondents with a low household income, 32.56 per cent of 86 respondents with a low-middle household income, 48.72 per cent of 39 respondents with a middle-high household income, and 75.00 per cent of 12 respondents with a high household income belonged to the changed-to-planned retailer shoppers category. The results seemingly suggested that single respondents, with a higher educational level, high personal income, or high household income were more likely to belong to the changed-to-planned shoppers group than married respondents, with a low to middle educational level, no or low to middle personal income, or low, low-middle, or middle-high household income.

**Table 7-17 Differences in Categorical Demographic and Socio-economic Variables**

Variables	Pearson's Chi-Square Test	Phi or Cramer's V Test
Gender	$X^2(1)=2.672, p=0.102$	Phi=0.117, $p=0.102$
<b>Marital Status</b>	<b><math>X^2(1)=7.946, p=0.005^{**}</math></b>	<b>Phi=0.201, <math>p=0.005^{**}</math></b>
<b>Educational Level</b>	<b><math>X^2(2)=25.133, p=0.000^{**}</math></b>	<b>Cramer's V=0.358, <math>p=0.000^{**}</math></b>
Employment Status	$X^2(1)=1.472, p=0.225$	Phi=0.087, $p=0.225$
<b>Personal Income</b>	<b><math>X^2(3)=17.867, p=0.000^{***}</math></b>	<b>Cramer's V=0.302, <math>p=0.000^{**}</math></b>
Has Pre-school Children	$X^2(1)=0.606, p=0.436$	Phi=0.056, $p=0.436$
Occupation of HoH	$X^2(4)=8.579, p=0.073$	Cramer's V=0.209, $p=0.073$
<b>Household Income</b>	<b><math>X^2(3)=11.385, p=0.010</math></b>	<b>Cramer's V=0.241, <math>p=0.010^{**}</math></b>
House Tenure	$X^2(1)=1.509, p=0.219$	Phi=0.088, $p=0.219$
Type of House	$X^2(2)=1.226, p=0.542$	Cramer's V=0.079, $p=0.542$

Note: **\*\***  $p \leq 0.05$ ; **\***  $p \leq 0.10$

In terms of attitudes towards shopping, six attitude variables, namely, well-known brand followers, weekly routine shoppers, shopping with social activities, fervent shoppers, price hunters, and impulse buyers, were used to analyse the differences between steady unplanned retailer and changed-to-planned retailer shoppers by way of *t* tests. Table 7-18 presents the outputs, seemingly inferring that two attitude variables (shown in bold type in Table 7-18), well-known brand followers and weekly routine shoppers, significantly differed between the two groups. Examining mean scores, steady unplanned retailer shoppers were unlikely to be well-known brand shoppers and weekly routine shoppers since these attitude variables' mean scores were -0.331 and -0.209, respectively. In contrast, changed-to-planned retailer shoppers were more likely to be well-known brand shoppers and weekly routine shoppers since their mean scores were -0.028 and 0.200, respectively. In other words, attitude variables were likely to influence changes in shoppers' comparison goods' patronage behaviour.

**Table 7-18 Differences in Attitude towards Shopping**

Variables	Mean		<i>t</i> Test
	Steady Unplanned Retailer Shoppers	Changed-to-Planned Retailer Shoppers	
<b>Well-known Brand Followers</b>	<b>-0.331</b>	<b>-0.028</b>	Equal Variance; $t(194)=-2.257, p=0.025^{**}$
<b>Weekly Routine Shoppers</b>	<b>-0.209</b>	<b>0.200</b>	Equal Variance; $t(194)=-2.663, p=0.008^{**}$
Shopping with Social Activities	-0.027	0.006	Equal Variance; $t(194)=-1.900, p=0.059$
Fervent Shoppers	-0.049	-0.156	Equal Variance; $t(194)=0.759, p=0.449$
Price Hunters	0.161	0.105	Equal Variance; $t(194)=0.374, p=0.709$
Impulse Buyers	0.036	-0.110	Equal Variance; $t(194)=1.059, p=0.291$

Note: **\*\***  $p \leq 0.05$ ; **\***  $p \leq 0.10$

In terms of store selection criteria, twenty-two criteria were investigated, namely, near or nearest home, convenient location, good parking facilities, wide selection, appearance/style, quality products, store atmosphere, advantageous special offers, favourite brands, lower prices, able to haggle over the price, good consumer services, childcare facilities, restaurants/cafes in the same area, store loyalty card scheme, business hours, newly opened stores, habit, lots of novelties, no particular reason, one stop shopping, and for a day out. Here, the McNemar test was employed to examine differences in their frequency distributions between the two groups over time. Table 7-19 presents significant variables, in other words, the importance respondents attached to them for patronising a particular shopping centre differed between first and second round surveys. Examining their frequency distributions (for more details see Appendix F, Tables F-28, F-29, F-30, F-31, F-32, F-33, F-34, and F-35), changed-to-planned retailer shoppers were more concerned about advantageous special offers, quality products, good parking facilities, favourite brands, and store atmosphere and less concerned about able to haggle over the price, near or nearest home, and lower prices. On the other hand, there were no significant differences in store selection criteria among steady unplanned retailer shoppers over time.



**Table 7-19 Significant Differences in Store Selection Criteria between First and Second Round Surveys**

Steady Unplanned Retailer Shoppers		Changed-to-Planned Shoppers	
Criteria	McNemar Test	Criteria	McNemar Test
None	None	Near or Nearest Home	Chi-Square <sup>1</sup> =4.694 $P = 0.030$
		Good Parking Facilities	Chi-Square <sup>1</sup> =12.121 $P = 0.000$
		Quality Products	$P^2 = 0.037$
		Store Atmosphere	$P^2 = 0.039$
		Advantageous Special Offers	Chi-Square <sup>1</sup> =17.455 $P = 0.000$
		Favourite Brands	$P^2 = 0.019$
		Lower Prices	$P^2 = 0.007$
		Able to haggle over the price	$P^2 = 0.000$

Note: 1. The one-sample chi-square test is used (Bryman and Cramer, 2001; p.127).

2. If fewer than twenty-six cases change from one sample to another, as happened here,

the binomial test is computed instead of the McNemar test (Bryman and Cramer, 2001; p.127).

### 7.4.3 Differences between Steady Planned Retailer and Changed-to-Unplanned Retailer Shoppers

Of 190 unplanned retailer shoppers in the first round survey, 131 (68.90 per cent) remained steadily patronising planned retailers, whereas 59 (31.10 per cent) had changed to shop at unplanned retailers in the second round survey. The former are named steady planned retailer shoppers, and the latter are called changed-to-unplanned retailer shoppers. In this section, four major determinants, namely, spatial environmental factors, store selection criteria, attitudes towards shopping, and demographic and socio-economic characteristics, are used to analyse differences between steady unchanged retailer and changed-to-planned shoppers.

In terms of spatial environmental factors, a new variable, increased spatial separation distance, was measured by estimating the difference between straight line distances from individual households to shopping centres between the first and second round surveys. On average, the mean of increased spatial separation distance of steady planned retailer shoppers was close to zero, 0.008 km; in contrast, the mean of changed-to-unplanned retailer shoppers was -1.71 km. A *t* test was employed to examine the difference between steady planned retailer and changed-to-unplanned retailer shoppers. Table 7-20 shows the result of the *t* tests. Since Levene's *F* test showed a significantly unequal variance between the two groups, and the outcome of  $t = 3.140$ ,  $df = 68$ , and  $p = 0.003$  was statistically significant, the results seemingly inferred that changed-to-unplanned retailer shoppers travelled a shorter distance, 1.72 km less than steady planned retailer shoppers.

**Table 7-20 Differences in Increased Spatial Separation Distance**

Variables	Mean		<i>t</i> Test
	Steady Planned Retailer Shoppers	Changed-to-Unplanned Retailer Shoppers	
Increased Distance	0.008 km	-1.71 km	Unequal Variance $t(68)=3.140, p=0.003^{**}$

Note: \*\*  $p \leq 0.05$ ; \*  $p \leq 0.10$

In terms of demographic and socio-economic characteristics, fifteen variables were used to explain the differences between the two groups by way of the *t* test for non-categorical variables, and Pearson's Chi-square ( $\chi^2$ ) and Phi (or Cramer's *V*) for categorical variables. Table 7-21 shows the outcome of *t* tests, seemingly implying that only one variable (shown in bold type in Table 7-21), number of motorbikes, was

significant at the 0.05 significance level. On average, 2.06 and 2.47 motorbikes were owned by steady planned retailer and changed-to-unplanned retailer shoppers, respectively, seemingly implying that the number of motorbikes owned by steady planned retailer shoppers was less than that owned by changed-to-unplanned retailer shoppers.

**Table 7-21 Differences in Non-categorical Demographic and Socio-economic Variables**

Variables	Mean		t Test
	Steady Planned Retailer Shoppers	Changed-to-Unplanned Retailer Shoppers	
Age	40.97	41.51	Equal Variance, $t(188)=-0.359, p=0.720$
Household Size	4.28	4.37	Equal Variance, $t(188)=-0.338, p=0.736$
Number of Cars	1.38	1.29	Equal Variance, $t(188)=0.649, p=0.517$
<b>Number of Motorbikes</b>	<b>2.08</b>	<b>2.47</b>	<b>Equal Variance, <math>t(188)=-2.052, p=0.042^{**}</math></b>
Residential Duration	12.27	12.33	Equal Variance, $t(188)=-0.039, p=0.969$

Note: \*\*  $p \leq 0.05$ ; \*  $p \leq 0.10$

Table 7-22 shows the results of Chi-square and Phi (or Cramer's  $V$ ) tests. Based on the 0.05 significance level, three variables (shown in bold type in Table 7-22), namely, educational level, personal income, and household income, were found to be significantly associated with the two groups. According to Morgan et al. (2001: p.94), all three variables' association were of a small to medium effect (i.e.  $0.1 \leq \text{Phi or Cramer's } V \leq 0.3$ ). Examining the frequency distributions (for more details, see Appendix F, Tables F-36, F-37, and F-38), 52.00 per cent of 25 respondents with a low educational level, 34.47 per cent of 75 respondents with a middle educational level, 22.22 per cent of 90

highly educated respondents, 38.24 per cent of 34 respondents with no income, 54.29 per cent of 35 respondents with a low personal income, 22.45 per cent of 55 respondents with a middle personal income, 19.70 per cent of 66 respondents with a high personal income, 48.94 per cent of 47 respondents with a low household income, 27.87 per cent of 61 respondents with a low-middle household income, 30.61 per cent of 49 respondents with a middle-high household income, and 12.12 per cent of 33 respondents with a high household income belonged to the changed-to-unplanned retailer shoppers category. The results seemingly suggested that respondents with a low educational level, low personal income, and low household income were more likely to belong to the changed-to-unplanned shoppers group than those with middle to high educational level, no or middle to high personal income, or low-middle, middle-high, or high household income.

**Table 7-22 Differences in Categorical Demographic and Socio-economic Variables**

Variables	Pearson's Chi-Square Test	Phi & Cramer's V Test
Gender	$X^2(1)=2.720, p=0.099^*$	$\Phi=0.120, p=0.099^*$
Marital Status	$X^2(1)=0.038, p=0.846$	$\Phi=0.014, p=0.846$
<b>Educational Level</b>	<b><math>X^2(2)=8.859, p=0.012^{**}</math></b>	<b>Cramer's V=0.216, p=0.012^{**}</b>
Employment Status	$X^2(1)=0.140, p=0.709$	$\Phi=0.027, p=0.709$
<b>Personal Income</b>	<b><math>X^2(3)=14.423, p=0.002^{**}</math></b>	<b>Cramer's V=0.276, p=0.002^{**}</b>
Has Pre-school Children	$X^2(1)=0.139, p=0.709$	$\Phi=0.027, p=0.709$
Occupation of HoH	$X^2(4)=1.086, p=0.896$	Cramer's V=0.076, p=0.896
<b>Household Income</b>	<b><math>X^2(3)=12.838, p=0.005^{**}</math></b>	<b>Cramer's V=0.260, p=0.005^{**}</b>
House Tenure	$X^2(1)=2.388, p=0.122$	$\Phi=0.112, p=0.122$
Type of House	$X^2(2)=0.573, p=0.751$	Cramer's V=0.055, p=0.751

Note: \*\*  $p \leq 0.05$ ; \*  $p \leq 0.10$

In terms of attitudes towards shopping, six attitude variables, namely, well-known brand followers, weekly routine shoppers, shopping with social activities, fervent

shoppers, price hunters, and impulse buyers, were used to examine the differences between steady planned retailer and changed-to-unplanned retailer shoppers by way of *t* tests. Table 7-23 shows the output of *t* tests, seemingly inferring that of six attribute variables, only one, well-known brand followers (shown in bold type in Table 7-23), statistically significantly differed between the two groups. Steady planned retailer shoppers had a positive mean score of 0.289 for this variable, suggesting they were more likely to be well-known brand followers. In contrast, changed-to-unplanned retailer shoppers had a negative mean score of -0.059 for this variable, inferring they were unlikely to be well-known brand followers. The result implied attitudes likely influenced changes in shoppers' comparison goods' patronage behaviour.

**Table 7-23 Differences in Attitude towards Shopping**

Variables	Mean		<i>t</i> Test
	Steady Planned Retailer Shoppers	Changed-to-Unplanned Retailer Shoppers	
<b>Well-known Brand Followers</b>	<b>0.289</b>	<b>-0.059</b>	Unequal Variance, $t(145)=2.427, p=0.016^{**}$
Weekly Routine Shoppers	0.086	0.262	Equal Variance, $t(186)=-1.168, p=0.244$
Shopping with Social Activities	0.191	0.150	Equal Variance, $t(190)=0.292, p=0.771$
Fervent Shoppers	0.181	-0.038	Equal Variance, $t(182)=1.452, p=0.148$
Price Hunters	-0.247	-0.046	Equal Variance, $t(184)=-1.072, p=0.172$
Impulse Buyers	0.014	-0.049	Equal Variance, $t(183)=0.378, p=0.706$

Note: \*\*  $p \leq 0.05$ ; \*  $p \leq 0.10$

In terms of store selection criteria, twenty-two criteria, namely, near or nearest home, convenient location, good parking facilities, wide selection, appearance/style, quality products, store atmosphere, advantageous special offers, favourite brands, lower prices, able to haggle over the price, good consumer services, childcare facilities, restaurants/cafes in the same area, store loyalty card scheme, business hours, newly opened stores, habit, lots of novelties, no particular reason, one-stop shopping, and for a day out, were examined to identify differences in their frequency distributions between the two groups over time employing the McNemar test. Table 7-24 shows significant criteria, that is, the importance respondents attached to them for patronising a particular shopping centre differed between first and second round surveys. Examining their frequency distributions (for more details, see Appendix F, Tables F-38, F-40, F-41, F-42, F-43, F-44, F-45, F-46, F-47, F-48, F-49, F-50, F-51, and F-52), changed-to-unplanned retailer shoppers were more concerned about near or nearest home, convenient location, lower prices, able to haggle over the price, and habit, and less concerned about good parking facilities, wide selection, quality products, one-stop shopping, store loyalty card, advantageous special offers, and newly opened stores. On the other hand, steady planned retailer shoppers were less concerned about wide selection and one-stop shopping.

**Table 7-24 Significant Difference in Store Selection Criteria between First and Second Round Surveys**

Steady Planned Retailer Shoppers		Changed-to-Unplanned Shoppers	
Criteria	McNemar Test	Criteria	McNemar Test
Wide Selection	Chi-Square <sup>1</sup> =6.353	Near or Nearest	Chi-Square <sup>1</sup> =24.300
	$p = 0.012$	Home	$p = 0.000$
One Stop Shopping	Chi-Square <sup>1</sup> = 8.308	Convenient	Chi-Square <sup>1</sup> =5.333
	$p = 0.004$	Location	$p = 0.021$
		Good Parking	Chi-Square <sup>1</sup> =8.654
		Facilities	$p = 0.003$
		Wide Selection	Chi-Square <sup>1</sup> =4.966
			$p = 0.026$
		Quality Products	$P^2 = 0.000$
		Advantageous	$P^2 = 0.049$
		Special Offers	
		Lower Prices	$P^2 = 0.007$
		Able to Haggle over the Price	$P^2 = 0.002$
		Store Loyalty Card	$P^2 = 0.002$
Newly Opened Stores			$P^2 = 0.039$
		Habit	Chi-Square <sup>1</sup> =4.654
			$p = 0.031$
		One Stop Shopping	$P^2 = 0.013$

Note: 1. The one-sample chi-square test is used (Bryman and Cramer, 2001: p.127).

2. If fewer than twenty-six cases change from one sample to another, as happened here, the binomial test is computed instead of the McNamer test (Bryman and Cramer, 2001: p.127).

## 7.6 CHAPTER SUMMARY

Factors affecting changes in patronage behaviour over time have been examined in this chapter. To consider the influence derived from changes in the retailing system, especially Makro leaving and Taiwan Sugar Mall entering, the study examined differences in respondents' choices between first and second round surveys based on two choice set categories and found consumers' patronage behaviour overall did not statistically significantly differ over time. Thus, based on the panel survey data, the study could not find sufficient evidence to indicate that the new type of retail development, Taiwan Sugar Mall, had had a significant impact on unplanned retailers (e.g. traditional retail markets or high streets).

Further, examining changes in interviewees' responses to major determinants between first and second round surveys, the study found no statistically significant difference in respect of spatial separation distance and demographic and socio-economic attributes. Only two (wide selection and one stop shopping) and three (wide selection, childcare facilities, and one stop shopping) store selection criteria in convenience goods and comparison goods shopping trips, respectively, presented significant differences in their frequency distributions over time.

According to choice results over time, four groups of shoppers were categorised, namely, steady unplanned retailer shoppers, changed-to-planned retailer shoppers, changed-to-unplanned retailer shoppers, and steady planned retailer shoppers. To investigate factors influencing changes in consumers' patronage behaviour, two pairs of shoppers were compared at a time. Table 7-25 summarises all explanatory factors influencing changes in patronage behaviour.



**Table 7-25 Explanatory Factors Influencing Changes in Patronage Behaviour**

Determinants	Convenience Goods Shopping Trips		Comparison Goods Shopping Trips	
	Changed-to-Planned Retailer Shoppers	Changed-to-Unplanned Retailer Shoppers	Changed-to-Planned Retailer Shoppers	Changed-to-Unplanned Retailer Shoppers
Spatial Environmental Factors	Increased spatial separation distance			
Demographic and Socio-economic Characteristics	Age; Residential duration; Marital status; Employment status; Educational level; Personal income; Type of house	Marital status; Employment status; Educational level; Personal income; Household income	Age; Residential duration; Marital status; Educational level; Personal Income; Household income	Educational level; Personal income; Household income
Attitudes towards Shopping	None	None	Well-known brand followers; Weekly routine shoppers	Well-known brand followers
More Important Criteria	Parking facilities; Store loyalty card; Business hours	Near home; Fresh products; Habit	Parking facilities; Quality products Store atmosphere; Special offers; Favourite brands	Near home; Convenient location; Lower prices; Able to haggle over the price; Habit
Less Important Criteria	Fresh products; Able to haggle over the price	Parking facilities; Store loyalty card; One stop shopping	Near home; Lower prices; Able to haggle over the price	Parking facilities; Wide selection; Quality products; Special offers; Store loyalty card; Newly opened stores; One stop shopping

In terms of convenience goods shopping trips, examining the differences in major determinants between steady unplanned and changed-to-planned retailer shoppers, attitudes towards shopping failed to explain the differences between the two groups. Based on the remaining explanatory factors, changed-to-planned retailer shoppers were identified as:

- on average, travelling 1.46 km further than steady unplanned retailer shoppers;
- likely to be 6.54 years younger and their residential duration 3.27 years shorter than that of steady unplanned retailer shoppers;
- more likely to be single, employed, with a higher educational level, middle to high personal income, or live in terraced houses or blocks of flats than steady unplanned retailer shoppers;
- more concerned about good parking facilities, business hours, store loyalty card/promotion/coupon, and less concerned about fresh products and able to haggle over the price.

Subsequently, examining the differences in major determinants between steady planned and changed-to-unplanned retailer shoppers, attitudes towards shopping also failed to explain the differences between the two groups. Based on the remaining explanatory factors, changed-to-unplanned retailer shoppers were identified as:

- on average, travelling 1.13 km less than steady planned retailer shoppers;
- more likely to be married, unemployed, have a lower educational level, lower personal income, or lower household income than steady planned retailer shoppers;

- more concerned about habit, stores near or nearest home, and fresh products, and less concerned about parking facilities, one stop shopping, and store loyalty card/promotion/ coupons.

Based on households' switching behaviour, the study appears to suggest the number of respondents who changed from planned to unplanned retailers is high. Of 125 planned retailer shoppers in the first round survey, 57 respondents (45.6 per cent) changed to shop at unplanned retailers in the second round survey. The result seemingly infers that Taiwan's economic recession since 2001 (for more details, see Chapter 3, Section 3.4.2) had influenced households' patronage behaviour. Recognising their shortage of disposable income, households would wish to spend less on consumption expenditure and change to patronising unplanned retailers selling cheaper food and groceries. Considering this situation, a new planned retailer firstly should provide merchandise at competitive prices to satisfy consumers' demands. In addition, if a new planned retailer wants to attract more changed-to-planned retailer shoppers, it should have good car parking facilities, longer business hours, and attractive store loyalty card schemes/ coupons/ promotional activities, in order to attract those willing to travel a further distance, living in terraced houses or blocks of flats, who are younger, have shorter residential durations, are single, employed, with a higher educational level, or middle to high personal income.

In terms of comparison goods shopping trips, examining the differences in major determinants between steady unplanned and changed-to-planned retailer shoppers, all determinants were found to have influential explanatory effects. Based on these explanatory factors, changed-to-planned retailer shoppers were identified as:

- on average, needing to travel 2.58 km further than steady unplanned retailer shoppers;
- likely to be 4.74 years younger and their residential duration 3.37 years shorter than that of steady unplanned retailer shoppers;
- more likely to be single, have a higher educational level, higher personal income, or higher household income than steady unplanned retailer shoppers.
- more likely to be well-known brand followers and weekly routine shoppers than steady unplanned retailer shoppers;
- more concerned about advantageous special offers, quality products, good parking facilities, favourite brands, and store atmosphere, and less concerned about able to haggle over the price, stores near or nearest home, and lower prices.

Finally, examining the differences in major determinants between steady planned and changed-to-unplanned retailer shoppers, changed-to-unplanned retailer shoppers were identified as:

- on average, travelling 1.72 km less than steady planned retailer shoppers;
- on average, more likely to own 0.4 more motorbikes than steady planned retailer shoppers;
- likely to have a lower educational level, lower personal income, or lower household income than steady unplanned retailer shoppers;
- less likely to be well-known brand followers than steady unplanned retailer shoppers;
- more concerned about stores near or nearest home, convenient location, lower prices, able to haggle over the price, and habit, and less concerned

about parking facilities, wide selection, quality products, one stop shopping, store loyalty card, advantageous special offers, and newly opened stores.

Based on the findings, if a new planned retailer wants to attract unplanned retailer shoppers, it should have advantageous special offers, quality products, good parking facilities, favourite brands, and a pleasant store atmosphere. It will then attract shoppers willing to travel a further distance, who are younger, have shorter residential durations, are single, with a higher educational level, higher personal income, higher household income, have a positive attitude towards well-known brands, and a weekly shopping routine.

## **Chapter 8**

# **Retail Impact of Out-of-town Shopping**

# **Centre Development – a case study of**

# **Taiwan Sugar Mall**

### **8.1 INTRODUCTION**

This chapter is designed to answer the research question, 'when the Taiwan Sugar Mall opens, will the new types of out-of-town retail development be likely to be successful and then change original shopping patterns within the study area?' To accomplish the original purposes of this study, the shopping destination choice model was designed to analyse changes in patronage behaviour and then estimate the possible retail impact of the Mall. However, as mentioned in Chapter 7, Sections 7.3.1 and 7.4.1, only one and twelve respondents changed their original patronage behaviour to shop at the Taiwan Sugar Mall for convenience goods and comparison goods shopping trips, respectively. Considering this situation (i.e. sample deficiency), it was not possible to use the quantitative shopping model. Instead, the qualitative analysis method was employed to explore possible reasons for not patronising the Mall.

In consideration of the stated research question, this chapter will be divided into three main sections. In the first section, the study intends to explain why shopping choice models cannot be used to measure retail impact. In the second section, based on respondents' shopping experience in the Mall, the shopping pattern is investigated and

compared with respondents' major convenience and last comparison goods shopping behaviour. Sequentially, through scoring attributes of the Mall and summarising respondents' statements, opinions about the new type of out-of-town shopping centre are presented, either quantitatively or qualitatively. The final section, using a qualitative analysis approach, explores reasons for respondents not patronising the Mall, based on respondents' patronage behaviour between the two surveys. Through analysing these opinions, possible causes for the minor impact derived from the Mall can be inferred.

## **8.2 FAILURE TO MEASURE RETAIL IMPACT BASED ON SHOPPING DESTINATION CHOICE MODELS**

### **8.2.1 Deficient Samples**

As stated in the literature review (for more details, see Chapter 2, Sections 2.4.2 and 2.4.3), shopping destination choice models have been applied to measure or predict the feasibility and impacts of new retail developments in recent decades, such as those of Timmermans (1993), Birkin et al. (1996), Arentze et al. (2000), and Arentze and Timmermans (2000). Fundamentally, retail impact is an economic concept, concerned with the diversion of trade from an existing shopping centre to a new development (England, 2000: p.13). Through constructing shopping models, the trade diversion from existing shopping centres can be objectively measured or predicted.

As regards the original purpose of this study, the shopping destination choice model was designed to estimate patronising probabilities to choose different retailer types before and after the Taiwan Sugar Mall opened. Then, examining changes in shopping patterns, the study could investigate possible retail impacts derived from the Taiwan Sugar Mall on existing shopping centres. As Drivers Jonas (1992: p.79) indicated, market share can be used to measure 'impact' by assessing whether levels of

market share derived from a new development have caused harm to existing shopping facilities in the surrounding area.

Previous MNL shopping destination choice models (mentioned in Chapter 6, Sections 6.3 and 6.4) could be employed to calculate changes in market share and infer possible further impacts. However, the sample was too small for this analysis to be carried out. In terms of convenience goods shopping trips, of 386 respondents, only one respondent who lived in East Chu within a 10 minutes drive of the Mall, had changed her original shopping destination (wet markets) to the Mall. In terms of comparison goods shopping trips, of 386 respondents, only twelve had changed their original shopping destination to the Mall: 3, 4, and 5, from wet markets, hypermarkets, and department stores, respectively. Of these twelve, 9 lived within a 10 minute drive of the Mall (6 in East Chu and 3 in Jente Hsiang), 2 lived within a 10-20 minute drive of the Mall (1 in Aping Chu and 1 in Hu-nei Hsiang), and 1 lived within a 20-30 minute drive of the Mall (in Kueijen Hsiang). Therefore, the study could not continue to investigate (or interpret) possible retail impacts of the Mall using the MNL shopping destination choice models due to the limitation of extremely small samples. As stated in Chapter 1, Section 1.2.5, the present study therefore changed the research focus to analysing shopping destination choice behaviour, and exploring partial retail impacts using available qualitative data.

### **8.2.2 Possible Retail Impact derived from Taiwan Sugar Mall**

Trade diversion from existing shopping centres is the crucial and most contentious element of impact assessment. Trade diversion is defined as the loss of trade from existing shopping centres as a result of a new retail development taking place (England, 2000: p.211). Because the shopping destination choice model could not be



used to estimate changes in market share due to sample deficiency, a descriptive statistical technique was used to estimate trade diversion.

Based on the percentage analysis, the trade diversion from existing retailer types to Taiwan Sugar Mall is estimated in Table 8-1. In terms of convenience goods, 0.3 per cent of respondents changed their most frequent shopping centre to Taiwan Sugar Mall. In terms of comparison goods, 3.1 per cent made their last shopping trips in Taiwan Sugar Mall, specifically, 1.32 per cent, 1.00 per cent, and 0.78 per cent derived from department stores, hypermarkets, and wet markets, respectively. According to England (2000: p. 134), with reference to the practical planning of retail development in Britain, for comparison goods' retail development, a percentage trade diversion of more than 10 per cent can be regarded as having a harmful impact, whereas, for convenience goods' retail development, the percentage will be twice as much. Based on the rule and according to the above analysis, the retail impact of Taiwan Sugar Mall on existing shopping centres is likely to be minor.

Leakage is another factor which needs to be considered when measuring retail impact (England, 2000: p.80). Leakage is defined as the retail spending transferred by residents from a catchment area to external centres (England, 2000: p.210). Sometimes, a new development entering the existing retailing system does not present a serious impact due to clawback of some of the spending that is currently lost as leakage. In the present study, the loss of retail spending was measured by whether a respondent could not find all his/her needs within the shopping centre located at the study area. As regards comparison goods shopping trips, in the first and second round surveys, of 386 respondents, three (0.78 per cent) and four (1.04 per cent) indicated they had to visit other shopping centres for goods and services they could not obtain in the catchment area, respectively. Thus, leakage within the delimited catchment area was relatively

small. Guy (1990: p.3) described the phenomenon of shopping at external centres as out-shopping, since residents of an urban area have to travel to other, usually larger towns (or cities), to buy certain types of retail goods. In the present study, all out-shoppers went to Kaohsiung city to buy their clothing and footwear in the first round survey, but travelled further, to Taipei City, Taichung City, and Kaohsiung City, in the second round survey.

**Table 8-1 Trade Diversion from Existing Retailer Types**

Shopping Destination	Shopping Trips					
	Convenience Goods			Comparison Goods		
	2002	2003	Trend	2002	2003	Trend
<b>Unplanned Retailing Facilities</b>	<b>67.6%</b>	<b>69.9%</b>	<b>2.3%</b>	<b>50.8%</b>	<b>46.9%</b>	<b>-3.9%</b>
High Streets	-	-	-	24.6%	19.7%	-4.9%
Wet Markets	49.5%	48.4%	-1.1%	17.9%	17.9%	0.0%
Dusk Markets	17.6%	19.4%	1.8%	8.3%	9.3%	1.0%
Night Markets	0.5%	0.5%	0.0%			
Others	0.0%	1.6%	1.6%			
<b>Planned Retailing Facilities</b>	<b>32.4%</b>	<b>30.1%</b>	<b>-2.3%</b>	<b>49.2%</b>	<b>53.1%</b>	<b>3.9%</b>
Supermarkets	7.8%	11.1%	3.3%	-	-	-
Hypermarkets	19.9%	14.8%	-5.1%	17.1%	16.1%	-1.0%
<i>Taiwan Sugar Mall</i>	-	<b>0.3%</b>	<b>0.3%</b>	-	<b>3.1%</b>	<b>3.1%</b>
Department Stores	1.3%	0.5%	-0.8%	31.1%	32.1%	1.0%
Others	3.4%	3.4%	0.0%	1.0%	1.8%	0.8%

Seemingly, there was insufficient evidence to indicate the Taiwan Sugar Mall had had a serious impact on existing shopping centres within its adjacent area based on the present panel survey data. In other words, the Mall had had a minor impact on existing shopping centres. In Section 8.3, the study investigates how respondents regarded the new type of out-of-town shopping centre based on their shopping experiences in the Mall.

### **8.3 RESPONSE TO THE NEW TYPE OF OUT-OF-TOWN SHOPPING CENTRE –**

#### **TAIWAN SUGAR MALL**

##### **8.3.1 Who Had Visited the Mall?**

In order to investigate respondents' shopping experiences in Taiwan Sugar Mall, a series of questions relevant to their shopping behaviour and opinions about the Mall were designed in the second round survey (for more details, see Chapter 4, Section 4.5.3). Of 386 respondents, 119 (30.83 per cent) had visited Taiwan Sugar Mall. Therefore, their shopping experience in the Mall could be examined and then compared with their major convenience and last comparison goods shopping behaviour.

Before analysing shopping patterns, the study will explain where these samples came from. Table 8-2 provides the details. Examining their residential districts (i.e. Chus/Hsiangs/Chens/Shihs), 62.18 per cent, 25.21 per cent, and 12.61 per cent of respondents who had visited the Mall lived in districts within 10 minutes, 10-20 minutes, and 20-30 minutes travelling distance of it, respectively. These findings would seemingly suggest that the Mall would primarily attract residents living in Jente Hsiang and East Chu, i.e. living within 10 minutes travelling distance of it. Examining samples from each administrative district, of 386 respondents, 197 (51.04 per cent) came from Jente Hsiang and East Chu, just over half of the total sample, and 74 of them had visited the Mall, making up 62.18 per cent of total 119 respondents who had visited it during the survey period.

Table 8-2 Respondents' Residential Districts

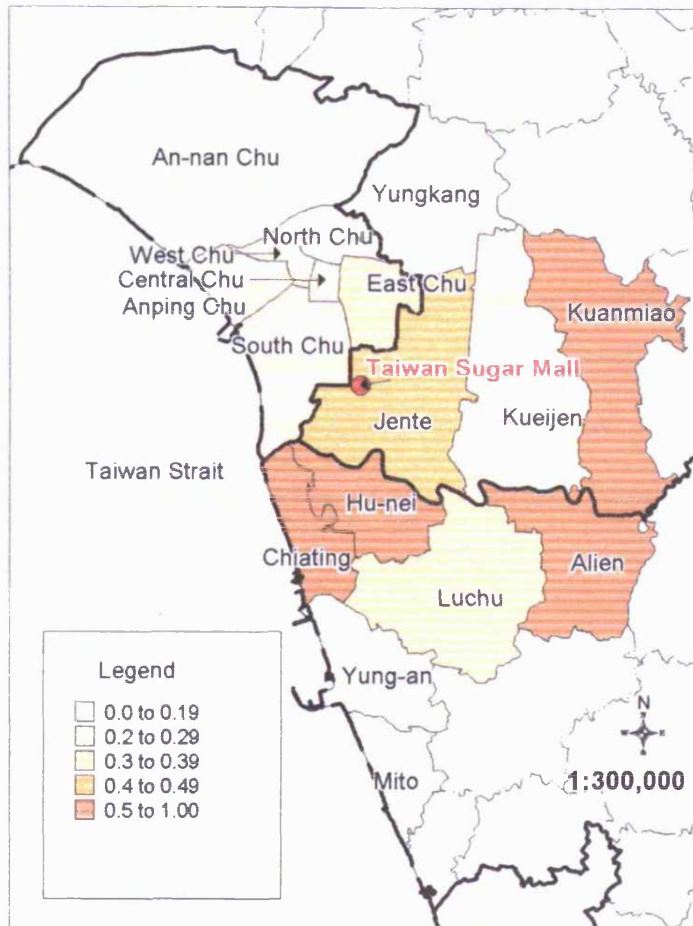
Time Bands	City/County	Chu/ Hsiang/ Shih	Samples in Second Round Survey (A)		Samples who had visited the Mall (B)		Percentage (%) (C)=(B)/(A)
				%		%	
0-10 mins	Tainan City	East Chu	140	36.27	48	40.34	34.29
	Tainan County	Jente Hsiang	57	14.77	26	21.85	45.61
	<b>Total</b>		<b>197</b>	<b>51.04</b>	<b>74</b>	<b>62.18</b>	<b>37.56</b>
11-20 mins	Tainan City	Anping Chu	18	4.66	5	4.20	27.78
		West Chu	20	5.18	5	4.20	25.00
		Central Chu	15	3.89	4	3.36	26.67
		North Chu	38	9.84	5	4.20	13.16
	Kaohsiung County	Hu-wei Hsiang	7	1.81	7	5.88	100.00
		Chiating Hsiang	8	2.07	4	3.36	50.00
<b>Total</b>		<b>106</b>	<b>27.46</b>	<b>30</b>	<b>25.21</b>	<b>28.30</b>	
21-30 mins	Tainan City	An-nan Chu	19	4.92	1	0.84	5.26
		South Chu	14	3.63	4	3.36	28.57
	Tainan County	Kueijen Hsiang	7	1.81	2	1.68	28.57
		Yungkang Shih	24	6.22	1	0.84	4.17
		Kuanmiao Hsiang	3	0.78	2	1.68	66.67
	Kaohsiung County	Alien Hsiang	4	1.04	2	1.68	50.00
		Luchu Hsiang	7	1.81	3	2.52	42.86
		Yung-an Hsiang	2	0.52	0	0.00	0.00
	Mito Hsiang	3	0.78	0	0.00	0.00	
<b>Total</b>		<b>83</b>	<b>21.50</b>	<b>15</b>	<b>12.61</b>	<b>18.07</b>	
<b>Total</b>		<b>386</b>	<b>100.00</b>	<b>119</b>	<b>100.00</b>	<b>41.61</b>	

Further, the percentage of respondents who had visited the Mall from each administrative district was estimated (see the last column in Table 8-2). Based on this percentage, the attracting power of the Mall can be measured: if a high percentage is

shown, this means the Mall had a large attracting power in this administrative district; in contrast, if a low percentage is presented, this means the Mall had a small attracting power in this administrative district. Figure 8-1 displays the results in map form, seemingly indicating that districts with a higher percentage of shoppers visiting the Mall were located in rural areas. When asked whether they had visited the Mall, all respondents in Hu-nei Hsiang (100 per cent), 67 per cent in Kuanmiao Hsiang, 57 per cent in Chiating Hsiang, 50 per cent in Alien Hsiang, and 46 per cent in Jente Hsiang had done so. Despite these administrative districts having smaller samples due to their lower population density, their inconvenient transportation system, and longer travelling time to the Mall, compared to other administrative districts in urban areas, the percentage of respondents who had visited the Mall was much larger than in other urban areas, for example, 50 per cent of respondents in Alien Hsiang compared with 25 per cent in West Chu. The results seemingly suggest the Mall attracted not only residents living in districts within a 10 minute drive but also those living in more distant rural areas.

### **8.3.2 Mall Shopping Patterns**

Taiwan Sugar Mall shopping patterns were analysed by spatial separation distance, spending, and mode of transport. Through comparing respondents' major convenience and last comparison goods shopping trips, the study could identify shopping patterns derived from the new type of out-of-town shopping centre. Notably, in terms of impact assessments, if the shopping patterns increased the length and the number of motorised trips, the new development would have environmental impact related to traffic generation and pollution (BDP/OXIRM, 1992: p.79).



**Figure 8-1 Percentage of Respondents Who Had Visited Taiwan Sugar Mall by Chu/Hsiang/Chen/Shih**  
Source: the author's map

Table 8-3 shows the results of examining differences in travelling distance between respondents patronising Taiwan Sugar Mall and shopping for convenience (or comparison) goods shopping centres. On average, respondents travelled 6.60 km, 4.19 km, and 3.20 km to patronise Taiwan Sugar Mall, and shopping centres for their last comparison and major convenience goods, respectively. Statistically, both *t* tests

rejected the null hypotheses (see Table 8-3) and indicated travelling distance between trips significantly differed. Based on normal distribution properties, the study seemingly implied that 95 per cent of respondents who had visited the Mall had travelled 11.89 km, 1.69 km and 3.40 km longer than their last comparison goods and major convenience shopping trips, respectively. Travelling distance length supported this finding since respondents had travelled in total 785.10 km to reach the Mall, compared with 498.50 km and 380.70 km to conduct their last comparison and major convenience goods shopping trips, respectively. As regards impact assessment, extra travel distance incurred to reach a new development is considered to be environmentally disadvantageous (England, 2000: p.12). Thus, although the Mall did not have serious economic impact, the increased length of travelling distance could have serious long-term environmental implications.

**Table 8-3 Differences in Travelling Distance**

Statistics	Taiwan Sugar Mall	Convenience Goods Shopping Trips	Comparison Goods Shopping Trips
Mean	6.60 km	3.20 km	4.19 km
Std. Deviation	2.70 km	2.70km	3.07 km
Sum	785.10 km	380.70 km	498.50 km
<i>t</i> Test	<p><math>H_0</math> = there is no difference in travelling time between respondents patronising Taiwan Sugar Mall and shopping centres for convenience goods shopping  <math>t(118)=9.627, p=0.000</math></p> <p><math>H_0</math> = there is no difference in travelling time between respondents patronising Taiwan Sugar Mall and shopping centres for comparison goods shopping  <math>t(118)=6.699, p=0.000</math></p>		

Table 8-4 shows the frequency distribution of modes of transport. Of 119 respondents, 85 (71.4 per cent) had visited the Mall by private car/van, whereas 22 (18.5 per cent) and 47 (39.5 per cent) had patronised their convenience and comparison goods shopping centres using private cars/vans, respectively. The results seemingly indicate that the Mall had failed to reduce the number of motorised journeys and, in fact, encouraged trips. As noted above, a new development should recognise the need to reduce the length and number of motorised journeys, encourage alternative means of travel and hence reduce reliance on the motor car. However, there is no reliable public transportation system in this area. If residents want to visit the out-of-town centre, they have to rely on their own motor of transport, primarily car/van. Therefore, in terms of environmental impact, examining respondents' patronage of the Mall reveals it had not only increased their travelling distance length but also led to a larger number of motorised journeys.

**Table 8-4 Frequency Distribution in Modes of Transport**

Modes	Taiwan Sugar Mall	Convenience Goods Shopping Trips	Comparison Goods Shopping Trips
Walk/Bicycle	-	30 (25.2%)	11 (9.2%)
Motorbike	34 (28.6%)	67 (56.3%)	61 (51.3%)
Car/Van	85 (71.4%)	22 (18.5%)	47 (39.5%)
Total	119 (100%)	119 (100%)	119 (100%)

In terms of spending, Table 8-5 shows the difference between respondents patronising Taiwan Sugar Mall and convenience (or comparison) goods shopping centres. On average, respondents spent NT\$ 823 (£13.72), NT\$ 2,188 (£36.47), and NT\$ 651 (£10.85) patronising Taiwan Sugar Mall, and shopping centres for their last comparison and major convenience goods shopping trips, respectively. Statistically, the *t*



tests rejected the null hypothesis: there is no difference in spending between respondents patronising Taiwan Sugar Mall and shopping centres for comparison goods, since results suggested spending between the two trips significantly differed. In contrast, based on the *t* tests, the study did not provide sufficient evidence to reject the null hypothesis: there is no difference in spending between patronising Taiwan Sugar Mall and shopping centres for convenience goods at the 0.05 significance level, in other words, spending between the two shopping trips were similar. Therefore, when visiting the Mall, respondents seemingly spent an amount similar to that spent on their convenience goods trips, but less than on their comparison goods trips. Results thus seemingly implied that respondents did not completely accept this new type of shopping centre, since they were either not willing to change their patronage behaviour or to spend less on their shopping trips to shopping centres.

**Table 8-5 Difference in Respondents' Spending**

Statistics	Taiwan Sugar Mall	Convenience Goods Shopping Trips	Comparison Goods Shopping Trips
Mean	NT\$ 823 (£13.72)	NT\$ 651 (£10.85)	NT\$ 2,188 (£36.47)
Std. Deviation	NT\$ 972 (£16.20)	NT\$ 481 (£8.02)	NT\$ 2,874 (£47.90)
<i>t</i> Test	$H_0 =$ there is no difference in spending between respondents patronising Taiwan Sugar Mall and shopping centres for convenience goods shopping $t(118) = -1.804, p = 0.074$ $H_0 =$ there is no difference in spending between respondents patronising Taiwan Sugar Mall and shopping centres for comparison goods shopping $t(109) = 4.703, p = 0.000$		

### 8.3.3 Scoring Attributes of the Mall

Sequentially, twenty statements were developed to assess attributes of the Taiwan Sugar Mall from individual respondents' point of view. Except for two rather innocuous statements (for more details, see Oppenheim's suggestions in 1992, p.191), namely, 'it is a pleasant place to go with family/friends' and 'its anchor, Taisuco hypermarket, is attractive', eighteen statements were presented to respondents derived from store selection criteria relevant to the planned retailers (for more details, see Chapter 6, Section 6.2.2). Respondents were asked to assess attribute statements, selecting 'strongly agree', 'agree', 'uncertain', 'disagree', or 'strongly disagree' on a Likert scale with five options given simple weights of 2, 1, 0, -1, and -2, respectively, for scoring purposes.

Table 8-6 shows the outcome of descriptive statistics. All attribute statements were sorted by the mean score. If the attribute had a high positive score, this meant many respondents agreed with the attribute statement. In contrast, if the attribute received a low negative score, this meant that many respondents disagreed with the attribute statement. Further, a *t* test was employed to examine the null hypothesis: if the mean score significantly differs from zero, respondents' agreement with attribute statements is positive or negative, not indecisive. Of eighteen attribute statements, four attributes' mean scores rejected the null hypothesis, and fourteen attributes' mean scores significantly differed from zero, eleven of which were positive and three were negative.

**Table 8-6 Assessment of Attribute Statements of Taiwan Sugar Mall**

Attribute Statements	Mean	Std Deviation	t(118)	Sig.
1. It has good car parking facilities	1.17	0.81	15.811	0.000**
2. It is convenient to reach/easy to get to the place from another	0.79	1.02	8.414	0.000**
3. Its business hours are suitable to me	0.55	0.75	7.998	0.000**
4. It has good places to eat/drink	0.46	0.88	5.723	0.000**
5. It has a good consumer service	0.41	0.94	4.766	0.000**
6. It has wide selections	0.29	0.83	3.880	0.000**
7. It has a good atmosphere for shopping	0.24	1.31	2.022	0.045**
8. Its prices are not high	0.24	0.83	3.190	0.002**
9. Its location is near home/work place	0.24	0.96	2.780	0.006**
10. It has good childcare facilities	0.19	1.02	2.069	0.041**
11. Its merchandise appearance is attractive and stylish	0.18	0.87	2.310	0.023**
12. It is a one-stop shopping centre.	0.13	0.98	1.404	0.163
13. It has the sort of shops/brands I want.	0.07	0.89	0.824	0.412
14. It has good quality products/ high-class products.	-0.03	0.96	-0.380	0.705
15. It has lots of novelties.	-0.08	0.88	-1.043	0.299
16. Its promotions/special offers are attractive.	-0.16	0.87	-1.995	0.048**
17. It is good place for a day out.	-0.26	1.11	-2.564	0.012**
18. It has a good store loyalty card scheme.	-0.37	0.89	-4.526	0.000**

Note: \*\*  $p \leq 0.05$ ; \*  $p \leq 0.10$

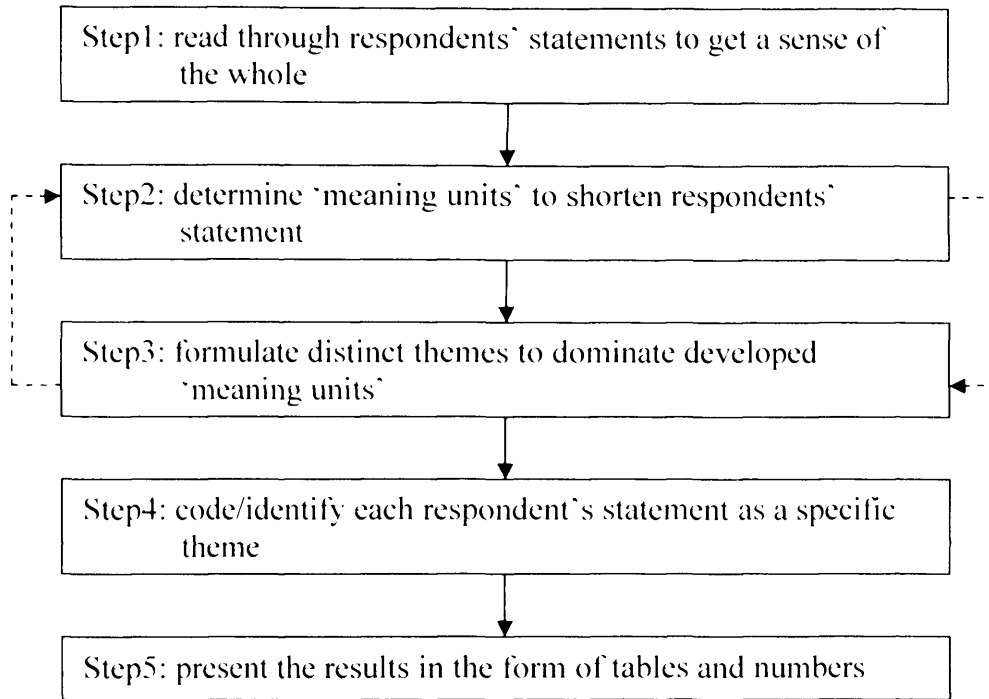
In summary, most respondents agreed the Mall has good parking facilities; is easy to reach using their own car; has suitable business hours; contains attractive restaurants; has good consumer services; contains a wide selection of shops/products, has a good atmosphere for shopping; has an acceptable pricing strategy; has a good location near home/work place; has good childcare facilities or amusement parks; and its merchandise appearance is attractive and stylish. In contrast, most disagreed that the

Mall has attractive promotions; is suitable for a day out; and has a good store loyalty card scheme.

#### **8.3.4 Opinions about the Mall**

The following analysis relies on the qualitative approach, using open-ended questions instead of closed ones. Through closed questions, respondents represented their opinions by way of a set of fixed alternative options. In contrast, through open-ended questions, respondents replied however they wished and their outputs are summarised in the form of texts. To investigate what respondents thought about the Mall, the open-ended question, 'is there anything you particularly *like* and *dislike* about the Taiwan Sugar Mall?' was asked to explore their opinions.

In the present study, the categorisation of meaning approach was used to analyse respondents' opinions about the Mall (for more details, see Chapter 4, Section 4.5.5). As Kvale (1996: p.192) has indicated, this approach implies that the interview is coded into categories: long statements are reduced to simple categories, indicating occurrence and non-occurrence of a phenomenon; or to a single number on a scale of 1 to 5 to indicate the strength of a phenomenon. Similarly, Bryman (2001: p.144) suggested a similar method to code an open-ended question. The analysis process usually entails reading and rereading transcripts of respondents' replies and formulating distinct themes from them. Through a coding frame, each respondent's answer associated with each question is identified as a respective code (i.e. a number).



**Figure 8-2 Five Steps Involved in the Categorisation of Meaning Approach**

Figure 8-2 displays major steps using the categorisation of meaning approach. First, each respondent's statement was read and re-read through to obtain the overall picture of interviewees' likes/dislikes. Next, the author subjectively formulated short meaning units as subcategories to express each respondent's answer. Subsequently, these meaning units were combined into a specific theme (or a category) to simplify respondents' replies. Through generating various themes (or categories), those with a similar concept of meaning were condensed into a few themes as expressing respondents' opinions. However, sometimes the themes (or categories) were developed in different ways. As Kvale (1996: p.192) pointed out, categories can be developed in advance or may arise during the analysis process; they may be taken from theory or

from the contents of interviews themselves. The fourth step is to code or identify each respondent's statement as a specific theme. Further, if a respondent's statement is too vague to identify or contains too many concepts to simplify, the opinions needed to be separated and presented in different ways. Finally, the numbers allocated to each answer can be used in the computer processing of the data and the results can be presented in the form of tables and charts. As Kvale (1996: p.192) indicated, categorisation can reduce and structure a large text into a few tables and figures. The numerical form of the results is easier to interpret and integrate with previous quantitative findings.

Following the process shown in Figure 8-2, the statements of 119 respondents who had visited the Mall were read and re-read. As noted above, each respondent's likes/dislikes about the Mall were elicited. In terms of respondents' likes, of 119 respondents, 40 were eliminated from further analysis because their statements were unclear, vague, or they gave no particular reason for their like. Thus, the statements of the remaining 79 respondents were included in the following analysis. In terms of respondents' dislikes, of 119 respondents, 45 were eliminated and the statements of the remaining 74 were included in the following analysis. Both likes and dislikes statements were condensed into short meaning units and categorised under eight distinct themes, namely, location, design/planning, anchor tenants, small shops, atmosphere, price/value, services, and parking facilities. These themes are defined and illustrated below:

- **Location:** since the Mall is an out-of-town shopping centre, its location will be far away from the urban area. In terms of frequency distribution, one respondent viewed its location as near her home, whereas seven thought its location far from their homes.

*I like the Taiwan sugar Mall because its location is near my house. female, no. 717013.*

*To be honest, I dislike the Mall. Its location is too far away for me and its prices do not differ from shopping centres in the town: male, no. 700008.*

- **Design/Planning:** the theme of design/planning was related to the Mall's appearance, interior design, signposting, and building connectivity, etc. In terms of frequency distribution, seven respondents thought its design/planning was praiseworthy, whereas thirteen disagreed.

*I like the building's appearance ... It looks magnificent...: male, no. 701027.*

*I dislike its design. After shopping at the underground hypermarket in the Mall, I have to push the trolley a long way to my car parking lot ... It's too far ... not a good design ...: female, no: 708020.*

- **Anchor tenants:** the Mall contained three types of anchor store at the time of the survey (December, 2003), Taisuco hypermarket, theme restaurants, and children's amusement parks (for more details, see Appendix A). In terms of frequency distribution, twenty-four respondents thought anchors were attractive, whereas eight disagreed.

*I like the Mall, whereas my grandsons like the Tom Dragon Amusement Park: female, no. 701065.*

*I dislike the steak restaurant, the Bull Fight Restaurant in the Mall...Its business type differs from other branches. It has a set menu whereas others have "All you can eat" which I like: male, no. 709026.*

- **Small shops:** at the time of the study (December, 2003), sixty-seven small shops were allocated in the Mall according to survey data. In terms of frequency distribution, fourteen respondents indicated they liked these small shops, whereas twenty-two did not.

*I really like the mall. In particular, I can find all I need in its selection of stores: female, no. 701122.*

*I dislike the Mall because of its insufficient number of shops. In my view, these shops are general and ordinary, not special ...: female, no. 701055.*

- **Atmosphere:** this theme is related to the general impression that respondents have of the Mall, such as roominess, bright, novel, boring, not special, disorderly, an unwelcoming atmosphere. In terms of frequency distribution, twenty respondents alluded to a negative atmosphere and nineteen to a positive one.

*The Mall is very bright and roomy ... I can relax and enjoy shopping unlike the crowded shopping centres in the town: female, no. 717063.*

*The Mall is huge but a lot of spaces are still empty. The building, I feel, is a little bit desolate, not cheerful: female, no. 701011.*



- **Price/Value:** this theme is related to pricing comparison and best value for money merchandise. In terms of frequency distribution, eight respondents thought the product price was higher in the Mall than their usual shopping centres, whereas eight disagreed this was the case.

*Generally speaking, the price of clothing in the Mall is lower than that in the town ... Its parking spaces are sufficient for customers to park their cars....*: female, no. 701063.

*The entrance fee to the children's amusement parks is too high ...*: female, no. 700015.

- **Services:** this theme is related to attitudes of shopkeepers, cashiers, and availability of information. In terms of frequency distribution, one respondent suggested the Mall provided poor good consumer services whereas six disagreed.

*I like the Mall because of its friendly shopkeepers*: female, no. 718001.

*In my personal view, the Mall is a state-owned company ... I think its cashiers are unfriendly and waiting time at check-outs is too long*: female, no. 717020.

- **Parking facilities:** convenient car parking is usually provided by planned retailers. In terms of frequency distribution, fifteen respondents concurred the Mall has good parking facilities, whereas six disagreed.

*I like the Mall because of its convenient car parking facilities*: female, no. 702024.

*I am a motorbike rider. I feel its parking facilities are only suitable for cars, not motorbikes... Its location is too far away for a motorbike rider: female, no. 701122.*

Figure 8-3 shows the results derived from the categorisation of meaning analysis. Respondents' positive opinions about the Mall are presented in red; in contrast, their negative opinions are shown in black. The findings seemingly infer that the Mall has a good anchor tenant, i.e. Tom Dragon Amusement Park, and convenient car parking facilities. However, its location is too far away for urban area residents and motorbike users, and its quality of consumer services is questionable. Respondents' likes/dislikes towards the remaining four determinants, namely, design/planning, small shops, atmosphere, and price/value, were evenly balanced. This finding may be due to this being respondents' first experience of an out-of-town shopping centre.

When comparing the qualitative analysis with the previous quantitative attribute statement analysis (for more details, see Section 8.3.3), differences can be seen. Five themes derived from qualitative analysis can be linked to five previous quantitative attribute statements, namely, location (the Mall's location is near/nearest home/work place), atmosphere (the Mall has a good atmosphere for shopping), price/value (the Mall's prices are not high), service (the Mall has a good consumer service), and parking facilities (the Mall has good car parking facilities). Of the five themes, all were achieved positive mean scores that statistically significantly differed from zero in the quantitative attitude statement analysis. One quantitative attribute statement, parking facilities, showed the same result in the qualitative analysis. Of the remaining four themes, two (i.e. location and service) tended towards negative opinions and two (i.e. atmosphere and price/value) were evenly balanced between positive and negative. This seemingly

implied that the attribute of 'good parking facilities' was the only statement that respondents viewed consistently, i.e. they all agreed with it.

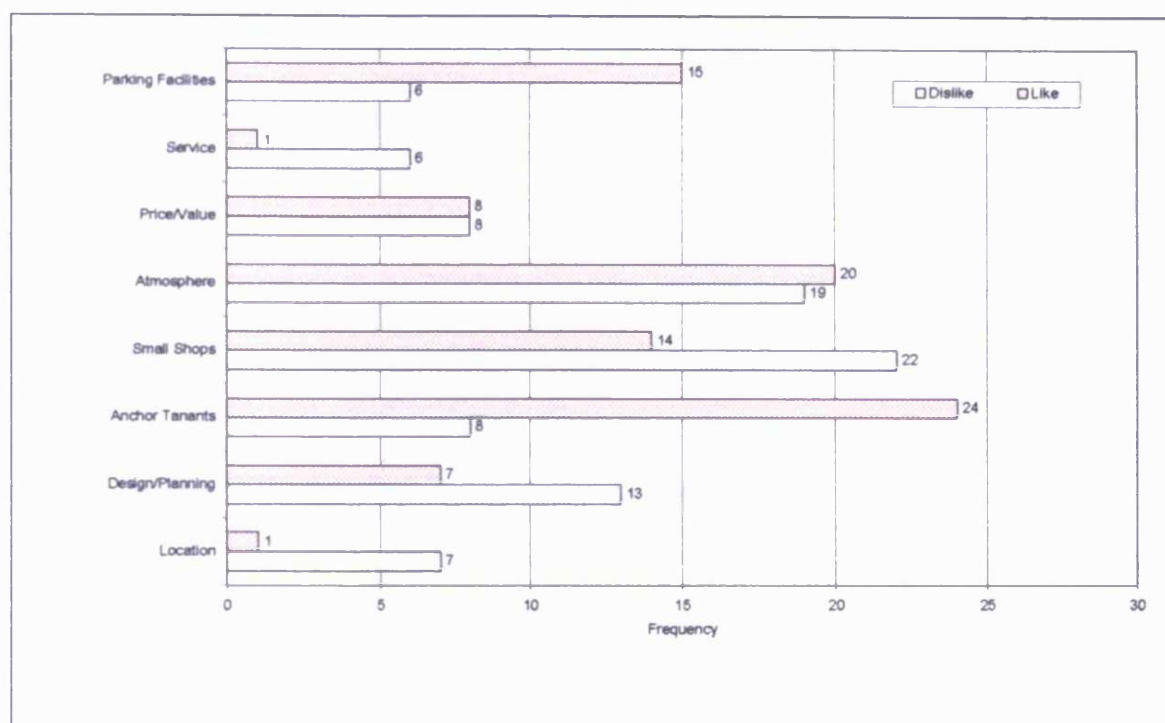


Figure 8-3 Opinions about the Mall

#### 8.4 REASONS FOR NOT PATRONISING THE TAIWAN SUGAR MALL

As noted above, the Taiwan Sugar Mall had a minor impact on existing shopping centres according to the present panel survey data. Through analysis of qualitative data, the following sections will explore possible reasons for respondents not patronising the Mall based on convenience goods shopping trips. Comparing respondents' major shopping destination between the two surveys, four types of shoppers are identified as follows:

- **Group One:** shoppers whose main shopping destination remained the same.
- **Group Two:** shoppers whose prior shopping destination was the Makro outlet in Jente Hsiang (i.e. Makro A).
- **Group Three:** shoppers who had changed their shopping destination to the new hypermarket in the Taiwan Sugar Mall and whose prior shopping destination was not the Makro outlet in Jente Hsiang.
- **Group Four:** shoppers who had changed their shopping destination to other alternative shopping centres, except the Taiwan Sugar Mall.

As a result of only one respondent changing her original shopping destination from wet markets to the Mall, Group Three will not be discussed in the following sections. Sequentially, the remaining groups will be discussed in Sections 8.4.1, 8.4.2, and 8.4.3, respectively. Before proceeding to the following sections, the respondent's reason for changing from wet markets to the Mall should be revealed. She (no. 701065) explained, *'I switched to the Mall ... because my daughter is working in the Taiwan Sugar Company. If I shop at the Mall, I can have staff discount'*, seemingly inferring that the respondent patronised the Mall only on account of the special staff discount available to her.

#### **8.4.1 Reasons for Unchanged Shopping Destination**

As noted above, four groups of shoppers were categorised based on their patronage of shopping centres for convenience goods shopping trips in the two surveys. Respondents whose main shopping destination remained exactly the same numbered 215 (55.7 per cent) of 386 respondents. Of these, 182 and 33 belonged to unplanned and planned shopper groups, respectively.

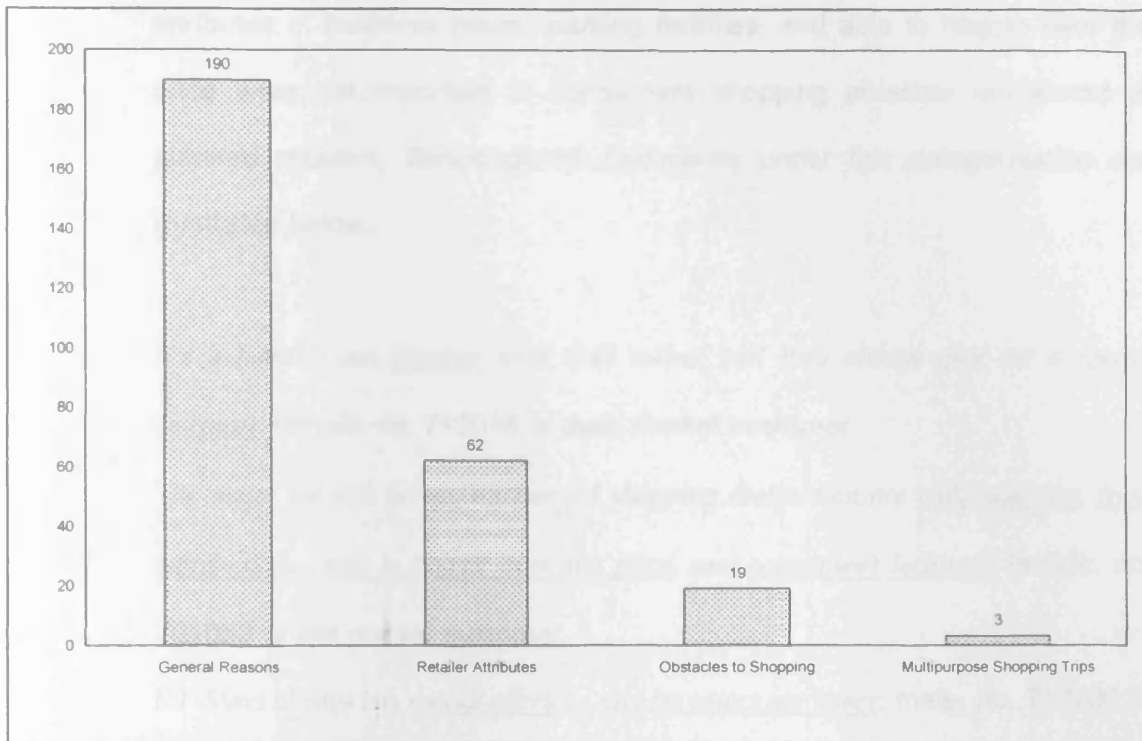
The categorisation of meaning approach was employed to explore reasons for respondents' unchanging patronage behaviour. Following the processes in Figure 8-2, the study formulated four themes to categorise respondents' reasons, namely, general reasons, retailer attributes, obstacles to shopping, and multipurpose shopping trips. Figure 8-4 displays the frequency distribution of the four major reasons for unchanged shopping destination.

Four reasons were identified for respondents' unchanged shopping destination as follows:

- **General reasons:** of 215 respondents whose shopping destination remained unchanged, 190 (88.37 per cent) indicated their unchanged patronage behaviour was due to general reasons, namely, convenient location, near/nearest home or work place, and habit. Respondents' comments are illustrated below:

*I do not usually change my shopping destination because its location is near to my house and its price is reasonable. Sometimes, if my sister happens to visit we may go to other hypermarkets ...: female, no. 701056, a Carrefour B customer.*

*It is my habit to buy foods and groceries at wet markets. Their location is near my house and convenient to reach...I dislike shopping at hypermarkets because their products are not fresh and their location is too far away for me: female, no. 701023, a wet market customer.*



**Figure 8-4 Four Main Reasons for Unchanged Shopping Destination**

- Obstacles to shopping of respondents, 19 (8.84 per cent) indicated
- Retailer attributes:** of 215 respondents, 62 (28.84 per cent) indicated major reasons for their unchanged shopping behaviour were related to eight retailer attributes, namely, suitable business hours, wide selection, lower price, convenient parking facilities, fresh products, familiarity, promotions/special offers, and able to haggle over price. Figure 8-5 displays the frequency distributions of these eight attributes based on unplanned and planned shoppers' choice results, which seemingly inferred that most respondents' unchanged shopping behaviour was due to attributes associated with unplanned retailers, such as fresh products, lower price, familiarity, and wide selection; in contrast, a few mentioned planned retailer attributes, such as wide selection, fresh products, lower price, and promotions. Notably, the

attributes of business hours, parking facilities, and able to haggle over the price were not important to consumers shopping at either unplanned or planned retailers. Respondents' comments under this categorisation are illustrated below:

*It's a habit! I am familiar with stall sellers and they always give me a special discount: female, no. 710018, a dusk market customer.*

*The major reasons for my unchanged shopping destination are wide selection, fresh merchandise, able to haggle over the price, and convenient location: female, no. 701053, a wet market customer.*

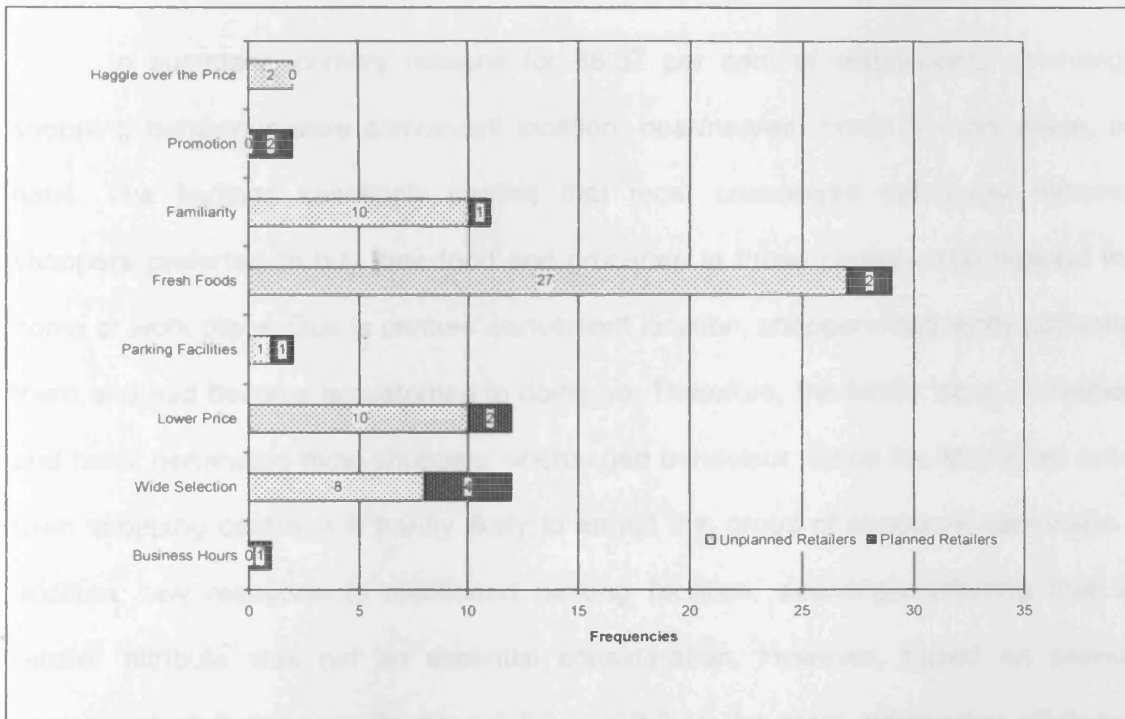
*RT-Mart always has special offers ... and its prices are lower: male, no. 717037, a RT-Mart B customer.*

- **Obstacles to shopping:** of 215 respondents, 19 (8.84 per cent) referred to shopping obstacles: one (0.47 per cent), three (1.40 per cent), five (2.33 per cent), and ten (4.65 per cent) respondents referred to age, no alternative centres in close proximity, poor mobility, and time pressure, respectively. Their comments were as follows:

*I have not changed shopping destination because other larger shopping centres are too far away from my house. I do not have too many choices: female, no. 708011, a wet market customer.*

*It's been my habit to shop at wet markets. I do not know how to reach the larger shopping centres alone ... I cannot drive: female, no. 704019, a wet market customer.*

*I am a career woman. I prefer to shop at wet markets since their locations are near my house. However, in the day time, I have to work ... After finishing my work duties, I buy food and groceries at Carrefour: female, no. 709009, a Carrefour A customer.*



**Figure 8-5 Frequency Distribution of the Eight Attributes**

- **Multipurpose shopping trip:** of 215 respondents, 3 (1.40 per cent) indicated their unchanged shopping behaviour was associated with other activities, such as visiting clients, picking up children from kindergarten/school, and going to the bank. A selection of respondents' comments is provided below:



*I always shop at RT-Mart. The major reason is its wide selections and it's on the way to my clients: male, no. 717055, a RT-Mart customer.*

*It has easy parking. To be honest, I don't have much time for shopping because I am a career woman ... I need to pick up my children everyday and the market is near the kindergarten: female, no. 710033, a dusk market customer.*

In summary, primary reasons for 88.37 per cent of respondents' unchanged shopping behaviour were convenient location, near/nearest home or work place, and habit. The findings seemingly implied that most unchanged patronage behaviour shoppers preferred to buy their food and groceries at those centres near/nearest their home or work place. Due to centres' convenient location, shoppers frequently patronised them and had become accustomed to doing so. Therefore, the factor 'near, convenient, and habit' dominated most shoppers' unchanged behaviour. Since the Mall is an out-of-town shopping centre, it is hardly likely to attract this group of shoppers' patronage. In addition, few respondents mentioned parking facilities, seemingly inferring that this retailer attribute was not an essential consideration. However, based on previous analysis of attributes (see Sections 8.3.3 and 8.3.4), the most outstanding attribute of the Mall is its convenient parking facilities, which failed to attract this group of shoppers. The remaining reasons, shopping obstacles and shopping with multiple purposes, had less influence on respondents' choice behaviour.

#### **8.4.2 Unable to Attract Makro A's Customers**

As mentioned in Chapter 3, Section 3.5.3, the Dutch cash-and-carry chain, Makro, shut down all its outlets in Taiwan in early 2003, and one of them, Makro A, was located near the Taiwan Sugar Mall. Thus, the study examined whether the new entrant,

the Taiwan Sugar Mall, could attract Makro A's former consumers. Fourteen former Makro A customers formed Group Two, since their prior shopping destination had been Makro A in Jente Hsiang. However, when examining their alternative shopping centre in the second survey, none had been attracted to the Mall.

The categorisation of meaning approach was again used to summarise findings derived from respondents' response to statements. Following the processes in Figure 8-2, the study found distance was the key factor influencing shopping behaviour in this group. If a respondent was concerned with this, he/she would switch to patronising proximate shopping centres, either unplanned or planned retailers. However, if a respondent was willing to travel further, he/she would patronise other hypermarkets. Some of respondents' replies relating to the Mall are presented below:

*The Mall's location is too far away for me. Now, I've switched to buying my major food and groceries at nearby traditional retail markets: female, no. 701196.*

*The Mall's location is too far, compared with Carrefour. Previously, I patronised the Makro because of the loyalty card scheme and club coupons. Since its closure, I now prefer to shop at Carrefour: female, no. 701152.*

*Now, I shop at a nearby state-owned co-operative supermarket, enjoying fresh food, lower prices and wide selections. Although the Taiwan Sugar Mall has opened, its location is inconvenient for me ...it's a little bit too far ... I need to spend more time travelling to reach it. Its prices are also higher during a no promotional period: female, no. 717004.*

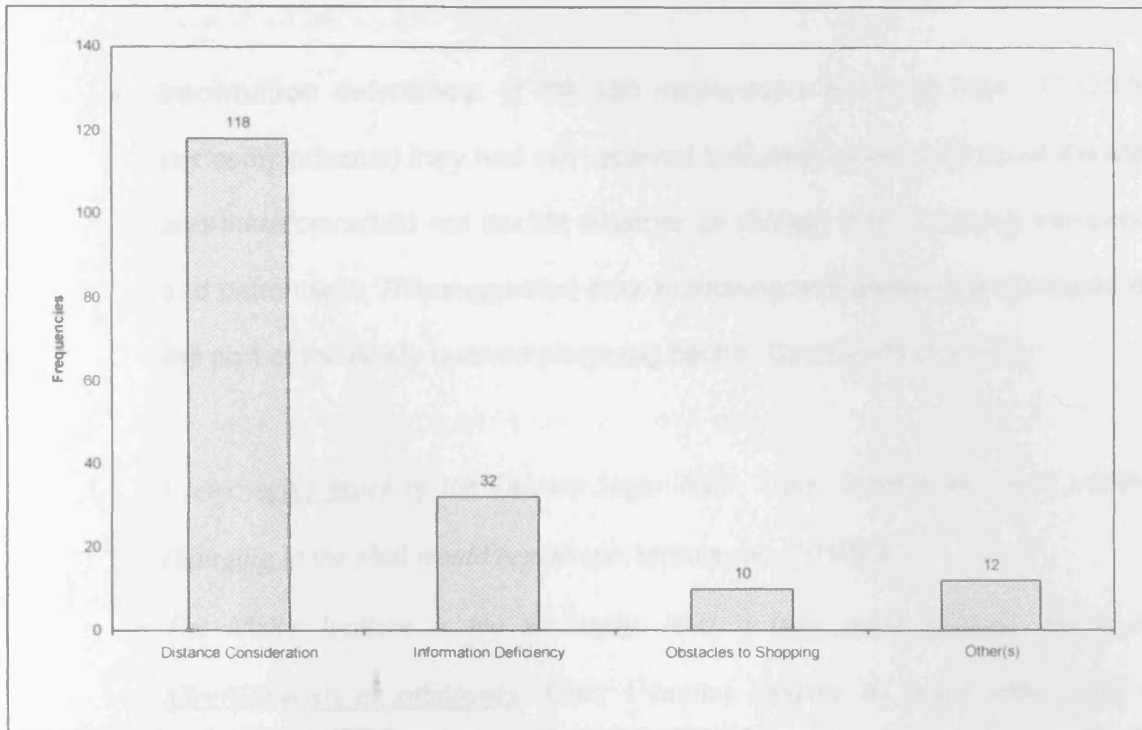
*I have been to the Mall once. However, I find its prices are higher than those of Tesco. I prefer to shop at Tesco even though its location is further than the Mall's. Also, Tesco frequently has advantageous special offers: female, no. 717036.*

In summary, the Mall is unlikely to attract former Makro A customers, even though its location is proximate, seemingly because respondents viewed the Mall as more distant than the Makro A. Makro A was the first hypermarket to enter Tainan's local market in 1992 and by way of issuing a store loyalty card and club coupons, it initially dominated the whole market and generated a turnover of NT\$ 4,000 million (£66.67 million) from a single store (the figure referred to in the *China Times*, 2/13/2003). However, Makro eventually lost its market share as more competitors entered the market and moved back to the nearby city centre. Therefore, Makro A's former customers had likely patronised it for a long time and had become accustomed to doing so. Therefore, despite its proximate location, Makro A's former shoppers were unwilling to patronise the Mall for the reason cited above.

#### **8.4.3 Reasons for not Changing to the Taiwan Sugar Mall**

To explore reasons for not changing to the Taiwan Sugar Mall, respondents who had changed their shopping destination to other alternative shopping centres, apart from the Taiwan Sugar Mall, were assigned to Group Four. Of the 386 respondents, 156 (40.4 per cent) were identified as belonging to this group. Through examining their responses, the study could investigate possible reasons for not changing to the Mall and then find clues to its minor impact.

A similar approach and processes were utilised to categorise respondents' qualitative data (for more details, see Section 8.3.4) into four themes, namely, distance consideration, information deficiency, obstacles to shopping, and other reasons. Figure 8-6 shows their frequency distributions.



**Figure 8-6 Four Main Reasons for Not Changing to the Mall**

Four main reasons for respondents not changing to the Mall are indicated below:

- Distance consideration:** this was most frequently mentioned. Of the 156 respondents in Group Four, 118 (75.64 per cent) indicated that they changed to shop at other alternative shopping centres rather than the Mall because of its inconvenient location and further travel distance, seemingly implying that the concepts of 'near' and 'convenient' still dominated consumers' shopping destination choice behaviour when considering switching behaviour. Some of this groups' replies were as follows:

*The Mall is too far ... inconvenient to reach.* female, no. 701019.

- **Information deficiency:** of the 156 respondents in Group Four, 32 (20.51 per cent) indicated they had not received sufficient information about the Mall and therefore could not decide whether to change their shopping behaviour and patronise it. This suggested poor marketing and advertising strategies on the part of the newly opened shopping centre. Comments included:

*I have never heard of the Taiwan Sugar Mall. Thus, I would not know whether changing to the Mall would benefit me: female, no. 701093.*

*The Mall's location is too far away. Also, I have never received any of its advertisements or catalogues. Thus, I cannot compare its prices with Geant or Carrefour: female, no. 710024.*

- **Shopping obstacles:** this theme related to certain limitations to shopping behaviour. Of the 156 respondents in Group Four, 10 (6.41 per cent) referred to several factors limiting their shopping destination choice, such as poor mobility, time pressure, and unable to perform independent shopping. Relevant comments were:

*I do not have too much time for shopping. The Mall's location is inconvenient for me because I am a motorbike rider: female, no.701088.*

*I cannot shop at such a far away shopping centres alone. I need to have someone accompanying me because I cannot drive. If I had to travel there by motorbike, the distance would be too far and it's not easy to carry packages on a motorbike: female: no. 701122.*

*distance would be too far and it's not easy to carry packages on a motorbike: female: no. 701122.*

- **Other reasons:** this theme contained three different concepts, derived from 12 (7.69 per cent) respondents' essential meaning units but not categorised under the above themes, namely, rejection of hypermarkets, satisfaction with current alternative shopping centres, and bad impression of the Mall. Group Four members' related comments included:

*While shopping, I am concerned about convenience ... but, most importantly, I do not like shopping at hypermarkets: female, no. 702025.*

*Existing alternative shopping centres fulfil my shopping requirements ... I do not intend to shop at the Mall: female, no. 700008.*

*I have been there once. Its location is too far away for me. I also feel uncomfortable there ... I've got a bad impression of the Mall: female, no. 701002.*

In summary, the Mall seemingly failed to attract consumers mainly because of its site location in an off-town area: 75.64 per cent of respondents indicated they did not switch to the Mall due to its inconvenient location necessitating a longer travel journey. This seemingly implied that 'spatial separation distance' was the primary consideration for their switching behaviour. However, 20.51 per cent of respondents stated they had not received sufficient information about the Mall, that is, the Mall had failed to effectively advertise its entry into the market. Respondent (no. 701076) commented, '*Its advertising is totally inadequate. For instance, I have received far more advertising literature from RT-Mart than the Mall.*' In addition, several respondents said they were unaware the Mall had

opened. Respondent (no. 717060) stated, *'I really do not know anything about the Taiwan Sugar Mall. Has it opened?'* This respondent's remarks indicated that the Mall had not advertised its activities sufficiently to attract consumers' attention. Finally, and more seriously, two (1.28 per cent) respondents had retained a bad impression of the Mall after visiting it. Respondent (no. 717020) said, *'I have been here. I had a bad experience. I will never shop at the Mall again.'*

## 8.5 CHAPTER SUMMARY

Due to a sample deficiency, the present study employed a qualitative analysis, rather than previous quantitative shopping models, to explore reasons for respondents not patronising the Taiwan Sugar Mall and to identify clues for its minor impact on the existing shopping centres.

Based on the percentage analysis, the study found only 3.1 per cent and 0.3 per cent of trade diversion from existing shopping centres to the Mall in terms of comparison and convenience goods, respectively. In addition, only 0.78 per cent and 1.04 per cent of respondents indicated they carried out out-shopping in the first and second round surveys, respectively. This seemingly implied there was evidence to suggest Taiwan Sugar Mall had not had a serious impact on existing shopping centres. In fact, based on panel survey data, the Mall appeared to be facing a serious deficiency in patronage. Moreover, when the author visited it during the second round survey (January, 2004), the Mall appeared to be empty (for more details, see Appendix A, Figures A-5, A-6, A-7, and A-8).

Eliciting respondents' opinions on the new type of out-of-town shopping centre, the study found that those who had visited the Mall lived in districts within 10 minutes driving distance, the majority living in rural areas. In terms of environmental impact,

development of the Mall had not only increased the length of travelling distance (on average 6.60 km) but also generated a larger number of motorised journeys. In addition, respondents' spending level at the Mall was similar to their convenience goods shopping, but less than their comparison goods shopping.

Using a five point Likert scale, ranging from 2 to -2, an assessment of the Mall's attributes was undertaken by respondents. The findings seemingly inferred that the Mall has a good anchor tenant, i.e. Tom Dragon Amusement Park, and convenient car parking facilities. However, its location is too far away for urban area residents and motorbike users, and its quality of consumer services is questionable. Respondents' likes/dislikes towards the remaining four determinants, namely, design/planning, small shops, atmosphere, and price/value, were evenly balanced. This finding may be due to this being their first experience of an out-of-town shopping centre.

Exploring respondents' opinions about the Mall, eight themes were constructed. Two were presented as positive (i.e. parking facilities and anchor tenants), two as negative (i.e. location and services), and four as evenly balanced (i.e. design/planning, small shops, atmosphere, and price/value). The variation in findings may again be due to this being respondents' first experience of an out-of-town shopping centre.

To explore possible reasons for not patronising the Mall, four groups of respondents were identified and categorised based on their major convenience goods shopping destinations presented between the two surveys. Of 215 Group One respondents, patronising exactly the same place as previously, 190 (88.37 per cent) were primarily concerned about convenient location, near/nearest home or work place, and habit, categorised under the theme of general reasons. The secondary consideration related to retailer attributes for 62 (28.84 per cent) of respondents. Only two respondents thought good car parking facilities were essential. Therefore, because



the Mall is located in an outer suburban area and its most outstanding merit is its convenient parking facilities, it is hardly surprising that it has failed to attract their patronage.

Among Group Two members, original Makro A customers, not one had switched to shopping at the Mall, despite their proximate locations. According to this group's replies, the study found the key element influencing their alternative shopping destination choice was distance. If a respondent was concerned about this, he/she would change to patronising proximate shopping centres, either unplanned or planned retailers. In contrast, if a respondent was willing to travel longer journeys, he/she would change to patronising other supermarkets. The result seemingly inferred respondents had different standards when evaluating the Makro and the Mall due to prior shopping experience and habit.

Only one respondent was assigned to Group Three, due to having changed from shopping at wet markets to the Mall. She explained she had switched to shopping at the Mall because her daughter worked in the Taiwan Sugar Company and if she shopped at the Mall she could receive staff discount, seemingly inferred she patronised the Mall only to receive this special discount.

Respondents in Group Four, who had not changed to the Mall, indicated four main reasons for their behaviour, namely, distance consideration, information deficiency, shopping obstacles, and other factors. Of 156 respondents in this group, 118 (75.64 per cent) indicated distance was their primary consideration, seemingly implying they did not find the new type of out-of-town retail development attractive, due to its inconvenient location and the longer travel journey required to reach it. Finally, 32 (20.51 per cent) respondents reported they had received insufficient information about the Mall,

seemingly inferring that the Mall had ineffectively advertised its entry into the market as a new type of shopping centre within the study area.

## Chapter 9

# Conclusions and Further Research

### 9.1 INTRODUCTION

Taiwan has experienced a series of economic growth phases since the 1940s. Following these growth phases, there have been considerable changes in the nature of the retail system and consumer behaviour on the island. Particularly, in 1994, in order to promote economic development, the ***Industrial and Commercial Composite Area Establishment Law*** (ICCAE Law) was promulgated by the MOEA and the MOI, which opened the door to allow a new type of larger out-of-town retail development in Taiwan. To-date, the total development area for thirty-nine proposed new type larger out-of-town retail developments amounts to over 340 hectares (almost 3.4 million square metres).

Reviewing Western Countries' experience, larger off-centre retail developments have been reported to have had a serious impact on existing shopping centres, especially small shops in high streets or town centres (e.g. Howard, 1989, 1993; Howard and Davies, 1991, 1993; Roger Tym and Partners, 1993). Thus, in Britain, a clear approach to assessing effects has been developed, namely, retail impact assessment, for application in the context of planning policy and decision-making. However, in Taiwan, examining the whole decision-making process, the planning authorities have

considered only how to loosen the rigorous land-use control of zoning regulations (for more details, see Chapter 3, Section 3.3.2).

The present study was motivated by other countries' experience of this new type of retail development and its possible impact on existing shopping centres in Taiwan. Thus, it aimed to investigate the relationship between consumers' patronage behaviour and the retailing system in Taiwan's urban area and, drawing on changes in behaviour, to infer likely retail impact derived from the new retailer type. The Taiwan Sugar Mall in Tainan, Taiwan, one of the first larger out-of-town retail developments derived from the ICCAE Law, was selected as a case to conduct an empirical study. Based on the research purpose, three research questions were developed.

- What are the main factors affecting shopping destination choice behaviour within the study area?
- What are factors affecting changes in shopping behaviour over time?
- When the Taiwan Sugar Mall opens, will the new type out-of-town retail development be likely to be successful and then change original shopping patterns within the study area?

After this initial introduction, this final chapter discusses the main findings of the empirical work, considers the research's significance and contribution, details the research limitations, and presents suggestions for further research.

## 9.2 SUMMARY OF MAIN RESEARCH FINDINGS

### 9.2.1 Factors Affecting Shopping Destination Choice Behaviour in Taiwan

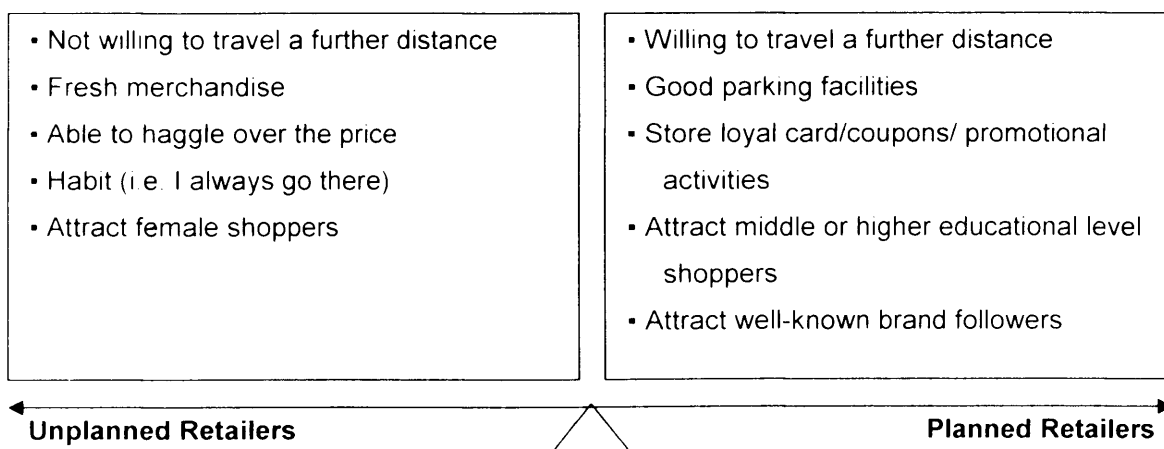
Shopping destination choice behaviour, traditionally, is viewed as a patronage decision process that leads a consumer to patronise a particular shopping centre from his/her consideration set of shopping centres. Further, considering the research questions, the study assumed the patronage decision process is a simultaneous process, i.e. shoppers will evaluate all alternative shopping centres at the same time, and therefore investigated households' choice behaviour at different levels of retailer type based on single-stop trips, namely, convenience and comparison goods shopping trips.

Reviewing the origin of shopping destination choice studies, shopping destination choice behaviour has been widely studied for many decades from different academic disciplines/perspectives, and numerous models have been built and revealed over time. Among them, discrete choice models came to the fore in the 1970s due to the inapplicability of the conventional marginalist microeconomic consumer theory to measure discrete consumer behaviour. Unlike normative spatial models relying on aggregate shopping flows, discrete choice models focus on discrete choices made by consumers on individual shopping trips rather than on aggregate proportions of trips made from various zones. The study employed the multinomial logit (MNL) model, the most widely applied and tractable model among the family of discrete choice models, to investigate households' shopping destination choice behaviours in Taiwan.

The first research question asked 'what are the main factors affecting shopping destination choice behaviour within the study area?' A review of relevant shopping destination choice studies revealed most focus on the relationships between consumers, shopping destination choice behaviour, and a set of variables assumed to influence their patronage behaviour. As a result of the lack of prior relevant empirical studies in Taiwan

and the practical impossibility of including all factors affecting shopping destination choice behaviour, this study extracted five major determinants, namely, situational factors, spatial environmental factors, store selection criteria, buyer/household demographic and socio-economic characteristics, and attitudes towards shopping, to explain and explore households' shopping destination choice behaviour in Tainan, Taiwan.

In terms of convenience goods shopping trips, the study found the complex polytomous logistic regression model did not contribute much understanding of households' shopping destination choice behaviour compared with the simple dichotomous logistic regression model. Among major determinants, the study found spatial separation distance best explained respondents' shopping destination choice behaviour, followed by store selection criteria. In contrast, demographic and socio-economic characteristics and attitudes towards shopping were less strongly explanatory. Figure 9-1 shows primary factors influencing households' shopping destination choice behaviour based on the dichotomous choice set.

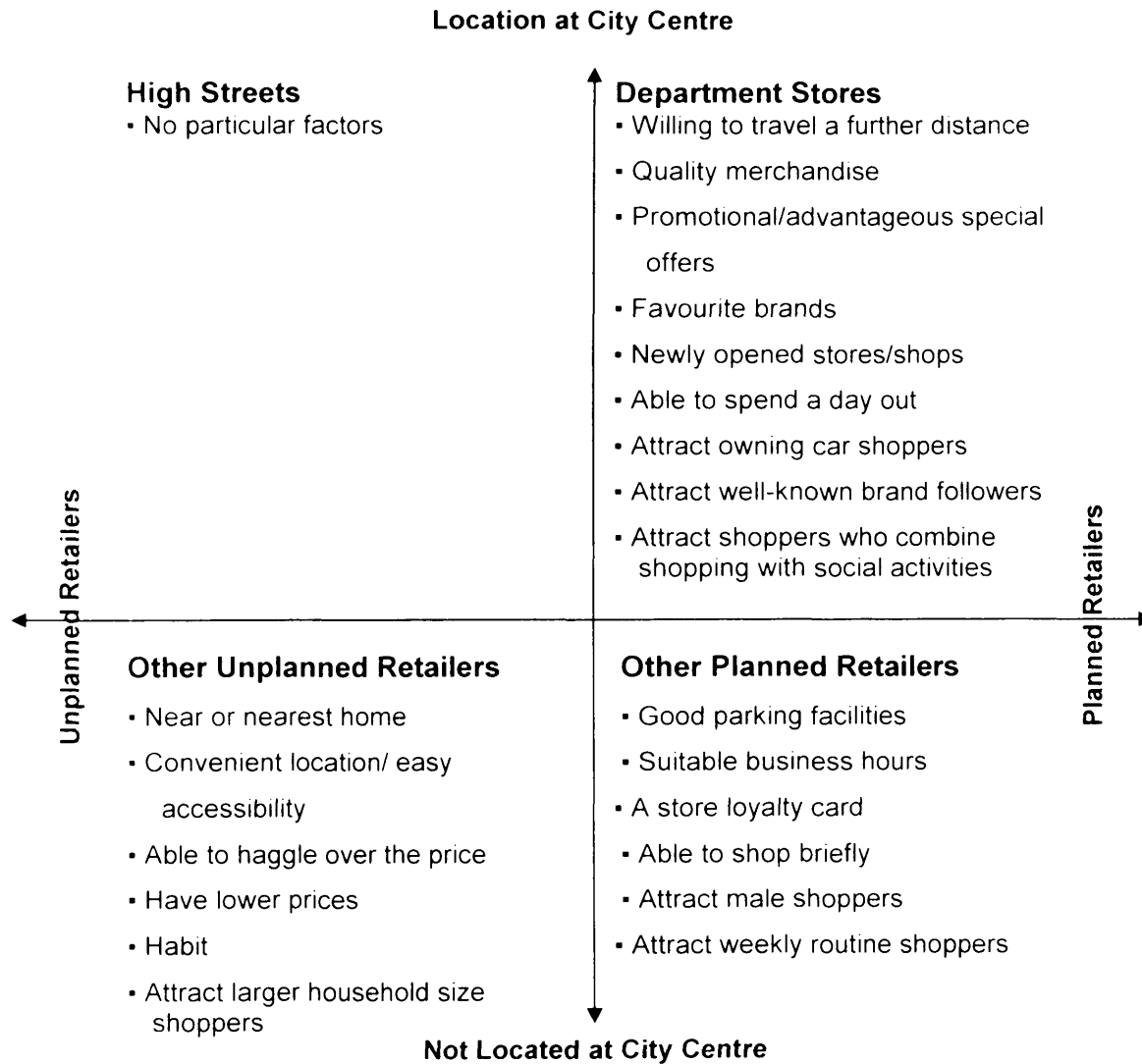


**Figure 9-1 Factors Influencing Households' Choice Behaviour  
for Convenience Goods Shopping**

In terms of comparison goods shopping trips, the study found differences were highlighted between the dichotomous and the complex polytomous logistic regression model. The latter appeared to better explain and differentiate between the four dependent variable categories (i.e. high streets, other unplanned retailers, department stores, and other planned retailers). In general, spatial separation distance showed poorer explanatory effect in comparison goods shopping trips than convenience goods shopping trips. Store selection criteria were more powerful determinants of households' shopping destination choice behaviour than spatial separation distance, attitude towards shopping, and demographic and socio-economic characteristics. Attitudes towards shopping had better explanatory ability in comparison goods shopping trips than in convenience goods shopping trips. Demographic and socio-economic characteristics were less strongly explanatory. In other words, households' comparison goods patronage behaviour was more complicated than their convenience goods patronage behaviour. Figure 9-2 shows in detail factors affecting households' shopping destination choice behaviour for their comparison goods shopping trips.

Based on the findings, in terms of convenience goods shopping, a new planned retailer should have good car parking facilities and an attractive store loyalty card scheme/ coupons/promotional activities, in order to attract those willing to travel a further distance, with middle to high educational levels, and a preference for well-known brands. In terms of comparison goods shopping, if a new planned retailer wants to compete with department stores, it should have quality merchandise, advantageous special offers (or promotional activities), reputable brands, and newly opened shops in order to attract car owning shoppers, well-known brand followers, and shoppers who combine shopping with social activities. Further, if a new planned retailer wants to compete with other

planned retailers (e.g. hypermarkets), it should have good parking facilities, suitable business hours, and a store loyalty card scheme, in order to attract male shoppers and weekly routine shoppers.



**Figure 9-2 Factors Influencing Households' Choice Behaviour for Comparison Goods Shopping**



### 9.2.2 Factors Affecting Changes in Shopping Behaviour over Time in Taiwan

The second question was: 'what are factors affecting changes in patronage behaviour over time?' Changes in patronage behaviour might derive from altered choice sets (e.g. a new retailer entering/leaving the retail system), households themselves, or random (unexplained) factors. In this study, altered choice sets could be identified as Makro suddenly leaving the retail system in early 2003 and Taiwan Sugar Mall entering at the end of 2003. Changes in households themselves could contribute to variation in households' responses over time or actual switching patronage behaviour.

Examining whether the change in the retail system had influenced households' shopping destination choice behaviour, the study found, statistically, that although choice sets were adjusted, households were more likely to continue to patronise the shopping centres at which they most frequently shopped. In other words, after the Taiwan Sugar Mall entered the retail system, only a few households switched their original shopping destinations to shop at the new centre. In detail, of 386 respondents, only one had changed her original shopping destination from wet markets to the Mall for convenience good shopping; and only twelve had changed their original shopping destination to the Mall for comparison goods shopping.

Analysing variances in households' responses to major determinants over time, the study found no statistically significant difference in respect of spatial separation distance, and demographic and socio-economic characteristics. Only two (wide selection and one stop shopping) and three (wide selection, childcare facilities, and one stop shopping) store selection criteria in convenience and comparison goods shopping trips, respectively, presented significant differences in their frequency distributions over time.

To investigate households' switching patronage behaviour, four groups of shoppers were categorised, namely, steady unplanned retailer shoppers, changed-to-

planned retailer shoppers, changed-to-unplanned retailer shoppers, and steady planned retailer shoppers, based on their choice results between the two surveys. Two pairs of shoppers (i.e. steady and changed shoppers) were compared at a time to examine factors affecting their changed patronage behaviour for convenience and comparison goods shopping.

In terms of convenience goods shopping trips, the study found attitudes towards shopping failed to explain changed behaviour. When compared with steady unplanned retailer shoppers, changed-to-planned retailer shoppers were identified as: travelling further, younger, having shorter residential durations, single, employed, with a higher educational level, middle to high personal income, or lived in terraced houses or blocks of flats. Steady unplanned retailer shoppers were less concerned about wide selection and one stop shopping, whereas changed-to-planned retailer shoppers were more concerned about good parking facilities, business hours, and store loyalty card/promotion/coupons and less concerned about fresh products and able to haggle over the price.

When compared with steady planned retailer shoppers, changed-to-unplanned retailer shoppers were identified as: travelling less, married, unemployed, with a lower educational level, lower personal income, and lower household income. Changed-to-planned retailer shoppers were more concerned about habit, shopping centres near or nearest home, and quality products, and less concerned about good parking facilities, one stop shopping, and store loyalty card/promotion/coupons.

In terms of comparison goods shopping trips, all determinants were found to have influential explanatory effects. Compared with steady unplanned retailer shoppers, changed-to-planned retailer shoppers were identified as: travelling further, younger, having shorter residential durations, single, with a higher educational level, higher

personal income, higher household income, lived in terraced houses or blocks of flats, or were well-known brand followers or weekly routine shoppers. Changed-to-planned retailer shoppers were more concerned about advantageous special offers, quality products, good parking facilities, favourite brands, and store atmosphere, and less concerned about able to haggle over the price, shopping centres near or nearest home, and lower prices.

When compared with steady planned retailer shoppers, changed-to-unplanned retailer shoppers were identified as: travelling less, owning more motorbikes, with a lower educational level, lower personal income, or lower household income. Steady planned retailer shoppers were less concerned about wide selection and one stop shopping, whereas changed-to-planned retailer shoppers were more concerned about shopping centres near or nearest home, convenient location, lower prices, able to haggle over the price, and habit, and less concerned about good parking facilities, wide selection, quality products, one stop shopping, store loyalty card, advantageous special offers, and newly opened stores.

Based on the findings, if a new planned retailer wants to attract unplanned retailer shoppers, it should have good parking facilities, a store loyalty card scheme/coupons/promotional activities, suitable business hours, quality products, pleasant store atmosphere, and favourite brands. It will then attract shoppers willing to travel a further distance, who are younger, have short residential durations, are employed, with a higher educational level, middle to high personal income, higher household income, live in terraced houses or blocks of flats, have a positive attitude towards well-known brands and were weekly routine shoppers.

**Table 9-1 Factors Influencing Changed-to-planned Retailer Shoppers**

Determinants	Variables	Convenience Goods Shopping	Comparison Goods Shopping
Spatial Separation Distance	Increased Travel Distance	Increased travel distance	
Demographic and Socio-economic Characteristics	Age	Younger	
	Residential Duration	Short	
	Marital Status	Single	
	Employment Status	Employed	None
	Educational Level	Higher	
	Personal Income	Middle to high	Higher
	Household Income	None	Higher
Attitudes towards Shopping	Type of House	Lived in terraced houses or blocks of flats	None
	Well-known Brand Followers	None	Positive attitude
	Weekly Routine Shoppers		Positive attitude
More Important Criteria	Parking Facilities	Selected	
	Store Loyalty Card Scheme/ Promotional Activities	Selected	
	Suitable Business Hours	Selected	None
	Quality Products	None	Selected
	Store Atmosphere	None	Selected
	Favourite Brands	None	Selected

### 9.2.3 Minor Retail Impact of the New Type of Larger Out-of-town Retail

#### Development - Taiwan Sugar Mall in Tainan, Taiwan

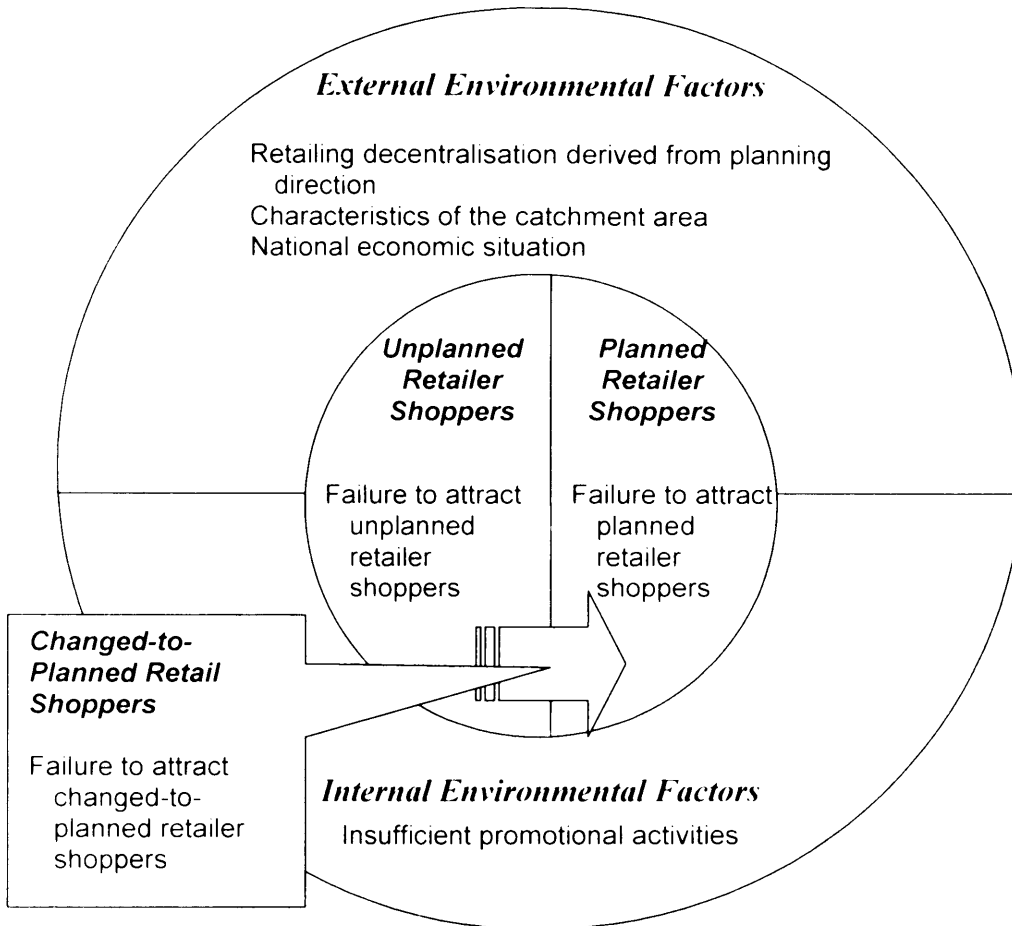
Retail impact, fundamentally, is an economic concept, concerned with the diversion of trade from an existing shopping centre to a new development, although more recently it has expanded to social and environmental considerations. In order to accurately measure effects, it is necessary to use the most appropriate approaches. Through the advance of shopping destination choice behaviour models, some studies have expanded conventional shopping models to include impact studies (e.g. Timmermans, 1993; Arentze et al., 2000; Arentze and Timmermans, 2000). To

accomplish the original purpose of the present study, the MNL shopping model was designed to analyse changes in patronage behaviour and estimate possible impacts of Taiwan Sugar Mall. However, because of sample deficiency – only one and twelve respondents had changed their original patronage behaviour to shop at the Mall for convenience and comparison goods, respectively, it was not possible to use the quantitative shopping model. Instead, a qualitative analysis was employed to explore possible reasons for not patronising the Mall.

The third research question was: 'when the Taiwan Sugar Mall opens, will the new type of out-of-town retail development be likely to be successful and then change original shopping patterns within the study area?'. Based on percentage analysis, the study found only 3.1 per cent and 0.3 per cent of trade diversion from existing shopping centres to the Mall in terms of comparison and convenience goods, respectively. This seemingly implied there was insufficient evidence to show Taiwan Sugar Mall had had a serious impact on existing shopping centres. In fact, based on panel survey data, the Mall appeared to be facing a serious deficiency in patronage. Figure 9-3 shows major reasons for the minor impact of the Mall. These will be discussed below.

- **Retailing decentralisation derived from planning direction:** since the Mall is one of the first out-of-town shopping centres, its appearance can be regarded as the advent of retailing decentralisation in Taiwan. In Western Countries, retailing decentralisation is derived from suburbanisation of the population, increased mobility, increased disposable income and consumption expenditure, or negative attitude towards city centres. However, in Taiwan, retailing decentralisation is primarily derived from planning direction (i.e. the ICCAE Law) and developers' desire for cheaper available

land, and is not promoted by consumers' demand (for more details, see Chapter 3, Section 3.3.2).



**Figure 9-3 Characteristics for Taiwan Sugar Mall's Minor Impact**

- Characteristics of the catchment area:** under this situation, although out-of-town retail developments have taken place, most of the population still reside in urban areas. For instance, in the present study, there were 4,442 persons per square kilometre in the urban area of Tainan City, but only 549 and 442 persons per square kilometre in the suburban areas of Taiwan and Kaohsiung Counties, respectively. Further, households living in urban areas

have higher disposable income and consumption expenditure than those living in suburban areas. For instance, on average in 2003, disposable income per household was NT\$ 849,733 (£14,162), NT\$ 741,752 (£12,363), and NT\$ 667,189 (£11,120) in Taiwan City, Tainan and Kaoshiung Counties, respectively; consumption expenditure per household was NT\$ 653,103 (£10,885), NT\$533,672 (£8,895), and NT\$ 491,959 (£8,199) in Taiwan City, Tainan and Kaoshiung Counties, respectively (for more details, see Chapter 4, Section 4.4). In other words, the Mall requires a larger catchment area than other planned retailers located in urban areas.

- **National economic situation:** the national economic situation also influences consumers' patronage behaviour. Unlike its previous prosperous economic era, Taiwan's national economic performance slowed sharply in 2001 and has continued to deteriorate. This has an impact on consumer habits, such as less spending, less travelling, or switching to alternative shopping centres to look for value for money merchandise. Examining households' switching behaviour in the present study, the results seemingly support the above assumptions – since most changed-to-unplanned retailer shoppers were those belonging to the unemployed, lower educational level, lower personal income, or lower household income categories (for more details, see Chapter 7, Sections 7.3.3 and 7.4.3).
- **Failure to attract unplanned retailer shoppers:** since the Mall is located at an out-of-town site, it finds it hard to attract unplanned retailer shoppers. According to households' shopping destination choice models (for more details, see Chapter 6, Sections 6.3.2 and 6.4.3), those willing to travel a further distance for their shopping trips belonged to planned retailer shoppers,

either on convenience or comparison goods shopping trips. Based on respondents' shopping behaviour, on average, respondents travelled 6.60 km, 4.19 km, and 3.20 km to patronise Taiwan Sugar Mall, and shopping centres for their last comparison and major convenience goods shopping trips, respectively. That is, to patronise the Mall respondents need to travel a further distance.

- **Failure to meet planned retailer shoppers' requirements:** Comparing planned retailer shoppers' store selection criteria with the Mall's attributes, the findings seemingly imply that the Mall is failing to meet planned retailer shoppers' requirements. Table 9-2 presents the details. Based on households' shopping destination choice models developed in the present study (for more details, see Chapter 6, Sections 6.3.2 and 6.4.3), seven store selection criteria were presented as very important for influencing households' choice behaviour. Among them, two criteria only, namely, parking facilities and business hours, met planned retailer shoppers' expectations. In contrast, the remaining five store selection criteria, namely, store loyalty card scheme, promotional/advantageous special offers, quality products, favourite brands, and able to spend a day out, did not fulfil planned retailer shoppers' requirements. According to the explanatory effects of all seven criteria (for more details, see Chapter 6, Sections 6.5.1 and 6.5.2), five shown not to meet planned retailer shoppers' expectations were presented as primary factors with high explanatory effects. According to qualitative findings (for more details, see Chapter 8, Section 8.3.4), when asked their likes/dislikes about the Mall, respondents referred only to its good car parking facilities.



In terms of attracting planned retailer shoppers, the Mall has to compete with existing major planned shopping centres, such as hypermarkets in convenience goods markets and department stores in comparison goods markets. However, due to its lack of a store loyalty card scheme/coupons/ promotional activities, the Mall finds it difficult to compete against hypermarkets. Moreover, due to its lack of quality products, promotional/ advantageous special offers, favourite brands, and shoppers' inability to spend a day out in it, the Mall poses very little if no competitive threat to department stores.

**Table 9-2 Planned Retailer Shoppers' Required Criteria and the Mall's Attributes**

Planned Retailer Shoppers Required Criteria		Criteria	Taiwan Sugar Mall's Attributes		
Convenience Goods	Comparison Goods		Positive Opinion	Uncertain	Negative Opinion
■	■	A store loyalty card scheme			■
■	■	Promotional/Special offers			■
	■	Quality products		■	
■		Good parking facilities	■		
	■	Suitable business hours	■		
	■	Favourite brands		■	
	■	Able to spend a day out			■

- Failure to attract changed-to-planned retailer shoppers' patronage:** although some households had changed their shopping destinations from unplanned to planned retailers, the Mall was failing to meet changed-to-planned retailer shoppers' requirements. Table 9-3 presents the details. Based on factors influencing changes in households' patronage behaviour

(for more details, see Chapter 7, Sections 7.3.2 and 7.4.2), seven store selection criteria were presented as very important for influencing households' changing patronage behaviour. Among them, three criteria, namely, parking facilities, business hours, and store atmosphere, met changed-to-planned retailer shoppers' expectations. In contrast, the remaining four criteria, namely, store loyalty card scheme, promotional/advantageous special offers, quality products, and favourite brands, did not fulfil changed-to-planned retailer shoppers' requirements. According to the explanatory effects of all seven criteria (for more details, see Chapter 6, Section 6.5.1 and 6.5.2), four shown not to meet changed-to-planned retailer shoppers' expectations were presented as primary factors with high explanatory effects.

**Table 9-3 Changed-to-Planned Retailer Shoppers' Required Criteria and the Mall's Attributes**

Changed-to-Planned Retailer Shoppers' Required Criteria		Criteria	Taiwan Sugar Mall's Attributes		
Convenience Goods	Comparison Goods		Positive Opinion	Uncertain	Negative Opinion
■	■	A store loyalty card scheme			■
■	■	Promotional/Special offers			■
	■	Quality products		■	
■	■	Good parking facilities	■		
■		Suitable business hours	■		
	■	Favourite brands		■	
	■	Pleasant store atmosphere	■		

- **Insufficient promotional activities:**

According to qualitative findings (for more details, see Chapter 8, Section 8.4.3), respondents who had not changed to the Mall (i.e. Group Four.) reported they had received insufficient information about it, seemingly inferring that the Mall had ineffectively advertised its entry into the market as a new type of shopping centre within the study area.

Based on these research findings, the study seems to suggest the Western new style of larger out-of-town retail development seemingly fails in the existing retailing system in Taiwan. Throughout the 1990s, several Western new retail types were introduced into Taiwan's local market, and experienced a period of rapid expansion and increasingly fierce competition (for more details see Chapter 3, Section 3.5.3). These new retail types primarily attract more affluent shoppers, who own a car, have a higher educational level, and younger shoppers who more readily accept new retail types. Based on social geographical conditions in my urban study area, households living in this type of area have higher disposable incomes and consumption expenditure than those living in suburban areas (for more details see Chapter 4, Section 4.4). For this reason, the town centre (or central business district) is continuously attractive to department stores, which seek to locate their new branches here, despite the higher development costs and limited available land. For the same reason, hypermarkets changed their initial location strategy from the suburban to the urban area in order to attract consumers with higher consumption expenditure. Therefore, when a larger out-of-town retail development is introduced into the existing retailing system, it will have to directly compete with existing department stores and hypermarkets to attract those willing to travel further. Based on the research findings, the new shopping centre needs

to provide sufficient car parking space, and lease it to retailers who sell well-known favourite brands, and provide high quality of products/services. The new centre should continue to introduce attractive promotional offers. However, when considering the retailing environment, in Taiwan, department stores have long cooperated with major retailers with well-known favourite brands to sell their merchandise within their premises and have their own expansion strategies to introduce new branches in city centres. Therefore, out-of-town shopping centres will experience difficulty in attracting either those retailers with well-known favourite brands as tenants or department stores as anchor stores. In addition, existing hypermarkets are unwilling to become anchor stores within out-of-town shopping centres because they have changed their location strategy from out-of-town to within town/city centres. Consequently, larger out-of-town shopping centres cannot be considered successful regional shopping centres due to their failure to introduce tenants attractive to affluent consumers who live in urban areas. The example of Singapore (Yap, 1996; Fatt, 2001) offers a useful alternative to overcome deficiencies of out-of-town retail development in Taiwan. Yap (1996: p.17) suggested less competitive shopping centres have also considered converting their retail space to more sought-after office space. Fatt (2001: p.21) also pointed out the Mass Rail Transit malls being close to the bus interchange and Mass Rail Transit stations are easily accessible to customer traffic, even though they are located in suburban areas. It is seemingly suggested that future out-of-town shopping centre development should be integrated within government development plans for new town or transportation systems.

### 9.3 SIGNIFICANCE AND CONTRIBUTION OF THE RESEARCH

The major contributions of this thesis can be summarised as follows:

- **Methodological contributions:** the study employed a mixed method - concurrent nested strategy - embodying a qualitative strategy in a quantitative strategy. Through this strategy, the study explored reasons for respondents not patronising the Mall and overcame the sample deficiency in the quantitative analysis, providing an example of how to successfully transform and integrate quantitative and qualitative data within the analysis procedure.

In addition, in order to analyse changes in patronage behaviour over time, the study was designed as a repeat panel survey, that is, the same respondents were interviewed in two surveys. Examining relevant patronage behaviour studies, few have been conducted using this method to examine switching shopping destination choice behaviour. Therefore, the study fills a gap in the literature on switching patronage behaviour.

- **Empirical contributions:** First, using quantitative choice models, Taiwanese households' shopping destination choice behaviour was explored. Based on the empirical findings, the suitability of the dichotomous and polytomous logistic regression models was confirmed and different patronage behaviour between Western countries and Taiwan was identified.

Second, since the Mall is one of the first larger out-of-town retail developments in Taiwan, the findings can provide useful feedback to planning authorities. Planning direction generally promotes retail development through loosening rigorous land-use control. However, if the developer is unaware of consumers' shopping behaviour in local areas, the

result is likely not to be as anticipated, as in the case of Taiwan Sugar Mall. The study presented an example of how to evaluate the impact of a new retail development on existing shopping centres based on households' shopping destination choice behaviour.

Third, based on the findings, retailer managers can identify households' shopping destination choice behaviour and produce appropriate marketing strategies.

Fourth, examining East Asian studies, few have used shopping destination choice behaviour models to evaluate retail impact. The present study used Taiwan as an example to investigate households' shopping destination choice behaviour and possible retail impact derived from a new type of out-of-town retail development.

Studies in the Western literature tend to investigate planned retailer shoppers' choice behaviour and ignore unplanned retailer shoppers' choice behaviour. The present study has confirmed the importance of the latter group of shoppers in the East Asian context, indicating they need to be considered when analysing Asian shoppers' patronage behaviour.

Last, through examining the new larger out-of-town retail development in Taiwan, the study provided important new evidence to suggest this type of retail development may fail in this region. Because Taiwan is one of the best market opportunities in East Asia, the findings could be regarded as a steppingstone to entering East Asian markets. They suggest that simply transplanting Western practices into East Asian local markets is not enough. Retailers (or developers) need to carefully investigate

local consumer patronage behaviour and local social and geographical conditions.

## **9.4 LIMITATIONS AND IMPLICATIONS FOR FURTHER RESEARCH**

### **9.4.1 Limitations**

It is hard to isolate a research project from limitations or shortcomings, either due to internal or external factors. In this study, limitations of the present study are mentioned below:

- The first research limitation was due to the postponement of Taiwan Sugar Mall's opening from the end of 2002 to 2003 which meant that as soon as the Mall opened on 18<sup>th</sup> December, 2003, the researcher had to immediately conduct the second round survey due to time constraints. This meant the latter part of the study was carried out during the very early days of the store's entry into the retailing system when shoppers were less likely to visit it (because of poor publicity) which may have biased the results.
- Related to the first issue is another limitation of the research, the time lag between the first and second round surveys of sixteen months. As a consequence, it was inevitable that other factors not initially foreseen or taken into account when devising the survey would influence household's shopping destination choice behaviour, for instance, changes in the national economic situation, or the Makro suddenly leaving Taiwan's retailing market.
- The third limitation is the sample deficiency. As regards the longitudinal panel study, it was necessary to interview exactly the same respondents in the second round survey. Although the study obtained a 71.48 per cent response rate, the deficiency in the number of respondents changing to patronise the

Mall was presented. As a result, quantitative shopping models could not be used to explain/predict the possible impacts of the Mall. Therefore, the study changed the research focus to analysing shopping destination choice behaviour and possible retail impact based on changed patronage behaviour.

- Lack of relevant shopping destination choice behaviour studies in Taiwan is the fourth limitation. The study extracted major determinants affecting households' choice behaviour based on available literature in Western societies. Such studies may not take account of economic and cultural differences between Eastern and Western societies which may influence households' shopping behaviour (e.g. open air dusk and night markets, and high streets' and department stores' longer business hours not usually found in Western countries).
- The last limitation is that the study did not conduct a shopper survey in the Mall. According to relevant impact studies, a shopper survey in a new development is always useful. However, because of time constraints, lack of financial support, and failure to gain permission from the Taiwan Sugar Company (TSC) to conduct an in-store survey inside the Mall, the study conducted household shopping behaviour surveys only.

#### **9.4.2 Further Research**

It is suggested further research be conducted on the implications of the new type of larger out-of-town shopping centre development. Based on the findings, the study found the Mall attracted a higher patronage percentage from residents living in the suburban area than those living in the urban area, seemingly implying that the Mall could have a more serious long-term influence on existing unplanned retailers, such as



traditional retail markets or small shops in high streets in nearby small towns, than presently indicated in the research.

Second, an additional shopper survey could be carried out in Taiwan Sugar Mall. According to relevant impact studies, a shopper survey in a new development is always useful. An in-store survey could investigate what kinds of consumers are actually attracted to shopping at the new shopping centre, what their previous shopping destinations were, and where they come from. This information could be used to supplement the deficient samples in the households' shopping behaviour survey and then be used to more accurately assess the likely retail impact of the Taiwan Sugar Mall.

Third, since the study has introduced the concept of retail impact assessment to Taiwan, further research could examine how to implement the concept into the existing planning system. In particular, the importance of retail impact assessment in the planning system lies in its application in the context of planning policy and decision-marking.

Fourth, reviewing recent shopping destination choice model developments, several concepts have been added to choice behaviour, such as multi-stop trips, hierarchical or sequential choice behaviour, and a variety of models have been developed to explain or predict consumers' shopping destination choice behaviour. Further research could utilise these different concepts to test or modify various models based on Taiwan's retailing environment.

Last, in terms of international retailing, the Western retail development model has been introduced into East Asian markets. Since Taiwan is one of the best market opportunities, several Western retailer types, such as convenience stores, supermarkets, hypermarkets, department stores, and larger shopping mall, have been introduced into the local market. However, the fundamental political, economic, social, cultural and retail

structural conditions are different and do not appear to support the Western retail development model. Further research could explore whether these new retail types in Taiwan should still follow the Western retail development model and compare findings with other East Asian countries.

## Appendix A

### Introduction to Taiwan Sugar Mall

The mall <URL: <http://sugarmall.com.tw>> has been developed by the Taiwan Sugar Corporation (TSC), a state-owned company under the supervision of the MOEA. Historically, the company was reorganised as four successive Japanese-managed sugar companies during the Japanese colonisation of Taiwan. It was ultimately inaugurated in 1946, as a unique agricultural, industrial and livestock agribusiness (TSC, 2004). Based on its industrial characteristics, TSC owns about 550 million square metres of land in the island. However, in response to recent economic changes, TSC has gradually changed its agribusiness to other businesses, especially, retailing development, such as convenience stores, hypermarkets, regional shopping centres, etc.

Taiwan Sugar Mall is the result of a diversification policy on the part of Taiwan Sugar Company after sugar became an unprofitable commodity due to increasing exports from overseas. The Mall (see Figure A-1), which has been built on the former sugar cane land, encompasses almost 101,596 square metres in the southeast part of Tainan metropolis. According to the Southern Regional Plan, Tainan metropolis is comprised of nine districts, seven in Tainan City, namely, East Chu, West Chu, Central Chu, South Chu, North Chu, Anping Chu, and An-nan Chu, and two in Tainan County, namely, Yungkuang Shih, and Jente Hsiang. Additionally, the site, bounded on one side by the main north-south railway of Taiwan and on another by the provincial highway (A1), is located in the western part of Jente Hsiang. To the west of the site was the former Macro Warehouses,

to the northwest is the combined military and civil airport, and to the south is the Ho-Sum Farm (see Figure A-2).



Shopping Mall Building: Right



Car Park Buildings



Shopping Mall Building: Middle



View between Mall and Car Park



Shopping Mall Building: Left



View of Shopping Mall Building

Figure A-1 Taiwan Sugar Mall

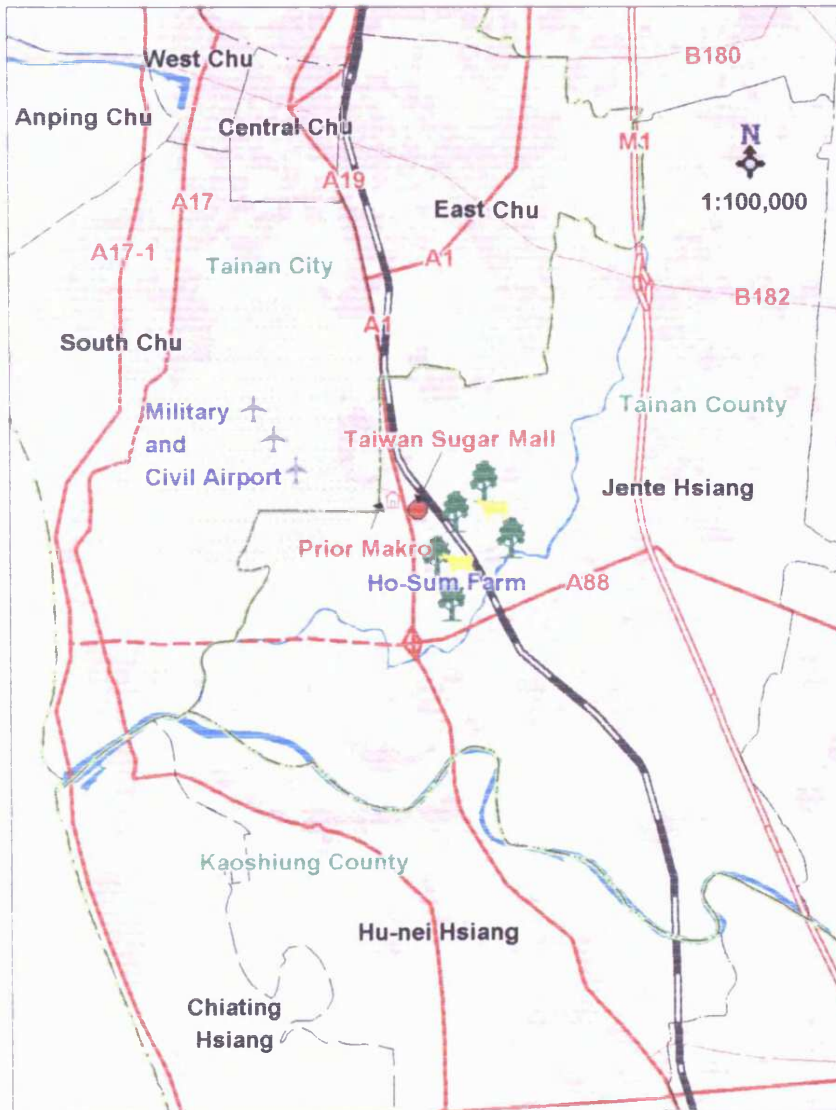


Figure A-2 Location of Taiwan Sugar Mall

A review of the development history of Taiwan Sugar Mall reveals the proposal was submitted in 1995 and received approval from the MOEA on 30<sup>th</sup> November, 1995 (DOC, MOEA, 2004). After spending nearly four years in negotiations with local authorities and appeals for land-use modification, construction of the mall began at the end of 1999. On 3<sup>rd</sup> October, 2001, TSC signed a contract with consultants Jones Lang LaSalle to assist the Taiwan Sugar Mall to perform shopping mall leasing (Chang and Chao, 2001).

The anticipated opening was originally at the end of 2002, but the mall did not open until the end of 2003, due to a change in the planned anchor store, from Carrefour Hypermarket to its self-owned Taisuco Hypermarket <URL: <http://www.tsc.com.tw/>>. TSC had founded its own Hypermarket Business Department (HBD, TSC) in October of 2000 (TSC, 2004) and rapidly expanded its outlets. Because of the deteriorating economic climate, the opening date of Taiwan Sugar Mall was postponed to 7<sup>th</sup> October 2003, in its first phase, and the final phase saw completion on 18<sup>th</sup> December 2003.

Figure A-3 displays the permissible floor spaces of the development proposal by different land-use types. As mentioned above, the total area of the development proposal was 101,596 square metres, 28,447 square metres (about 28 per cent) planned as the public facilities zone, 30,479 square metres (about 30 per cent) planned as the green belt zone, and the remaining 42,670 square metres (about 42 per cent) planned as three different zones, namely, the distribution zone, the repair service zone, and the warehousing and shopping mall zone. According to the Report of Development Feasibility – Jente ICCA presented by TSC in 1998, in the first phase, TSC would develop the distribution zone, warehousing and shopping mall zone, and parts of the public facilities zone, such as car parks, main roads, and a wastewater treatment plant.

In terms of floor space, based on the ICCAE Law, the maximum space can be 108,000 square metres (TSC, 1998). However, the Mall is built on only 37,570 square metres, almost 35 per cent of maximum permissible floor space (TSC, 2000). The remaining of floor spaces will not be utilised until market demand increases and development risk decreases (TSC, 1998). At present, the Mall is a three storey building, comprising one ground storey and two upper storeys. Table A-1 presents the space allocation of the shopping mall and car park buildings.

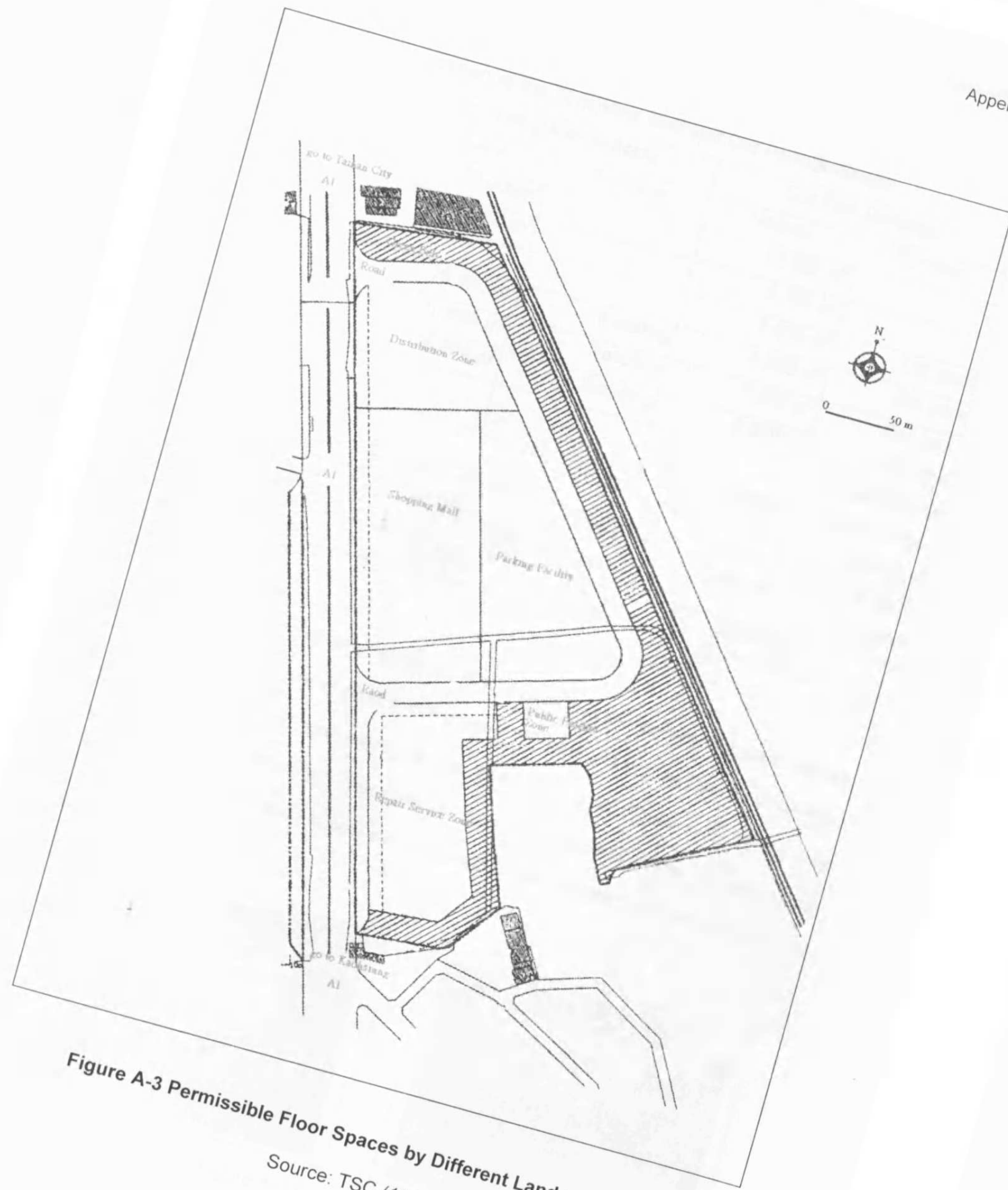


Figure A-3 Permissible Floor Spaces by Different Land-use Zones  
Source: TSC (1998)



Table A-1 Space Allocation of the Shopping Mall and Car Park Buildings

Items	Shopping Mall Building		Car Park Buildings	
	Volume	Function	Volume	Function
Site Area	20,000m <sup>2</sup>	-	13,937 m <sup>2</sup>	-
Building Area	10,850 m <sup>2</sup>	-	6,797 m <sup>2</sup>	-
Floor space	2F	-	6,858 m <sup>2</sup>	Car park
	1F	10,530 m <sup>2</sup>	6,858 m <sup>2</sup>	Car park
	G	10,888 m <sup>2</sup>	7,012 m <sup>2</sup>	Car park
	B1	15,904 m <sup>2</sup>	6,858 m <sup>2</sup>	Car park
	B2	-	6,858 m <sup>2</sup>	An air-raid or bomb shelter Car park
	Roof	248 m <sup>2</sup>	Café/ Staircase room	290 m <sup>2</sup>
Total	37,570 m <sup>2</sup>		34,734 m <sup>2</sup>	

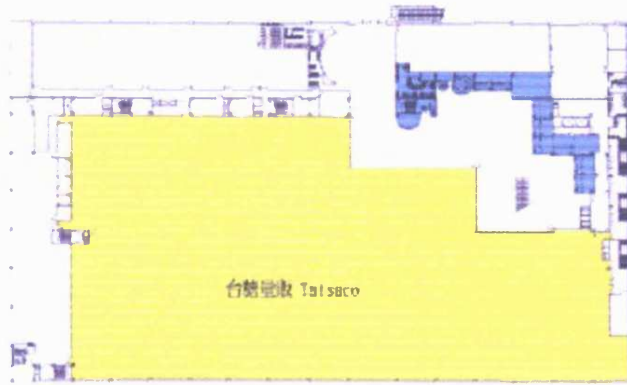
Source: TSC (2000)

Figure A-4 shows the layout of the shopping mall building by each storey. Examining the assortment of stores, three types of functions can be identified, namely, shopping, entertainment, and eating. In the basement (see Figure A-5), TSC's own Taisuco Hypermarket occupies most space as one of the anchors (shown in yellow), and the other fourteen small food shops are positioned in the northeast corner to form a foot court (shown in blue).



Figure A-5 View of the Basement





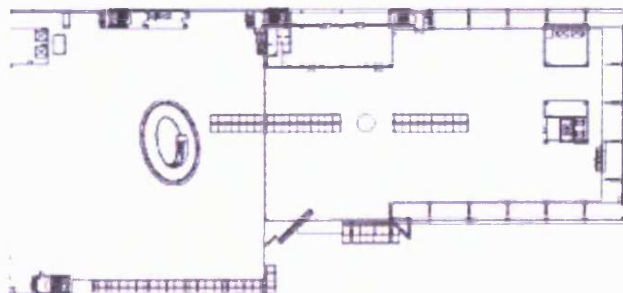
**Basement**



**Ground Floor**



**First Floor**



**Roof**

**Figure A-4 Layout of the Taiwan Sugar Mall**

Source: Taiwan Sugar Mall (2003)

On the ground floor (see Figure A-6), in addition to twenty-five stores/stalls, selling fashion clothing and footwear (shown in yellow and green), located in the eastern part of the floor, there are fifteen stores making up the children's Park (shown in red), located in the western part of the floor. In particular, Tom Dragon Amusement Park <URL: <http://www.tomdragon.com.tw>>, a children's amusement park, is another anchor store in the Mall. Moreover, there is one café, E.Z. Kon, located at the southeast corner (shown in blue), and a restaurant (Garfield Restaurant), located in the southwest corner (shown in blue).



Sparse Shoppers in the fashion clothing and footwear shops



Sparse Shoppers in the Children's Park



Sparse Children in the Tom Dragon Amusement Park



Sparse Shoppers in the Garfield Restaurant

**Figure A-6 View of the Ground Floor**

On the first floor (see Figure A-7), there are two theme restaurants, Catty's House <URL: <http://www.catty.com.tw>> and the Bull Fight Restaurant <URL: <http://www.bullfight.com.tw>>, located in the eastern part of the floor (shown in blue). In addition, four small stores in the centre of the floor, sell clothing and footwear (shown in yellow) and seven stores in the south-western part of the floor sell home furnishings and books (shown in green). Tom's World <URL: <http://www.tomsworld.com.tw>> is an electronic entertainment park located in the north-western part of the floor (shown in red).



Sparse Shoppers in the Bull Fight Restaurant



Sparse Shoppers in the Small Shops



Sparse Shoppers in the Home Furnishing Shops



Sparse Children in Tom's World

**Figure A-7 View of the First Floor**

In the roof, Tom Dragon Amusement Park provide a play area for children. Table A-2 summarises the aforementioned stores by function and storey. Excluding six anchor tenants, the Taiwan Sugar Mall contains sixty-six small stores.



No Shoppers on the Roof



Empty Space

Figure A-8 View of the Roof

Table A-2 Taiwan Sugar Mall

Floor	Function	Number of Stores	Anchor Tenants
Basement	Shopping	1	Taisuco Hypermarket
	Eating	14	
Ground Floor	Shopping	37	
	Eating	2	
	Entertainment/Education	3	Tom Dragon Amusement Park
First Floor	Shopping	11	
	Eating	3	Catty's House Bull Fight Restaurant
	Entertainment	1	Tom's World
Roof	Entertainment	1	Tom Dragon Amusement Park Play Area for Children
Total		73	

Source: the study survey on 20<sup>th</sup> November, 2003



## Appendix B

### Isochronal by Length and Time

Serial Number	Isochronal by Length			Isochronal by Travelling Time		
	City/County	Chu/Hsiang /Chen/Shih	Distance (Unit. km)	City/County	Chu/Hsiang /Chen/Shih	Distance (Unit mins)
1	Tainan County	Jente	-	Tainan County	Jente	-
2	Tainan City	East Chu	5.2	Tainan City	East Chu	9
3	Tainan City	Central Ch	6.2	Tainan City	Central Ch	11
4	Tainan City	West Chu	7.2	Kaohsiung County	Hu-nei	14
5	Kaohsiung County	Hu-nei	7.8	Tainan City	West Chu	14
6	Tainan City	Anping	8.2	Tainan City	North Chu	17
7	Tainan City	North Chu	9.2	Tainan City	Anping	17
8	Tainan County	Yungkang	12.2	Kaohsiung County	Chiating	18
9	Kaohsiung County	Luchu	13.0	Kaohsiung County	Alien	21
10	Kaohsiung County	Chiating	13.0	Kaohsiung County	Luchu	21
11	Tainan County	Kueijen	13.2	Kaohsiung County	Yung-an	24
12	Kaohsiung County	Alien	15.7	Tainan County	Kueijen	24
13	Tainan County	Kuanmiao	15.8	Tainan City	An-nan Chu	27
14	Tainan City	An-nan Chu	17.4	Tainan County	Yungkang	28
15	Tainan County	Hsinhwa	18.5	Kaohsiung County	Mito	28
16	Tainan County	Anting	18.6	Tainan County	Kuanmiao	30
17	Kaohsiung County	Yung-an	18.7	Kaohsiung County	Kangshan	32
18	Kaohsiung County	Kangshan	20.2	Tainan City	South Chu	33
19	Tainan City	South Chu	20.6	Kaohsiung County	Tzukuang	33
20	Tainan County	Hsinshih	21.0	Kaohsiung County	Tienliao	33
21	Tainan County	Hsikang*	22.4	Tainan County	Chiku	36
22	Kaohsiung County	Mito	22.9	Tainan County	Anting	36
23	Kaohsiung County	Chiaotou	23.7	Kaohsiung County	Yenchao	37

Serial Number	Isochronal by Length			Isochronal by Travelling Time		Distance (Unit: mins)
	City/County	Chu/Hsiang /Chen/Shih	Distance (Unit: km)	City/County	Chu/Hsiang /Chen/Shih	
24	Tainan County	Chiku	26.0	Kaohsiung County	Chiaotou	38
25	Kaohsiung County	Tienliao	26.4	Kaohsiung City	Nantzuch Chu*	39
26	Kaohsiung County	Tzukuang	27.0	Tainan County	Matou*	39
27	Kaohsiung County	Yenchao	27.2	Tainan County	Hsinhwa	40
28	Tainan County	Chiali*	27.7	Tainan County	Hsinshih	40

Source: Institute of Transportation at the Ministry of Transportation & Communications (MOTC) (1998)

Note: Although the travelling time from South Chu to the Mall is more than 30 minutes. South Chu is a part of Tainan City and its geographical location is proximate Jente Hsiang. The delimited catchment area included this district within 20-30 minutes time band.

# Appendix C

## First Round Questionnaire

Part I QUESTIONNAIRE (ENGLISH VERSION)

**Shopping Behaviour Survey of Households**  
in Tainan City/County and Kaohsiung County, Taiwan

Research Topic: Retail Impact Assessment in Taiwan  
Conducted by Mr. H. Yang, Ph. D Student at Cardiff University  
Duration: June to July, 2002

Serial Number:

Sampling Address:





- 06  Supermarkets (postcode )
- 07  Carrefour – A – Yung Kang Shih - 710
- 08  Carrefour – B – Yung Kang Shih - 710
- 09  Makro – A – Jente Hsiang - 717
- 10  Makro – A – North Chu - 704
- 11  Geant – Yung Kang Shih - 710
- 12  RT-Mart – A – Anping Chu - 708
- 13  RT-Mart – B – North Chu - 704
- 14  Tesco – Anping Chu - 708
- 15  Far Eastern Department Stores – East Chu – 701/Central Chu - 700
- 16  Sing Kong Mitsukoshi Department Store/Tainan Shopping Mall – Central Chu - 700
- 17  Other (Specify.....) (postcode )

\* Food and groceries include milk, rice, bread, meat, fish, greengroceries, other dairy products, etc.

6. Please indicate the grocery store/shopping place you buy your main shopping from by writing the relevant 2-digit number from the list in Question 5 above:  (postcode )

7. How frequently do you do a main shop?

- 01  Once (or more) every day → 30 days per month
- 02  Once every 2 days → 15 days per month
- 03  Once per 3-4 days → 10 days per month
- 04  Once every week → 4 days per month
- 05  Once every fortnight → 2 days per month
- 06  Less than once a fortnight → One day per month
- 07  Don't know → Missing

8. Can you indicate the typical start and end points in the main shop?

Starting from (which of the following)		Ending at (which of the following)	
01 <input type="checkbox"/>	Home	11 <input type="checkbox"/>	Home
02 <input type="checkbox"/>	Work	12 <input type="checkbox"/>	Work
03 <input type="checkbox"/>	Social activities	13 <input type="checkbox"/>	Social activities
04 <input type="checkbox"/>	Service facilities	→ Main food	→ 14 <input type="checkbox"/>
05 <input type="checkbox"/>	Non-food shopping	Shopping	15 <input type="checkbox"/>
06 <input type="checkbox"/>	Restaurants		16 <input type="checkbox"/>
07 <input type="checkbox"/>	Leisure/ Entertainment		17 <input type="checkbox"/>
08 <input type="checkbox"/>	Other (Specify.....)		18 <input type="checkbox"/>
			Other (Specify.....)

9. What means of transport do you use for your main shop?

01 <input type="checkbox"/>	Walk	05 <input type="checkbox"/>	Friend/relations car/van
02 <input type="checkbox"/>	Bicycle	06 <input type="checkbox"/>	Public transport
03 <input type="checkbox"/>	Motorbike	07 <input type="checkbox"/>	Taxi
04 <input type="checkbox"/>	Own household car/van	08 <input type="checkbox"/>	Other (Specify.....)

10. How much time do you spend travelling from your home to the grocery shop/shopping place you mentioned in Question 5? On average, it takes

01 <input type="checkbox"/>	Under 5 minutes
02 <input type="checkbox"/>	6-10 minutes
03 <input type="checkbox"/>	11-15 minutes
04 <input type="checkbox"/>	16-20 minutes
05 <input type="checkbox"/>	21-25 minutes
06 <input type="checkbox"/>	26-30 minutes
07 <input type="checkbox"/>	31-35 minutes
08 <input type="checkbox"/>	36-40 minutes
09 <input type="checkbox"/>	41-45 minutes
10 <input type="checkbox"/>	46-50 minutes
11 <input type="checkbox"/>	51-55 minutes
12 <input type="checkbox"/>	56-60 minutes
13 <input type="checkbox"/>	More than one hour (Specify.....)

11. a) When do you usually do your main shop?

01  Weekend (Saturday or Sunday)

02  Weekday (Monday to Friday)

03  No particular day

b) At what time of day?  am/pm (or  No particular time)

12. On average, how much do you spend on the main shop each time? Approximately how many NT\$? \_\_\_\_\_

13. Does any other family member/friend accompany you when you do your main shopping?

01  No. I always shop alone. → Go to Question 15

02  Yes. I always shop with my family/friends. → Continue to the next Question 14

03  Sometimes alone, sometimes with family. → Continue to the next Question 14

14. Please indicate how many people usually accompany you.

01  One

03  Three

05  More than five

02  Two

04  Four

Who are they?

01 = My husband

03 = Parent(s)

05 = Other

02 = My wife

04 = Child(ren)

P1

P3

P5

P2

P4

P6

15. Why do you do your main shop where you do? (Multiple-choice)

01  Near or nearest home

02  Convenient location/Easy to travel to the area/Easy to get to the place from another

03  Good parking facilities

- 04.  Wide selection
- 05.  Quality products/Fresh products
- 06.  Allocation of products
- 07.  Lower prices
- 08.  Able to haggle over and beat down the price
- 09.  Good consumer services
- 10.  Store loyalty card /Promotion/Coupons
- 11.  Store business hours
- 12.  Habit (e.g. always go there; like shopping at familiar stores)
- 13.  One stop shopping (e.g. I can combine clothing/footwear shopping)
- 14.  Other (Specify.....)

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#### **SHOPPING FOR CLOTHING/FOOTWEAR-COMPARISON GOODS SHOPPING BEHAVIOUR**

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16. Thinking of the last time you went shopping for clothing/footwear items, which shop/shopping centre, did you go to?
- 01.  Shops in high streets near home (Specify.....) (postcode: )
  - 02.  Independent/Special/Multiple Shops in Jung-jeng shopping centre – West&Central Chu – 703&700
  - 03.  Independent/Special/Multiple Shops in Hsiao-pei shopping centre – North Chu - 704
  - 04.  Independent/Special/Multiple Shops in Tung-ning shopping centre – East Chu - 701
  - 05.  Independent/Special/Multiple Shops in Tainan Station shopping centre – Central Chu - 700
  - 06.  Traditional Wet Markets (Specify.....) (postcode□□□)
  - 07.  Traditional Dusk Markets (Specify.....) (postcode□□□)
  - 08.  Traditional Night Markets (Specify.....) (postcode□□□)
  - 09.  Other unplanned retail area (Specify.....) (postcode□□□)
  - 10.  Convenience Stores (Specify.....) (postcode□□□□)
  - 11.  Supermarkets (Specify.....) (postcode□□□□)
  - 12.  Carrefour – A – Yungkang Shih - 710

- 13.  Carrefour – B –Yungkang Shih - 710
- 14.  Makro – A - Jente Hsiang -717
- 15.  Malro – B – North Chu - 704
- 16.  Geant – Yungkang Shih - 710
- 17.  RT-Mart – A – Anping Chu - 708
- 18.  RT-Mart – B – North Chu - 704
- 19.  Tesco – Anping Chu - 708
- 20.  Far Eastern Department Stores – East Chu -701/Central Chu - 700
- 21.  Sing Kong Mitsukoshi Department Store/Tainan Shopping Mall – Central Chu - 700
- 22.  Focus Department Store – Central Chu - 700
- 23.  Other planned retail area (Specify.....) (postcode)

17. How long ago was it?

- 01.  Today →0 06.  15 days-1month ago →23
- 02.  Yesterday →1 07.  One month ago →30
- 03.  2-6 days ago →4 08.  2-3 months ago →75
- 04.  One week ago →7 09.  More than 3 months - →90
- 05.  8-14 days ago →11 10.  Don't know →Missing

18. Can you indicate the start and end points in the last shopping trip?

Starting from (which of the following)	Ending at (which of the following)
01. <input type="checkbox"/> Home	11. <input type="checkbox"/> Home
02. <input type="checkbox"/> Work	12. <input type="checkbox"/> Work
03. <input type="checkbox"/> Social activities	13. <input type="checkbox"/> Social activities
04. <input type="checkbox"/> Service facilities	14. <input type="checkbox"/> Service facilities
05. <input type="checkbox"/> Food & groceries shopping	15. <input type="checkbox"/> Food & groceries shopping
06. <input type="checkbox"/> Restaurants	16. <input type="checkbox"/> Restaurants
07. <input type="checkbox"/> Leisure/ Entertainment	17. <input type="checkbox"/> Leisure/ Entertainment
08. <input type="checkbox"/> Other (Specify.....)	18. <input type="checkbox"/> Other (Specify.....)

19. What means of transport did you use?

- |   |   |
|---|---|
| 01 <input type="checkbox"/> Walk                  | 05 <input type="checkbox"/> Friend/relative's car/van |
| 02 <input type="checkbox"/> Bicycle               | 06 <input type="checkbox"/> Public transport          |
| 03 <input type="checkbox"/> Motorbike             | 07 <input type="checkbox"/> Taxi                      |
| 04 <input type="checkbox"/> Own household car/van | 08 <input type="checkbox"/> Other (Specify.....)      |

20. How much time did you spend travelling from your home to the shopping centre you mentioned?

- |   |   |
|---|---|
| 01 <input type="checkbox"/> Under 5 minutes | 08 <input type="checkbox"/> 36-40 minutes                     |
| 02 <input type="checkbox"/> 6-10 minutes    | 09 <input type="checkbox"/> 41-45 minutes                     |
| 03 <input type="checkbox"/> 11-15 minutes   | 10 <input type="checkbox"/> 46-50 minutes                     |
| 04 <input type="checkbox"/> 16-20 minutes   | 11 <input type="checkbox"/> 51-55 minutes                     |
| 05 <input type="checkbox"/> 21-25 minutes   | 12 <input type="checkbox"/> 56-60 minutes                     |
| 06 <input type="checkbox"/> 26-30 minutes   | 13 <input type="checkbox"/> More than one hour (Specify.....) |
| 07 <input type="checkbox"/> 31-35 minutes   |   |

21. Do you usually find that all your clothing/footwear needed are catered for within the centre you mentioned above or do you have to visit other shopping centres for goods and services that you cannot get here? →leakage

- 01  I can find all my needs within the shopping centre I mentioned above.
- 02  I have to visit other shopping centres for goods and services that I cannot get here.
- (02.1) Could you tell me where you do your additional shopping?  
(Please specify.....) (postcode )
- (02.2) What kind of shops or facilities need to be provided in existing shopping centres in the Tainan area?  
(Please specify.....)

22. a) What day did you visit the shop/shopping centre to do your last clothing/footwear shopping?

- 01  Weekend (Saturday or Sunday)
- 02  Weekday (Monday to Friday)
- 03  Don't remember

b) At what time of day? : am/pm (or  Don't remember)

23. How much did you spend on clothing/footwear items on your last shopping trip?

Around how many NT\$? \_\_\_\_\_

24 Did any other family member/friend accompany you?

01  No. I shopped alone. → Go to Question 26

02  Yes. I shopped with my family/friends. → Continue to the next Question 25

25 Please indicate how many people accompanied you:

01  One

03  Three

05  More than five

02  Two

04  Four

Who were they?

01 = My husband

03 = Parent(s)

05 = Other

02 = My wife

04 = Child(ren)

P1

P3

P5

P2

P4

P6

26. Why did you shop there? (Multiple-choice)

01  Near or nearest home

02  Convenient location/Easy to travel to the area/Easy to get to the place from another

03  Good parking facilities

04  Wide selection

05  Appearance/Style

06  Quality products/High-class products

07  Store atmosphere

08  Promotion/Advantageous special offers

09  Favourite (or Well-known) brands/stores

10  Lower prices

- 11  Able to haggle over and beat down the price
- 12  Good consumer services
- 13  Childcare facilities
- 14  Restaurants/cafes in the same area
- 15  Store loyalty card scheme
- 16  Store business hours
- 17  Newly opened stores
- 18  Habit (e.g. always go there; I like shopping at familiar stores)
- 19  Lots of novelties
- 20  No particular reason (e.g. I just like shopping there)
- 21  One stop shopping/I can get all I need at the same place
- 22  For a day out/I can combine shopping with leisure activities
- 23  Other (Specify.....)

27. You have told me about your last clothing/footwear shopping trip, now can you tell me where you went shopping for clothing/footwear the time before that?

- 01  I always go shopping for clothing/footwear items in the same shopping centre I mentioned in Question 16.
- 02  The shopping centre I went shopping for clothing/footwear items the time before was (postcode ). Please write in the relevant 2-digit number from the list in Question 16 above.

28. How long ago was it?

- |   |  |
|---|--|
| 01 <input type="checkbox"/> Today →0          | 06 <input type="checkbox"/> 15days-1month ago →23  |
| 02 <input type="checkbox"/> Yesterday →1      | 07 <input type="checkbox"/> One month ago →30      |
| 03 <input type="checkbox"/> 2-6 days ago →4   | 08 <input type="checkbox"/> 2-3 months ago →75     |
| 04 <input type="checkbox"/> One week ago →7   | 09 <input type="checkbox"/> More than 3 months →90 |
| 05 <input type="checkbox"/> 8-14 days ago →11 | 10 <input type="checkbox"/> Don't know →Missing    |



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**SHOPPING ATTITUDE MEASUREMENT**


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29. Here are some of the different things people have said to me about their shopping attitudes. Could you tell me, for each one, whether you strongly agree, agree, undecided, disagree or strongly disagree with the statement as it applies to you personally?

Attitude Statement	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
1 Tainan is an old and cultural city in Formosa.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2 I like eating snacks.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3 I usually shop by credit card.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4 I have plans for travelling abroad every year.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5 I like shopping at familiar stores.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6 I have a fixed budget while shopping.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7 Shopping is troublesome.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8 I usually shop at the weekends.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9 I like haggling over prices while shopping.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10 I try to do my shopping as quickly as possible.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11 I often buy food/groceries on a weekly basis.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12 To meet shopping needs, I often go to larger shopping centres further away.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13 I often pursue famous brands.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14 I usually shop with family and friends.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15 I think that quality matters more than price.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16 I can get all I need at familiar stores.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17 The quality of well-known brands is trust worthy.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18 I like shopping at night markets, rather than department stores.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Attitude Statement	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
19 I combine social calls with the shopping trip.	01	01	01	01	01
20 I am willing to pay more for branded goods.	01	01	01	01	01
21 I often visit several stores for the best price.	01	01	01	01	01
22 Shopping for food/groceries is a daily routine job	01	01	01	01	01
23 I usually shop at different centres.	01	01	01	01	01
24 Quite often I make purchases not pre-planned	01	01	01	01	01
25 I try to combine refreshing activities and hobbies with the shopping trip.	01	01	01	01	01
26 It does not matter if the store is located far away if it is otherwise a good place to shop.	01	01	01	01	01
27 Fashionable clothing is very important to me.	01	01	01	01	01
28 I buy goods I like as long as price is low, while quality comes second.	01	01	01	01	01
29 I often chat with shop assistants/shopkeepers.	01	01	01	01	01
30 I usually shop on the way to/from work.	01	01	01	01	01
31 I like shopping in my leisure time.	01	01	01	01	01
32 I buy groceries during the shopping trip.	01	01	01	01	01
33 I like trying novel things.	01	01	01	01	01
34 I like shopping in places that give clear price instructions	01	01	01	01	01
35 Different brands are of different quality.	01	01	01	01	01
36 I like shopping at department stores, rather than warehouses/superstores.	01	01	01	01	01
37 I usually go and eat on the shopping trip.	01	01	01	01	01
38 I usually buy merchandise with well-known	01	01	01	01	01

Attitude Statement	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
brands					
39 I spend a lot of time with my family and friends	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
40 I usually combine shopping with leisure activities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
41 To save time, I go shopping in nearby shops	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
42 A branded article is worth paying for.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
43 I prefer shopping at traditional markets to superstores/hypermarkets	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
44 I think shopping is pleasurable even if don't buy anything	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
45 I usually buy new products before my friends do	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
46 I dislike shop assistants promoting goods to me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
47 I often compare prices before purchasing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
48 I prefer shopping in high street stores than department stores	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
49 I often follow the latest fashions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
50 I would like to shop at Taiwan Sugar Mall when the Mall opens at the end of this year.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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**RESPONDENT'S HOUSEHOLD DATA**


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30. Please indicate your gender:

- 01 Male
- 02 Female

31. Please indicate your title and full name: \_\_\_\_\_ (Surname /Forename)

- |        |         |                  |
|--------|---------|------------------|
| 01 Mr  | 03 Miss | 05 Other (Please |
| 02 Mrs | 04 Ms   | specify.....)    |

32. Which year were you born? 19 –

33. Please indicate your marital status:

- |                            |                       |
|----------------------------|-----------------------|
| 01 Single                  | 03 Divorced/Separated |
| 02 Married/Living together | 04 Widowed            |

34. Please indicate your educational level:

- 01 None
- 02 Elementary school
- 03 Junior high school
- 04 Senior high school
- 05 Junior college (including 5,2.or 3 years)
- 06 Technical college
- 07 University or college

35. What is your employment status?

- 01  Homemaker/Housewife
- 02  Full-time employed
- 03  Part-time employed
- 04  Self-employed
- 05  Retired
- 06  Other/Unemployed/No response

36. What is your approximate personal income each month?

- |   |  |
|---|--|
| 01 <input type="checkbox"/> Up to NT\$10,000      | 08 <input type="checkbox"/> NT\$70,001~NT\$80,000  |
| 02 <input type="checkbox"/> NT\$10,001~NT\$20,000 | 09 <input type="checkbox"/> NT\$80,001~NT\$90,000  |
| 03 <input type="checkbox"/> NT\$20,001~NT\$30,000 | 10 <input type="checkbox"/> NT\$90,001~NT\$100,000 |
| 04 <input type="checkbox"/> NT\$30,001~NT\$40,000 | 11 <input type="checkbox"/> Over NT\$100,001       |
| 05 <input type="checkbox"/> NT\$40,001~NT\$50,000 | 12 <input type="checkbox"/> No income              |
| 06 <input type="checkbox"/> NT\$50,001~NT\$60,000 | 13 <input type="checkbox"/> Refusal                |
| 07 <input type="checkbox"/> NT\$60,001~NT\$70,000 |  |

37. Including yourself, how many people live in your home?

Adults (aged 20+)

Children (under 20)  → How many children less than six years old?

38. What is the occupation of the head of household (or the main earner) in your household? (If more than one main wage earner please enter the highest social grade)

- 01  Public sector/Educational worker/Military personnel
- 02  Small business /Store owner
- 03  Employed manager/Professional worker
- 04  Private sector employee
- 05  Self-employed
- 06  Other/Unemployed/Retired/No response



44. Type of house (from observation)
- 01  Detached house
  - 02  Semi-detached house
  - 03  Terraced house
  - 04  Flat – under five floors
  - 05  Flat – over five floors
  - 06  Other type of dwelling (Please specify.....)

**\*\*\* THANK YOU VERY MUCH FOR YOUR COOPERATION. \*\*\***

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**INTERVIEWER'S RECORD**

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45. Interviewer's name: \_\_\_\_\_
46. Interviewer's gender:
- 01  Male
  - 02  Female
47. The questionnaire was filled in by:
- 01  Respondent
  - 02  Interviewer
  - 03  A third person translating for the respondent
  - 04  Other (Please specify.....)
48. Length of interview: \_\_\_\_\_ minutes
49. Date of interview / / 2002
- 01  Monday
  - 02  Tuesday
  - 03  Wednesday
  - 04  Thursday
  - 05  Friday
  - 06  Saturday
  - 07  Sunday

**\*\*\* PLEASE RETURN THE QUESTIONNAIRE TO MR H. YANG. \*\*\***

**Part II QUESTIONNAIRE (CHINESE VERSION)**

If you would like to have a Chinese version of the questionnaire, please e-mail [yanghw@yaho.com](mailto:yanghw@yaho.com) to request a copy.

My permanent address is as follows:

Mr Ho-Wen Yang

6F 5 ALY 33 LN 79,

KEELUNG ROAD SEC 2,

TAIPEI CITY,

TAIWAN

POST CODE 110



# Appendix D

## Second Round Questionnaire

### Part I QUESTIONNAIRE (ENGLISH VERSION)

<p style="text-align: center;"><b>Shopping Behaviour Survey of Households</b> in Tainan City/County and Kaohsiung County, Taiwan</p>
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Research Topic: Retail Impact Assessment in Taiwan  
Conducted by Mr. H. Yang, Ph. D Student at Cardiff University  
Duration: December, 2003 and January, 2004

Serial Number: □□□-□□□

interviewee: Title                      Surname                      First name

Sampling Address:

Telephone Number: (            )

Mobile Number:



- 11  RT-Mart – B – North Chu - 704
- 12  Tesco – Anping Chu - 708
- 13  Far Eastern Department Store – East Chu - 701
- 14  Far East Department Store – Central Chu - 700
- 15  Sing Kong Mitsukoshi Department Store – Central Chu - 700
- 16  Sing Kong Mitsukoshi Tainan Shopping Mall – Central Chu - 700
- 17  Taiwan Sugar Mall Taisuco Hypermarket – Jente Hsiang - 717
- 18  Other (Specify.....) (postcode: )

\* Food and groceries include milk, rice, bread, meat, fish, greengroceries, other dairy products, etc.

5. Please indicate the grocery store/shopping place you buy your main shopping from by writing in the relevant 2-digit number from the list in Question 4 above:  (postcode )

6. How frequently do you do a main shop?

- 01  Once (or more) every day →30 days per month
- 02  Once every 2 days →15 days per month
- 03  Once per 3-4 days →10 days per month
- 04  Once every week →4 days per month
- 05  Once every fortnight →2 days per month
- 06  Less than once a fortnight →One day per month
- 07  Don't know →Missing

7. Can you indicate the typical start and end points in the main shop?

Starting from (which of the following)		Ending at (which of the following)	
01 <input type="checkbox"/>	Home	11 <input type="checkbox"/>	Home
02 <input type="checkbox"/>	Work	12 <input type="checkbox"/>	Work
03 <input type="checkbox"/>	Social activities	13 <input type="checkbox"/>	Social activities
04 <input type="checkbox"/>	Service facilities	→ Main food	→ 14 <input type="checkbox"/>
05 <input type="checkbox"/>	Non-food shopping	Shopping	15 <input type="checkbox"/>
06 <input type="checkbox"/>	Restaurants		16 <input type="checkbox"/>
07 <input type="checkbox"/>	Leisure/ Entertainment		17 <input type="checkbox"/>
08 <input type="checkbox"/>	Other (Specify.....)		18 <input type="checkbox"/>

8. What means of transport do you use for your main shop?

01 <input type="checkbox"/>	Walk	05 <input type="checkbox"/>	Friend/relations car/van
02 <input type="checkbox"/>	Bicycle	06 <input type="checkbox"/>	Public transport
03 <input type="checkbox"/>	Motorbike	07 <input type="checkbox"/>	Taxi
04 <input type="checkbox"/>	Own household car/van	08 <input type="checkbox"/>	Other (Specify.....)

9. How much time do you spend travelling from your home to the grocery shop/shopping place you mentioned in Question 5? On average, it takes

01 <input type="checkbox"/>	Under 5 minutes	08 <input type="checkbox"/>	36-40 minutes
02 <input type="checkbox"/>	6-10 minutes	09 <input type="checkbox"/>	41-45 minutes
03 <input type="checkbox"/>	11-15 minutes	10 <input type="checkbox"/>	46-50 minutes
04 <input type="checkbox"/>	16-20 minutes	11 <input type="checkbox"/>	51-55 minutes
05 <input type="checkbox"/>	21-25 minutes	12 <input type="checkbox"/>	56-60 minutes
06 <input type="checkbox"/>	26-30 minutes	13 <input type="checkbox"/>	More than one hour (Specify.....)
07 <input type="checkbox"/>	31-35 minutes		

10. a) When do you usually do your main shop?

01 <input type="checkbox"/>	Weekend (Saturday or Sunday)
02 <input type="checkbox"/>	Weekday (Monday to Friday)
03 <input type="checkbox"/>	No particular day

b) At what time of day?  am/pm (or  No particular time)

11. On average, how much do you spend on the main shop each time? Approximately how many NT\$? \_\_\_\_\_

12. Does any other family member/friend accompany you when you do your main shopping?

01  No. I always shop alone. → Go to Question 14

02  Yes, I always shop with my family/friends. → Continue to the next Question 13

03  Sometimes alone, sometimes with family. → Continue to the next Question 13

13. Please indicate how many people usually accompany you.

01  One

03  Three

05  More than five

02  Two

04  Four

Who are they?

01 = My husband

03 = Parent(s)

05 = Other

02 = My wife

04 = Child(ren)

P1

P3

P5

P2

P4

P6

14. Why do you do your main shop where you do? (Multiple-choice)

01  Near or nearest home

02  Convenient location/Easy to travel to the area/Easy to get to the place from another

03  Good parking facilities

04  Wide selection

05  Quality products/Fresh products

06  Allocation of products

07  Lower prices

08  Able to haggle over and beat down the price

- 09:  Good consumer services
- 10:  Store loyalty card /Promotion/Coupons
- 11:  Store business hours
- 12:  Habit (e.g. always go there; like shopping at familiar stores)
- 13:  One stop shopping (e.g. I can combine clothing/footwear shopping)
- 14:  Other (Specify.....)
15. Based on the prior survey, you indicated the grocery store/ shopping place you bought your main shopping from was \_\_\_\_\_. (Please check the attached record and identify the case to which the respondent belongs.)

Here, each respondent needs to be identified by comparing his/her 'before and after' shopping destinations. The respondent belongs to Case One if s(he) has indicated exactly the same place for his/her main shopping as previously; Case Two if his/her prior shopping destination was the Makro in Jente Hsiang; Case Three if the respondent has changed his/her shopping destination to the new hypermarket in the Taiwan Sugar Mall and his/her prior shopping destination was not the Makro in Jente Hsiang; finally, Case Four if the respondent has changed his/her shopping destination to any other alternative shopping centres, except the Taiwan Sugar Mall.

The respondent belongs to:

- 01:  Case One
- 02:  Case Two
- 03:  Case Three
- 04:  Case Four

#### **Case One**

Please indicate why you have not changed your shopping destination to any other alternative shopping centre during this period. Is there a particular reason or is it just habit?

Please specify: \_\_\_\_\_

**Case Two**

When the wholesaler Makro closed all its outlets early this year, did this influence your main shopping behaviour? What shopping centre did you use between the Makro hypermarket closing and the Taiwan Sugar Mall opening? Have you continually shopped at the substitute centre since the Taiwan Sugar Mall's opening?

Please specify: \_\_\_\_\_

If YES, why did you not change to shopping at the Taiwan Sugar Mall?

Please specify: \_\_\_\_\_

If NO, why did you decide to change to shopping at the Taiwan Sugar Mall?

Please specify: \_\_\_\_\_

**Case Three**

Can you tell me in detail why you changed from your previous shopping centre to the Taiwan Sugar Mall to do your main shopping rather than another shopping destination?

Please specify: \_\_\_\_\_

**Case Four**

Can you tell me in detail why you did not change to the Taiwan Sugar Mall to do your main shopping but chose another alternative shopping centre?

Please specify: \_\_\_\_\_

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**SHOPPING FOR CLOTHING/FOOTWEAR-COMPARISON GOODS SHOPPING BEHAVIOUR**


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16. Thinking of the last time you went shopping for clothing/footwear items, which shop/shopping centre, did you go to?

01  Shops in high streets near home (Specify.....) (postcode )

02  Independent/Special/Multiple Shops in Jung-jeng shopping centre – West&Central Chu – 703&700

03  Independent/Special/Multiple Shops in Hsiao-pei shopping centre – North Chu - 704

04  Independent/Special/Multiple Shops in Tung-ning shopping centre – East Chu - 701

05  Independent/Special/Multiple Shops in Tainan Station shopping centre – Central Chu - 700

- 06  Traditional Wet Markets (Specify.....) (postcode)
- 07  Traditional Dusk Markets (Specify.....) (postcode)
- 08  Traditional Night Markets (Specify.....) (postcode)
- 09  Other unplanned retail area (Specify.....) (postcode)
- 10  Convenience Stores (Specify.....) (postcode)
- 11  Supermarkets (Specify.....) (postcode)
- 12  Carrefour – A – Yung Kang Shih - 710
- 13  Carrefour – B – Yung Kang Shih - 710
- 14  Geant – Yung Kang Shih - 710
- 15  RT-Mart – A – Anping Chu - 708
- 16  RT-Mart – B – North Chu - 704
- 17  Tesco – Anping Chu - 708
- 18  Far Eastern Department Store – East Chu - 701
- 19  Far Eastern Department Store – Central Chu - 700
- 20  Sing Kong Mitsukoshi Department Store – Central Chu - 700
- 21  Sing Kong Mitsukoshi Shopping Mall – Central Chu - 700
- 22  Focus Department Store – Central Chu - 700
- 23  Taiwan Sugar Mall – Jente Hsiang - 717
- 24  Other planned retail area (Specify.....) (postcode)

## 17. How long ago was it?

- |   |  |
|---|--|
| 01 <input type="checkbox"/> Today →0          | 06 <input type="checkbox"/> 15days-1month ago →23  |
| 02 <input type="checkbox"/> Yesterday →1      | 07 <input type="checkbox"/> One month ago →30      |
| 03 <input type="checkbox"/> 2-6 days ago →4   | 08 <input type="checkbox"/> 2-3 months ago →75     |
| 04 <input type="checkbox"/> One week ago →7   | 09 <input type="checkbox"/> More than 3 months →90 |
| 05 <input type="checkbox"/> 8-14 days ago →11 | 10 <input type="checkbox"/> Don't know →Missing    |



18. Can you indicate the start and end points in the last shopping trip?

Starting from (which of the following)		Ending at (which of the following)
01 <input type="checkbox"/> Home		11 <input type="checkbox"/> Home
02 <input type="checkbox"/> Work		12 <input type="checkbox"/> Work
03 <input type="checkbox"/> Social activities		13 <input type="checkbox"/> Social activities
04 <input type="checkbox"/> Service facilities	→ Clothing/Footwear →	14 <input type="checkbox"/> Service facilities
05 <input type="checkbox"/> Food & groceries shopping	Shopping	15 <input type="checkbox"/> Food & groceries shopping
06 <input type="checkbox"/> Restaurants		16 <input type="checkbox"/> Restaurants
07 <input type="checkbox"/> Leisure/ Entertainment		17 <input type="checkbox"/> Leisure/ Entertainment
08 <input type="checkbox"/> Other (Specify.....)		18 <input type="checkbox"/> Other (Specify.....)

19. What means of transport did you use?

- |   |   |
|---|---|
| 01 <input type="checkbox"/> Walk                  | 05 <input type="checkbox"/> Friend/relation's car/van |
| 02 <input type="checkbox"/> Bicycle               | 06 <input type="checkbox"/> Public transport          |
| 03 <input type="checkbox"/> Motorbike             | 07 <input type="checkbox"/> Taxi                      |
| 04 <input type="checkbox"/> Own household car/van | 08 <input type="checkbox"/> Other (Specify.....)      |

20. How much time did you spend travelling from your home to the shopping centre you mentioned?

- |   |   |
|---|---|
| 01 <input type="checkbox"/> Under 5 minutes | 08 <input type="checkbox"/> 36-40 minutes                     |
| 02 <input type="checkbox"/> 6-10 minutes    | 09 <input type="checkbox"/> 41-45 minutes                     |
| 03 <input type="checkbox"/> 11-15 minutes   | 10 <input type="checkbox"/> 46-50 minutes                     |
| 04 <input type="checkbox"/> 16-20 minutes   | 11 <input type="checkbox"/> 51-55 minutes                     |
| 05 <input type="checkbox"/> 21-25 minutes   | 12 <input type="checkbox"/> 56-60 minutes                     |
| 06 <input type="checkbox"/> 26-30 minutes   | 13 <input type="checkbox"/> More than one hour (Specify.....) |
| 07 <input type="checkbox"/> 31-35 minutes   |   |

21. Do you usually find that all your clothing/footwear needs are catered for within the centre you mentioned above or do you have to visit other shopping centres for goods and services that you cannot get here? →leakage

01  I can find all my needs within the shopping centre I mentioned above.

02  I have to visit other shopping centres for goods and services that I cannot get here.

(02.1) Could you tell me where you do your additional shopping?

(Please specify.....) (postcode )

(02.2) What kind of shops or facilities need to be provided in existing shopping centres in the Tainan area?

(Please specify.....)

22. a) What day did you visit the shop/shopping centre to do your last clothing/footwear shopping?

01  Weekend (Saturday or Sunday)

02  Weekday (Monday to Friday)

03  Don't remember

b) At what time of day?  am/pm (or  Don't remember)

23. How much did you spend on clothing/footwear items on your last shopping trip?

Around how many NT\$? \_\_\_\_\_

24. Did any other family member/friend accompany you?

01  No. I shopped alone. → Go to Question 26

02  Yes. I shopped with my family/friends. → Continue to the next Question 25

25. Please indicate how many people accompanied you:

- 01  One                                      03  Three                                      05  More than five  
 02  Two                                      04  Four

Who were they?

- 01 = My husband                                      03 = Parent(s)                                      05 = Other  
 02 = My wife                                      04 = Child(ren)

- P1                                       P3                                       P5   
 P2                                       P4                                       P6

26. Why did you shop there? (Multiple-choice)

- 01  Near or nearest home  
 02  Convenient location/Easy to travel to the area/Easy to get to the place from another  
 03  Good parking facilities  
 04  Wide selection  
 05  Appearance/Style  
 06  Quality products/High-class products  
 07  Store atmosphere  
 08  Promotion/Advantageous special offers  
 09  Favourite (or Well-known) brands/stores  
 10  Lower prices  
 11  Able to haggle over and beat down the price  
 12  Good consumer services  
 13  Childcare facilities  
 14  Restaurants/cafes in the same area  
 15  Store loyalty card scheme  
 16  Store business hours  
 17  Newly opened stores  
 18  Habit (e.g. always go there; I like shopping at familiar stores)  
 19  Lots of novelties

20  No particular reason (e.g. I just like shopping there)

21  One stop shopping/I can get all I need at the same place

22  For a day out/I can combine shopping with leisure activities

23  Other (Specify.....)

27. You have told me about your last clothing/footwear shopping trip, now can you tell me where you went shopping for clothing/footwear the time before that?

01  I always go shopping for clothing/footwear items in the same shopping centre I mentioned in Question 17.

02  The shopping centre I went shopping for clothing/footwear items the time before was  (postcode: ). Please write in the relevant 2-digit number from the list in Question 17 above.

28. How long ago was it?

01  Today →0

06  15days-1month ago →23

02  Yesterday →1

07  One month ago →30

03  2-6 days ago →4

08  2-3 months ago →75

04  One week ago →7

09  More than 3 months →90

05  8-14 days ago →11

10  Don't know →Missing

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## SHOPPING AT TAIWAN SUGAR MALL

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29. Have you been to the Taiwan Sugar Mall?

01  No → Go to Question 36

02  Yes → If yes, how many times have you been there? About\_\_times. Go to Question

30

30. When was the last time you shopped there?

- 01  Today →0
- 02  Yesterday →1
- 02  2-6 days ago →4
- 03  7 days ago →7
- 04  8 days – less than month →16
- 05  1 month ago →30
- 06  Over 1-3 months ago →60
- 07  Don't know →Missing

31. Did you buy anything there?

- 01  No
- 02  Yes →If yes, how much did you spend (to the nearest NT\$?)\_\_\_\_\_.
- And, what goods did you buy\_\_\_\_\_.

32. What means of transport did you use?

- 01  Walk
- 02  Bicycle
- 03  Motorbike
- 04  Own household car/van
- 05  Friend/relation's car/van
- 06  Public transport
- 07  Taxi
- 08  Other (Specify.....)

33. Is there anything you particularly like about the Taiwan Sugar Shopping Mall?

Please specify: \_\_\_\_\_

34. Is there anything you particularly dislike about the Taiwan Sugar Shopping Mall?

Please specify: \_\_\_\_\_

35. The following are some descriptions of the Taiwan Sugar Shopping Mall. Can you tell me, for each one, whether you strongly agree, agree, are undecided, disagree or strongly disagree with the statement as it applies to you personally? It doesn't matter if you haven't been there; we want to know how people view it.

Descriptions	Strongly	Agree	Undecided	Disagree	Strongly
	Agree				Disagree
1. It is a pleasant place to go with the family (or friends).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Descriptions	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
2. It has a good store loyalty card scheme.	00	00	00	00	00
3. It has the sort of shops/brands I want.	00	00	00	00	00
4. Its merchandise is attractive and stylish.	00	00	00	00	00
5. It is convenient to reach/ easy to get to from another place.	00	00	00	00	00
6. It has good car parking facilities.	00	00	00	00	00
7. It has a good consumer service.	00	00	00	00	00
8. It has a good atmosphere for shopping.	00	00	00	00	00
9. Its prices are not high.	00	00	00	00	00
10. It has good places to eat/drink	00	00	00	00	00
11. It is a one-stop shopping centre.	00	00	00	00	00
12. It is a good place for a day out.	00	00	00	00	00
13. Its location is near my home/work place.	00	00	00	00	00
14. It has lots of novelties.	00	00	00	00	00
15. Its promotion/special offers are attractive.	00	00	00	00	00
16. Its business hours are suitable for me.	00	00	00	00	00
17. It has good childcare facilities.	00	00	00	00	00
18. It has wide selections.	00	00	00	00	00
19. It has good quality products/high-class products.	00	00	00	00	00
20. Its anchor, Taisuco Hypermarket, is attractive.	00	00	00	00	00

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**RESPONDENT'S HOUSEHOLD DATA**

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The following are the respondent's household data based on the previous survey. Can you review the details carefully and modify (or change) any incorrect items.

36. Which year were you born? 19 \_\_\_\_ (Just the year)

37. Please indicate your marital status:

01 Single/ Divorced/Separated/ Widowed

02 Married/Living together

38. Please indicate your educational level:

01 None

02 Elementary school

03 Junior high school

04 Senior high school

05 Junior college (2, 3, or 5 years)

06 Technical college

07 University or college

39. What is your employment status?

01 Homemaker/Housewife

02 Full-time employed

03 Part-time employed

04 Self-employed

05 Retired

06 Other/Unemployed/Refused to disclose

40. What is your approximate personal income each month?

- 01 No income
- 02 Less than NT\$20,000
- 03 NT\$20,001 - NT\$30,000
- 04 More than NT\$30,001

41. Including yourself, how many people live in your home?

Adults (aged 20+)

Children (under 20) → How many children less than six years old?

42. What is the occupation of the head of the household (or the main income earner) in your household? (If there is more than one main wage earner please enter the occupation of the highest wage earner)

- 01 Public sector/Educational worker/Military personnel
- 02 Business (or small business) owner
- 03 Professional worker
- 04 Employed manager
- 05 Private sector employee
- 06 Self-employed/Small stores owner
- 07 Other/Unemployed/Retired/No response

43. What is your approximate household's income per month?

- 01 Less than NT\$40,000
- 02 NT\$40,001 - NT\$70,000
- 03 NT\$70,001 - NT\$100,000
- 04 More than NT\$100,001
- 05 Refused to disclose/Don't know.

44. Please indicate the number of cars and motorbikes owned by your household:

The number of cars is  in the household.

The number of motorbikes is  in the household.



45. What is your housing tenure?

- 01 Owner/Occupier                      02 Rented                      03 Other

46. How many years have you lived here?

I have lived here for \_\_\_\_\_ years.

47. Type of house (from observation)

- 01 Detached house  
02 Semi-detached house  
03 Terraced house  
04 Block of flat – less than five floors  
05 Block of flat – more than five floors  
06 Other type of dwelling, such as temporary accommodation, bungalow, or chalet  
(Please specify.....)

**\*\*\* THANK YOU VERY MUCH FOR YOUR COOPERATION. \*\*\***

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**INTERVIEWER'S RECORD**

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48. Interviewer's name: \_\_\_\_\_

49. Interviewer's gender:

- 01 Male                                      02 Female

50. The questionnaire was filled in by:

- 01 Respondent  
02 Interviewer  
03 A third person translating for the respondent  
04 Other (Please specify.....)

51. Length of interview: \_\_\_\_\_ minutes

52. Date of interview / /2003

01 Monday      02 Tuesday      03 Wednesday

04 Thursday      05 Friday      06 Saturday      07 Sunday

**\*\*\* PLEASE RETURN THE QUESTIONNAIRE TO MR H. YANG. \*\*\***

**Part II QUESTIONNAIRE (CHINESE VERSION)**

If you would like to have a Chinese version of the questionnaire, please e-mail [mowenyang@yahoo.com](mailto:mowenyang@yahoo.com) to request a copy.

My permanent address is as follows:

Mr Ho-Wen Yang

6F 5 ALY 33 LN 79,

KEELUNG ROAD SEC 2,

TAIPEI CITY,

TAIWAN

POST CODE 110

# Appendix E

## Shopping Destination Choice Models

**Table E-1 Shopping Destination Choice Model (Model2) for Convenience Goods Shopping by Way of Backward Stepwise based on 2002 Survey Data**

Dependent Variable = Main Shopping Place, coded

1 = Planned Retailing Retailers; 0 = Unplanned Retailing Retailers

Independent Variables		B	S.E.	Wald	df	Sig.	Exp (B)
Distance	<b>Distance to Centres</b>	0.509	0.085	35.637	1	0.000**	1.663
	<b>Good Parking Facilities</b>	1.542	0.388	15.808	1	0.000**	4.673
Store Selection Criteria	<b>Quality Food/Fresh Products</b>	-1.262	0.327	14.891	1	0.000**	0.283
	<b>Able to Haggle over the Price</b>	-3.223	0.881	13.387	1	0.000**	0.040
	<b>Store Loyalty Card/Coupons</b>	3.401	0.883	14.821	1	0.000**	29.993
	<b>Habit</b>	-0.593	0.294	4.083	1	0.043**	0.552
	<b>One Stop Shopping</b>	0.601	0.356	2.848	1	0.091*	1.823
Demographic and Socio-economic Characteristics	<b>Female</b>	-1.526	0.378	16.304	1	0.000**	0.217
	<b>Educational Level</b>						
	<i>Low Educational Level</i>			11.487	2	0.003**	
	Middle Educational Level	1.423	0.472	9.077	1	0.003**	4.150
	High Educational Level	1.589	0.477	11.105	1	0.001**	4.897
Attitudes toward Shopping	<b>Well-known Brand Followers</b>	0.452	0.152	8.864	1	0.003**	1.571
	<b>Weekly Routine Shoppers</b>	0.302	0.153	3.899	1	0.048**	1.352
	<b>Impulse Buyers</b>	-0.275	0.148	3.461	1	0.063*	0.760
	<b>Constant</b>	-2.188	0.608	12.967	1	0.000**	0.112

Note: \*\*  $p \leq 0.05$ ; \*  $p \leq 0.10$

**Table E-2 Shopping Destination Choice Model (Model4) for Comparison Goods  
Shopping by Way of Backward Stepwise based on 2002 Survey Data**

Dependent Variable = Last Shopping Place, coded  
1 = Planned Retailing Retailers; 0 = Unplanned Retailing Retailers

Independent Variables		B	S.E.	Wald	df	Sig	Exp (B)
Distance	<b>Distance to Centres</b>	0.150	0.052	8.242	1	0.004**	1.162
	<b>Near or Nearest Home</b>	-1.175	0.288	16.65	1	0.000**	0.309
	<b>Convenient Location</b>	-0.571	0.298	3.678	1	0.055*	0.565
	<b>Good Parking Facilities</b>	1.317	0.313	17.673	1	0.000**	3.732
Store Selection Criteria	<b>Quality Products</b>	1.210	0.409	8.751	1	0.003**	3.355
	<b>Advantageous special offers</b>	1.306	0.356	13.435	1	0.000**	3.693
	<b>Favourite Brands</b>	0.859	0.359	5.717	1	0.017**	2.362
	<b>Able to Haggle over the Price</b>	-2.417	0.707	11.701	1	0.001**	0.089
	<b>Newly Opened Stores</b>	2.062	0.719	8.222	1	0.004**	7.862
	<b>Habit</b>	-0.681	0.281	5.854	1	0.016**	0.506
	<b>No Particular Reason</b>	-0.914	0.427	4.585	1	0.032**	0.401
Demographic and Socio-economic Characteristics	<b>Household Size</b>	-0.151	0.083	3.31	1	0.069*	0.860
	<b>Personal Income</b> (More than NT\$20,000 per month)	0.774	0.265	8.546	1	0.003**	2.168
Attitudes towards Shopping	<b>Well-known Brand Followers</b>	0.341	0.137	6.173	1	0.013**	1.406
	<b>Weekly Routine Shoppers</b>	0.237	0.139	2.927	1	0.087*	1.267
	<b>Fervent Shoppers</b>	0.331	0.131	6.396	1	0.011**	1.392
	<b>Price Hunters</b>	-0.272	0.139	3.809	1	0.051*	0.762
	<b>Constant</b>	-0.055	0.490	0.013	1	0.910	0.946

Note: \*\*  $p \leq 0.05$ ; \*  $p \leq 0.10$

Table E-3 Parameter Estimates for the Reference Category "Wet Markets"

Dependent Variable Categories	Determinants	B	S.E.	Wald	df	Sig.	Exp(B)
Other Unplanned Retailers	Intercept	-0.728	0.393	3.421	1	0.064*	
	One Stop Shopping (Selected)	-1.219	0.482	6.389	1	0.011**	0.295
	(Unselected)	0.000			0		
	Convenient Location (Selected)	0.647	0.279	5.395	1	0.020**	1.910
	(Unselected)	0.000			0		
	Low Educational Level (Selected)	-1.094	0.362	9.122	1	0.003**	0.335
	Middle Educational Level (Selected)	-1.228	0.316	15.119	1	0.000**	0.293
	High Educational Level (Reference)	0.000			0		
	Intercept	-4.466	0.701	40.625	1	0.000**	
	Spatial Separation Distance	1.009	0.135	55.521	1	0.000**	2.744
Hypermarkets	Good Parking Facilities (Selected)	1.891	0.497	14.502	1	0.000**	6.625
	(Unselected)	0.000			0		
	Quality/Fresh Products (Selected)	-1.249	0.468	7.137	1	0.008**	0.287
	(Unselected)	0.000			0		
	Able to Haggle over the Price (Selected)	-5.650	1.465	14.876	1	0.000**	0.004
	(Unselected)	0.000			0		
	Male (Selected)	2.043	0.516	15.673	1	0.000**	7.715
	Female (Reference)	0.000			0		
	Low Educational Level (Selected)	-2.469	0.717	11.844	1	0.001**	0.085
	High Educational Level (Reference)	0.000			0		
Other Planned Retailers	Well-known Brand Followers	0.525	0.205	6.575	1	0.010**	1.690
	Weekly Routine Shoppers	0.755	0.221	11.636	1	0.001**	2.127
	Intercept	-0.817	0.449	3.322	1	0.068*	
	Good Parking Facilities (Selected)	1.550	0.434	12.775	1	0.000**	4.713
	(Unselected)	0.000			0		
	Quality/Fresh Products (Selected)	-1.259	0.374	11.364	1	0.001**	0.284
	(Unselected)	0.000			0		
	Able to Haggle over the Price (Selected)	-3.376	1.220	7.658	1	0.006**	0.034
	(Unselected)	0.000			0		
	Male (Selected)	1.141	0.447	6.520	1	0.011**	3.130
Female (Reference)	0.000			0			
Other Planned Retailers	Low Educational Level (Selected)	-1.787	0.526	11.531	1	0.001**	0.168
	Middle Educational Level (Selected)	-0.757	0.352	4.620	1	0.032**	0.469
	High Educational Level (Reference)	0.000			0		
	Well-known Brand Followers	0.563	0.162	12.042	1	0.001**	1.756

Note: \*\*  $p \leq 0.05$ ; \*  $p \leq 0.10$

Table E-4 Parameter Estimates for the Reference Category "Other Unplanned Retailers"

Dependent Variable Categories	Determinants	B	S.E.	Wald	df	Sig.	Exp(B)
Wet Markets	Intercept	0.728	0.393	3.421	1	0.064*	
	One Stop Shopping (Selected)	1.219	0.482	6.389	1	0.011**	3.384
	(Unselected)	0.000			0		
Wet Markets	Convenient Location (Selected)	-0.647	0.279	5.395	1	0.020**	0.524
	(Unselected)	0.000			0		
	Low Educational Level (Selected)	1.094	0.362	9.122	1	0.003**	2.986
Wet Markets	Middle Educational Level (Selected)	1.228	0.316	15.119	1	0.000**	3.416
	High Educational Level (Reference)	0.000			0		
	Intercept	-3.738	0.737	25.751	1	0.000**	
Wet Markets	Spatial Separation Distance	0.916	0.146	39.213	1	0.000**	2.500
	Loyalty Card/Promotion (Selected)	2.260	0.919	6.047	1	0.014**	9.579
	(Unselected)	0.000			0		
Wet Markets	One Stop Shopping (Selected)	1.892	0.591	10.229	1	0.001**	6.630
	(Unselected)	0.000			0		
	Convenient Location (Selected)	-1.212	0.440	7.595	1	0.006**	0.298
Wet Markets	(Unselected)	0.000			0		
	Good Parking Facilities (Selected)	1.695	0.546	9.627	1	0.002**	5.446
	(Unselected)	0.000			0		
Hyper-markets	Quality/Fresh Products (Selected)	-1.249	0.496	6.334	1	0.012**	0.287
	(Unselected)	0.000			0		
	Able to Haggle over the Price (Selected)	-5.136	1.488	11.920	1	0.001**	0.006
Hyper-markets	(Unselected)	0.000			0		
	Male (Selected)	2.099	0.593	12.519	1	0.000**	8.159
	Female (Reference)	0.000			0		
Hyper-markets	Low Educational Level (Selected)	-1.375	0.748	3.382	1	0.066**	0.253
	High Educational Level (Reference)	0.000			0		
	Weekly Routine Shoppers	0.681	0.238	8.206	1	0.004**	1.976
Hyper-markets	One Stop Shopping (Selected)	1.177	0.569	4.272	1	0.039**	3.244
	(Unselected)	0.000			0		
	Convenient Location (Selected)	-0.976	0.365	7.171	1	0.007**	0.377
Hyper-markets	(Unselected)	0.000			0		
	Good Parking Facilities (Selected)	1.355	0.494	7.511	1	0.006**	3.875
	(Unselected)	0.000			0		
Other Planned Retailers	Quality/Fresh Products (Selected)	-1.259	0.409	9.458	1	0.002**	0.284
	(Unselected)	0.000			0		
	Able to Haggle over the Price (Selected)	-2.862	1.238	5.344	1	0.021**	0.057
Other Planned Retailers	(Unselected)	0.000			0		
	Male (Selected)	1.197	0.526	5.183	1	0.023**	3.310
	Female (Reference)	0.000			0		
Other Planned Retailers	Well-known Brand Followers	0.383	0.182	4.420	1	0.036**	1.466

Note: \*\*  $p \leq 0.05$ ; \*  $p \leq 0.10$

Table E-5 Parameter Estimates for the Reference Category "Hypermarkets"

Categories of Dependent Variable	Determinants	B	S.E.	Wald	df	Sig.	Exp(B)
Wet Markets	Intercept	4.466	0.701	40.625	1	0.000**	
	Spatial Separation Distance	-1.009	0.135	55.521	1	0.000**	0.364
	Good Parking Facilities (Selected)	-1.891	0.497	14.502	1	0.000**	0.151
	(Unselected)	0.000			0		
	Quality/Fresh Products (Selected)	1.249	0.468	7.137	1	0.008**	3.487
	(Unselected)	0.000			0		
	Able to Haggle over the Price (Selected)	5.650	1.465	14.876	1	0.000**	284.303
	(Unselected)	0.000			0		
	Male (Selected)	-2.043	0.516	15.673	1	0.000**	0.130
	Female (Reference)	0.000			0		
	Low Educational Level (Selected)	2.469	0.717	11.844	1	0.001**	11.812
	High Educational Level (Reference)	0.000			0		
	Well-known Brand Followers	-0.525	0.205	6.575	1	0.010**	0.592
	Weekly Routine Shoppers	-0.755	0.221	11.636	1	0.001**	0.470
Other Unplanned Retailers	Intercept	3.738	0.737	25.751	1	0.000**	
	Spatial Separation Distance	-0.916	0.146	39.213	1	0.000**	0.400
	Loyalty Card/Promotion (Selected)	-2.260	0.919	6.047	1	0.014**	0.104
	(Unselected)	0.000			0		
	One Stop Shopping (Selected)	-1.892	0.591	10.229	1	0.001**	0.151
	(Unselected)	0.000			0		
	Convenient Location (Selected)	1.212	0.440	7.595	1	0.006**	3.359
	(Unselected)	0.000			0		
	Good Parking Facilities (Selected)	-1.695	0.546	9.627	1	0.002**	0.184
	(Unselected)	0.000			0		
	Quality/Fresh Products (Selected)	1.249	0.496	6.334	1	0.012**	3.488
	(Unselected)	0.000			0		
	Able to Haggle over the Price (Selected)	5.136	1.488	11.920	1	0.001**	170.003
	(Unselected)	0.000			0		
Male (Selected)	-2.099	0.593	12.519	1	0.000**	0.123	
Female (Reference)	0.000			0			
Low Educational Level (Selected)	1.375	0.748	3.382	1	0.066*	3.956	
High Educational Level (Reference)	0.000			0			
Weekly Routine Shoppers	-0.681	0.238	8.206	1	0.004**	0.506	
Other Planned Retailers	Intercept	3.649	0.713	26.212	1	0.000**	
	Spatial Separation Distance	-0.872	0.141	38.012	1	0.000**	0.418
	Male (Selected)	-0.902	0.488	3.417	1	0.065*	0.406
	Female (Reference)	0.000			0		
	Weekly Routine Shoppers	-0.590	0.224	6.973	1	0.008**	0.554

Note: \*\*  $p \leq 0.05$ ; \*  $p \leq 0.10$



**Table E-6 Parameter Estimates for the Reference Category “Other Planned Retailers”**

Categories of Dependent Variable	Determinants	B	S.E.	Wald	df	Sig.	Exp(B)
Wet Markets	Intercept	0.817	0.449	3.322	1	0.068*	
	Good Parking Facilities (Selected)	-1.550	0.434	12.775	1	0.000**	0.212
	(Unselected)	0.000			0		
	Quality/Fresh Products (Selected)	1.259	0.374	11.364	1	0.001**	3.522
	(Unselected)	0.000			0		
	Able to Haggle over the Price (Selected)	3.376	1.220	7.658	1	0.006**	29.249
	(Unselected)	0.000			0		
	Male (Selected)	-1.141	0.447	6.520	1	0.011**	0.320
	Female (Reference)	0.000			0		
	Low Educational Level (Selected)	1.787	0.526	11.531	1	0.001**	5.969
	Middle Educational Level (Selected)	0.757	0.352	4.620	1	0.032**	2.132
	High Educational Level (Reference)	0.000			0		
Other Unplanned Retailers	Well-known Brand Followers	-0.563	0.162	12.042	1	0.001**	0.569
	One Stop Shopping (Selected)	-1.177	0.569	4.272	1	0.039**	0.308
	(Unselected)	0.000			0		
	Convenient Location (Selected)	0.976	0.365	7.171	1	0.007**	2.655
	(Unselected)	0.000			0		
	Good Parking Facilities (Selected)	-1.355	0.494	7.511	1	0.006**	0.258
	(Unselected)	0.000			0		
	Quality/Fresh Products (Selected)	1.259	0.409	9.458	1	0.002**	3.523
	(Unselected)	0.000			0		
	Able to Haggle over the Price (Selected)	2.862	1.238	5.344	1	0.021**	17.490
	(Unselected)	0.000			0		
	Male (Selected)	-1.197	0.526	5.183	1	0.023**	0.302
Female (Reference)	0.000			0			
Hypermarkets	Well-known Brand Followers	-0.383	0.182	4.420	1	0.036**	0.682
	Intercept	-3.649	0.713	26.212	1	0.000**	
	Spatial Separation Distance	0.872	0.141	38.012	1	0.000**	2.392
	Male (Selected)	0.902	0.488	3.417	1	0.065*	2.465
	Female (Reference)	0.000			0		
	Weekly Routine Shoppers	0.590	0.224	6.973	1	0.008**	1.804

Note: \*\*  $p \leq 0.05$ ; \*  $p \leq 0.10$

Table E-7 Parameter Estimates for the Reference Category "High Streets"

Dependent Variable Categories	Determinants	B	S.E.	Wald	df	Sig.	Exp(B)
	Intercept	-1.066	0.612	3.035	1	0.081*	
	Spatial Separation Distance	-0.235	0.080	8.703	1	0.003**	0.790
	Lower Prices (Selected)	0.572	0.344	2.764	1	0.096*	1.772
	(Unselected)	0.000			0		
	Able to Haggle over the Price (Selected)	0.712	0.418	2.904	1	0.088*	2.037
	(Unselected)	0.000			0		
	Store Loyalty Card (Selected)	-2.853	1.174	5.909	1	0.015**	0.058
	(Unselected)	0.000			0		
Other Unplanned Retailers	Convenient Location (Selected)	0.769	0.322	5.723	1	0.017**	2.158
	(Unselected)	0.000			0		
	Quality Products (Selected)	-1.902	0.934	4.148	1	0.042**	0.149
	(Unselected)	0.000			0		
	Favourite Brands (Selected)	-1.430	0.680	4.427	1	0.035***	0.239
	(Unselected)	0.000			0		
	Household Size	0.212	0.101	4.374	1	0.037**	1.236
	Well-known Brand Followers	-0.603	0.185	10.649	1	0.001**	0.547
	Weekly Routine Shoppers	-0.254	0.149	2.880	1	0.090*	0.776
	Shopping Associated with Social Activities	-0.357	0.163	4.793	1	0.029**	0.700
Department Stores	Near or Nearest Home (Selected)	-1.865	0.419	19.798	1	0.000**	0.155
	(Unselected)	0.000			0		
	Lower Prices (Selected)	-1.993	0.629	10.055	1	0.002**	0.136
	(Unselected)	0.000			0		
	Able to Haggle over the Price (Selected)	-1.880	1.103	2.902	1	0.088*	0.153
	(Unselected)	0.000			0		
	Store Business Hours (Selected)	-3.888	1.520	6.544	1	0.011**	0.020
	(Unselected)	0.000			0		
	Newly Opened Stores (Selected)	2.434	0.884	7.574	1	0.006**	11.405
	(Unselected)	0.000			0		
	Convenient Location (Selected)	-0.681	0.395	2.977	1	0.084*	0.506
	(Unselected)	0.000			0		
	For a Day out (Selected)	1.832	0.837	4.793	1	0.029**	6.249
	(Unselected)	0.000			0		
	Quality Products (Selected)	1.322	0.457	8.363	1	0.004*	3.749
	(Unselected)	0.000			0		
	Advantageous Special Offers (Selected)	2.271	0.481	22.315	1	0.000**	9.691
	(Unselected)	0.000			0		
	Favourite Brands (Selected)	0.950	0.398	5.693	1	0.017**	2.586
	(Unselected)	0.000			0		
	Household Size	-0.268	0.115	5.466	1	0.019**	0.765
	Number of Owned Cars	0.762	0.236	10.386	1	0.001**	2.142

Dependent Variable Categories	Determinants	B	S.E.	Wald	df	Sig.	Exp(B)
Other Planned Retailers	<b>Well-known Brand Followers</b>	0.570	0.172	10.924	1	0.001**	1.768
	<b>Able to Haggle over the Price (Selected)</b>	-2.196	1.090	4.061	1	0.044**	0.111
	<i>(Unselected)</i>	0.000			0		
	<b>Store Business Hours (Selected)</b>	2.385	1.068	4.988	1	0.026**	10.856
	<i>(Unselected)</i>	0.000			0		
	<b>Habit (Selected)</b>	-1.135	0.379	8.955	1	0.003**	0.322
	<i>(Unselected)</i>	0.000			0		
	<b>Good Parking Facilities (Selected)</b>	1.669	0.389	18.356	1	0.000**	5.305
	<i>(Unselected)</i>	0.000			0		
	<b>Advantageous Special Offers (Selected)</b>	1.263	0.471	7.195	1	0.007**	3.535
	<i>(Unselected)</i>	0.000			0		
	<b>Male (Selected)</b>	0.980	0.426	5.291	1	0.021**	2.665
<i>Female (Reference)</i>	0.000			0			
	<b>Well-known Brand Followers</b>	-0.537	0.207	6.725	1	0.010**	0.584

Note: \*\*  $p \leq 0.05$ ; \*  $p \leq 0.10$

**Table E-8 Parameter Estimates for the Reference Category “Other Unplanned Retailers”**

Dependent Variable Categories	Determinants	B	S.E.	Wald	df	Sig.	Exp(B)
High Streets	Intercept	1.066	0.612	3.035	1	0.081*	
	Spatial Separation Distance	0.235	0.080	8.703	1	0.003**	1.265
	Lower Prices (Selected)	-0.572	0.344	2.764	1	0.096*	0.564
	(Unselected)	0.000			0		
	Able to Haggle over the Price (Selected)	-0.712	0.418	2.904	1	0.088*	0.491
	(Unselected)	0.000			0		
	Store Loyalty Card (Selected)	2.853	1.174	5.909	1	0.015**	17.343
	(Unselected)	0.000			0		
	Convenient Location (Selected)	-0.769	0.322	5.723	1	0.017**	0.463
	(Unselected)	0.000			0		
	Quality Products (Selected)	1.902	0.934	4.148	1	0.042**	6.701
	(Unselected)	0.000			0		
	Favourite Brands (Selected)	1.430	0.680	4.427	1	0.035**	4.179
	(Unselected)	0.000			0		
Department Stores	Household Size	-0.212	0.101	4.374	1	0.037**	0.809
	Well-known Brand Followers	0.603	0.185	10.649	1	0.001**	1.828
	Weekly Routine Shoppers	0.254	0.149	2.880	1	0.090*	1.289
	Shopping Associated with Social Activities	0.357	0.163	4.793	1	0.029**	1.429
	Intercept	1.390	0.724	3.683	1	0.055*	
	Spatial Separation Distance	0.148	0.089	2.807	1	0.094*	1.160
	Near or Nearest Home (Selected)	-2.119	0.465	20.719	1	0.000**	0.120
	(Unselected)	0.000			0		
	Lower Prices (Selected)	-2.565	0.649	15.621	1	0.000**	0.077
	(Unselected)	0.000			0		
	Able to Haggle over the Price (Selected)	-2.591	1.133	5.229	1	0.022**	0.075
	(Unselected)	0.000			0		
	Store Loyalty Card (Selected)	3.097	1.229	6.353	1	0.012**	22.138
	(Unselected)	0.000			0		
Store Business Hours (Selected)	-3.463	1.777	3.796	1	0.051*	0.031	
(Unselected)	0.000			0			
Newly Opened Stores (Selected)	3.037	1.244	5.964	1	0.015**	20.841	
(Unselected)	0.000			0			
Convenient Location (Selected)	-1.450	0.441	10.815	1	0.001**	0.235	
(Unselected)	0.000			0			
Quality Products (Selected)	3.224	0.952	11.463	1	0.001**	25.123	
(Unselected)	0.000			0			
Advantageous Special Offers (Selected)	2.023	0.551	13.456	1	0.000**	7.558	
(Unselected)	0.000			0			

Dependent Variable Categories	Determinants	B	S.E.	Wald	df	Sig.	Exp(B)
	Favourite Brands (Selected)	2.380	0.713	11.137	1	0.001**	10.809
	(Unselected)	0.000			0		
	Household Size	-0.480	0.132	13.287	1	0.000**	0.619
	Number of Owned Cars	0.734	0.267	7.542	1	0.006**	2.084
	Well-known Brand Followers	1.173	0.224	27.412	1	0.000**	3.232
	Shopping Associated with Social Activities	0.595	0.206	8.332	1	0.004**	1.812
	Spatial Separation Distance	0.324	0.085	14.567	1	0.000**	1.382
	Near or Nearest Home (Selected)	-0.794	0.396	4.019	1	0.045**	0.452
	(Unselected)	0.000			0		
	Able to Haggle over the Price (Selected)	-2.908	1.091	7.103	1	0.008**	0.055
	(Unselected)	0.000			0		
	Store Loyalty Card (Selected)	3.106	1.237	6.302	1	0.012**	22.326
	(Unselected)	0.000			0		
	Store Business Hours (Selected)	2.809	1.438	3.817	1	0.051*	16.600
	(Unselected)	0.000			0		
	Habit (Selected)	-1.198	0.408	8.640	1	0.003**	0.302
Other	(Unselected)	0.000			0		
	Planned	Convenient Location (Selected)	-0.719	0.396	3.307	1	0.069*
Retailers	(Unselected)	0.000			0		
	For a Day out (Selected)	-4.114	1.829	5.058	1	0.025**	0.016
	(Unselected)	0.000			0		
	Good Parking Facilities (Selected)	1.256	0.444	8.006	1	0.005**	3.512
	(Unselected)	0.000			0		
	Advantageous Special Offers (Selected)	1.014	0.517	3.844	1	0.050**	2.757
	(Unselected)	0.000			0		
	Male (Selected)	1.312	0.512	6.572	1	0.010**	3.712
	Female (Reference)	0.000			0		
	Household Size	-0.233	0.123	3.610	1	0.057*	0.792
	Weekly Routine Shoppers	0.501	0.188	7.082	1	0.008**	1.651

Note: \*\*  $p \leq 0.05$ ; \*  $p \leq 0.10$

Table E-9 Parameter Estimates for the Reference Category "Department Stores"

Dependent Variable Categories	Determinants	B	S.E.	Wald	df	Sig.	Exp(B)
High Streets	Near or Nearest Home (Selected)	1.865	0.419	19.798	1	0.000**	6.453
	(Unselected)	0.000			0		
	Lower Prices (Selected)	1.993	0.629	10.055	1	0.002**	7.338
	(Unselected)	0.000			0		
	Able to Haggle over the Price (Selected)	1.880	1.103	2.902	1	0.088*	6.551
	(Unselected)	0.000			0		
	Store Business Hours (Selected)	3.888	1.520	6.544	1	0.011**	48.795
	(Unselected)	0.000			0		
	Newly Opened Stores (Selected)	-2.434	0.884	7.574	1	0.006**	0.088
	(Unselected)	0.000			0		
	Convenient Location (Selected)	0.681	0.395	2.977	1	0.084*	1.975
	(Unselected)	0.000			0		
	For a Day out (Selected)	-1.832	0.837	4.793	1	0.029**	0.160
	(Unselected)	0.000			0		
	Quality Products (Selected)	-1.322	0.457	8.363	1	0.004**	0.267
	(Unselected)	0.000			0		
	Advantageous Special Offers (Selected)	-2.271	0.481	22.315	1	0.000**	0.103
	(Unselected)	0.000			0		
	Favourite Brands (Selected)	-0.950	0.398	5.693	1	0.017**	0.387
	(Unselected)	0.000			0		
Other Unplanned Retailers	Household Size	0.268	0.115	5.466	1	0.019**	1.307
	Number of Owned Cars	-0.762	0.236	10.386	1	0.001**	0.467
	Well-known Brand Followers	-0.570	0.172	10.924	1	0.001**	0.566
	Intercept	-1.390	0.724	3.683	1	0.055*	
	Spatial Separation Distance	-0.148	0.089	2.807	1	0.094*	0.862
	Near or Nearest Home (Selected)	2.119	0.465	20.719	1	0.000**	8.320
	(Unselected)	0.000			0		
	Lower Prices (Selected)	2.565	0.649	15.621	1	0.000**	13.001
	(Unselected)	0.000			0		
	Able to Haggle over the Price (Selected)	2.591	1.133	5.229	1	0.022**	13.345
	(Unselected)	0.000			0		
	Store Loyalty Card (Selected)	-3.097	1.229	6.353	1	0.012**	0.045
(Unselected)	0.000			0			
Store Business Hours (Selected)	3.463	1.777	3.796	1	0.051*	31.913	
(Unselected)	0.000			0			
Newly Opened Stores (Selected)	-3.037	1.244	5.964	1	0.015**	0.048	
(Unselected)	0.000			0			
Convenient Location (Selected)	1.450	0.441	10.815	1	0.001**	4.262	
(Unselected)	0.000			0			
Quality Products (Selected)	-3.224	0.952	11.463	1	0.001**	0.040	
(Unselected)	0.000			0			

Dependent Variable Categories	Determinants	B	S.E.	Wald	df	Sig.	Exp(B)
	Advantageous Special Offers (Selected)	-2.023	0.551	13.456	1	0.000**	0.132
	(Unselected)	0.000			0		
	Favourite Brands (Selected)	-2.380	0.713	11.137	1	0.001**	0.093
	(Unselected)	0.000			0		
	Household Size:	0.480	0.132	13.287	1	0.000**	1.616
	Number of Owned Cars	-0.734	0.267	7.542	1	0.006**	0.480
	Well-known Brand Followers	-1.173	0.224	27.412	1	0.000**	0.309
	Shopping Associated with Social Activities	-0.595	0.206	8.332	1	0.004**	0.552
	Intercept	-1.322	0.646	4.191	1	0.041**	
	Spatial Separation Distance	0.175	0.059	8.686	1	0.003**	1.192
	Near or Nearest Home (Selected)	1.325	0.470	7.934	1	0.005**	3.762
	(Unselected)	0.000			0		
	Lower Prices (Selected)	2.290	0.623	13.498	1	0.000**	9.880
	(Unselected)	0.000			0		
	Store Business Hours (Selected)	6.272	1.715	13.373	1	0.000**	529.738
	(Unselected)	0.000			0		
	Newly Opened Stores (Selected)	-1.623	0.749	4.699	1	0.030**	0.197
	(Unselected)	0.000			0		
	Habit (Selected)	-1.192	0.415	8.254	1	0.004**	0.304
	(Unselected)	0.000			0		
	Convenient Location (Selected)	0.730	0.434	2.836	1	0.092*	2.076
	(Unselected)	0.000			0		
Other Planned Retailers	For a Day out (Selected)	-4.495	1.747	6.622	1	0.010**	0.011
	(Unselected)	0.000			0		
	Good Parking Facilities (Selected)	1.137	0.398	8.143	1	0.004**	3.117
	(Unselected)	0.000			0		
	Quality Products (Selected)	-2.149	0.643	11.162	1	0.001**	0.117
	(Unselected)	0.000			0		
	Advantageous Special Offers (Selected)	-1.009	0.444	5.171	1	0.023**	0.365
	(Unselected)	0.000			0		
	Favourite Brands (Selected)	-1.414	0.546	6.701	1	0.010**	0.243
	(Unselected)	0.000			0		
	Male (Selected)	0.937	0.466	4.046	1	0.044**	2.551
	Female (Reference)	0.000			0		
	Household Size:	0.247	0.118	4.366	1	0.037**	1.280
	Number of Owned Cars	-0.750	0.247	9.210	1	0.002**	0.472
	Well-known Brands Followers	-1.107	0.225	24.154	1	0.000**	0.331
	Weekly Routine Shoppers	0.341	0.195	3.063	1	0.080*	1.406
	Shopping Associated with Social Activities	-0.456	0.195	5.471	1	0.019**	0.634

Note: \*\*  $p \leq 0.05$  \*  $p \leq 0.10$

**Table E-10 Parameter Estimates for the Reference Category “Other Planned Retailers”**

Dependent Variable Categories	Determinants	B	S.E.	Wald	df	Sig.	Exp(B)
High Streets	<b>Able to Haggle over the Price (Selected)</b>	2.196	1.090	4.061	1	0.044**	8.990
	<i>(Unselected)</i>	0.000			0		
	<b>Store Business Hours (Selected)</b>	-2.385	1.068	4.988	1	0.026**	0.092
	<i>(Unselected)</i>	0.000			0		
	<b>Habit (Selected)</b>	1.135	0.379	8.955	1	0.003**	3.110
	<i>(Unselected)</i>	0.000			0		
	<b>Good Parking Facilities (Selected)</b>	-1.669	0.389	18.356	1	0.000**	0.188
	<i>(Unselected)</i>	0.000			0		
	<b>Advantageous Special Offers</b>	-1.263	0.471	7.195	1	0.007**	0.283
	<i>(Unselected)</i>	0.000			0		
	<b>Male (Selected)</b>	-0.980	0.426	5.291	1	0.021**	0.375
	<i>Female (Reference)</i>	0.000			0		
Other Unplanned Retailers	<b>Well-known Brand Followers</b>	0.537	0.207	6.725	1	0.010**	1.712
	<b>Spatial Separation Distance</b>	-0.324	0.085	14.567	1	0.000**	0.723
	<b>Near or Nearest Home (Selected)</b>	0.794	0.396	4.019	1	0.045**	2.212
	<i>(Unselected)</i>	0.000			0		
	<b>Able to Haggle over the Price (Selected)</b>	2.908	1.091	7.103	1	0.008**	18.315
	<i>(Unselected)</i>	0.000			0		
	<b>Store Loyalty Card (Selected)</b>	-3.106	1.237	6.302	1	0.012**	0.045
	<i>(Unselected)</i>	0.000			0		
	<b>Store Business Hours (Selected)</b>	-2.809	1.438	3.817	1	0.051*	0.060
	<i>(Unselected)</i>	0.000			0		
	<b>Habit (Selected)</b>	1.198	0.408	8.640	1	0.003**	3.314
	<i>(Unselected)</i>	0.000			0		
Department Stores	<b>Convenient Location (Selected)</b>	0.719	0.396	3.307	1	0.069*	2.053
	<i>(Unselected)</i>	0.000			0		
	<b>For a Day out (Selected)</b>	4.114	1.829	5.058	1	0.025**	61.217
	<i>(Unselected)</i>	0.000			0		
	<b>Good Parking Facilities (Selected)</b>	-1.256	0.444	8.006	1	0.005*	0.285
	<i>(Unselected)</i>	0.000			0		
	<b>Advantageous Special Offers (Selected)</b>	-1.014	0.517	3.844	1	0.050**	0.363
	<i>(Unselected)</i>	0.000			0		
	<b>Male (Selected)</b>	-1.312	0.512	6.572	1	0.010**	0.269
	<i>Female (Reference)</i>	0.000			0		
	<b>Household Size</b>	0.233	0.123	3.610	1	0.057*	1.262
	<b>Weekly Routine Shoppers</b>	-0.501	0.188	7.082	1	0.008**	0.606
<b>Intercept</b>	1.322	0.646	4.191	1	0.041**		
<b>Spatial Separation Distance</b>	-0.175	0.059	8.686	1	0.003**	0.839	
<b>Near or Nearest Home (Selected)</b>	-1.325	0.470	7.934	1	0.005**	0.266	



Dependent Variable Categories	Determinants	B	S.E.	Wald	df	Sig.	Exp(B)
	(Unselected)	0.000			0		
	<b>Lower Prices (Selected)</b>	-2.290	0.623	13.498	1	0.000**	0.101
	(Unselected)	0.000			0		
	<b>Store Business Hours (Selected)</b>	-6.272	1.715	13.373	1	0.000**	0.002
	(Unselected)	0.000			0		
	<b>Newly Opened Stores (Selected)</b>	1.623	0.749	4.699	1	0.030**	5.069
	(Unselected)	0.000			0		
	<b>Habit (Selected)</b>	1.192	0.415	8.254	1	0.004**	3.294
	(Unselected)	0.000			0		
	<b>Convenient Location (Selected)</b>	-0.730	0.434	2.836	1	0.092*	0.482
	(Unselected)	0.000			0		
	<b>For a Day out (Selected)</b>	4.495	1.747	6.622	1	0.010**	89.564
	(Unselected)	0.000			0		
	<b>Good Parking Facilities (Selected)</b>	-1.137	0.398	8.143	1	0.004**	0.321
	(Unselected)	0.000			0		
	<b>Quality Products (Selected)</b>	2.149	0.643	11.162	1	0.001**	8.580
	(Unselected)	0.000			0		
	<b>Advantageous Special Offers (Selected)</b>	1.009	0.444	5.171	1	0.023**	2.742
	(Unselected)	0.000			0		
	<b>Favourite Brands (Selected)</b>	1.414	0.546	6.701	1	0.010**	4.111
	(Unselected)	0.000			0		
	<b>Male (Selected)</b>	-0.937	0.466	4.046	1	0.044**	0.392
	<i>Female (Reference)</i>	0.000			0		
	<b>Household Size</b>	-0.247	0.118	4.366	1	0.037**	0.781
	<b>Number of Owned Cars</b>	0.750	0.247	9.210	1	0.002**	2.118
	<b>Well-Known Brand Followers</b>	1.107	0.225	24.154	1	0.000**	3.026
	<b>Weekly Routine Shoppers</b>	-0.341	0.195	3.063	1	0.080*	0.711
	<b>Shopping Associated with Social Activities</b>	0.456	0.195	5.471	1	0.019**	1.578

Note: \*\*  $p \leq 0.05$ ; \*  $p \leq 0.10$

# Appendix F

## Cross Tabulation Outputs

**Table F-1 Cross-tabulation of Marital Status, and Steady Unplanned and Changed-to-Planned Retailer Shoppers for Convenience Goods Shopping Trips**

FG Steady Unplanned & Changed-to-planned \* Marital Status (Single1) Crosstabulation

			Marital Status (Single1)		Total
			Married/Living together	Single	
FG Steady Unplanned & Changed-to-planned	Steady Unplanned	Count	189	24	213
		% within Marital Status (Single1)	85.5%	60.0%	81.6%
	Changed-to-planned	Count	32	16	48
		% within Marital Status (Single1)	14.5%	40.0%	18.4%
Total	Count	221	40	261	
	% within Marital Status (Single1)	100.0%	100.0%	100.0%	

**Table F-2 Cross-tabulation of Educational Level, and Steady Unplanned and Changed-to-Planned Retailer Shoppers for Convenience Goods Shopping Trips**

FG Steady Unplanned & Changed-to-planned \* Educational Level (3) Crosstabulation

			Educational Level (3)			Total
			Low Level	Middle Level	High Level	
FG Steady Unplanned & Changed-to-planned	Steady Unplanned	Count	67	96	50	213
		% within Educational Level (3)	94.4%	82.8%	67.6%	81.6%
	Changed-to-planned	Count	4	20	24	48
		% within Educational Level (3)	5.6%	17.2%	32.4%	18.4%
Total	Count	71	116	74	261	
	% within Educational Level (3)	100.0%	100.0%	100.0%	100.0%	

**Table F-3 Cross-tabulation of Employment Status, and Steady Unplanned and Changed-to-Planned Retailer Shoppers for Convenience Goods Shopping Trips**

FG Steady Unplanned & Changed-to-planned \* Employed (1) Crosstabulation

			Employed (1)		Total
			Unemployed	Employed	
FG Steady Unplanned & Changed-to-planned	Steady Unplanned	Count	108	105	213
		% within Employed (1)	87.1%	76.6%	81.6%
	Changed-to-planned	Count	16	32	48
		% within Employed (1)	12.9%	23.4%	18.4%
Total	Count	124	137	261	
	% within Employed (1)	100.0%	100.0%	100.0%	

**Table F-4 Cross-tabulation of Personal Income, and Steady Unplanned and Changed-to-Planned Retailer Shoppers for Convenience Goods Shopping Trips**

FG Steady Unplanned & Changed-to-planned \* Personal Income Crosstabulation

			Personal Income				Total
			No income	Less than NT\$20,000	NT\$20,000 1-30,000	More than NT\$30,001	
FG Steady Unplanned & Changed-to-planned	Steady Unplanned	Count	63	66	43	41	213
		% within Personal Income	86.3%	90.4%	71.7%	74.5%	81.6%
	Changed-to-planned	Count	10	7	17	14	48
		% within Personal Income	13.7%	9.6%	28.3%	25.5%	18.4%
Total	Count	73	73	60	55	261	
	% within Personal Income	100.0%	100.0%	100.0%	100.0%	100.0%	

**Table F-5 Cross-tabulation of House Type, and Steady Unplanned and Changed-to-Planned Retailer Shoppers for Convenience Goods Shopping Trips**

FG Steady Unplanned & Changed-to-planned \* Types of Houses Crosstabulation

			Types of Houses			Total
			Whole (Semi-) Detached House	Whole Terraced House	Block of Flat/Other	
FG Steady Unplanned & Changed-to-planned	Steady Unplanned	Count	84	86	43	213
		% within Types of Houses	89.4%	78.2%	75.4%	81.6%
	Changed-to-planned	Count	10	24	14	48
		% within Types of Houses	10.6%	21.8%	24.6%	18.4%
Total	Count	94	110	57	261	
	% within Types of Houses	100.0%	100.0%	100.0%	100.0%	

**Table F-6 Cross-tabulation of Wide Selection in 2002 and 2003****Wide Selection\_2002 \* Wide Selection\_2003 Crosstabulation**

Count

		Wide Selection 2003		Total
		Unselected	Selected	
Wide Selection_2002	Unselected	105	27	132
	Selected	48	33	81
Total		153	60	213

**Table F-7 Cross-tabulation of One Stop Shopping in 2002 and 2003****One Stop Shopping\_2002 \* One Stop Shopping\_2003 Crosstabulation**

Count

		One Stop Shopping 2003		Total
		Unselected	Selected	
One Stop Shopping_2002	Unselected	160	16	176
	Selected	31	6	37
Total		191	22	213

**Table F-8 Cross-tabulation of Good Parking Facilities in 2002 and 2003****Good Parking Facilities\_2002 \* Good Parking Facilities\_2003 Crosstabulation**

Count

		Good Parking Facilities 2003		Total
		Unselected	Selected	
Good Parking Facilities_2002	Unselected	32	15	47
	Selected		1	1
Total		32	16	48

**Table F-9 Cross-tabulation of Fresh Products in 2002 and 2003****Fresh Products\_2002 \* Fresh Products\_2003 Crosstabulation**

Count

		Fresh Products 2003		Total
		Unselected	Selected	
Fresh Products_2002	Unselected	22	5	27
	Selected	17	4	21
Total		39	9	48

**Table F-10 Cross-tabulation of Able to Haggle over the Price in 2002 and 2003**

Able to Haggle over the Price\_2002 \* Able to Haggle over the Price\_2003 Crosstabulation

Count

		Able to Haggle over the Price_2003		Total
		Unselected	Selected	
Able to Haggle over the Price_2002	Unselected	42	6	48
Able to Haggle over the Price_2002	Selected	6	6	12
Total		48	12	60

**Table F-11 Cross-tabulation of Store Loyalty Card / Promotion/Coupons in 2002 and 2003**

Store Loyalty Card/Promotion/Coupons\_2002 \* Store Loyalty Card/Promotion/Coupons\_2003 Crosstabulation

Count

		Store Loyalty Card/Promotion/Coupons_2003		Total
		Unselected	Selected	
Store Loyalty Card/Promotion/Coupons_2002	Unselected	40	8	48
Total		40	8	48

**Table F-12 Cross-tabulation of Business Hours in 2002 and 2003**

Store Business Hours\_2002 \* Store Business Hours\_2003 Crosstabulation

Count

		Store Business Hours_2003		Total
		Unselected	Selected	
Store Business Hours_2002	Unselected	39	9	48
Total		39	9	48

**Table F-13 Cross-tabulation of Marital Status, and Steady Planned and Changed-to-Unplanned Retailer Shoppers for Convenience Goods Shopping Trips**

FG Steady Planned & Changed-to-unplanned \* Marital Status (Single1) Crosstabulation

			Marital Status (Single1)		Total
			Married/Living together	Single	
FG Steady Planned & Changed-to-unplanned	Steady Planned	Count	45	23	68
		% within Marital Status (Single1)	48.9%	69.7%	54.4%
	Changed-to-unplanned	Count	47	10	57
		% within Marital Status (Single1)	51.1%	30.3%	45.6%
Total		Count	92	33	125
		% within Marital Status (Single1)	100.0%	100.0%	100.0%

**Table F-14 Cross-tabulation of Educational Level, and Steady Planned and Changed-to-Unplanned Retailer Shoppers for Convenience Goods Shopping Trips**

FG Steady Planned & Changed-to-unplanned \* Educational Level (3) Crosstabulation

			Educational Level (3)			Total
			Low Level	Middle Level	High Level	
FG Steady Planned & Changed-to-unplanned	Steady Planned	Count	1	27	40	68
		% within Educational Level (3)	11.1%	54.0%	60.6%	54.4%
	Changed-to-unplanned	Count	8	23	26	57
		% within Educational Level (3)	88.9%	46.0%	39.4%	45.6%
Total		Count	9	50	66	125
		% within Educational Level (3)	100.0%	100.0%	100.0%	100.0%

**Table F-15 Cross-tabulation of Employment Status, and Steady Planned and Changed-to-Unplanned Retailer Shoppers for Convenience Goods Shopping Trips**

FG Steady Planned & Changed-to-unplanned \* Employed (1) Crosstabulation

			Employed (1)		Total
			Unemployed	Employed	
FG Steady Planned & Changed-to-unplanned	Steady Planned	Count	13	55	68
		% within Employed (1)	39.4%	59.8%	54.4%
	Changed-to-unplanned	Count	20	37	57
		% within Employed (1)	60.6%	40.2%	45.6%
Total		Count	33	92	125
		% within Employed (1)	100.0%	100.0%	100.0%

**Table F-16 Cross-tabulation of Personal Income, and Steady Planned and Changed-to-Unplanned Retailer Shoppers for Convenience Goods Shopping Trips**

FG Steady Planned & Changed-to-unplanned \* Personal Income Crosstabulation

			Personal Income				Total
			No income	Less than NT\$20,000	NT\$20,000 1~30,000	More than NT\$30,000	
FG Steady Planned & Changed to unplanned	Steady Planned	Count	8	8	18	34	68
		% within Personal Income	57.1%	29.6%	54.5%	66.7%	54.4%
	Changed to unplanned	Count	6	19	15	17	57
		% within Personal Income	42.9%	70.4%	45.5%	33.3%	45.6%
Total		Count	14	27	33	51	125
		% within Personal Income	100.0%	100.0%	100.0%	100.0%	100.0%

**Table F-17 Cross-tabulation of Household Income, and Steady Planned and Changed-to-Unplanned Retailer Shoppers for Convenience Goods Shopping Trips**

FG Steady Planned & Changed-to-unplanned \* Household Income Crosstabulation

			Household Income				Total
			Less than NT\$40,000	NT\$40,000 1~70,000	NT\$70,000 1~100,000	More than NT\$100,000	
FG Steady Planned & Changed to unplanned	Steady Planned	Count	10	23	24	11	68
		% within Household income	38.5%	50.0%	82.8%	45.8%	54.4%
	Changed to unplanned	Count	16	23	5	13	57
		% within Household Income	61.5%	50.0%	17.2%	54.2%	45.6%
Total		Count	26	46	29	24	125
		% within Household income	100.0%	100.0%	100.0%	100.0%	100.0%

**Table F-18 Cross-tabulation of Near or Nearest Home in 2002 and 2003**

Near or Nearest Home\_2002 \* Near Or Nearest Home\_2003  
Crosstabulation

		Near Or Nearest Home_2003		
		Unselected	Selected	Total
Near or Nearest Home_2002	Unselected	4	18	22
	Selected	2	33	35
Total		6	51	57

**Table F-19 Cross-tabulation of Good Parking Facilities in 2002 and 2003**

Good Parking Facilities\_2002 \* Good Parking Facilities\_2003  
Crosstabulation

Count

		Good Parking Facilities 2003		Total
		Unselected	Selected	
Good Parking Facilities_2002	Unselected	36	3	39
	Selected	17	1	18
Total		53	4	57

**Table F-20 Cross-tabulation of Fresh Products in 2002 and 2003**

Fresh Products\_2002 \* Fresh Products\_2003 Crosstabulation

Count

		Fresh Products 2003		Total
		Unselected	Selected	
Fresh Products_2002	Unselected	24	18	42
	Selected	8	7	15
Total		32	25	57

**Table F-21 Cross-tabulation of Store Loyalty Card/Promotion/coupons in 2002 and 2003**

Store Loyalty Card/Promotion/Coupons\_2002 \* Store Loyalty Card/Promotion/Coupons\_2003 Crosstabulation

Count

		Store Loyalty Card/Promotion/Coupons 2003		Total
		Unselected	Selected	
Store Loyalty Card/Promotion/Coupons_2002	Unselected	47	1	48
	Selected	9		9
Total		56	1	57



**Table F-22 Cross-tabulation of Habit in 2002 and 2003****Habit\_2002 \* Habit\_2003 Crosstabulation**

Court

		Habit_2003		Total
		Unselected	Selected	
Habit_2002	Unselected	13	25	38
	Selected	7	12	19
Total		20	37	57

**Table F-23 Cross-tabulation of One Stop Shopping in 2002 and 2003****One Stop Shopping\_2002 \* One Stop Shopping\_2003 Crosstabulation**

Count

		One Stop Shopping_2003		Total
		Unselected	Selected	
One Stop Shopping_2002	Unselected	30	6	36
	Selected	18	3	21
Total		48	9	57

**Table F-24 Cross-tabulation of Marital Status, and Steady Unplanned and Changed-to-Planned Retailer Shoppers for Comparison Goods Shopping Trips****CFG Steady Unplanned & Changed-to-planned \* Marital Status (Single1) Crosstabulation**

			Marital Status (Single1)		Total
			Married/Living together	Single	
CFG Steady Unplanned & Changed-to-planned	Steady Unplanned	Count	107	15	122
		% within Marital Status (Single1)	66.9%	41.7%	62.2%
	Changed-to-planned	Count	53	21	74
		% within Marital Status (Single1)	33.1%	58.3%	37.8%
Total		Count	160	36	196
		% within Marital Status (Single1)	100.0%	100.0%	100.0%

**Table F-25 Cross-tabulation of Educational Level, and Steady Unplanned and Changed-to-Planned Retailer Shoppers for Comparison Goods Shopping Trips**

CFG Steady Unplanned & Changed-to-planned \* Educational Level (3) Crosstabulation

			Educational Level (3)			Total
			Low Level	Middle Level	High Level	
CFG Steady Unplanned & Changed-to-planned	Steady Unplanned	Count	47	56	19	122
		% within Educational Level (3)	85.5%	61.5%	38.0%	62.2%
	Changed-to-planned	Count	8	35	31	74
		% within Educational Level (3)	14.5%	38.5%	62.0%	37.8%
Total	Count	55	91	50	196	
	% within Educational Level (3)	100.0%	100.0%	100.0%	100.0%	

**Table F-26 Cross-tabulation of Personal Income, and Steady Unplanned and Changed-to-Planned Retailer Shoppers for Comparison Goods Shopping Trips**

CFG Steady Unplanned & Changed-to-planned \* Personal Income Crosstabulation

			Personal Income				Total
			No income	Less than NT\$20,000	NT\$20,000 ~30,000	More than NT\$30,001	
CFG Steady Unplanned & Changed-to-planned	Steady Unplanned	Count	43	37	26	16	122
		% within Personal Income	81.1%	56.9%	68.4%	40.0%	62.2%
	Changed-to-planned	Count	10	28	12	24	74
		% within Personal Income	18.9%	43.1%	31.6%	60.0%	37.8%
Total	Count	53	65	38	40	196	
	% within Personal Income	100.0%	100.0%	100.0%	100.0%	100.0%	

**Table F-27 Cross-tabulation of Household Income, and Steady Unplanned and Changed-to-Planned Retailer Shoppers for Comparison Goods Shopping Trips**

CFG Steady Unplanned & Changed-to-planned \* Household Income Crosstabulation

			Household Income				Total
			Less than NT\$40,000	NT\$40,000 ~70,000	NT\$70,000 ~100,000	More than NT\$100,001	
CFG Steady Unplanned & Changed-to-planned	Steady Unplanned	Count	41	58	20	3	122
		% within Household Income	69.5%	67.4%	51.3%	25.0%	62.2%
	Changed-to-planned	Count	18	28	19	9	74
		% within Household Income	30.5%	32.6%	48.7%	75.0%	37.8%
Total	Count	59	86	39	12	196	
	% within Household Income	100.0%	100.0%	100.0%	100.0%	100.0%	

**Table F-28 Cross-tabulation of Near or Nearest Home in 2002 and 2003**

Near or Nearest Home\_2002 \* Near Or Nearest Home\_2003  
Crosstabulation

Count

		Near Or Nearest Home 2003		Total
		Unselected	Selected	
Near or Nearest Home_2002	Unselected	30	11	41
	Selected	25	8	33
Total		55	19	74

**Table F-29 Cross-tabulation of Good Parking Facilities in 2002 and 2003**

Good Parking Facilities\_2002 \* Good Parking Facilities\_2003  
Crosstabulation

Count

		Good Parking Facilities 2003		Total
		Unselected	Selected	
Good Parking Facilities_2002	Unselected	35	27	62
	Selected	6	6	12
Total		41	33	74

**Table F-30 Cross-tabulation of Quality Products in 2002 and 2003**

Quality Products\_2002 \* Quality Products\_2003 Crosstabulation

Count

		Quality Products 2003		Total
		Unselected	Selected	
Quality Products_2002	Unselected	52	17	69
	Selected	4	1	5
Total		56	18	74

**Table F-31 Cross-tabulation of Store Atmosphere in 2002 and 2003**

Store Atmosphere\_2002 \* Store Atmosphere\_2003 Crosstabulation

Count

		Store Atmosphere_2003		Total
		Unselected	Selected	
Store Atmosphere_2002	Unselected	60	10	70
	Selected	2	2	4
Total		62	12	74

**Table F-32 Cross-tabulation of Advantageous Special Offers in 2002 and 2003**Advantageous Special Offers\_2002 \* Advantageous Special Offers\_2003  
Crosstabulation

Count

		Advantageous Special Offers_2003		Total
		Unselected	Selected	
Advantageous Special Offers_2002	Unselected	36	29	65
	Selected	4	5	9
Total		40	34	74

**Table F-33 Cross-tabulation of Favourite Brands in 2002 and 2003**

Favourite Brands\_2002 \* Favourite Brands\_2003 Crosstabulation

Count

		Favourite Brands_2003		Total
		Unselected	Selected	
Favourite Brands_2002	Unselected	53	15	68
	Selected	4	2	6
Total		57	17	74

**Table F-34 Cross-tabulation of Lower Prices in 2002 and 2003**

Lower Prices\_2002 \* Lower Prices\_2003 Crosstabulation

Count

		Lower Prices_2003		Total
		Unselected	Selected	
Lower Prices_2002	Unselected	45	5	50
	Selected	19	5	24
Total		64	10	74

**Table F-35 Cross-tabulation of Able to Haggle over the Price in 2002 and 2003**

Able to Haggle over the Price\_2002 \* Able to Haggle over the Price\_2003 Crosstabulation

		Count	
		Able to Haggle over the Price_2003	Total
Able to Haggle over the Price_2002	Unselected	59	59
	Selected	15	15
Total		74	74

**Table F-36 Cross-tabulation of Educational Level, and Steady Planned and Changed-to-Unplanned Retailer Shoppers for Comparison Goods Shopping Trips**

CFG Steady Planned & Changed-to-unplanned \* Educational Level (3) Crosstabulation

			Educational Level (3)			Total
			Low Level	Middle Level	High Level	
CFG Steady Planned & Changed-to-unplanned	Steady Planned	Count % within Educational Level (3)	12 48.0%	49 65.3%	70 77.8%	131 68.9%
	Changed-to-unplanned	Count % within Educational Level (3)	13 52.0%	26 34.7%	20 22.2%	59 31.1%
Total		Count % within Educational Level (3)	25 100.0%	75 100.0%	90 100.0%	190 100.0%

**Table F-37 Cross-tabulation of Personal Income, and Steady Planned and Changed-to-Unplanned Retailer Shoppers for Comparison Goods Shopping Trips**

CFG Steady Planned & Changed-to-unplanned \* Personal Income Crosstabulation

			Personal Income				Total
			No income	Less than NT\$20,000	NT\$20,001~30,000	More than NT\$30,001	
CFG Steady Planned & Changed to unplanned	Steady Planned	Count % within Personal Income	21 61.8%	16 45.7%	41 74.5%	53 80.3%	131 65.9%
	Changed-to-unplanned	Count % within Personal Income	13 38.2%	19 54.3%	14 25.5%	13 19.7%	59 31.1%
Total		Count % within Personal Income	34 100.0%	35 100.0%	55 100.0%	66 100.0%	190 100.0%

**Table F-38 Cross-tabulation of Household Income, and Steady Planned and Changed-to-Unplanned Retailer Shoppers for Comparison Goods Shopping Trips**

CFG Steady Planned & Changed-to-unplanned \* Household Income Crosstabulation

			Household Income				Total
			Less than NTS40,000	NTS40,000-70,000	NTS70,000-100,000	More than NTS10,000	
CFG Steady Planned & Changed to unplanned	Steady Planned	Count	24	44	34	29	131
		% within Household Income	51.1%	72.1%	69.4%	87.9%	68.9%
	Changed to unplanned	Count	23	17	15	4	59
		% within Household Income	48.9%	27.9%	30.6%	12.1%	31.1%
Total	Count	47	61	49	33	190	
	% within Household Income	100.0%	100.0%	100.0%	100.0%	100.0%	

**Table F-39 Cross-tabulation of Wide Selection in 2002 and 2003**

Wide Selection\_2002 \* Wide Selection\_2003 Crosstabulation

Count

		Wide Selection_2003		Total
		Unselected	Selected	
Wide Selection_2002	Unselected	41	16	57
	Selected	35	39	74
Total		76	55	131

**Table F-40 Cross-tabulation of One Stop Shopping in 2002 and 2003**

One Stop Shopping\_2002 \* One Stop Shopping\_2003 Crosstabulation

Count

		One Stop Shopping_2003		Total
		Unselected	Selected	
One Stop Shopping_2002	Unselected	83	10	93
	Selected	29	9	38
Total		112	19	131

**Table F-41 Cross-tabulation of Near or Nearest Home in 2002 and 2003**

Near or Nearest Home\_2002 \* Near Or Nearest Home\_2003  
Crosstabulation

Count

		Near Or Nearest Home 2003		Total
		Unselected	Selected	
Near or Nearest Home_2002	Unselected	23	29	52
	Selected	1	6	7
Total		24	35	59

**Table F-42 Cross-tabulation of Convenient Location in 2002 and 2003**

Convenient Location\_2002 \* Convenient Location\_2003  
Crosstabulation

Count

		Convenient Location 2003		Total
		Unselected	Selected	
Convenient Location_2002	Unselected	25	20	45
	Selected	7	7	14
Total		32	27	59

**Table F-43 Cross-tabulation of Good Parking Facilities in 2002 and 2003**

Good Parking Facilities\_2002 \* Good Parking Facilities\_2003  
Crosstabulation

Count

		Good Parking Facilities 2003		Total
		Unselected	Selected	
Good Parking Facilities_2002	Unselected	29	5	34
	Selected	21	4	25
Total		50	9	59

**Table F-44 Cross-tabulation of Wide Selection in 2002 and 2003****Wide Selection\_2002 \* Wide Selection\_2003 Crosstabulation**

Count

		Wide Selection_2003		Total
		Unselected	Selected	
Wide Selection_2002	Unselected	17	8	25
	Selected	21	13	34
Total		38	21	59

**Table F-45 Cross-tabulation of Quality Products in 2002 and 2003****Quality Products\_2002 \* Quality Products\_2003 Crosstabulation**

Count

		Quality Products_2003		Total
		Unselected	Selected	
Quality Products_2002	Unselected	44		44
	Selected	13	2	15
Total		57	2	59

**Table F-46 Cross-tabulation of Advantageous Special Offers in 2002 and 2003****Advantageous Special Offers\_2002 \* Advantageous Special Offers\_2003 Crosstabulation**

Count

		Advantageous Special Offers_2003		Total
		Unselected	Selected	
Advantageous Special Offers_2002	Unselected	37	4	41
	Selected	13	5	18
Total		50	9	59

**Table F-47 Cross-tabulation of Lower Prices in 2002 and 2003****Lower Prices\_2002 \* Lower Prices\_2003 Crosstabulation**

Count

		Lower Prices_2003		Total
		Unselected	Selected	
Lower Prices_2002	Unselected	36	17	53
	Selected	4	2	6
Total		40	19	59



**Table F-48 Cross-tabulation of Ability to Haggle over the Price in 2002 and 2003**

Able to Haggle over the Price\_2002 \* Able to Haggle over the Price\_2003  
Crosstabulation

Count

		Able to Haggle over the Price_2003		Total
		Unselected	Selected	
Able to Haggle over the Price_2002	Unselected	44	13	57
	Selected	1	1	2
Total		45	14	59

**Table F-49 Cross-tabulation of Store Loyalty Card in 2002 and 2003**

Store Loyalty Card\_2002 \* Store Loyalty Card\_2003  
Crosstabulation

Count

		Store Loyalty Card_2003	
		Unselected	Total
Store Loyalty Card_2002	Unselected	49	49
	Selected	10	10
Total		59	59

**Table F-50 Cross-tabulation of Newly Opened Stores in 2002 and 2003**

Newly Opened Stores\_2002 \* Newly Opened Stores\_2003  
Crosstabulation

Count

		Newly Opened Stores_2003		Total
		Unselected	Selected	
Newly Opened Stores_2002	Unselected	50	1	51
	Selected	8		8
Total		58	1	59

**Table F-51 Cross-tabulation of Habit in 2002 and 2003****Habit\_2002 \* Habit\_2003 Crosstabulation**

Count

		Habit_2003		Total
		Unselected	Selected	
Habit_2002	Unselected	23	19	42
	Selected	7	10	17
Total		30	29	59

**Table F-52 Cross-tabulation of One Stop Shopping in 2002 and 2003****One Stop Shopping\_2002 \* One Stop Shopping\_2003 Crosstabulation**

Count

		One Stop Shopping_2003		Total
		Unselected	Selected	
One Stop Shopping_2002	Unselected	41	3	44
	Selected	14	1	15
Total		55	4	59

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