

國立交通大學

交通運輸研究所

碩士論文

消費者對線上拍賣店配取貨點之選擇行為研究

**Exploring the Choice Behavior on the Retailing**

**Delivery Provider for Online Auction**

**Consumers**



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## 摘要

網際網路的興起，電子商務成為重新整合供應者與消費者關係的新商業模式。隨著網路購物普及化，資策會統計指出臺灣網路拍賣規模達516億，相較於去年成長約五到六成之間。由此可見，線上拍賣的規模與成長不容小覷。然而，如何與物流配送體系的配合，將網路交易商品交付到消費者手中是線上拍賣賣家所需克服的問題之一。台灣由於超商高度聚集的特質，藉由多次配送及高度資訊化的優勢而發展出以超商為基礎之「線上購物、超商取貨」物流模式，快速成為台灣電子商務中最令人矚目的物流暨金流運作方式。

過去的文獻指出決定消費者選擇取貨點的主要因素，是超商的地點。就店配物流服務提供者而言，想在取貨點數量固定以及物流績效相同的情況下擴大其市場占有率，就有必要進一步深入了解消費者的選擇行為。因此，本研究想進一步深入了解消費者的選擇行為，探知除時間與成本外，不同體系的超商所提供之物流服務品質對消費者選擇行為之影響。根據隨機抽樣的調查數據，我們使用logit model與結構方程模式來進行分析。

研究結果發現，資訊品質與便利性是消費者選擇取貨點最重要的影響因素。最後，針對分析結果，研擬對應策略以作為物流服務提供者增加市佔率之行銷策略參考。

**關鍵字：**電子商務、線上拍賣、消費者行為、Logit 模式、結構方程模式

# **Exploring the Choice Behavior on the Retailing Delivery Provider for Online Auction Consumers**

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## **ABSTRACT**

The internet represents a growing and huge market. The development of e-commerce is an efficient business model which enables new relationship between consumers and suppliers. In particular, the auction (C2C) market is reaching NT \$51.6 billion with an increase between 50% and 60%. The online auction is obviously becoming a noticeable market. However, how to deliver goods to customers becomes one of the challenges for the sellers. In Taiwan, convenience stores have integrated the e-commerce with the logistics system of convenience stores to a new retail delivery model: "Online shopping in an electronic store and pick-up goods in a convenience store".

Previous researches proposed that the location of the convenience store and logistics service quality are major factors to influence consumers' choice behavior. Thus we combine SEM with binary logit model to incorporate latent variables into the choice model to understand the choice behavior of the online auction consumers and what constructs will affect to choose the retailer delivery provider.

The empirical results demonstrated that two variables- information quality and convenience are the key factors to impact on consumers to choose the RD provider. In accordance with these variables, we propose some marketing strategies to the managers of retailing delivery system to increase the market share.

**Keywords: E-commerce, Online auction, Consumer behavior, Logit Model, SEM**

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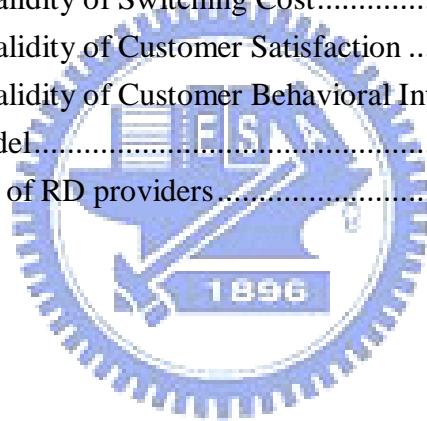
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# CHAPTER1 INTRODUCTION

## 1.1 Research Background and Motivation

Digital technology has provided a new paradigm for our society and changed our lives through interaction with the Internet. As an efficient and flexible sales channel, companies can use auction sites to liquidate unwanted inventory, as well as to assist in pricing new products, acquiring new markets for low-margin items, and reaching markets that would be too costly using traditional distribution methods. Consumers can surf on the Internet, browse the information, and compare prices of diversified merchandise. The development of e-commerce is an efficient business model that enables new relationship between consumers and suppliers. Electronic stores are becoming popular for online shopping.

According to a January 2008 report established by the MIC<sup>1</sup> in Taiwan, the online shopping market is anticipated to be NT \$145.1 billion in 2008. In Particular, the auction (C2C) market is reaching NT \$51.6 billion with an increase between 50% and 60%. Due to the economic recession in 2008, more and more consumers will be shopping through online auction markets (about 80% increase) and the average consumption amount in C2C market is NT \$ 7,834 with a 4.3% increase. The online auction is obviously becoming a noticeable market.

As this percentage continues to increase, how to deliver goods to customers is a more critical activity in any business. In the Internet, consumers can place orders at any time any where through the Internet, and the delivery service response is expected to be fast. Therefore, e-retailing needs a quick-response logistics system to support the order deliveries. In Taiwan, convenience stores provide a 24-hour purchasing environment for consumers and are distributed everywhere with high-quality information system. Convenience stores in Taiwan have integrated e-commerce with the logistics system of convenience stores to a new retail delivery model: “Shop online in an electronic store and pick-up goods in a convenience store”, and have made many remarkable successes.

The retailing delivery (RD) system provides an easy online shopping process, safe method of payment and quick delivery service for e-retailing (Huang and Feng 2005, 2006, and 2007). The main retailing delivery providers in Taiwan are 7-11.com<sup>2</sup>

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<sup>1</sup> MIC, Market Intelligence Center was established in 1987, which is a division of Taiwan's Institute for Information Industry

<sup>2</sup> <http://www.shopping7.com.tw>

and CVS.com<sup>3</sup>. CVS.com is a joint venture by four families of convenience stores including Family.com, Hi-Life.com, Okcvs.com and Nikomart.com<sup>4</sup>. In the present day, over 1,000,000 orders have been complete by the electronic commerce of the retail delivery model.

Because of the short development history and the data collection difficulty of E-commerce retail delivery, there are few studies about the E-commerce retail delivery. Feng and Haung (2005) proposed that various convenience stores provide the similar retail delivery service, so the location of the convenience store becomes a major factor for a consumer to decide the pick-up point. Since customers are the main resources of gaining profits, how to develop the differentiating strategies to maintain the existing customers with customer satisfaction and to obtain new customers becomes an important issue for convenience stores.

Customer satisfaction is fundamental to business (Sharma, Grewal, and Levy 1995). The quality of logistics service performance is an important key factor to create customer satisfaction. In the past decade, several investigations on the theoretical domain of service quality to a business-to-business context, especially in the area of logistics service quality, have been published (Stock and Lambert 1987; Sharma *et al.* 1995; Bienstock, Mentzer, and Bird 1997; Mentzer, Flint, and Hult 2001; Huang and Feng 2005). However, research on the retailing delivery for the online auction in C2C environment scarce in the literature.

Based on the above-mentioned research background and literature review, this study has three objectives. First, we explore the structure of the retailing delivery service of online auction market working within the framework of confirmatory factor analysis.

The second objective is to examine the relationships between logistics service quality, perceived value, customer satisfaction, switching costs and customer behavioral intention. The relationships between logistics service quality, perceived value, customer satisfaction and customer behavioral intentions have been discussed theoretically (Zeithaml 1988; Sweeney, Soutar, and Johnson 1997; Woodruff 1997; Cronin and Taylor 1992; Mentzer *et al.* 2001), but the switching cost is also a component in influencing the customer behavioral intention. In this study, we add this factor to observe the relationship between each other. The third objective is to integrate choice and latent variable model to incorporate psychological factors and to understand the crucial factors of logistics service quality that are important to affect consumers to choose an RD provider and provides information to help managers of RD do some marketing strategies to increase their market share.

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<sup>3</sup> <http://www.cvs.com.tw>

<sup>4</sup> Nikomart.com was merged with Family.com in 2007.

## 1.2 Research Objectives

Base on the research background mentioned above, there are five objectives for this study:

1. To explore the retailing delivery (RD) logistics service process in which shopping is done through the online auction and the goods are picked-up at the convenience store.
2. To investigate the relationship between logistics service quality, perceived value, perceived sacrifice, switching cost, customer satisfaction and customer behavioral intention.
3. Use the structure equation model (SEM) to explore the relationship between the logistics service quality and customer behavioral intention, as well as that between the logistics service quality, perceived value, and perceived sacrifice, customer satisfaction, switching cost and customer behavioral intention.
4. Use logit model to understand the consumers' choice behavior.
5. Provide suggestions on developing marketing strategies to the managers of retailing delivery system to increase market share.

## 1.3 Research Methodology

The purpose of this study is to understand the crucial factors of logistics service quality that are taken into account by consumers before choosing an RD provider. But in behavioral sciences, there are concepts of interest that are not well defined and cannot be directly measured, e.g. knowledge, ambition, or personality. These concepts are referred to as latent constructs. These constructs affect consumers' emotion, cognition and choice behavior. While there exists no operational models to directly measure these constructs, latent variable modeling techniques such as SEM are often applied to infer information about latent variables. Ben-Akiva *et al.* (1999) presented a rigorous and general methodology which integrated choice and latent variable model to model the theoretical framework by explicitly incorporating psychological factors and their influences on choices. Therefore, this research aims to combine SEM with binary logit model to incorporate latent variables into the choice model to understand the choice behavior of the online auction consumers.

## 1.4 Research Scope

Based on two classification schemes-Seller and Buyer, e-commerce can be placed into four categories: business-to-business (B2B), business-to-consumers (B2C), consumer-to-business (C2B), consumer-to-consumer (C2C). This study will focus on consumer-to-consumer (C2C) business model which concentrates on individual consumers to individual consumers' view of e-commerce, and find out the crucial factors influencing customers' behavioral intention.

The major research objects are the main retailing delivery providers in Taiwan, 7-11.com and CVS.com. In the online auction market, sellers provide the goods pickup goods service at convenience stores for competition and customer satisfaction. Although, sellers have the right to choose the cooperation RD provider, but that are consumers to request about. So the subject of the study is consumers in online auction market and the purpose is to find the crucial factors of logistics service quality which are affected consumers to choose a pick-up point of the convenience stores. To understand the opinion of consumers, an online survey was administered to consumers of online auction market.

The research scope of this study is shown in Figure 1-1.

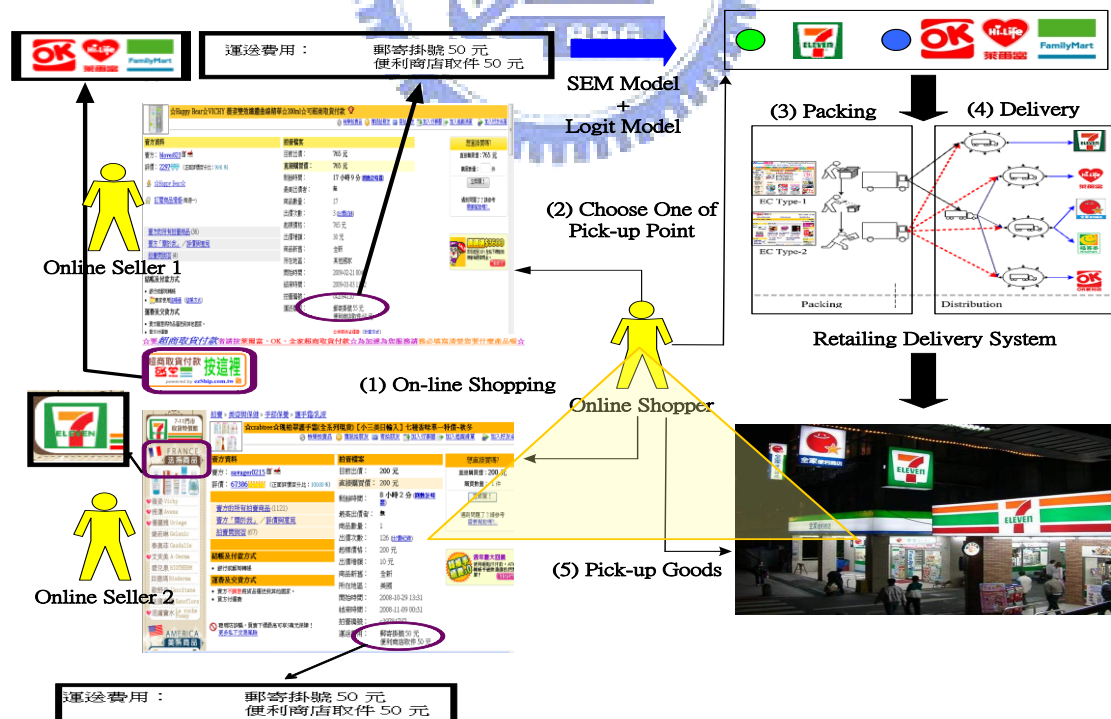
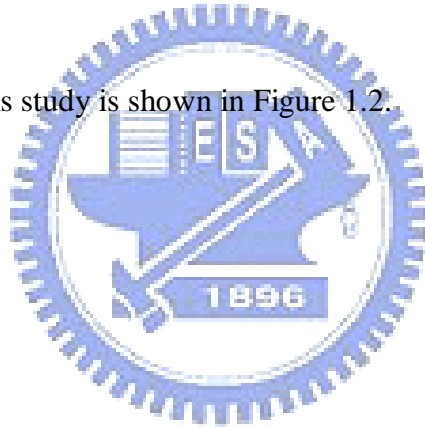


Figure 1.1 Research Scope

## 1.5 Research Procedures

In Chapter1, this study defines research objectives while explaining an outlook of this issue. The remaining of this study is organized as follows: Chapter2 firstly describes some background about retailing delivery (RD) system in C2C business model and reviews on previous related literatures for understanding the definitions and the interrelationships among logistics service quality, perceived value, customer satisfaction, switching cost and customer behavioral intention. Second, the scale of RD's LSQ will be developed by online consumers' opinion. Third, the construct measurements, the conceptual framework, and the hypotheses of this study were made up. Chapter3 presents the scope; introduces the research methodology and the impending research procedure. In Chapter 4, includes the descriptive results of measurement variables and the results of data analysis. Chapter 5 is a summary of the crucial findings and contributions of this study. Research limitations of this study are stated as well.

The flow chart of this study is shown in Figure 1.2.



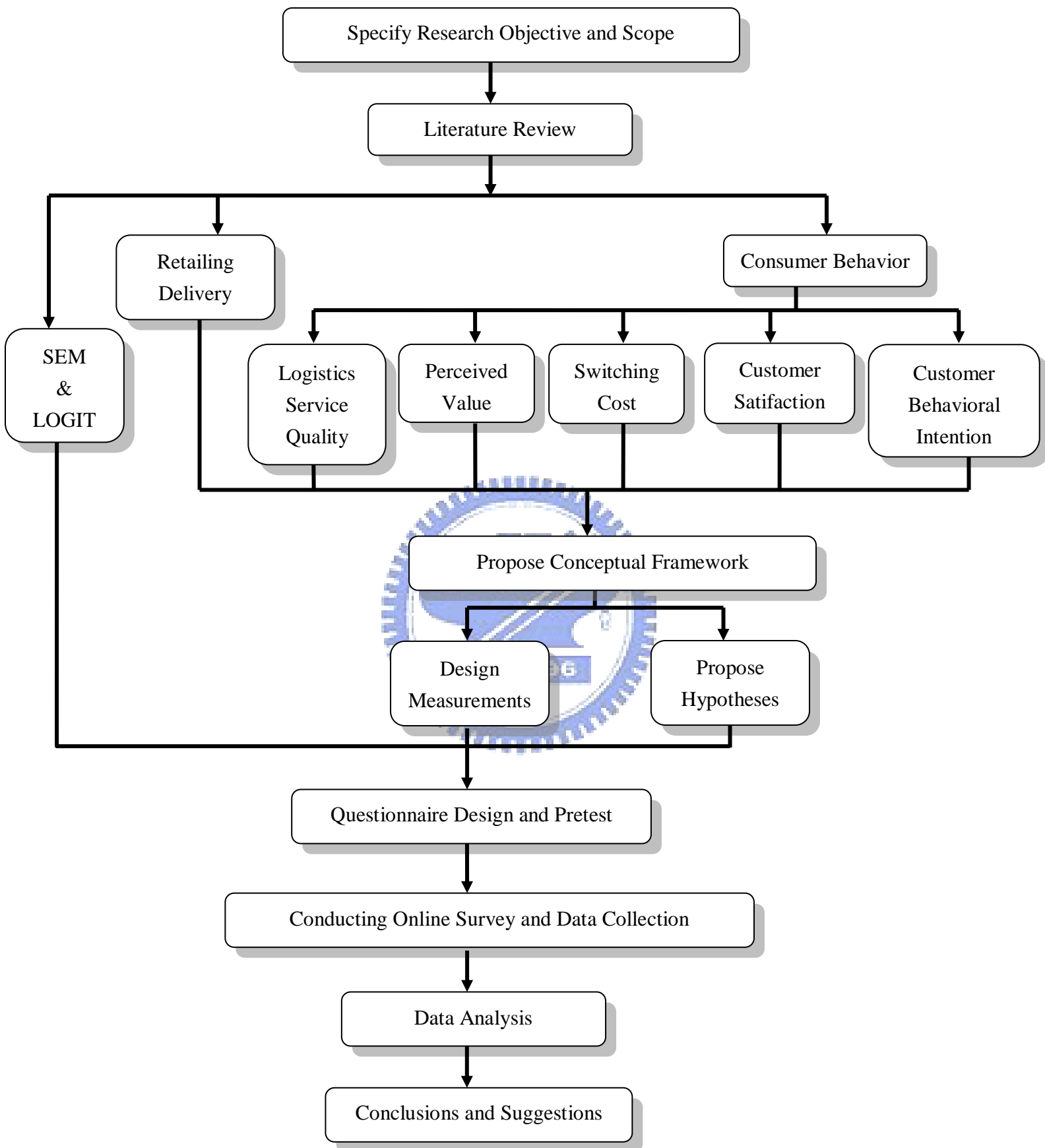


Figure 1.2 Research Procedure

## CHAPTER2 LITERATURE REVIEW

The background of retailing delivery is reviewed first and then retraces the consumer behavior and definition of each research construct including logistics service quality, perceived value, and customer satisfaction, switching cost and customer behavioral intentions. Then, through the above studies a logistics service quality measuring scale of the retailing delivery (RD) in online auction market will be developed and then the interrelationships among research constructs will be developed. Finally, the discrete choice model with latent variables is illustrated.

### 2.1 Retailing Delivery

Online shoppers (consumers) make their orders at their office or home anticipating quicker delivery than offline purchasing, and timely delivery at convenient times. Feng and Huang (2007) pointed out that consumers can place orders at any time any where through the Internet in the online environment, so that the orders are unpredictable and dynamic, but the delivery service response is expected to be fast. Therefore, e-retailing needs a quick-response logistics system to support the order deliveries.

In Taiwan, most of the e-commerce-related delivery is operated by the third-party logistics provider (3PL). Because of the need for an information system and timely delivery system, low logistics operations cost and there are many convenience stores in Taiwan, 3PL providers have had to improve the flow of information both internally and externally and integrate their logistics services into the retail delivery provided by convenience stores. A new RD model proposed: "Online shopping with pick-ups at convenience stores." The RD services have made many remarkable successes in portal sites such as Yahoo.com and Pchome.com.

The new RD providers in Taiwan are 7-11.com and CVS.com. CVS.com is a joint venture by four convenience stores including Family.com, Hi-Life.com, Okcvs.com and Nikomart.com that began service in the beginning of 2000, while 7-11.com joined the market at the end of 2000. Because the safe payment method and the quick delivery, RD services by convenience stores have played an important role in the e-commerce logistics in Taiwan. The relationship of online auction of RD is shown in Figure 2.1, which includes three functions: (1) e-map, (2) delivery system and (3) pick-up point (see Fig. 2.1).

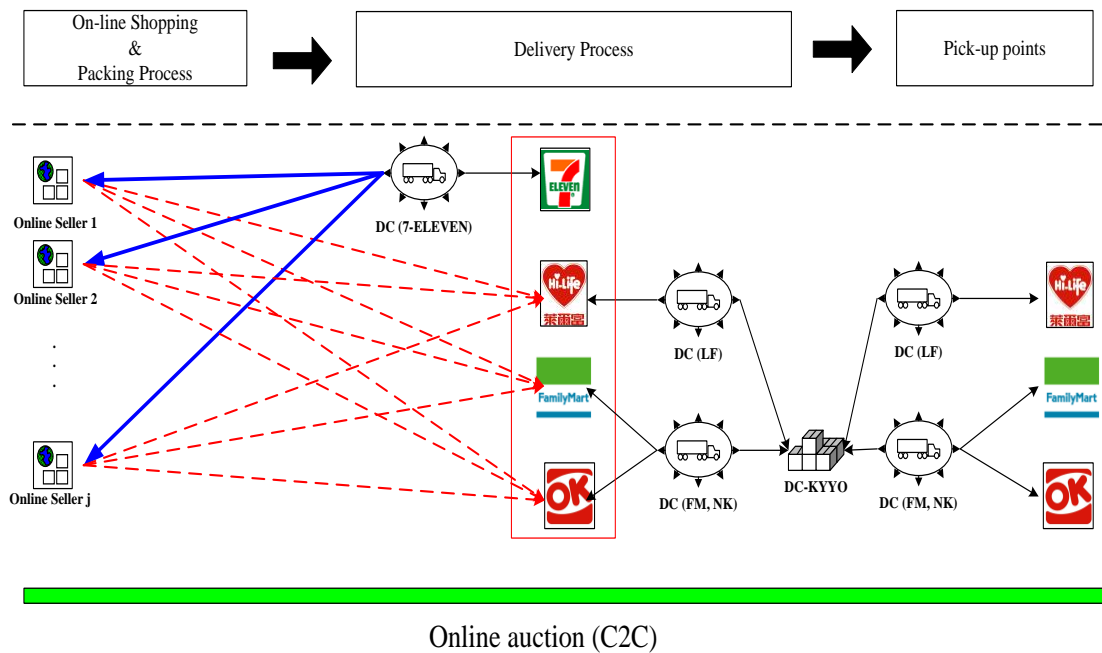


Figure 2.1 Relationship of online auction of RD

The RD system provides an easy online shopping process, a safety payment method, pick-up points of convenience stores and quick delivery service for online consumers. The RD system has two characteristics: consumers can shop online even without a credit card and it provides consumers with a self pick-up approach through convenience stores. The procedure that combines online auction with online sellers, online buyers and RD system is illustrated below and shown in Figure 2.2:

1. Online shopping

The online sellers in Taiwan mostly have provided RD service (e.g., home delivery and pickup at the convenience store). In the part of pick-up at the convenience store, the sellers have the right to decide their RD provider, 7-11.com or CVS.com. Then the online consumers trade with the sellers who provided the pick-up point of convenience store where the consumers want to pick-up goods.

2. Choose a pick-up point

After finishing the transaction, 7-11.com or CVS.com will be shown on the website. The buyer should select the pick-up point on the e-map provided by the RD system.

3. Packing process

After the seller confirms the orders, the seller would finish the packing process (e.g., pick goods, print invoice and package), and dispatch the goods to the selected convenience store (e.g., Family.com, Hi-Life.com, Okcvs.com), that is provided by



CVS.com system or wait the delivery centre to receive the goods and transport the goods to the delivery centre, that is provided by 7-11.com system.

#### 4. Delivery process

The delivery centre of CVS.com system collects the orders form different convenience stores and transports the orders to the convenience store (pick-up point of the orders) and then replies the completed information to the system and online sellers. The delivery centre of 7-11.com system also receives information from sellers' place and transports the orders to the 7-11 convenience store (pick-up point of the orders) and then replies the completed information to the system and online sellers.

#### 5. Picking-up Goods

According to the reply information, the system will notify the buyer by e-mail or cell phone message about the pick-up status of goods.

In General, the consumers order the goods on D day the seller will proceed to pack and dispatch the goods on the D+1 day, and the consumers can pick the goods from the convenience store on the afternoon of the D+3 day, or the D+5 day if there it involves a weekend.

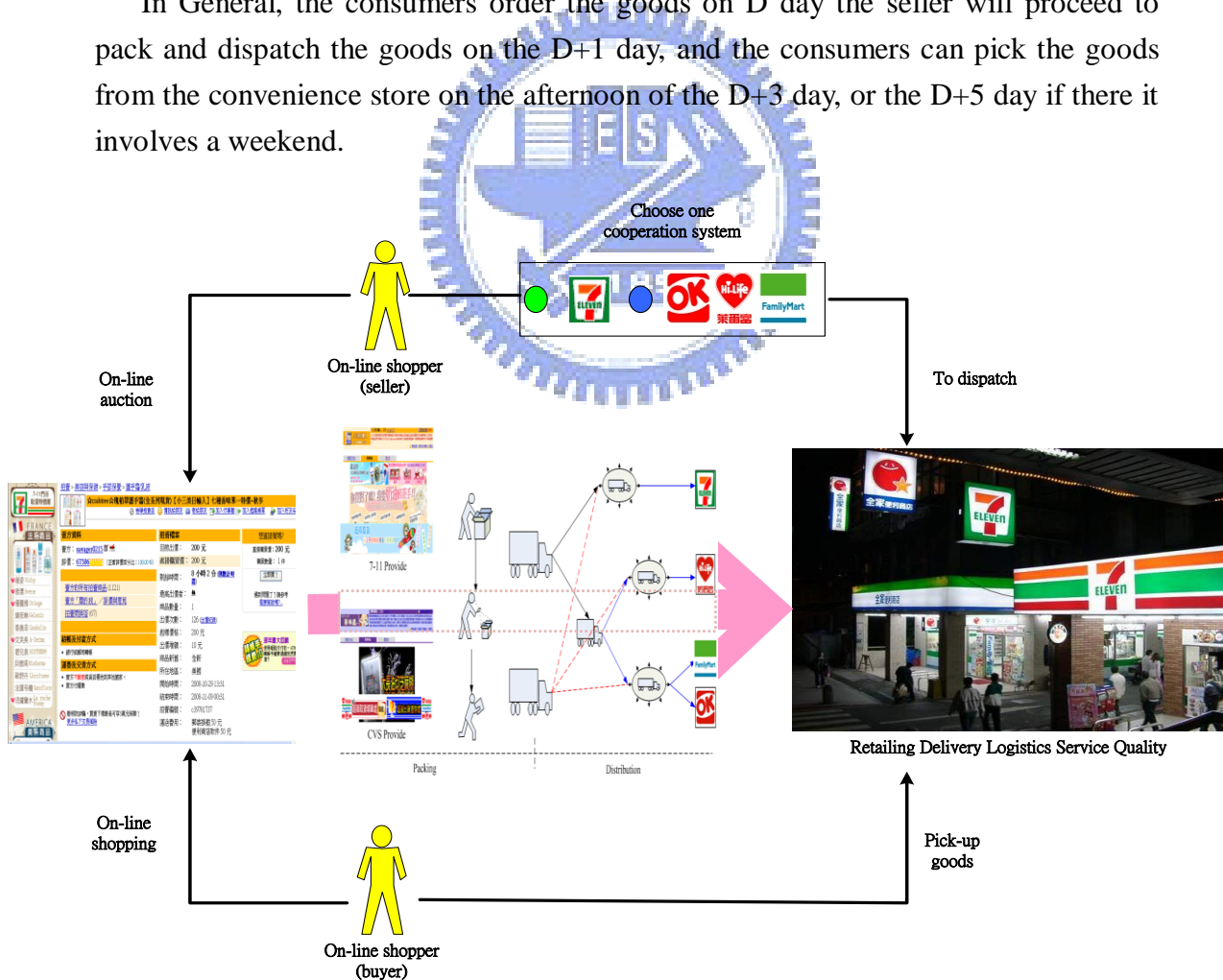


Figure 2.2 Procedure of online shopping and picking-up at the convenience store

## **2.2 Consumer Behavior**

Choice behavior can be characterized by a decision process, which is informed by perceptions and beliefs based on available information, and influenced by affect, attitudes, motives, and preferences. Thus the behavioral intention is the most important indicator in the choice behavior. Previous researches focused on the cause-and effect relationships between service quality, perceived value, satisfaction, switching cost and behavioral intention. Those constructs will be defined and described in the following.

### **2.2.1 Logistics Service Quality**

In this section, a review of theoretical background of service quality including both physical and virtual marketplace, and the measured scale of logistics service quality of RD system in the online auction market will be developed and presented.

#### **2.2.1.1 Traditional Service Quality**

The last few decades have seen a growing interest in the definition, modeling, and measurement of service quality.

Parasuraman, Zeithaml and Berry (1985) proposed that service quality has four distinguishing characteristics: (1) Service quality is more difficult for the customer to evaluate than the quality of goods; (2) Service quality perceptions result from a comparison of consumer expectations with actual service performance; (3) Quality evaluations are not made solely on the outcome of a service; they also involve evaluations of the process of service delivery; (4) Services cannot be stored and carried forward to a future time period.

Parasuraman *et al.* (1985) proposed that service quality is a function of the gap between expected service and perceived service. They developed a model of service quality by an exploratory investigation of quality in four retail consumers including appliance maintenance, retail banking, securities brokers, and credit card services. This model is based on the gaps between consumers and marketers, and it is widely called the “PZB model” or “GAP model”. According to the study, ten key dimensions about service quality were introduced in 1985, and then refined into five dimensions named SERVQUAL in 1988 for measuring customers’ subjective perception of service quality as shown in Table 2.1.

Table 2.1 Refined PZB model

Original PZB Model (1985)	Refined PZB Model (1988)	Definition
Tangibles	Tangibles	Appearance of physical facilities, equipment, personnel, and communication materials.
Reliability	Reliability	Ability to perform the promised service dependably and accurately.
Responsiveness	Responsiveness	Willingness to help customers and provide prompt service.
Communication		
Credibility	Assurance	Knowledge and courtesy of employees and their ability to convey trust and confidence.
Security		
Competence		
Courtesy		
Understanding	Empathy	The firm provides care and individualized attention to its customers.
Access		

Additional research has expanded the use of SERVQUAL to other areas including retail consumers of health care, residential utility, job placement, retail store, pest control, dry cleaning, financial service, and fast-food services (e.g., Carman 1990; Cronin and Taylor 1992; Parasuraman, Zeithaml, and Berry 1985, 1988).

Several researchers have criticized SERVQUAL. For example, the estimation of customer perception may already include perception minus the expected mental process, and SERVQUAL applications in different industries reveal that 5 dimensions may not cover the aspects of customer service present in all service encounters.

Carman (1990) proposed that those categories should be specifically defined to measure the quality to meet the retailing consumers' attributes.

Cronin and Taylor (1992) suggested that it is not required to measure the customer expectations in service quality, thus the conceptualized model based on the performance measurement, named SERVPERF. It is an efficient predictor of service quality in comparison with the disconfirmation-based (SERVQUAL) measurement. Four alternatives shown in Table 2.2 were proposed for investigation.

Among these four scales, the empirical analysis of Cronin and Taylor support that SERVPERF approach is an enhanced means of measuring service quality.

Table 2.2 SERVQUAL vs. SERVPERF

Scale	Equation
SERVQUAL	Service quality = Performance – Expectations
Weighted SERVQUAL	Service quality = Importance*(Performance–Expectations)
SERVPERF	Service quality = Performance
Weighted SERVPERF	Service quality = Importance*(Performance)

Current researches start to show more and more support for the exclusion of expectations in measuring service quality (Mentzer, Flint, and Hult 2001). The theoretical background of service quality is moving from expectancy disconfirmation to the theory of reasoned action (Collier and Bienstock, 2006). The theory of reasoned action states that individuals' behavior can be predicted from their attitudes about the behavior and subjective norms (Ajzen and Fishbein, 1980).

### 2.2.1.2 Logistics Service Quality

Logistics excellence has clearly been recognized as an area in which firms can create competitive advantage, in part because of its visible service impact on customers (Bienstock, Mentzer, and Bird 1997). To successfully leverage logistics as a competitive advantage to customers, logisticians must coordinate with marketing (Mentzer and Williams 2001). The quality of logistics service performance is a key marketing component that helps create customer satisfaction (Bienstock *et al.* 1997), develop market segmentation strategies (Mentzer *et al.* 2001), and has been recognized as such for some time (Perrault and Russ 1974).

There are many definitions and descriptions of how logistics creates customer satisfaction. The most traditional are based on the creation of time and place utility (Perrault and Russ 1974). The so-called seven Rs describe the attributes of the company's product/service offering that lead to utility creation through logistics service; that is, part of a product's marketing offering is the company's ability to deliver the right amount of the right product at the right place at the right time in the right condition at the right price with the right information (Stock and Lambert 1987). This conceptualization implies that part of the value of a product is created by logistics service.

However, these all focus on the provider firm, not on the customer. Although this research incorporates internal and external customers, it predominantly involves

provider firms-that is, how logistics executives and quantify the value they create for customers. A process is needed to measure customers' perceptions of the value created for them by logistics service, because it is the customers' perspective of service quality that determines their satisfaction level.

Sharma, Grewal, and Levy (1995) identified major areas of logistics service and summarized five attributes which are consistently ranked as very important by customers: availability of item, after sales service and backup, efficient logistics service communications, paperwork, and delivery time, illustrated in Table 2.3.

Table 2.3 The important attributes of logistics service

Attributes	Definition
Availability of item	The ability of the supplier to satisfy customer orders within a specified time.
After sales service and backup	The ability to quickly replace defective or damaged items and subsequent follow-up to determine if user is happy with the purchase.
Efficient logistics service communications	The ability to quickly and intelligently handle customer queries about the product or service.
Paperwork	The ability to efficiently and accurately complete necessary paperwork that cater to the customers' systems.
Delivery time	The ability to supply goods within the committed time with little variation.

Source: Sharma *et al.* (1995).

Mentzer, Gomes, and Krapfel (1989) argued that two elements exist in service delivery: marketing customer service and physical distribution service (PDS). Here, PDS is composed of three crucial components: availability, timeliness, and quality. Mentzer *et al.* (2001) view PDS as a component of LSQ.

Bienstock, Mentzer, and Bird (1997) proposed that business-to-business logistics services are offered in a context in which people are replaced with "things", and the customer and provider are physically separated. They maintain that the former is appropriate for the SERVQUAL's emphasis on "functional or process dimensions", but the latter logistics service context is composed more of "technical or outcome dimensions". They conclude that an alternative conceptualization of physical distribution service quality (PDSQ) dimensions: availability, timeliness, and condition with service quality process are necessary for logistics service quality. Mentzer *et al.* (2001) view PDSQ as a component of the broader concept of LSQ.

Mentzer, Flint, and Kent (1999) conceptualized and tested LSQ as a second-order construct, with two categories of nine dimensions:

- Order placement-personnel contact quality (PQ), order release quantities (OR), information quality (IQ), ordering procedures (OP), and
- Order receipt-order accuracy (OA), order condition (OC), order quality (OQ), order discrepancy handling (OD), timeliness (TI) (Table 2.4).

Table 2.4 Definitions of the nine concepts about LSQ

Logistics Service Quality	Definitions
Personnel contact quality	The customer orientation of the supplier's logistics contact people. Customers care about whether customer service personnel are knowledgeable, empathize with their situation, and help them resolve their problems.
Order release quantities	Product availability. Customers should be the most satisfied when they are able to obtain the quantities they desire.
Information quality	Customers' perceptions of the information provided by the supplier regarding products from which customers may choose.
Ordering procedures	The efficiency and effectiveness of the procedures followed by the supplier.
Order Accuracy	How closely shipments match customers' orders upon arrival.
Order condition	The lack of damage to orders.
Order quality	How well products work, includes how well they conform to product specifications and customers' need.
Order discrepancy handling	How well firms address any discrepancies in orders after the orders arrive.
Timeliness	Whether orders arrive at the customer location when promised. The length of time between order placement and receipt.

Source: Mentzer *et al.* (2001).

Mentzer *et al.* (2001) proposed and tested a "process of LSQ" and found that all nine components were important for at least one of the customer segments tested. This research revealed that LSQ is a complex concept demanding a great deal of attention

from supplying firms. They also found that LSQ is a process, rather than a single concept or second-order construct. When viewed as a process, suppliers can identify the drivers of various LSQ perceptions.

PZB's SERVQUAL scale has been widely tested in various conventional marketplaces and received good empirical results. It has also been argued that, however, it is improper to directly employ SERVQUAL on the area of logistics service quality. Logistics services not only include cycle time, on time delivery, and inventory availability, but also any handling of individual customer requests beyond traditional service measures (Davis and Mentzer, 2006).

### **2.2.1.3 Logistics Service Quality in Electronic Channels**

From the above studies, we deal with the quality of all *non-Internet-based* customer interactions and experiences with companies. In the Internet, it offers an efficient and flexible sales channel to sellers and consumers, but how to provide a quick-response logistics system to support the order deliveries for sellers is a critical activity to RD provider. Therefore, an important research question is, How to measure LSQ in electronic channels provided by the RD provider?

Before this research question can be answered, we need to know more about how to measure the e-service quality. Zeithaml, Parasuraman, and Malhotra (2000) defined the e-service quality as the service quality on the Internet which is the extent to a website that facilitates efficient and effective shopping, purchasing, and delivery of products and services. Zeithaml *et al.* (2000, 2002) used the means-end framework as a theoretical foundation to develop and test e-SERVQUAL for measuring the service quality delivered by Web sites and they also split the scale into two separate parts in 2005:

- E-S-QUAL- the core dimensions: efficiency, system availability, fulfillment, and privacy;
- E-RecS-QUAL- responsiveness, compensation, and contact, focused on the recovery part.

Collier and Bienstock (2006) measured the service quality in E-Retailing and they developed a conceptual framework of e-service quality. The purpose of this study not only focused on website interactivity or process quality but also outcome quality and recovery quality. It consisted three second-order dimensions and eleven first-order dimensions:

- Process quality-privacy, design, information accuracy, ease of use, and functionality;
- Outcome quality-order timeliness, order accuracy, and order condition;
- Recovery-interactive fairness, procedural, and outcome fairness.

According to the above researches, the SERVQUAL and SERVPERF models can measure service quality well in offline environments, but online service quality reflects different characteristics from physical environments, for example, connectivity and server problems (Collier and Bienstock, 2006).

Following the precedent literatures, several logistics researchers focus on the service quality of e-retailing or home delivery of e-retailing, and develop the scale for measuring home delivery logistics service quality (Mentzer *et al.*, 2001, Collier and Bienstock, 2006), or the service quality of Internet (Parasuraman *et al.*, 2000, 2002, and 2005). Recently, Feng, Zheng, and Tan (2007) developed and tested LSQ with seven dimensions on online shopping malls including timeliness quality, personal contact quality, order quality, order discrepancy handling, order condition and convenience. Feng and Huang (2003, 2006, and 2007) revealed business-to-customers logistics services at the retailing delivery and developed five LSQ components including information quality, ordering procedures, timeliness, order condition and order discrepancy handling, and used AHP and SEM to analyze consumers' behavioral intention about online shopping.

However, in the customer-to-customer environment, research on the logistics service quality of online auction market and pick-up goods at a convenience stores relatively scarce. Therefore, this study tries to develop the definition and measurement of LSQ based on the research focused on shopping in the online auction market and pick-ups at convenience stores.

## **2.2.2 Perceived Value and Perceived Sacrifice**

How to create value or value added has been often treated as the main part of organization's mission statements and objectives. Evidence for delivering superior customer value is an essential strategy for firms to gain competitive advantage and long-term success (Parasuraman 1997).

Zeithaml (1988) proposed the definition of perceived value which is the consumer's overall assessment of the utility of a product based on the perceptions of what is received and what is given. Zeithaml follows the exploratory study to group the perceived value into four consumer definitions of value: (1) value is low price, (2)



value is whatever I want in a product, (3) value is the quality I get for the price I pay, and (4) value is what I get for what I give. In short, the value represented a trade-off between give (price) and get (quality) components and it also provides a comparison of benefits and sacrifices. The sacrifice can be described as consumers sacrifice of both money and other resources (e.g., time, energy, effort) to acquire a service/product, so that the measured scale of sacrifice includes monetary prices and nonmonetary prices.

Bolton and Drew (1991) followed Zeithaml's (1988) concept of perceived value to define perceived value as a function of service quality, sacrifice, and customer characteristics. Due to the monetary and nonmonetary cost and customer preference and past experience, the evaluation of perceived value from customers is different to each other.

Monroe (1990) argued that perceived value is a trade-off between perceived benefits. The equation can be developed as:

$$\text{Perceived Value} = \text{Perceived Benefits} / \text{Perceived Sacrifices}$$

According to the above studies, this study defines perceived value as an overall feeling of the RD service and perceived sacrifice as the consumers sacrifice to both money and nonmonetary costs to acquire a service/product. So we regard perceived value as a uni-dimensional construct to measure customers' overall feelings and use a multidimensional scale to measure the sacrifice including monetary prices and nonmonetary prices (e.g., time, energy, and effort) in this study.

Following Zeithaml (1988) and Bolton and Drew (1991) views, service quality is directly associated with perceived value, and perceived value will be influenced by service quality, sacrifice, and customer characteristics.

Sweeney, Soutar, and Johnson (1996) adopted Gronroos' (1983, 1988, and 1990) concept of service quality, divided service quality to two types: technical quality and functional quality. The empirical study showed that the functional quality would be through the perceptions of product quality and the perceptions of value to affect the willingness to buy.

Based on the above researches, we examine the following hypotheses regarding service quality, perceived value, and perceived sacrifices:

H1: perceived sacrifices have a direct, positive effect on perceived value.

H2: service quality has a direct, positive effect on perceived value.

H3: perceived value has a direct, positive effect on customer behavioral intention.

### 2.2.3 Switching Cost

Switching costs refer to the buyer's perceived costs of switching from the existing to a new supplier (Heide and Weiss 1995). The domain of switching costs encompasses both monetary expenses and nonmonetary costs (e.g., time spent and psychological effort) (Dick and Basu 1994). Furthermore, the domain could include the loss of loyalty benefits as a result of ending the current relationship. (Lam, Shankar, and Murthy 2004). Thus, as switching costs increase, the intention of customer loyalty increases.

Burnham, Frels, and Mahajan (2003) based on the literature reviews to distinguish the switching cost to eight facets, and comprised into three higher-order types. Show on Table 2.6. The study of Burnham et al. proposes that the regression intercepts to represent switching costs not only combines the effects of multiple switching cost types but also confounds switching costs with other possible influences on repeated purchase behavior.

Jones, Mothersbaugh, and Beatty (2000) argued that switching barriers including interpersonal relationships, perceived switching costs, and the attractiveness of alternatives are important factors impacting the decision of a customer to remain with a service provider. They also found that the effect of core service satisfaction on repurchase intentions was reduced when customers perceived high switching barriers. That is, when it is under the conditions of high switching barriers, the influences of core-satisfaction on repurchase intentions decreases.

Therefore, based on the above researches, this study defines switching cost as the costs of switching from the existing to a new supplier (e.g., time spent and learning cost) and examines the following hypothesis regarding switching cost, and customer behavioral intention:

H4: the cost of switching RD provider has a direct, positive effect on customer behavioral intention.

Table 2.5 A Typology of Consumer Perceptions of Switching Costs

Types	Facets	Definition
Procedural Switching Costs	Economic risk costs	The costs of accepting uncertainty with the potential for a negative outcome when adopting a new provider about which the consumer has insufficient information including performance risk, financial risk, and convenience risk.
	Evaluation costs	The time and effort costs associated with the search and analysis information needed to make a switching decision.
	Learning costs	The time and effort costs of acquiring new skills or know-how in order to use a new product or service effectively.
	Setup costs	The time and effort costs associated with the process of initiating a relationship with a new provider or setting up a new product for initial use.
Financial Switching Costs	Benefit loss costs	The costs associated with contractual linkages that create economic benefits for staying with an incumbent firm.
	Monetary loss costs	The onetime financial outlays that are incurred in switching providers other than those used to purchase the new product itself.
Relational Switching Costs	Personal relationship loss costs	The affective losses associated with breaking the bonds of identification that have been formed with the people with whom the customer interacts.
	Brand relationship loss costs	The affective losses associated with breaking the bonds of identification that have been formed with the brand or company with which a customer has associated.

Source: Burnham *et al.* (2003)

## 2.2.4 Customer Satisfaction

Customer satisfaction is fundamental to the practice of consumer sovereignty. However, the definition of consumer satisfaction is not so clear in the marketing literature (Tomiuk, 2000; Spreng and Mackoy, 1996). While there is not a clear consensus regarding the definition of satisfaction, most definitions would involve “an evaluative, affective, or emotional response” (Oliver, 1989). Tse and Witon (1988) view satisfaction as the customer’s response to the evaluation of perceived discrepancy between prior expectations and the actual performance of the product as perceived after its consumption.

There always existed two viewpoints for evaluating customer satisfaction: transaction-specific (multiple items scale) and cumulative (overall satisfaction). While transaction-specific satisfaction is identified as a post-choice evaluative judgment of a specific purchase occasion (Oliver, 1980), cumulative satisfaction is an overall evaluation of the firm’s past, current, and future performance (Oliver, 1996; Rust and Oliver 1994). In this study, we define customer satisfaction as an overall satisfaction of the RD service and regard customer satisfaction as a uni-dimensional construct to measure customers’ overall feelings.

There seems to be consensus that customer satisfaction and service quality are unique constructs, but distinctions in their definitions are not always made clear in the literature. The lack of clarity in the definitions of service quality and customer satisfaction is linked to the ongoing controversy surrounding the causal order of service quality and customer satisfaction.

Oliver (1993) proposed a model that is intended to integrate the satisfaction and the service quality. He proposes that while service quality is formed by a comparison between ideals and perceptions of performance regarding quality dimensions, satisfaction is a function of the disconfirmation of predictive expectations regarding both quality dimensions and non-quality dimensions. Further, perceived service quality is proposed to be an antecedent to satisfaction (Wilkie, 1986; Cronin, 1992).

Therefore, based on the above researches, this study defines customer satisfaction as the customer’s response to the evaluation of the perceived discrepancy between prior expectations and the actual performance of the product as perceived after its consumption and examines the following hypothesis regarding service quality and customer satisfaction:

H5: service quality has a direct, positive effect on customer satisfaction.

Woodruff (1997) proposed that perceived value would directly or indirectly

impact on the customers' overall satisfaction. Brady, Knight, Cronin, Hult, and Keillor (2005) tested the conceptual effects of quality, satisfaction, and value on consumers' behavioral intentions across multinational and multi-setting environments. They found that service value perceptions strongly affect customer satisfaction. Thus, that, examines the following hypothesis regarding service value and customer satisfaction:

H6: perceived value has a direct, positive effect on customer satisfaction.

### **2.2.5 Customer Behavioral Intention**

Consumer behavior is an integrated science; it includes economics, marketing, psychology and sociology. American Marketing Association (AMA) defined consumer behavior as a dynamic relationship between the interaction of emotion, cognition and behavior. That also means that consumer behavior includes the feelings and thoughts experienced by consumers and the behavior during their buying process. At the same time, it also includes environment which affect consumers' emotion, cognition and behavior, like the comments of other consumers, advertisement marketing, product price information, package, and product appearance.

Two popular theories of consumer behavior are theory of reasoned action (TRA) proposed by Ajzen and Fishbein (1975) and the theory of planned behavior (TPB) proposed by Ajzen (1991). Both theories mean that attitude affects intention then intention affects behavior shown in Figure 2-2. Ajzen and Fishbein defined attitude, intention and behavior as follow:

- Attitude: it is continuous trend that people like or dislike particular object through studying or experience.
- Behavior intention: subjective possibility of executing particular behavior, it reflects personal intention of particular behavior.
- Behavior: transferring intention to actual behavior.

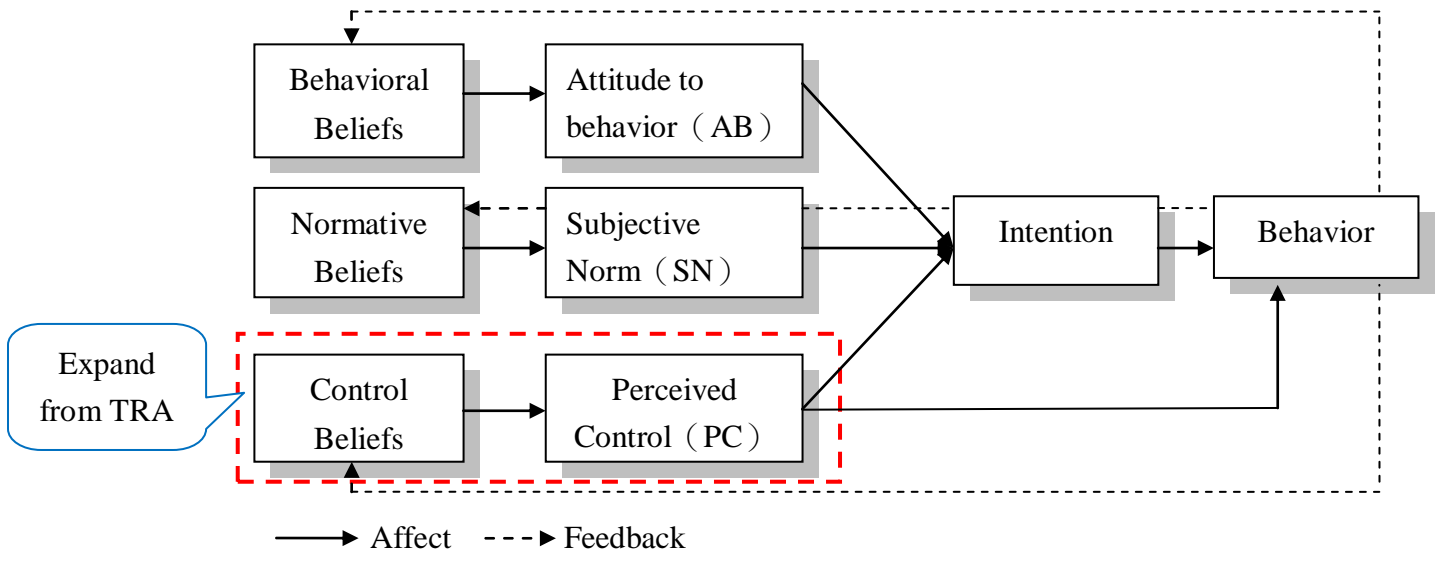


Figure 2.3 Theory of Planned Behavior (TPB)

Source: Ajzen (1991)

Engel, Blackwell, and Miniard (1995) proposed that behavioral intention is related to attitude. The traditional view reveals three key components of attitude: (1) cognitive, a person’s knowledge and beliefs with respect to the attitude object; (2) affective, a person’s feelings about the attitude object; (3) conative, a person’s action or behavior tendencies toward the attitude object. A more contemporary view of attitude is as shown in Figure 2.3. Attitude is not treated as comprising three components but related to each component. Both beliefs (the cognitive component) and feelings (the affective component) are conceptualized as antecedents of attitude, whereas behavioral intention (the conative component) is viewed as a mediator between attitude and behavior. That is, attitude will impact on behavioral intention, and in turn, the actual behavior.

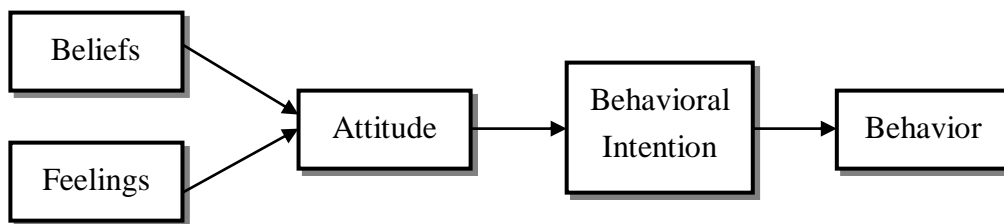


Figure 2.4 A Contemporary View of Attitude

Source: Engel *et al.* (1995)

Zeithaml, Berry, and Parasuraman (1996) used multiple measures of service quality and behavioral intentions. The behavioral intentions construct split broadly into favorable and unfavorable behavioral intentions. Favorable behavioral intentions include several specific elements such as saying positive things, recommending the

company to others, expressing loyalty to the company, and paying a price premium. Similarly, unfavorable behavioral intentions include some indicators, for example, “saying negative things, switching to another company, complaining to external agencies, and doing less business with company.”

Therefore this study applies a multi-dimensional scale to measure customers’ potential behaviors. Both favorable and unfavorable outcomes are embodied in order to get a whole view of consumers’ evaluations on behavioral intentions as well as the correlations between behavioral intentions and other key constructs.

Zeithaml *et al.* (1996) proposed the relationship between service quality and behavioral intention and suggest that service quality on particular behaviors that signal whether customers will remain with or defect from a company.

Cronin, Brady, and Hult (2000) in accordance with recent advances in services marketing theory, made efforts to conceptualize the effects of quality, satisfaction, and value on consumers’ behavioral intentions across multiple service industries. It stated three competing models based on different research objectives from the literatures; those are value model, satisfaction model, and indirect model. And then, the authors developed the forth model called “Research Model” to depict the relationship amongst the primary service evaluation constructs of sacrifice, service quality, service value, satisfaction, and behavioral intentions.

Brady *et al.* (2005) built upon Cronin *et al.*’s tested the models using samples of service consumers in Australia, Hong Kong, Morocco, the Netherlands, and the United States, as well as across varied temporal and service settings. The models were shown in Figure 2.4. They found that service quality, service value, and satisfaction are all directly influence service consumers’ behavioral intentions by the comprehensive model (e.g., SQ→BI, VAL→BI, and SAT→BI). The results not only imply that service quality, service value, and satisfaction have a strong, collective influence on behavioral intentions, but also lend support to cognition→affect→intention models.

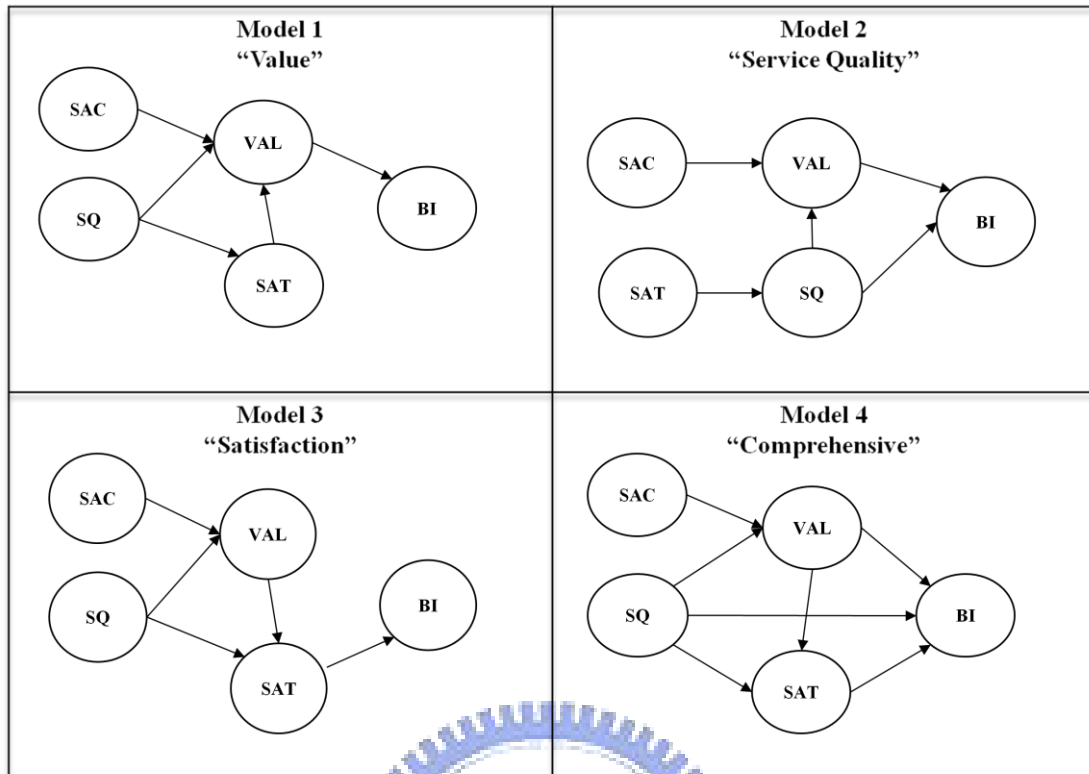


Figure 2.5 Four competing models

Source: Brady *et al.* (2005)

Therefore, based on the above researches, this study examines the following hypotheses regarding service quality, customer satisfaction and behavioral intention:

H7: service quality has a direct, positive effect on customer behavioral intention.

H8: customer satisfaction has a direct, positive effect on customer behavioral intention.

### 2.3 Discrete Choice Model with Latent Variables

Choice behavior can be characterized by a decision process, which is informed by perceptions and beliefs based on available information, and influenced by affect, attitudes, motives, and preferences. Preferences are comparative judgments between entities. Under certain technical conditions, including completeness and transitivity, preferences can be represented by a numerical scale, or utility.

The random utility (or discrete choice) model was formalized by Manski (1977). The model is based on the notion that an individual derives utility by choosing an alternative. The *utilities*  $U$  are latent variables and the observable *preference indicators*  $y$  are manifestations of the underlying utilities. The utilities are assumed to be a function of a set of *explanatory variables*  $X$ , which describe the *decision-maker*  $n$



and the *alternative i*. The resulting utility equation can be written as:

$$U_{in} = V(X_{in}; \beta) + \varepsilon_{in}, \quad (1)$$

where  $U_{in}$  is the utility of alternative  $i$  [ $i = 1, \dots, j_n$ ] for decision-maker  $n$  [ $n = 1, \dots, N$ ] ( $U_n$  is a vector of utilities for decision-maker  $n$ );  $X_n$  is a vector of explanatory variables describing alternative  $i$  and decision-maker  $n$  ( $X_n$  is a matrix of explanatory variables describing all alternatives and decision-maker  $n$ );  $\beta$  is a vector of unknown parameters;  $V$  (called the systematic utility) is a function of the explanatory variables and unknown parameters  $\beta$ ; and  $\varepsilon_{in}$  is a random disturbance for  $i$  and  $n$  ( $\varepsilon_n$  is the vector of random disturbances, which is distributed  $\varepsilon_n \sim D(\theta_\varepsilon)$ , where  $\theta_\varepsilon$  are unknown parameters).

RUM assumes utility maximization:

Decision-maker  $n$  chooses  $i$  if and only if  $U_{in} \geq U_{jn}$  for all  $j \in C_n$

where  $C_n$  is the set of  $J_n$  alternatives faced by  $n$ .

The choice probability equation is then:

$$P(i|X_n; \beta, \theta_\varepsilon) = Prob[U_{in} \geq U_{jn}, \forall j \in C_n]. \quad (2)$$

Employing classical techniques, estimation involves maximizing the likelihood of the preference indicators ( $y_n$ ). The likelihood is derived from the structural equation, in this  $n$  case the utility Eq. (1), and the measurement equation, which defines  $y_n$  as a function of the utilities via the utility maximization Eq. (2). For example, the measurement equation for choice data is:  $y_{in} = 1$  for the chosen alternative and 0 otherwise for all  $i \in C_n$ , which leads to the following likelihood:

$$P(y_n|X_n; \beta, \theta_\varepsilon) = \prod_{i \in C_n} P(i|X_n; \beta, \theta_\varepsilon)^{y_{in}}. \quad (3)$$

Starting from this general formulation, assumptions on the distributions of the disturbances lead to various choice models, such as logit model and nested logit model. The logit model is derived from the assumption that the error terms of the utility functions are independent and identically Gumbel distributed.

Often in behavioral sciences, there are concepts of interest that are not well defined and cannot be directly measured. These concepts are referred to as latent constructs, e.g. knowledge, ambition, or personality. While there exists no operational models to directly measure these constructs, latent variable modeling techniques are often applied to infer information about latent variables. These techniques are based on the hypothesis that although the construct itself cannot be observed, its effects on measurable variables (called *indicators*) are observable and such relationships provide

information on the underlying latent variable.

Ben-Akiva *et al.* (1999) presented a rigorous and general methodology which integrated choice and latent variable model to model the theoretical framework, explicitly incorporating psychological factors and their influences on choices.

Ben-Akiva and Walker (2002) followed Ben-Akiva *et al.*'s (1999) concept of integrated choice and latent variable model to present the generalized model of Random Utility Models which added relaxed simplifying assumptions and enriched the capabilities of the basic model. The extensions are flexible disturbances, latent variables, latent classes and combining revealed preferences and stated preferences. The component of latent variables of the generalized model is to explicitly incorporate the psychological factors, such as attitudes and perceptions, affecting the utility by modeling them as latent variables.

The portions of the generalized model related to integrating choice and latent variable models. The choice model is like any standard choice model, except that now some of the explanatory variables are not directly observable. The notation  $X_n^*$  is used to denote these unobservable explanatory variables, and the utility equation for the choice model is then:

$$U_n = V(X_n, X_n^*; \beta) + \varepsilon_n \quad (5)$$

If the latent variables were given, the probability of  $y_n$  conditional on  $X_n^*$  would be:

$$P(y_n, X_n^*; \beta, \theta_\varepsilon). \quad (6)$$

This must be integrated over the distribution of the latent variables to obtain the unconditional probability of interest. This requires the latent variable structural model:

$$X_n^* = X^*(X_n; \lambda) + \omega_n, \quad (7)$$

which describes the latent variable ( $X_n^*$ ) as a function of observable explanatory variables ( $X_n$ ), a set of parameters ( $\lambda$ ), and a disturbance  $\omega_n \sim D(\theta_\omega)$ . From this equation, the density function of the latent variables  $f(X^*|X_n; \lambda, \theta_\omega)$  is obtained and the resulting unconditional probability equation is then:

$$P(y_n | X_n; \beta, \lambda, \theta_\varepsilon, \theta_\omega) = \int P(y_n | X_n, X^*; \beta, \lambda, \theta_\varepsilon) f(X^* | X_n; \lambda, \theta_\omega) dX^*. \quad (8)$$

It is difficult to estimate this model based on the observed preference indicator alone and so psychometric data, such as responses to attitudinal and perceptual survey questions, are used as indicators of the latent psychological factors. These data ( $I_n$ )

are incorporated through the latent variable measurement equation:

$$I_n = I(X_n^*; \alpha) + v_n, \quad (9)$$

which describes the indicators ( $I_n$ ) as a function of the latent variables ( $X_n^*$ ), a set of  $n$  parameters ( $\alpha$ ) and a disturbance  $v_n \sim D(\theta_v)$ . From this equation, the density function of the indicators  $f(I_n | X_n^*; \alpha, \theta_v)$  is obtained. Incorporating this into the likelihood leads to the final form of the integrated choice and latent variable model:

$$P(y_n, I_n | X_n; \beta, \alpha, \lambda, \theta_\varepsilon, \theta_v, \theta_\omega) = \int P(y_n | X_n, X_n^*; \beta, \theta_\varepsilon) f(I_n | X_n^*; \alpha, \theta_v) f(X_n^* | X_n; \lambda, \theta_\omega) dX_n^* \quad (10)$$

This technique has been applied in numerous applications.



## CHAPTER3 METHODOLOGY

This chapter first introduces the conceptual model and construct measurements of research constructs, including service quality, perceived value, switching cost, customer satisfaction, and customer behavioral intentions. Then, the hypotheses to be tested and the research design (the sampling plan, data collection, and data analysis techniques) are described.

### 3.1 Research Framework

#### 3.1.1 Research Model of SEM

The literature review shows that all research constructs have direct effects on each other and the comprehensive model proposed by Brady *et al.* (2005) yields the best empirical results than other competing models. In this study, we first developed the retailing delivery (RD) logistics service quality scales and build an integrative research model and identify both direct and indirect relationships among key constructs. Secondly, the retailing delivery provider types (e.g., 7-11.com or CVS.com) and the online consumers' individual differences (i.e., demographic differences) are explored to clarify their impacts on consumers' perceptions of research variables. Afterwards this study tests the integration research model through conducting online questionnaire surveys in the auction market of online shopping. The research model of SEM in this study is shown in Figure 3.1. According to the literature review, switching cost also is a critical antecedent to behavioral intention. Although the comprehensive model presented in Brady *et al.*'s (2005) article (see Figure 2.4) did not illustrate the relationship of the component between switching cost and customer behavioral intention, their results verified this relationship. As a consequence, the direct link between switching cost and customer behavioral intention is hypothesized in our research model.

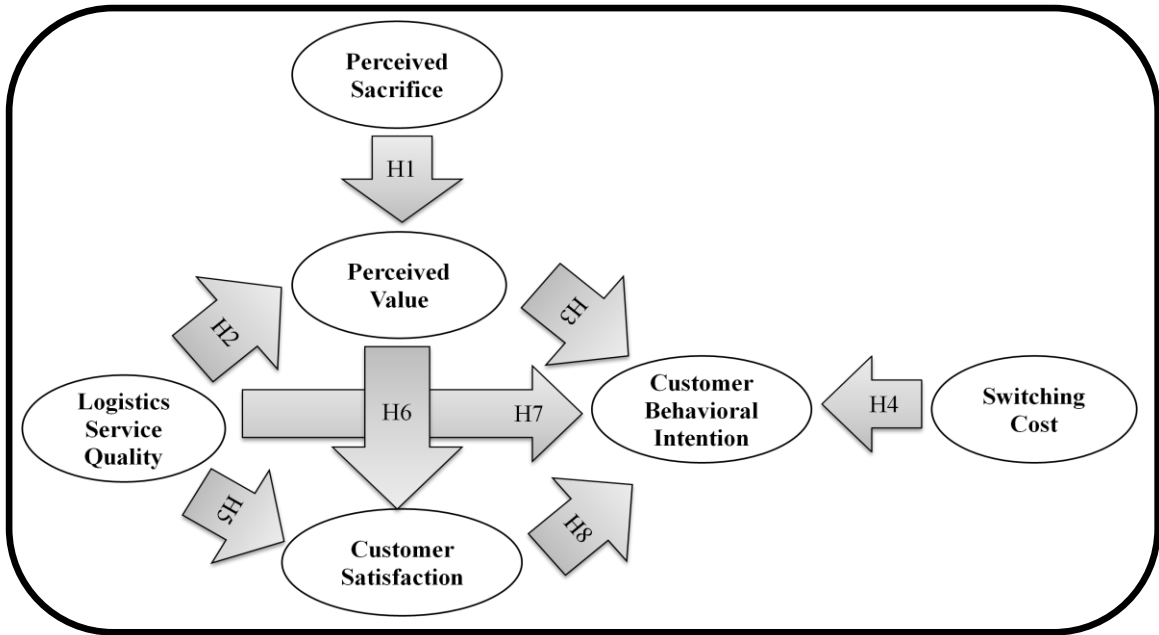


Figure 3.1 Research Model of SEM

### 3.1.2 Research Framework of Integration Model

In this study, we use the combined methodologies of Ben-Akiva *et al.*'s (1999) integration model and SEM to understand the choice behavior of the online auction consumers. The research framework of this study is shown in Figure 3.2.

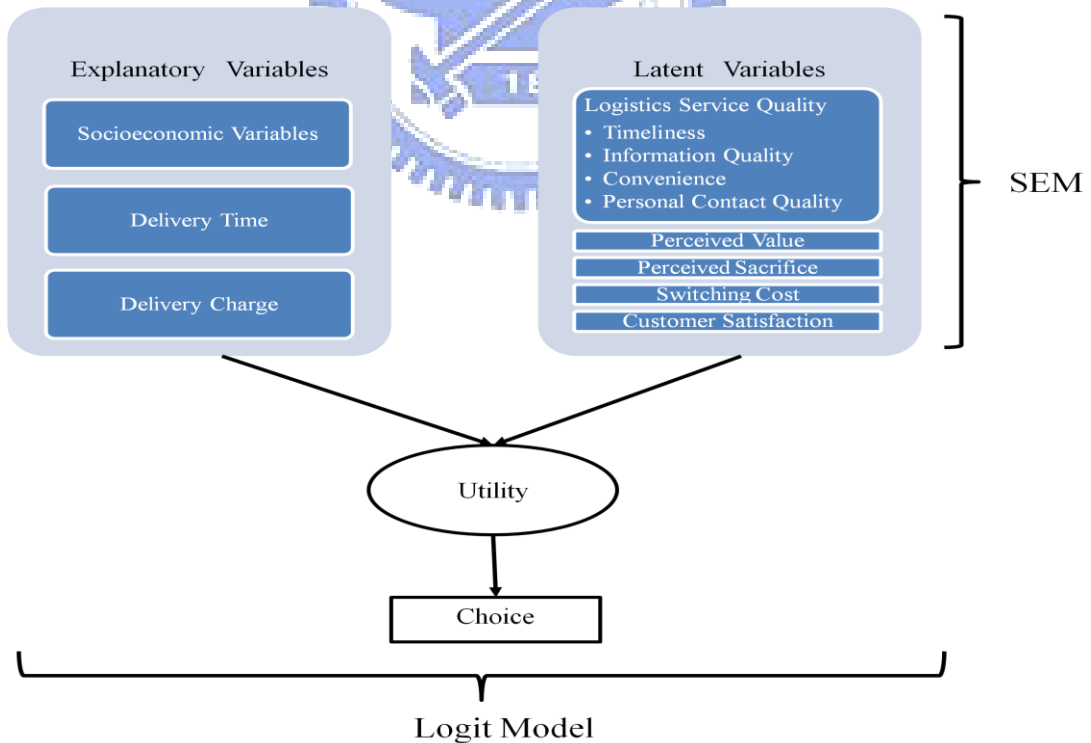


Figure 3.2 Research Framework  
Source: Ben-Akiva *et al.* (1999)

## 3.2 Constructs Measurement

For the purposes of this study, the following six major constructs are operationalized in current research: (1) logistic service quality (LSQ), (2) perceived value (VAL), (3) perceived sacrifice (SAC), (4) switching cost (SW), (5) customer satisfaction (SAT), and (6) behavioral intentions (BI). The measurement items (or scales) are totally adopted or partially modified according to the previous researches with respect to C2C e-commerce, retailing delivery, or online shopping at the auction market.

A five-point Likert-type response format ranging from “strongly agree (=5)” to “strongly disagree (=1)” was used for all indicators in an effort to maximize respondent specificity. The measures used to assess the six constructs are presented in Table 3.1.

### 3.2.1 Logistic Service Quality

Logistic service quality is defined as a function of the gap between expected service and perceived service and has received considerable attention in the literature (e.g., Mentzer *et al.* 1989, Sharma *et al.* 1995, Bienstock *et al.* 1997). In order to measure online consumers’ perceptions of LSQ, this study adopted Mentzer’s (2001) “process of LSQ”. As such, we used a 13-item service quality scale based on Mentzer *et al.* (1999) 9 dimensions of logistic service quality and Zeithaml *et al.* (2000, 2002) e-SERVQUAL scale (items 1-13 in Table 3.1). Similar scales are used by Collier and Bienstock (2006), Feng *et al.* (2007) and Feng and Huang (2003, 2006, and 2007).

These 13 measurement items are grouped into four frequently mentioned dimensions: (1) Timeliness, the timeliness of the RD’s promises about product delivery; (2) Information quality, the elements of consumer’s experiences at the RD Website including visual appeal, information availability and accuracy, functionality, and efficiency; (3) Convenience, the elements of consumer’s experiences at franchise store (pick-up point) including the distance and the extent of franchise store; (4) Personnel contact quality, service attitude of service provider (contact person) at the franchise store.

### 3.2.2 Perceived Value

To measure consumers’ value perceptions of online shopping, this study devised based on Zeithaml’s (1988) “get versus give” definition. We used three appropriate indicators to measure value across the RD provider. The items are similar to that of Sweeney *et al.* (1996).

### **3.2.3 Perceived Sacrifice**

Sacrifice is defined as that which sacrifices both money and nonmonetary costs to acquire a service/product. This is consistent with the definitions of Zeithaml (1988), as well as the multidimensional conceptualizations offered in the literature (e.g., Zeithaml 1988, Bolton and Drew 1991). The construct was measured using items that express consumers' perceptions of the monetary prices and nonmonetary prices of obtaining and using a service. The items are similar to that of Collier et al. (2006).

### **3.2.4 Switching Cost**

Switching cost is defined as the buyer's perceived costs of switching from the existing to a new RD provider. This is consistent with the definitions of Heide and Weiss (1995), thus, the multidimensional conceptualizations offered in the literature (e.g., Dick and Basu 1994, Burnham *et al.* 2003). The construct was measured using items that reflect various aspects including time, money, effort and risk to express consumers' perceptions of switching to another RD provider. The items are similar to that of Bansal, Irving, and Taylor (2004) and Lam, Shankar, and Murthy (2004).

### **3.2.5 Customer Satisfaction**

SAT was devised in light of Oliver's (1996) "overall satisfaction" evaluation. In order to capture both the evaluative and emotion-based qualities of satisfaction (Oliver, 1989), we employed two kinds of satisfaction indicators: the evaluative satisfaction indicator and the emotion-based satisfaction measures.

### **3.2.6 Customer Behavioral Intention**

The measure for BI is based on the work of Zeithaml *et al.* (1996). Their study applies several factors as outcomes of a positive and a negative service exchange. RD providers that deliver good service are suggested to have customers who are loyal, will recommend the service and say positive things about the provider are called "loyalty intentions". Similarly, the delivery in which the customers are not satisfied, customers who will say negative things, switch to another RD provider, complain to external agencies, and do less business with company are called "complain intentions". In assessing behavioral intentions, we used measures related to those factors.

### **3.2.7 Information of Respondents**

In this study, we are also interested the effects of different demographics of the respondents on key research variables. As a consequence, the questionnaire items pertaining to respondents are also contained in the last section of the entire questionnaire, and are categorized into the following seven facets.

1. Gender of the respondent
2. Age of the respondent
3. Marital condition of the respondent
4. Education level of the respondent
5. Disposable Income per month of the respondent
6. Occupation of the respondent
7. Resident area of the respondent

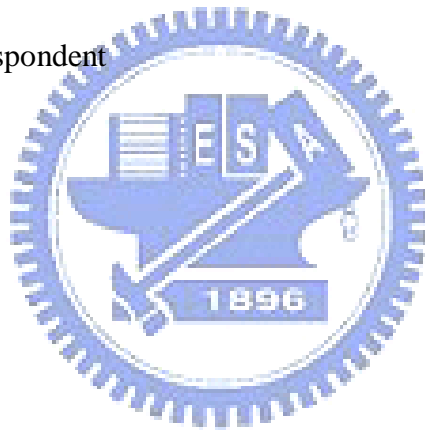




Table 3.1 Measurements of Research Constructs

Construct	Second-order	Item	Measurement Items	Literature Based
LSQ	SQ1 (Timeliness)	S9	You could look up the order status information on the site at any time.	Bierstock et al. (1997); Mentzer et al. (2001); Feng and Huang (2007)
		S11	The tracking system is satisfactory.	
		S12	The delivery speed is satisfactory.	
		S13	Deliveries arrive on the date promised.	
		S14	The time between receiving an order and shipping to the franchise store is short.	
	SQ2 (Information)	S6	The e-map operation interface is easy to select the franchise store for you on this RD provider's Web site.	Parasuraman et al. (2005); Collier et al. (2006); Feng et al. (2007)
		S7	The e-map information of the franchise store that this RD provider's Web site contains is very accurate.	
		S8	This RD provider's Web site makes it easy to find what you need and is simple to use.	
		S10	This RD provider provides accurate information about when orders will be received by E-Mail or through phone message.	
	SQ3 (Convenience)	S1	This RD provider offers a wide franchise store, which has my requirement.	Bierstock et al. (1997)
		S2	The near the franchise store is, the more I prefer.	
	SQ4 (Personnel Contact)	S3	When you went to pick-up the order, the attitude of the contact person is satisfactory.	Innis et al. (1994); Mentzer et al.(2001)
S4		When you went to pick-up the order, the contact person would find the order readily.		
SW	---	SW2	You would spend the extra expenses if I switched to a new RD provider.	Bansal et al. (2004); Lam et al. (2004)
		SW3	You would spent a lot of effort to know the new delivery system if I switched to a new RD provider.	
		SW4	You are not sure whether the new RD provider will provide a better delivery service.	

Table 3.2 Measurements of Research Constructs (cont.)

Construct	Second-order	Item	Measurement Items	Literature Based
SAC	---	SAC1	This RD provider's charge is reasonable.	Zeithaml (1988); Collier et al. (2006)
		SAC2	When you use this RD provider's Web site there is very little waiting time between your actions and the Web site's response.	
		SAC3	The interface of this RD provider's Web site is easy to use.	
VAL	---	VAL1	The overall value you get from this RD provider relative to price is acceptable.	Zeithaml (1988); Sweeney <i>et al.</i> (1996).
		VAL2	The delivery service of this RD provider is more worthwhile to use than other RD providers.	
		VAL3	The delivery service of this RD provider is valuable.	
SAT	---	SAT1	Overall, you are satisfied with the service provided by this RD provider.	Oliver (1989); Collier et al. (2006)
		SAT2	In general you (are/were) pleased with the service experience.	
		SAT3	In general, this RD provider is very careful about the right of the consumer.	
BI	Favorable	BI1	You will be loyal to this RD provider.	Parasuraman et al. (2005); Zeithaml et al. (1996);
		BI2	You intend to do more business with this RD provider in the future.	
		BI3	You intend to use or purchase another service of this RD provider.	
		BI4	You will recommend this RD provider to your friends who seek your advice.	
	Unfavorable	QSW1	Switch to a new RD provider if I experience a problem with this RD provider.	
		QSW2	Complain to other customers if I experience a problem with this RD provider.	
		QSW3	Complain to this RD provider's employees if I experience a service-related problem.	

### 3.3 Questionnaire Design

As discussed in section 3.2, a 32-item survey questionnaire was developed to obtain the responses from the Internet consumers about their opinions on various research variables. The questionnaire of this study consists of six constructs: “logistic service quality (13 items),” “perceived value (3 items),” “perceived sacrifice (3 items),” “customer satisfaction (3 items),” “switching cost (3 items),” and “behavioral intentions (7 items).”

A preliminary version of this questionnaire was conducted via a paper survey and discussed with the thesis advisors. The questionnaire was adjusted based on the suggestions from and then conducted a pretest through a pilot study by the students of National Chiao Tung University who frequently do online ordering and then pick-up goods at the convenience store. The questionnaire for the pilot study was tested and modified before it was used for online data collection. Possible misunderstandings of questions were also considered and the questionnaire was revised accordingly. The detailed contents of the final form including the statement of the questionnaire items and the ranging or the scale are shown in the Appendix (the Chinese version).

### 3.4 Sampling and Data Collection

A sampling plan is developed to ensure that certain types of respondents are included in this study. The target sample in this study is the online-shoppers who have ever purchased online auction market, and pick-up goods at the convenience store.

The data used in this study were collected via a Web survey. Web surveys are a visual stimulus, and the respondent has complete control with regard to how each question is read and comprehended. Therefore, responses to Web questionnaires are expected to closely resemble those obtained via mail questionnaires and Web site. Since Web surveys and online shopping have similar inherent characteristics, Web surveys are very suitable for research in the online shopping realm.

In order to reduce the possibility of multiple submissions by one person, cookie technology was used to ensure that each respondent answered the questionnaire only once. The address link of online questionnaire was sent to friends and classmates by e-mails and asked them to help forward in order to increase the sample size. Meanwhile, the address link of online questionnaire was posted in the pchome<sup>5</sup> Web

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<sup>5</sup> [www.pchome.com.tw](http://www.pchome.com.tw).

site, ezship<sup>6</sup> Website and other forums for a better coverage of e-consumers. To encourage participation, respondents who filled out the surveys were received a coupon prizes of NT\$1000.

The survey was administered over a period of six weeks (November 20-December 31, 2008). Effective data from a total of 1357 questionnaires were collected. In this thesis, we conducted further analyses with the remaining items to develop a logistics service quality scale (LSQ).

We use approximately 22% of the full sample to conduct exploratory factor analysis (EFA) on LSQ construct. Then, we conducted confirmatory factor analysis (CFA) to further assess the factor structure of the LSQ Scale. For this analysis, we used only the subset of respondents (approximately 55% of the full sample) who had completed these items. Further discussion about the descriptive analysis and results are given in the next chapter.

### **3.5 Data Analysis Procedures**

We have used SPSS 12.0, AMOS 6.0 and NLOGIT 3.0 softwares to analyze the collected data. The current research conducted the following data analysis.

#### **3.5.1 Descriptive Analysis**

To better understand the characteristics of each variable, we use descriptive statistics to explain the structure of sample data and show the distribution of our sample.

#### **3.5.2 Factor Analysis**

Factor analysis takes a large number of variables, and puts them into a small number of factors, within which all of the variables are related to each other. Factor analysis can identify the basic underlying variables which account for the correlations between actual test scores. The purpose of factor analysis is to explore the underlying variance structure of a set of correlation coefficients. Factor analysis can be used not only to summarize or reduce data but also to explore or confirm data.

Principal components method with a varimax rotation was employed to the measurement scales and to examine their dimensionality. The guidelines adopted in this study for identifying factors are (1) eigenvalues should be greater than 1; (2) cumulative explained variance is suggested to exceed 60%; and (3) factor loading is generally required above 0.50 (Wu, 2005). Then Cronbach's  $\alpha$  was used to confirm the reliability of each extracted factor.

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<sup>6</sup> [www.ezship.com.tw](http://www.ezship.com.tw).

In this thesis, we will conduct exploratory factor analysis on the logistics service quality items, using principal component analysis as the extraction method and varimax as the rotation method. We used the subgroup numbers criterion to determine the factors to retain. We then went through a series of iterations, each involving the elimination of items with low loadings on all factors or high cross-loadings on two or more factors, followed by the factor analysis of the remaining items. The iterative process resulted in the final LSQ Scale, consisting of 13 items on four dimensions, which we labeled as timeliness, information quality, convenience and personnel contact quality as shown in Table 4.6.

### 3.5.3 Reliability

Reliability means the trustworthiness of measurement, like accuracy or precision. It also represents the stability or consistency of a result. Reliability is depended on error of measurement. It reflects the degree of trustworthiness of measuring tools or procedures.

There are three kinds of reliability: equivalence, stability, and consistency. Equivalence is divided into alternate forms and split-half, stability concludes the test-retest, and is divided into split-half, Kuder-Richarson and Cronbach`s  $\alpha$ . They are suitable for different proposes and situations. In this thesis, we use Cronbach`s  $\alpha$  value to test the consistency of measurements of each factor, it is most suitable for testing reliability under Likert scale.

Cronbach`s  $\alpha$  is proposed by Cronbach(1951). Cronbach proposed a principle to determine reliability. The rationale for Cronbach`s  $\alpha$  is that the individual scale items should all be measuring the same construct and thereby the highly intercorrelated. Cronbach`s  $\alpha$  is a measure of squared correlation between observed scores and true scores. The lower limit for Cronbach`s  $\alpha$  is generally agreed on 0.70, although it may decrease to 0.60 in exploratory research (Hair, nderson, Tatham, & Black, 1998). If a scale has a Cronbach`s  $\alpha$  below 0.60, it should be considered for any roots of measurement errors. In practice, as long as  $\alpha > 0.60$ , we can claim an acceptable reliability.

$$\frac{N}{N-1} \left( \frac{\sigma_X^2 - \sum_{i=1}^N \sigma_{Y_i}^2}{\sigma_X^2} \right)$$

N = the number of components

$\sigma_X^2$  = the variance of the observed total test

$\sigma_{Y_i}^2$  = the variance of component  $i$

### **3.5.4 Validity**

Validity is a scale to examine the degree of measurement. In this thesis, we use construct validity to measure the effectiveness of model. Construct validity means that the construct can reflect actual situation. Construct validity divides into convergent validity and discriminate validity. Convergent validity refers to the extent to which each measure correlates with other measures of the same latent construct. If measurement items of each construct have individual factor loadings of at least 0.50 (Grandon & Pearson, 2003; Lee, Kim, & Lee, 2004), and all measurement items are significant with a t-value greater than 1.96, we can conclude that the scale has convergent validity.

Discriminate validity, in contrast, refers to the extent to which the measure of a conduct does not correlate with the measures of other constructs. Discriminate validity can be assessed based on a confidence interval of the correlation between any two constructs, namely, to test  $H_0: \rho = 1$  versus  $H_1: \rho \neq 1$  ( $\rho$  is the correlation between paired constructs). If none of the correlations includes 1, discriminate validity is reached, and we can conclude that the two constructs differ (Anderson & Gerbing, 1988).

In this thesis, we will do the t-test for factor loading of every indicator variable after finishing confirmatory equation analysis. If the t value of the factor loading comes from every indicator variable and its construct is higher than 1.645, it means that every measured variables can effectively measure the common construct.

About testing discriminate validity, we take variance extracted estimate as the indicator. Usually, variance extracted estimate of measurement construct should be higher than 0.5 to fit in with the standard proposed by Fornell and Larcker (1981).

### **3.5.5 Structural Equation Modeling (SEM)**

Structural equation modeling is usually categorized as advanced statistics. It belongs to a part of multivariate statistics and integrates factor analysis and path analysis. SEM concludes the relationships between manifest variables, latent variables, error variables and further obtains direct effects, indirect effects and total effects caused from independence variables to dependence variables. SEM encourages confirmatory rather than exploratory modeling. Therefore, it is critical to all construct of SEM modeling that must be directed by theory for model development and modification.

SEM is characterized by two basic components: (1) the measurement model, allowing the researcher to use several variables for a single independent or dependent variable; (2) the structural model, relating independent to dependent variables (i.e.,

the path model). The superiority of structural equation model over other statistical techniques owes to its ability to estimate multiple and interrelated dependence relationships, and also to represent unobserved concepts, or latent variables, in those relationships and account for measurement error in the estimation process. The conceptual model is used and shown in Figure 3.1 to explain the relationships among the logistics service quality, perceived value, customer satisfaction, switching cost and customer behavioral intention.

Goodness-of-fit measures the correspondence of the actual or observed input (covariance or correlation) matrix with that predicted from the proposed model. In other words, goodness-of-fit tests are used to determine whether the model should or should not be rejected. Jöreskog & Sörbom (1993) pointed out that concept of measurement model concludes measurement, reliability and validity. So, the complete analysis of structural model consist of (1)calculation of factor loading of each variable, (2)testing the fitness between data and measurement model of each factor, (3)calculation of the relationship between each latent variable, and (4) testing the fitness between whole model and data.

Table 3.3 Goodness-of-Fit index of model

<b>Goodness-of-Fit Measurement</b>	<b>Threshold value</b>
<b>Absolute Indexes of Fit</b>	
Chi-square Statistic ( $\chi^2$ )	P<0.05; (The smaller; the better)
Normed Chi-square ( $\chi^2/df$ )	P <2.00 is perfect; P <5.00 is acceptable
Root Mean Square Residual (RMR)	P<0.05
Goodness of Fit (GFI)	P>0.9
Adjusted Goodness of Fit (AGFI)	P>0.9
Root Mean Square Error of Approximation (RMSEA)	P <0.05 is perfect; P <0.08 is good; P <1 is acceptable)
<b>Incremental Indexes of Fit</b>	
Normal Fit Index (NFI)	P>0.9
Non-normal Fit Index (NNFI)	P>0.9
Relative Fit Index (RFI)	P>0.9
Comparative Fit Index (CFI)	P>0.9

### 3.5.6 Logit Model

The cognitive process for decision-making is the mental mechanism that defines the cognitive task and the role of perceptions, affect, attitudes, motives and preferences in performing this task to produce a choice. Random utility (or discrete choice) models have been extensively used to analyze consumers' choice behavior. These models used only the observed attributes and individual characteristics. In behavioral sciences, there are some concepts that cannot be directly measured. Ben-Akiva *et al.* (1999) presented a theoretical framework which integrated choice and latent variable model to incorporate psychological factors and their influences on choices.

In this thesis, we will specify the joint choice and latent variable model, and we need the structural and measurement equations for both the latent variable component and the choice component. The parameters are assumed to be liner and the equations are constructed as:

Latent variable structural equations:

$$U_{in} = X_{in}\beta + X_{in}^*\beta_{X^*} + \varepsilon_{in}, \quad \varepsilon_{in} \sim \text{Gumbel}(0, \mu) \quad (11)$$

$$X_{in}^* = X_{in}\lambda + \omega_{in}, \quad \omega_{in} \sim N(0,1). \quad (12)$$

Latent variable measurement equations:

$$I_{in} = X_{in}^*\alpha_i + v_{in}, \quad v_{in} \sim N(0, \theta_{vb}). \quad (13)$$

$$y_{in} = \begin{cases} 1, & \text{if } U_{in} = \max_j \{U_{jn}\} \\ 0, & \text{otherwise} \end{cases} \quad (14)$$

The likelihood function for the joint model is:

$$P(y_{in}, I_{in} | X_{in}, X_{in}^*; \beta, \beta_{X^*}, \alpha, \lambda, \theta_\varepsilon, \theta_\omega, \theta_v) = \int P(y_{in} | X_{in}, X_{in}^*; \beta, \beta_{X^*}, \theta_\varepsilon) \varphi(X_{in}^*) f_i(I_{in} | X_{in}^*; \alpha, I_v) dX_{in}^* dv d\varepsilon \cdot \quad (15)$$

which describes the decision-maker ( $n$ ) and the alternative ( $i$ ), the latent variable ( $X_n^*$ ), the observable explanatory variables ( $X_n$ ), unknown parameters ( $\lambda, \beta, \alpha$ ), and covariances of random disturbance terms ( $\omega_{in}, \varepsilon_{in}, v_{in}$ ).

The model fit is measured in terms of the fit between the estimated choice probabilities and the observed choices, and in terms of the ability of the model to forecast the observed response. In this study, we used  $\rho^2$  to measure the model fit, which is similar to  $R^2$  in the regression analysis. It is defined as:



$$\rho^2 = 1 - \frac{LL(\hat{\beta})}{LL(0)}$$

$$\bar{\rho}^2 = 1 - \frac{(LL(\hat{\beta}) - K)}{LL(0)}$$

where  $\bar{\rho}^2$  is adjusted likelihood ratio,  $LL(\hat{\beta})$  and  $LL(0)$  are the log-likelihood function values at convergence and at zero,  $K$  is the number of parameters estimated in the model. According to the literatures, the preferred procedure for evaluating a model is to use the log-likelihood value or transforms of it, such as  $\rho^2$  and  $\bar{\rho}^2$ .

We will use AMOS 6.0 to obtain the parameters of the latent constructs and calculate the factor score. We put them in Eq. (11) to Eq. (13) to analysis which items will influence the respondents' choice behavior to choose an RD provider.



## CHAPTER 4 DATA ANALYSIS AND RESULTS

This chapter shows the descriptive results of data collection and presents the findings of data analysis associated with the research hypotheses. It contains six sections of empirical results. The first section is the descriptive statistics analysis of the respondents including the attributes of the respondents, and the results of measurement variables. The second section depicts the exploratory factor analysis of measurement variables. The third section is the reliability tests of measurement scales. It consists of the evaluations of coefficient alpha. The fourth section is the validity assessment of measurement scales. It is composed of discriminated validity and convergent validity. The fifth section demonstrates the structural equation modeling to analyze the overall relationships among research constructs. Model test is first performed to determine whether the research model yields a significant fit to the collected data. Path results and effects analysis are subsequently discussed to validate research hypotheses. The last section describes the logit model to analyze which constructs will influence the respondents' choice behavior to choose an RD provider.

### 4.1 Descriptive Analysis

Preliminary analysis was conducted in this section to provide information about the characteristics of respondents and the results of relevant research variables.

#### 4.1.1 Characteristics of Respondents

In the final survey we retrieved 1614 questionnaires, and there are 1357 questionnaires excluding those questions that are not received. In this study, we randomly sampled approximately 55% of the full sample (n=755) to conduct further analyses.

We investigate the socioeconomic variables of participants, like gender, age, marital status, education level, monthly income level, area, and occupation. The online shopping behavior of respondents, include experience of online shopping, experience of online shopping, and pick-up at the convenience store, frequency of the convenience store choose, and frequency of the delivery way choose.

Among the sample data, more than 84.9% of respondents are female, 37.6% are 23-29 years old while few respondents (1.1% & 1.3%) are less than 15 years old and over 51 years old. More than 69.4% of the respondents are unmarried. In terms of education level, 62.4% of respondents are educated at the college/university level. In terms of income level, more than 30.5% makes less than NT\$ 3000 per month. More

than 47.5% of respondents live in northern Taiwan. Furthermore, about 31.7% of the respondents are students. About 68.9% of the respondents have 3 years or more experience in online shopping when they fill in the questionnaire. About 50.1% of respondents have 2 years or more experience in online shopping, and pick-up at the convenience store and 59.1% of the respondents indicate that 7-11.com is their main pick-up point. And then, post office (39.3%) and convenience stores (38.9%) are the respondents frequently choose the delivery way. Based upon the above demographic features, the sample of current research is rather skewed in favor of female, young, well-educated online consumers. A demographic analysis is presented in Table 4.1.

Table 4.1 Profiles of the Sample

Attributes	Sample number	Frequency (%)
<b>Gender</b>		
Male	114	15.1%
Female	641	84.9%
<b>Age</b>		
Less than 15	8	1.1%
16~18	65	8.6%
19~22	169	22.4%
23~29	284	37.6%
30~40	192	25.4%
41~50	27	3.6%
51 and over	10	1.3%
<b>Marital status</b>		
Single	524	69.4%
Married (have kids)	186	24.6%
Married (no kids)	32	4.2%
others	13	1.7%
<b>Level of Education</b>		
Junior high school or less	20	2.6%
High school	189	25.0%
College/University	485	64.2%
Institute	61	8.1%

Note: The sample size (n) is 755 (approximately 55% of the full sample).

Table 4.2 Profiles of the Sample

Attributes	Sample number	Frequency (%)
<b>Income (N.T dollars per month)</b>		
Less than \$3,000	230	30.5%
\$3,000~\$5,000	199	26.4%
\$5,000~\$10,000	183	24.2%
\$10,000~\$20,000	75	9.9%
\$20,000~\$30,000	32	4.2%
\$30,000 and over	36	4.8%
<b>Area</b>		
Northern Taiwan	359	47.5%
Central Taiwan	182	24.1%
Southern Taiwan	194	25.7%
Eastern Taiwan	16	2.1%
Offshore Taiwan	2	0.3%
Others	2	0.3%
<b>Occupation</b>		
Student	239	31.7%
Housewife	62	8.2%
Military Personnel	6	0.8%
Government employee	8	1.1%
Education (i.e. Teacher)	20	2.6%
Professional (i.e. Lawyer, Doctor, Accountant)	17	2.3%
Freelancer	52	6.9%
Employee of company	171	22.6%
Manufacturing	27	3.6%
Information Technology	28	3.7%
Retailing	18	2.4%
Others	107	14.2%

Note: The sample size (n) is 755 (approximately 55% of the full sample).

Table 4.3 Profiles of the Sample

Attributes	Sample number	Frequency (%)
<b>Experience of online shopping</b>		
Less than 0.5 year	0	0%
0.5~1 year	87	11.5%
1~2 years	52	6.9%
2~3 years	96	12.7%
3 years and over	520	68.9%
<b>Experience of online shopping, and pick-up at the convenience store</b>		
Less than 0.5 year	79	10.5%
0.5~1 year	85	11.3%
1~2 years	213	28.2%
2 years and over	378	50.1%
<b>Frequency of the convenience store choose</b>		
7-11	446	59.1%
Family.com	197	26.1%
Hi-Life.com	73	9.7%
Okevs.com	39	5.2%
<b>Frequency of the delivery way choose</b>		
Black Cat Express	89	11.8%
Taiwan Pelican Express	40	5.3%
HCT Transportation	7	0.9%
Post office	297	39.3%
Delivering in person	21	2.8%
Convenience stores	294	38.9%
Others	7	0.9%

Note: The sample size (n) is 755 (approximately 55% of the full sample).

#### 4.1.2 Measurement Results of Research Variables

There are 13 items of logistic service quality, 3 items of perceived value, 3 items of perceived sacrifice, 3 items of customer satisfaction, 3 items of switching cost and 7 items of behavioral intentions. The results of means, standard deviations, and ranks were shown in Table 4.4.

Table 4.4 Descriptive Analysis of Research Variables

Item	Description	Mean	Std. Dev.	Rank
<b>Logistics Service Quality</b>				
S1	This RD provider offers a wide franchise store, which has my requirement.	4.53	0.654	2
S2	The near the franchise store is, the more I prefer.	4.65	0.589	1
S3	When you went to pick-up the order, the attitude of the contact person is satisfactory.	4.22	0.789	13
S4	When you went to pick-up the order, the contact person would find the order readily.	4.28	0.789	10
S6	The e-map operation interface is easy to select the franchise store for you on this RD provider's Web site.	4.39	0.721	5
S7	The e-map information of the franchise store that this RD provider's Web site contains is very accurate.	4.38	0.730	6
S8	This RD provider's Web site makes it easy to find what you need and is sample to use.	4.36	0.745	7
S9	You could look up the order status information on the site at any time.	4.35	0.763	8
S10	This RD provider provides accurate information about when orders will be received by E-Mail or through phone message.	4.39	0.767	4
S11	The tracking system is satisfactory.	4.23	0.834	12
S12	The delivery speed is satisfactory.	4.29	0.805	9
S13	Deliveries arrive on the date promised.	4.39	0.771	3
S14	The time between receiving an order and shipping to the franchise store is short.	4.27	0.809	11
<b>Switching Cost</b>				
SW2	You would spend the extra expenses if I switched to a new RD provider.	3.55	1.072	3
SW3	You would spent a lot of effort to know the new delivery system if I switched to a new RD provider.	3.68	1.013	2
SW4	You are not sure whether the new RD provider will provide a better delivery service.	3.78	0.901	1
<b>Perceived Sacrifice</b>				
SAC1	This RD provider's charge is reasonable.	3.94	0.918	3
SAC2	When you use this RD provider's Web site there is very little waiting time between your actions and the Web site's response.	4.10	0.851	2
SAC3	The interface of this RD provider's Web site is easy to use.	4.22	0.778	1

Table 4.5 Descriptive Analysis of Research Variables (cont.)

Item	Description	Mean	Std. Dev.	Rank
<b>Perceived Value</b>				
VAL1	The overall value you get form this RD provider relative to price is acceptable.	4.14	0.816	1
VAL2	The delivery service of this RD provider is more worthwhile to use than other RD providers.	3.97	0.878	3
VAL3	The delivery service of this RD provider is valuable.	4.08	0.810	2
<b>Customer Satisfaction</b>				
SAT1	Overall, you are satisfied with the service provided by this RD provider.	4.22	0.746	1
SAT2	In general you (are/were) pleased with the service experience.	4.21	0.750	2
SAT3	In general, this RD provider is very careful about the right of the consumer.	4.10	0.826	3
<b>Customer Behavioral Intention</b>				
BI1	You will be loyal to this RD provider.	4.16	0.834	5
BI2	You intend to do more business with this RD provider in the future.	4.31	0.719	1
BI3	You intend to use or purchase another service of this RD provider.	4.20	0.764	4
BI4	You will recommend this RD provider to your friends who seek your advice.	4.22	0.788	3
QSW1	Switch to a new RD provider if I experience a problem with this RD provider.	4.25	0.820	2
QSW2	Complain to other customers if I experience a problem with this RD provider.	4.06	0.956	6
QSW3	Complain to this RD provider's employees if I experience a service-related problem.	4.03	0.971	7

## 4.2 Factor Analysis

When all logistics service quality items are included in the measurement model, the model would not fit the data well. To overcome that problem, exploratory factor analysis is employed to reduce the number of logistics service quality items to a few factors and to determine the item-factor assignment. In this thesis, we used approximately 22% of the full sample to conduct exploratory factor analysis on the logistics service quality items, using principal component analysis as the extraction

method and varimax as the rotation method. The iterative process resulted in the final LSQ Scale, consisting of 13 items on four dimensions, which we labeled as timeliness, information quality, convenience and personnel contact quality and shown in Table 4.6.

Exploratory factor analysis does not allow statistical assessment of prespecified models and explicit testing for construct validity and unidimensionality. In contrast, confirmatory factor analysis allows one to explicitly posit one or more a priori models and systematically compare the ability of competing models to fit the observed data (Wen, Lan, and Cheng, 2005). Further discussion on the testing of construct reliability and validity analysis is given in the next section.

Table 4.6 EFA Results for the Logistics Service Quality Scale

EFA Loading (after varimax rotation)				
Factor	Timeliness	Information Quality	Convenience	Personnel Contact Quality
<b>Timeliness</b>				
S9	0.5780			
S11	0.7690			
S12	0.8260			
S13	0.7814			
S14	0.8085			
<b>Information Quality</b>				
S6		0.8076		
S7		0.8145		
S8		0.6983		
S10		0.5847		
<b>Convenience</b>				
S1			0.8311	
S2			0.8350	
<b>Personnel Contact Quality</b>				
S3				0.8338
S4				0.7657

Note: EFA=exploratory factor analysis



### 4.3 Reliability Analysis

Before we use AMOS to validate the hypotheses, we have to validate the reliability of samples first. If the reliability of construct is high, then these measurements under that construct are consistent to describe construct. If the reliability of construct is low, it means these measurements under that construct are not consistent in describing the construct and we have to delete one or some measurements to increase the reliability to maintain the consistency. According to the standard proposed by Cronbach(1951), Cronbach's  $\alpha$  value should be higher than 0.7. After we adjust measurements with Cronbach's  $\alpha$  value, we will further calculate factor loading and reliability of each measurement. We delete those measurements with factor loadings under 0.5. All of them were retained because the Cronbach's  $\alpha$  wouldn't be raised if any one of them was deleted. Therefore, a total of 32 items were taken into account for further analysis.

Table 4.7 Reliability Analysis of Research Variables

Construct	Second-order	ITEM	Factor loading	Reliability	Cronbach's $\alpha$
LSQ	LSQ1 (Timeliness)	S9	0.578	0.334	0.926
		S11	0.769	0.591	
		S12	0.826	0.682	
		S13	0.781	0.610	
		S14	0.809	0.655	
	LSQ2 (Information)	S6	0.808	0.653	0.884
		S7	0.815	0.664	
		S8	0.698	0.487	
		S10	0.585	0.342	
	LSQ3 (Convenience)	S1	0.831	0.691	0.803
		S2	0.835	0.697	
	LSQ4 (Personnel Contact)	S3	0.834	0.696	0.813
		S4	0.766	0.587	
	VAL	---	VAL1	0.923	0.852
VAL2			0.914	0.835	
VAL3			0.923	0.852	

Table 4.8 Reliability Analysis of Research Variables (cont.)

Construct	Second-order	ITEM	Factor loading	Reliability	Cronbach's $\alpha$
SAC	---	SAC1	0.853	0.728	0.849
		SAC2	0.905	0.819	
		SAC3	0.879	0.773	
SAT	---	SAT1	0.917	0.841	0.902
		SAT2	0.939	0.882	
		SAT3	0.892	0.796	
SW	---	SW2	0.839	0.704	0.846
		SW3	0.907	0.823	
		SW4	0.884	0.782	
BI	Loyalty	BI1	0.849	0.721	0.904
		BI2	0.882	0.778	
		BI3	0.83	0.689	
		BI4	0.858	0.736	
	Complaining	QSW1	0.807	0.651	0.786
		QSW2	0.827	0.684	
		QSW3	0.805	0.648	

## 4.4 Validity Analysis

Standardized loading and t-value were estimated to display the convergent validity of the constructs comprising more than two factors (i.e., logistics service quality, perceived value, perceived sacrifice, switching cost, customer satisfaction and customer behavioral intentions). Moreover, those measures of the internal consistency of the relevant factors were also computed, including composite reliability, average variance extracted, and Cronbach's  $\alpha$ . Internal consistency is a type of convergent validity which seeks to assure moderate correlation among the indicators for a construct. Poor convergent validity among the indicators for a construct may reflect that the model needs to include more factors.

### 4.4.1 Logistics Service Quality

This construct has four factors including timeliness, information quality, convenience, and personnel contact quality. We used a second-order CFA for convergent validity analysis. Figure 4.1 depicts the path diagram of this second-order CFA for logistics service quality. Although the fit measures of AGFI are below the

recommended cutoff level of 0.90, we didn't take any model modification. The purpose of CFA here is to identify whether standardized loadings and t-values meet the guidelines to prove convergent validity. Moreover, all the four factors in the path diagram are exogenous, and hence only the measurement model was considered.

Table 4.9 specifies the results for following concerned indexes: (1) all standardized factor loadings are greater than 0.50; (2) all composite reliability values exceed the threshold of 0.60; (3) each average variance extracted value fulfills the 0.50 guideline; and (4) Cronbach's  $\alpha$  for each corresponding factor reaches beyond the cutoff level of 0.70. As a consequence, we conclude that the construct of logistics service quality has good convergent validity.

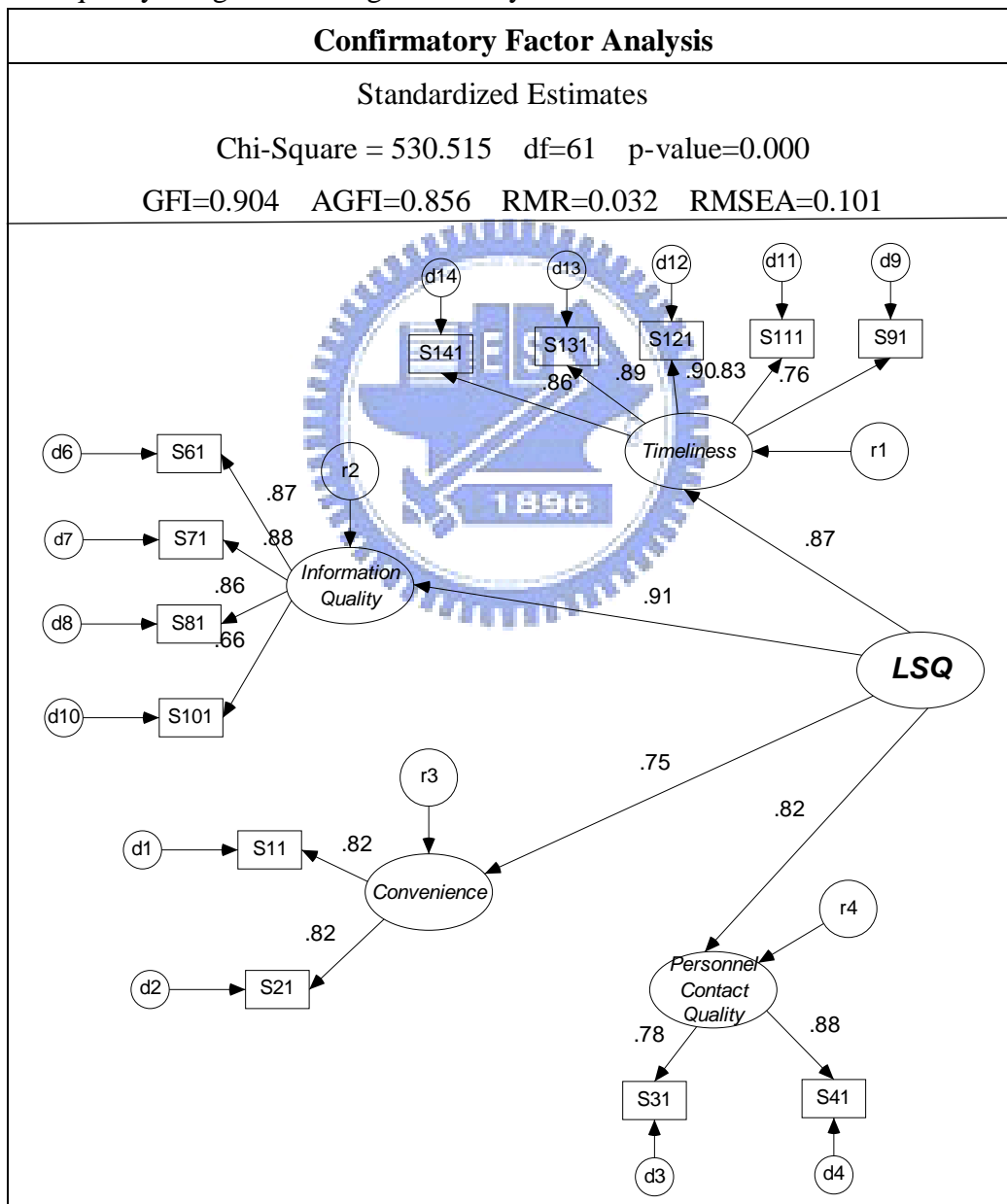


Figure 4.1 Convergent Validity of Logistics Service Quality

Table 4.9 Convergent Validity of Logistics Service Quality

Construct	Second-order	ITEM	Factor loading	Cronbach's $\alpha$	Average Variance Extracted	Composite Reliability
SQ	SQ1 (Timeliness)	S9	0.762	0.926	0.720	0.928
		S11	0.828			
		S12	0.899			
		S13	0.887			
		S14	0.860			
	SQ2 (Information)	S6	0.872	0.884	0.679	0.893
		S7	0.881			
		S8	0.861			
		S10	0.662			
	SQ3 (Convenience)	S1	0.823	0.803	0.675	0.806
		S2	0.820			
	SQ4 (Personnel Contact)	S3	0.781	0.813	0.690	0.816
		S4	0.877			

#### 4.4.2 Perceived Value

In the perceived value, we fixed the parameter of variance for their measurement items that has a max factor loading of 1.0. Figure 4.2 illustrates the path diagram for convergent validity analysis of the research construct of the perceived value.

Besides, Table 4.10 demonstrates all relevant estimates. Standardized factor loadings range from 0.86 to 0.88 and is greater than the 0.50 guideline; composite reliability are higher than the recommended level of 0.70; values of average variance extracted exceed the commonly used criterion of 0.50; and Cronbach's  $\alpha$  are above 0.70. Based on these outcomes, convergent validity for the construct of perceived value is satisfactorily demonstrated.

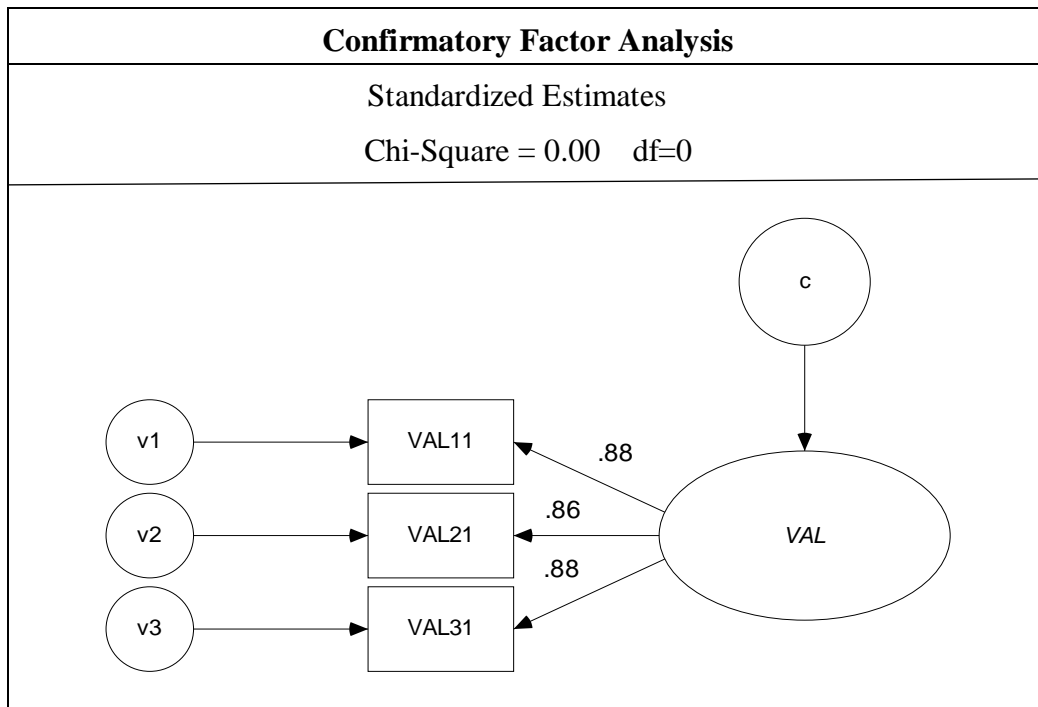


Figure 4.2 Convergent Validity of Perceived Value

Table 4.10 Convergent Validity of Perceived Value

Construct	ITEM	Factor loading	Cronbach's $\alpha$	Average Variance Extracted	Composite Reliability
VAL	VAL1	0.885	0.908	0.770	0.909
	VAL2	0.862			
	VAL3	0.885			

### 4.4.3 Perceived Sacrifice

In the perceived sacrifice, the approach for the scale invariant procedure is similar to the one used earlier in the construct of perceived value. Figure 4.3 illustrates the path diagram for convergent validity analysis of the research construct of perceived value.

Besides, Table 4.11 demonstrates all relevant estimates. Standardized factor loadings range from 0.74 to 0.89 and is greater than the 0.50 guideline; composite reliability are higher than the recommended level of 0.70; values of average variance extracted exceed the commonly used criterion of 0.50; and Cronbach's  $\alpha$  are above 0.70. Based on these outcomes, convergent validity for the construct of perceived sacrifice is satisfactorily demonstrated.

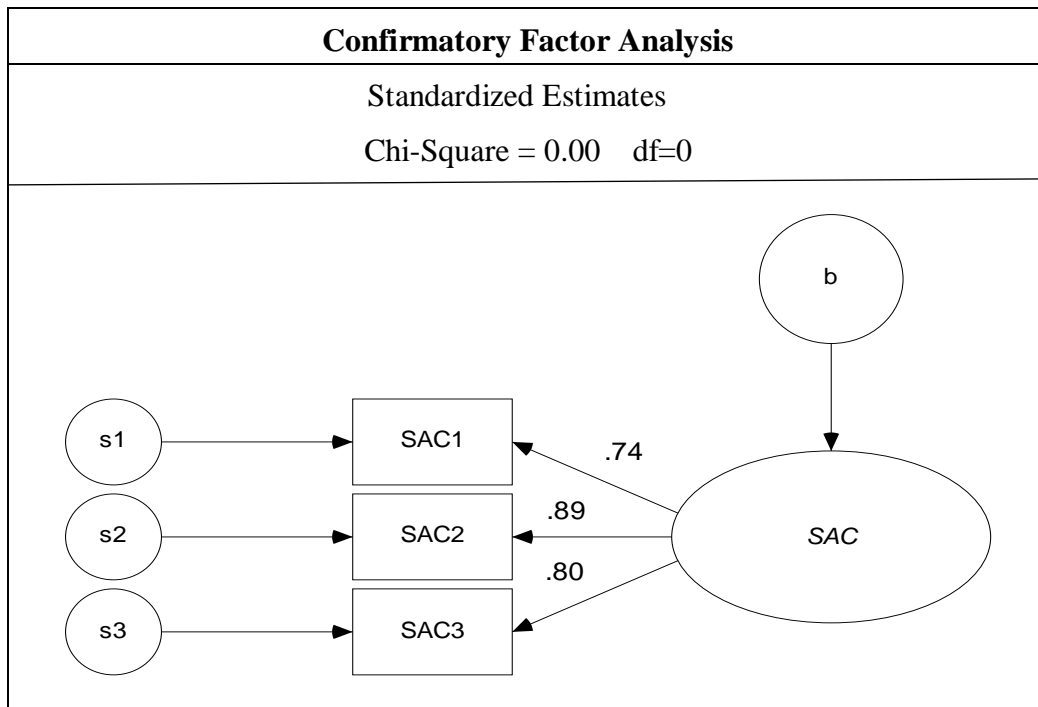


Figure 4.3 Convergent Validity of Perceived Sacrifice

Table 4.11 Convergent Validity of Perceived Sacrifice

Construct	ITEM	Factor loading	Cronbach's $\alpha$	Average Variance Extracted	Composite Reliability
SAC	SAC1	0.743	0.849	0.664	0.855
	SAC2	0.890			
	SAC3	0.805			

#### 4.4.4 Switching Cost

As the measurement of switching cost, the approach for the scale invariant procedure is similar to the construct of perceived value. Figure 4.4 illustrates the path diagram for convergent validity analysis of the research construct of perceived value.

Besides, Table 4.12 demonstrates all relevant estimates. Standardized factor loadings range from 0.71 to 0.90 and is greater than the 0.50 guideline; composite reliability are higher than the recommended level of 0.70; values of average variance extracted exceed the commonly used criterion of 0.50; and Cronbach's  $\alpha$  are above 0.70. Based on these outcomes, convergent validity for the construct of switching cost is satisfactorily demonstrated.

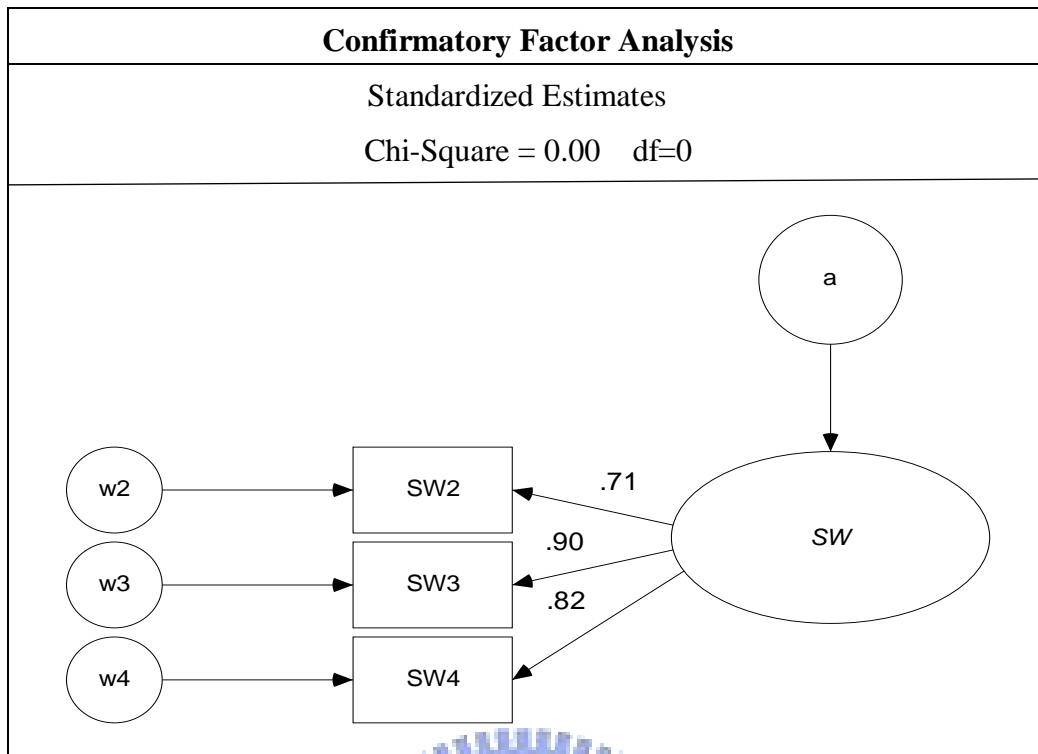


Figure 4.4 Convergent Validity of Switching Cost

Table 4.12 Convergent Validity of Switching Cost

Construct	ITEM	Factor loading	Cronbach's $\alpha$	Average Variance Extracted	Composite Reliability
SW	SW2	0.714	0.846	0.662	0.853
	SW3	0.898			
	SW4	0.818			

#### 4.4.5 Customer Satisfaction

For the construct of customer satisfaction, the same approach for the scale invariant procedure is used. We fixed the parameter of variance for their measurement items that has the max factor loading of 1.0. Figure 4.5 illustrates the path diagram for convergent validity analysis of the research construct of perceived value.

Besides, Table 4.13 demonstrates all relevant estimates. Standardized factor loadings range from 0.81 to 0.94 and is greater than the 0.50 guideline; composite reliability are higher than the recommended level of 0.70; values of average variance extracted exceed the commonly used criterion of 0.50; and Cronbach's  $\alpha$  are above 0.70. Based on these outcomes, convergent validity for the construct of customer satisfaction is demonstrated satisfactorily.

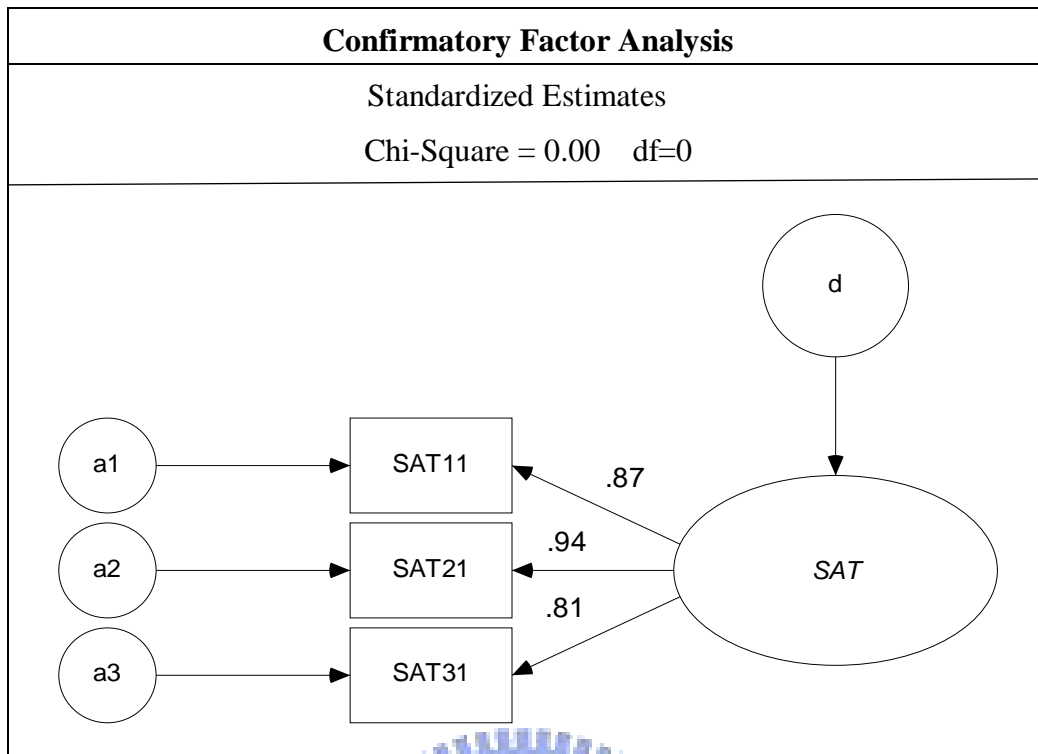


Figure 4.5 Convergent Validity of Customer Satisfaction

Table 4.13 Convergent Validity of Customer Satisfaction

Construct	ITEM	Factor loading	Cronbach's $\alpha$	Average Variance Extracted	Composite Reliability
SAT	SAT1	0.869	0.902	0.763	0.906
	SAT2	0.941			
	SAT3	0.805			

#### 4.4.6 Customer Behavioral Intention

Since the construct of behavioral intentions contains favorable intentions and unfavorable behavior, the second-order CFA was used for convergent validity analysis. The scale invariant approach was the same as that employed in the preceding construct of logistics service quality. Figure 4.6 portrays the path diagram and Table 4.14 summaries all concerned indices. All items have standardized factor loadings greater than 0.50; composite reliability of both factors are greater than 0.70; the value of average variance extracted of both factors also are greater than 0.50 and both coefficients of Cronbach's  $\alpha$  are highly above 0.70. Based on these outcomes, convergent validity for the construct of customer behavioral intention is demonstrated satisfactorily



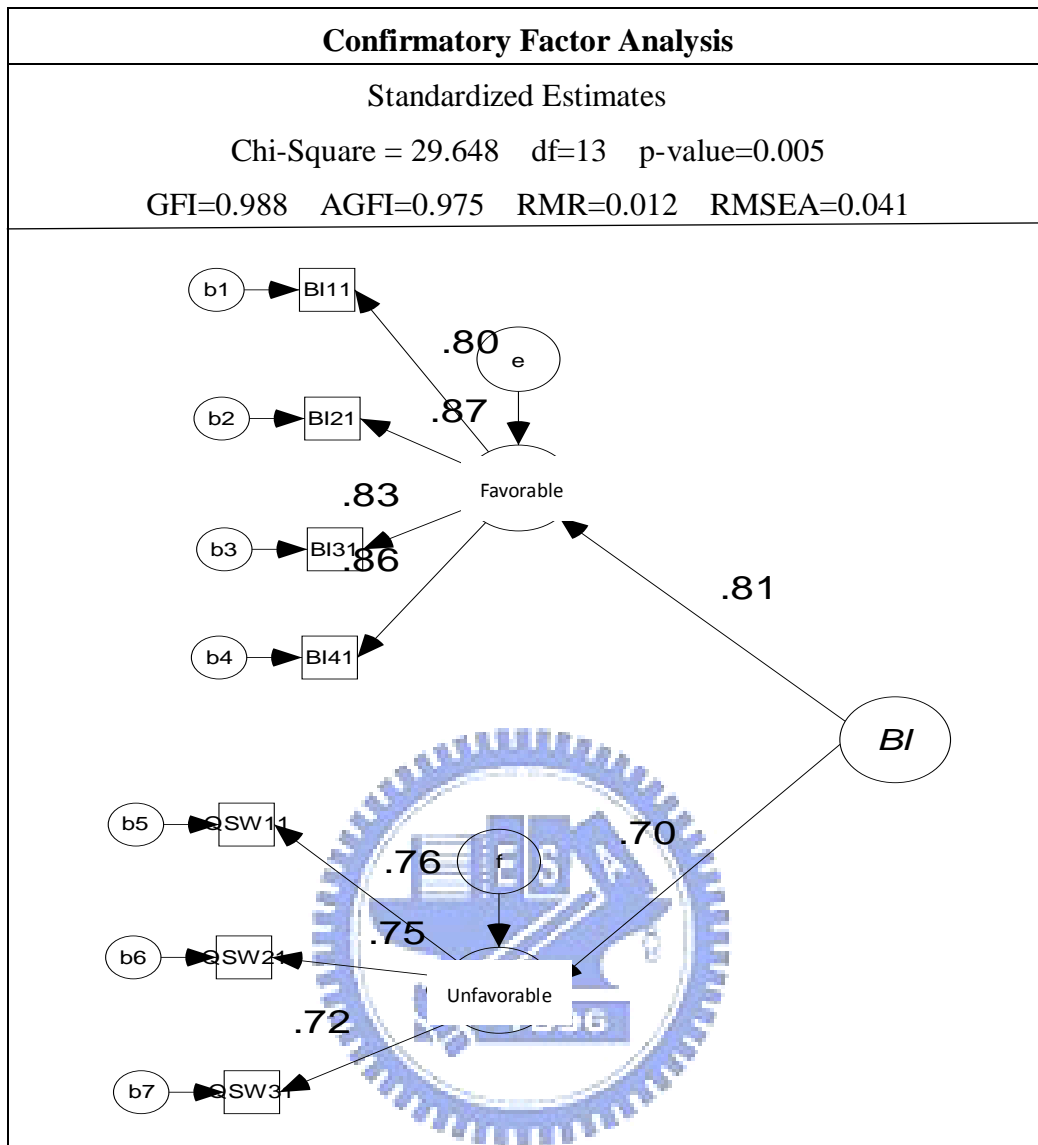


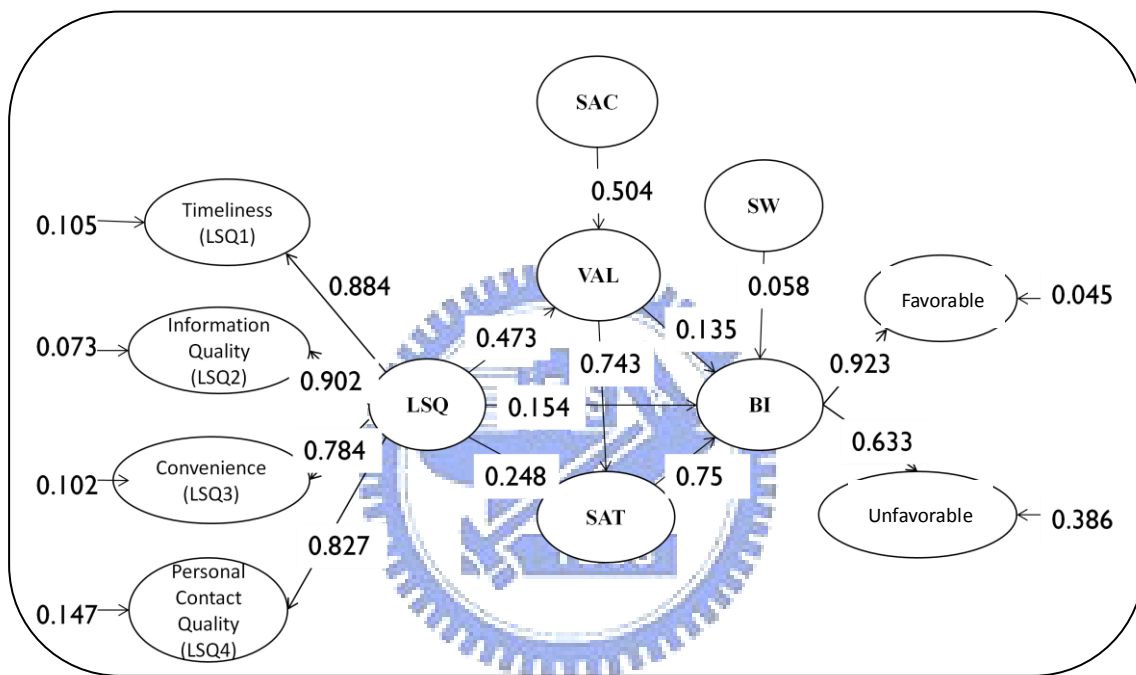
Figure 4.6 Convergent Validity of Customer Behavioral Intention

Table 4.14 Convergent Validity of Customer Behavioral Intention

Construct	Second-order	ITEM	Factor loading	Cronbach's $\alpha$	Average Variance Extracted	Composite Reliability
BI	Favorable	BI1	0.802	0.904	0.707	0.906
		BI2	0.872			
		BI3	0.829			
		BI4	0.859			
	Unfavorable	QSW1	0.753	0.786	0.556	0.790
		QSW2	0.760			
		QSW3	0.724			

## 4.5 Structural Equation Modeling

The primary purpose of this study is to examine the relationships among the logistics service quality, perceived value, perceived sacrifice, customer satisfaction, switching cost and customer behavioral intentions in the context of online shopping and pick-up at the convenience stores. For such an objective, structure equation modeling (SEM) was performed using AMOS 6.0 to collectively test the hypothesized relationships comprising all identified variables in the integrative research model as shown in section 3.1.



Note: LSQ=logistics service quality; VAL=perceived value; SAC=perceived sacrifice; SAT=customer satisfaction; SW=switching cost; BI=customer behavioral intention.

Figure 4.7 Structural Model

### 4.5.1 Model Test

To offer wide-ranging view of goodness-of-fit for the research model, the following three aspects of evaluation principle addressed by Bagozzi and Yi (1988) were examined.

- Preliminary Fit Criteria

Table 4.15 shows that all standardized factor loadings (coefficients) are within the recommended range (between 0.662 and 0.899). The corresponding t-values are all larger than 1.645 which indicates the 0.05 significance level and the standard errors all are very small between 0.009 and 0.023. That means the hypothesized

model achieves acceptable preliminary fit.

Table 4.15 Preliminary Model Fit

Construct	Second-order	ITEM	Factor loading	t-value	Standard Error
SQ	SQ1 (Timeliness)	S9	0.764	17.721	0.014
		S11	0.828	16.759	0.013
		S12	0.899	14.233	0.009
		S13	0.886	14.944	0.009
		S14	0.859	15.966	0.011
	SQ2 (Information)	S6	0.872	14.305	0.009
		S7	0.882	13.763	0.009
		S8	0.861	14.817	0.01
		S10	0.663	18.193	0.018
	SQ3 (Convenience)	S1	0.827	9.926	0.014
		S2	0.816	10.490	0.011
	SQ4 (Personnel Contact)	S3	0.790	13.288	0.017
S4		0.867	8.919	0.017	
VAL	---	VAL1	0.855	14.528	0.011
	---	VAL2	0.836	15.255	0.013
	---	VAL3	0.881	13.166	0.01
SAC	---	SAC1	0.774	14.690	0.023
	---	SAC2	0.872	9.690	0.018
	---	SAC3	0.790	13.768	0.016
SAT	---	SAT1	0.868	14.651	0.008
	---	SAT2	0.886	13.683	0.008
	---	SAT3	0.812	16.452	0.013
SW	---	SW2	0.715	16.138	0.035
	---	SW3	0.896	6.967	0.029
	---	SW4	0.820	11.794	0.023
BI	Favorable	BI1	0.785	16.535	0.014
		BI2	0.850	14.689	0.008
		BI3	0.789	16.444	0.012
		BI4	0.820	15.709	0.011
	Unfavorable	QSW1	0.765	13.366	0.021
		QSW2	0.787	12.528	0.031
QSW3		0.734	14.434	0.031	

- Overall Model Fit

The chi-square of this research model is 2053.634 with 451 degrees of freedom at a significant level of 0.000, which means the collected data doesn't match the actual data. That is the less-than-adequate fit. Therefore, other fit indices were considered to assess the overall model fit.

Table 4.16 presents that  $\frac{\chi^2}{df}$  is 4.554 which falls below the more liberal upper limit of 5.0 (Hair et al., 1998). Another three fit measures of CFI, NNFI and RMSEA are all fit the threshold values of 0.9 and 0.08 respectively. The GFI, AGFI, NFI and RFI indexes fall within the acceptable range. The most indexes of the goodness-of-fit measures suggest a well-fitting model and, therefore, we can claim that this structural model have an excellent goodness-of-fit.

Table 4.16 Overall Model Fit

Fit Measures	Criteria	Results	Acceptability
<b>Absolute Indexes of Fit</b>			
Chi-square	P<0.05	2053.634	Not accepted
Chi-square/df	P<5.00	4.554	Accepted
RMR	P<0.05	0.115	Not accepted
GFI	P>0.9	0.854	Not accepted
AGFI	P>0.9	0.83	Not accepted
RMSEA	P<0.08	0.069	Accepted
<b>Incremental Indexes of Fit</b>			
NFI	P>0.9	0.894	Not accepted
NNFI	P>0.9	0.907	Accepted
RFI	P>0.9	0.883	Not accepted
CFI	P>0.9	0.915	Accepted

- Fit of the Internal Structure of Model

Table 4.17 displays that the individual item reliability of all observed variables is highly above 0.5; the composite reliability of all constructs (the unobserved variables) exceeds the suggested threshold of 0.70; the average variance extracted of all constructs is substantially over 0.50; and each construct has large coefficients of Cronbach's  $\alpha$ . Hence, we can conclude that the research model achieves the superior fit of internal structure.

Table 4.17 Fit of Internal Structure

Construct	Second-order	ITEM	Factor loading	Reliability	Cronbach`s $\alpha$	Average Variance Extracted	Composite Reliability
SQ	SQ1 (Timeliness)	S9	0.764	0.764	0.943	0.696	0.967
		S11	0.828	0.828			
		S12	0.899	0.899			
		S13	0.886	0.886			
		S14	0.859	0.859			
	SQ2 (Information)	S6	0.872	0.872			
		S7	0.882	0.882			
		S8	0.861	0.861			
		S10	0.663	0.663			
	SQ3 (Convenience)	S1	0.827	0.827			
S2		0.816	0.816				
SQ4 (Personnel Contact)	S3	0.790	0.790				
	S4	0.867	0.867				
VAL	---	VAL1	0.855	0.855	0.908	0.735	0.893
		VAL2	0.836	0.836			
		VAL3	0.881	0.881			
SAC	---	SAC1	0.774	0.774	0.849	0.665	0.856
		SAC2	0.872	0.872			
		SAC3	0.790	0.797			
SAT	---	SAT1	0.868	0.868	0.902	0.733	0.891
		SAT2	0.886	0.886			
		SAT3	0.812	0.812			
SW	---	SW2	0.715	0.715	0.846	0.662	0.854
		SW3	0.896	0.896			
		SW4	0.820	0.820			
BI	Favorable	BI1	0.785	0.785	0.861	0.626	0.764
		BI2	0.850	0.850			
		BI3	0.789	0.789			
		BI4	0.820	0.820			
	Unfavorable	QSW1	0.765	0.765			
		QSW2	0.787	0.787			
QSW3		0.734	0.734				

## 4.5.2 Path Result

There are eight direct paths in our research model. The results show that each relationship between paired constructs is significant, with a t-value greater than 1.645 which indicates that the *p*-value is less than the 0.05 level (see Table 4.18). Therefore, all the eight proposed hypotheses are confirmed. The model explained 48% of the perceived value, 79% of customer satisfaction and 94% of customer behavioral intention.

Table 4.18 Path Results of Research Model

Hypotheses	Path	Standardized Estimate	t-value	R <sup>2</sup>	Test Results
H1	SAC->VAL	0.504	14.772**	0.480	Accepted
H2	LSQ->VAL	0.473	12.632**		Accepted
H5	LSQ->SAT	0.248	8.190**	0.787	Accepted
H6	VAL->SAT	0.743	22.179**		Accepted
H3	VAL->BI	0.135	2.120**	0.940	Accepted
H4	SW->BI	0.058	2.378**		Accepted
H7	LSQ->BI	0.154	4.492**		Accepted
H8	SAT->BI	0.750	10.092**		Accepted

Notes: \*\* t-value >1.96; *p*<0.05

## 4.5.3 Effects Analysis

Three kinds of effects between the research constructs were analyzed; including direct effect, indirect effect, and total effect (see Table 4.19). Both direct and indirect effects originate from the preceding results of path analysis (i.e., the standardized coefficients). The total effect is equal to the sum of direct and indirect effects. Effects analysis would provide more clear understanding of interrelationship between the relevant constructs.

Table 4.19 Path Effects of Research Constructs

Latent Variable	Direct Effects	Indirect Effects	Total Effects
<b>VAL</b>			
LSQ	0.473	---	0.473
SAC	0.504	---	0.504
<b>SAT</b>			
LSQ	0.248	0.352	0.599
SAC	---	0.375	0.375
VAL	0.743	---	0.743

Table 4.20 Path Effects of Research Constructs (cont.)

Latent Variable	Direct Effects	Indirect Effects	Total Effects
<b>BI</b>			
SW	0.058	---	0.058
LSQ	0.154	0.513	0.667
SAC	---	0.349	0.349
VAL	0.135	0.557	0.692
SAT	0.750	---	0.750

The other direct and indirect effect behavioral intention is the following:

- Direct effects

As presented in Figure 3.1, logistics service quality, perceived value, customer satisfaction and switching cost all have direct effect on the behavioral intention.

- Indirect effects

The logistics service quality, perceived value, and perceived sacrifice are all had indirect effect on the behavioral intention. For example, the indirect path from logistics service quality to customer behavioral intention is the following:  $0.473 \times 0.743 \times 0.75 = 0.264$ , because it is mediated through perceived value and satisfaction.

Table 4.21 Effect Results of Research Constructs on BI

Latent Variable	Direct Effects	Indirect Effects	Total Effects
<b>Logistics Service Quality(LSQ)</b>			
LSQ → BI	0.154	---	0.668
LSQ → VAL → BI	---	0.064(0.473 × 0.135)	
LSQ → SAT → BI	---	0.186(0.248 × 0.75)	
LSQ → VAL → SAT → BI	---	0.264(0.473 × 0.743 × 0.75)	
<b>Perceived Value(VAL)</b>			
VAL → BI	0.135	---	0.692
VAL → SAT → BI	---	0.557(0.743 × 0.75)	
<b>Customer Satisfaction(SAT)</b>			
SAT → BI	0.75	---	0.75

Table 4.22 Effect Results of Research Constructs on BI (cont.)

Latent Variable	Direct Effects	Indirect Effects	Total Effects
<b>Perceived Sacrifice(SAC)</b>			
SAC→ VAL→ BI	---	0.068(0.504 × 0.135)	0.349
SAC→ VAL→ SAT→ BI	---	0.281(0.504 × 0.743 × 0.75)	
<b>Switching Cost(SW)</b>			
SW→ BI	0.058	---	0.058

Table 4.21 shows that the total effect of customer satisfaction (SAT) is higher than other constructs on consumer behavioral intention (BI). It means that SAT has more power to influence the consumer behavioral intention than perceived value (VAL) or logistics service quality (LSQ).

## 4.6 Logit Model

The primary objective of this study is to find the crucial factors of logistics service quality which are affected consumers to choose a RD provider in the context of online auction shopping and pick-up at the convenience stores. For such a purpose, binary logit model was performed by using NLOGIT 3.0 to calibrate the results.

### 4.6.1 Variables Specification

Discrete choice analysis assumes that decision-makers select the alternative with the highest utility. Thus, the utility of an alternative includes a deterministic portion which is a function of the attributes of the alternative and characteristics of the decision-maker and a random component which represents unobservable components of the utility function. The characteristics variables of participants are socioeconomic variables, like gender, age, marital status, education level, monthly income level, area, and occupation. The latent (unobservable) variables are the constructs of logistics service quality, including timeliness, information quality, convenience and personnel contact quality. The attributes of alternative are delivery time and delivery charge.

The variables description as follow:

- Attributes of alternative

Delivery time: average delivery time that RD provider promised.

Delivery charge/INCOME: the price that RD provider published divided by INCOME per month.



- Attributes of respondents

Gender has two values, with 0 for male and 1 for female;

Age is included as a continuous variable: 15 representing “Less than 15 years old”, 17 representing “16~18 years old”, 20.5 representing “19~22 years old”, 25.5 representing “23~29 years old”; 35 representing “30~51 years old and over.

Marital status differentiates three categories, with 1 representing “Single”, 2 representing “Married” and 3 representing others status;

Education differentiates four categories, with 1 representing “Junior high school or less”, 2 representing “High school”, 3 representing “College/University” and 4 representing “Institute”;

Income per month is included as a continuous variable: 1,500 representing “Less than \$3,000”, 4,000 representing “\$3,000~\$5,000”, 7,500 representing “\$5,000~\$10,000”, 15,000 representing “\$10,000~\$20,000”, 25,000 representing “\$20,000~\$30,000” and 35,000 representing “\$30,000 and over”;

Area differentiates five categories, with 1 representing “Northern Taiwan”, 2 representing “Central Taiwan”, 3 representing “Southern Taiwan”, 4 representing “Eastern Taiwan” and 5 representing other area of Taiwan;

Occupation differentiates three categories, with 1 representing “Student”, 2 representing “Employee of company” and 3 representing other occupation.

- Latent (unobservable) variables

Logistics service quality (LSQ): LSQ1=timeliness; LSQ2=information quality; LSQ3=convenience; LSQ4=personnel contact quality. The factor score are calculated from SEM.

#### **4.6.2 Calibration Results**

In this research, we use the binary logit model to analyze items that influence customers in choosing the right RD provider. This choice set of RD providers is shown as Figure 4.8. For estimating the choosing behavior a data subset of 699 observations out of the original 755 was selected, for which there is full information on the choice variable. The choice model is estimated using the NLOGIT 3.0 software and the Maximum Likelihood method. All estimates have plausible signs (except the dummy for marital status, education, area and occupation in the model for

respondents). The costs were combined with income variables in various ways. The estimated coefficients for the binary logit model are shown in Table 4.23.

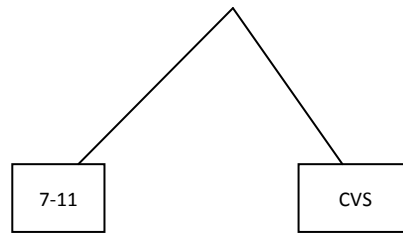


Figure 4.8 The choice set of RD providers

Table 4.23 The Estimation Results of Binary Logit Model

Variable	Model Structure		
	Binary Logit Model		
	Coefficient	t-value	P-value
Constant(7-11)	0.18387	1.16761	0.24297
<u>Attributes of respondents</u>			
Delivery charge/INCOME	-60.80720	-1.82019**	0.06873*
Dummy for Area-of-Southern Taiwan	0.57759	2.79906**	0.00513*
Dummy for Occupation-of-Employee of company	-0.36246	-1.80812**	0.07059*
<u>Latent variables for LSQ</u>			
Information Quality	0.72766	2.08570**	0.03701*
Convenience	1.74381	5.26166**	0.00000*
Observations		699	
Log-likelihood		-397.90040	
“Rho <sup>2</sup> ” w.r.t. 0		0.17640	

Notes: delivery charge per once divided by income per month; \*\* t-value >1.645;

\* p<0.1.

The likelihood ratio for the best results of binary logit model is 0.17640. That means the variables which have significant effect on the binary logit model have powerful explanation. And the calibration results reveal that: the variables for gender, age, marital status, and education can be removed, because their estimates are clearly insignificant now. The variables for area have a positive impact on RD provider choice behavior: people live in southern Taiwan prefer to choose 7-11 to be the RD provider, possibly because the 7-11 stores in southern Taiwan is much more than others. Employees of a company have a higher probability to choose non-7-11 RD provider, implying that they consider not only the brand preference but also the distance from the living circle. If delivery charge (of the income per month for the respondents) is high, the probability of replacement RD provider is higher. The constructs of LSQ, such as information quality and convenience have a positive

impact on RD provider choice behavior: the franchise stores that RD provider offer the more near is, the more consumers prefer; the RD provider supply the more full information is and the interface of the information system the more friendly is, the more consumers prefer.

### 4.6.3 Simulation Results

In this paper we present the application results of applying the choice behavior. These results are compared to actual outcomes. We also report the results of policy simulation runs in which one variable is changed and everything else is assumed to remain constant. All simulation results reported here are obtained using the binary logit model (final column in Table 4.23). Below are the outcomes for simulations in each of which a single (policy) variable is changed. The model system has been used for the following policy runs:

#### Overall

- a general increase in the Delivery charge/INCOME of 10% (for both 7-11 and CVS; the income is not changed);
- a general increase in the Delivery charge/INCOME of 30% (for both 7-11 and CVS; the income is not changed);
- a general decrease in the Delivery charge/INCOME of 10% (for both 7-11 and CVS; the income is not changed);
- a general decrease in the Delivery charge/INCOME of 30% (for both 7-11 and CVS; the income is not changed);
- a one grade increase in information quality;
- a one grade increase in convenience quality;

#### 7-11

- a 10% increase in the Delivery charge of 7-11 (the income is not changed);
- a 30% increase in the Delivery charge of 7-11 (the income is not changed);
- a 10% decrease in the Delivery charge of 7-11 (the income is not changed);
- a 30% decrease in the Delivery charge of 7-11 (the income is not changed);
- a one grade increase in information quality of 7-11;
- a one grade increase in convenience quality of 7-11;

## CVS

- a 10% increase in the Delivery charge of CVS (the income is not changed);
- a 30% increase in the Delivery charge of CVS (the income is not changed);
- a 10% decrease in the Delivery charge of CVS(the income is not changed);
- a 30% decrease in the Delivery charge of CVS (the income is not changed);
- a one grade increase in information quality of CVS;
- a one grade increase in convenience quality of CVS.

The main outcomes for this system are in Table 4.24. The results are expressed as percentage differences relative to the base run. These results therefore give predictions of the impact of the respective policy measures only.

Table 4.24 Simulation results for different policies

	7-11	CVS
base	61.547%	38.543%
<b>7-11</b>		
Delivery charge+10%	59.553%(-1.994%)	40.447 %(+1.994%)
Delivery charge+30%	55.500%(-6.047%)	44.500 %(+6.047%)
Delivery charge-10%	63.495 %(+1.948%)	36.505%(-1.948%)
Delivery charge-30%	67.195 %(+5.648%)	32.805%(-5.648%)
SQ2+1 grade	78.749 %(+17.201%)	21.341%(-17.201%)
SQ3+1 grade	95.793 %(+34.246%)	4.297%(-34.246%)
<b>CVS</b>		
Delivery charge+10%	63.578 %(+2.031%)	36.422%(-2.031%)
Delivery charge+30%	67.340 %(+5.793%)	32.660 %(-5.793%)
Delivery charge-10%	59.435%(-2.112%)	40.565 %(+2.112%)
Delivery charge-30%	55.054%(-6.493%)	44.946 %(+6.493%)
SQ2+1 grade	43.927%(-17.620%)	56.163 %(+17.620%)
SQ3+1 grade	25.601%(-35.946%)	74.489 %(+35.946%)
<b>Overall</b>		
Delivery charge+10%	61.647 %(+0.1%)	38.353%(-0.1%)
Delivery charge+30%	61.842 %(+0.295%)	38.158%(-0.295%)
Delivery charge-10%	61.445%(-0.102%)	38.555 %(+0.102%)
Delivery charge-30%	61.236%(-0.311%)	38.764 %(+0.311%)
SQ2+one grade	61.645 %(+0.098%)	38.355%(-0.098%)
SQ3+one grade	61.900 %(+0.353%)	38.100%(-0.353%)

The choice behavior model itself is sensitive to changes in information quality (SQ2) and convenience (SQ3). For 7-11 and CVS, stepping up a single service level of the information quality construct will increase the market share by 17.201% and 17.620%, respectively. Separately, to improve one service grade of the convenience construct will increase market share by 34.246% and 35.946%. The changes in the overall (both 7-11 and CVS RD providers) lead to a very small increase/decrease in the model system. This is possibly because both the RD providers individually raise the service level; consumers have more satisfied certain condition that did not switch to another RD provider. It will not have significant different on the market share.



## CHAPTER5 CONCLUSION AND SUGGESTION

This chapter addresses the results of this empirical study as well as managerial implications in the first section. Suggestions and limitations of this research are subsequently delineated.

### 5.1 Conclusion

The goal of this research was to understand the crucial factors of logistics service quality which are important for consumers to choose an RD provider. To do so, eight respective hypotheses are postulated, and examined through the AMOS analytical approach, where a hypothetical model is established to analyze these constructs and their correlations in the proposed conceptual framework. A Binary Logit Model has been applied to analyze what items will influence customers to choose the RD provider to pick-up the goods at those convenience stores.

In this study, we have explored the relationships between logistics service quality, service value, perceived sacrifice, customer satisfaction, switching cost and customer behavioral intention in the context of online auction shopping with the benefit of picking-up goods at a convenience store which is a form of C2C e-commerce. Based on the survey data collected randomly in Taiwan, the confirmatory factor analysis of the LSQ scale developed in this study adequately fit the data. The numerical results of hypotheses reveal that the logistics service quality, service value, perceived sacrifice, customer satisfaction and switching cost all have positive effects on customer behavioral intention. Furthermore, logistics service quality and perceived value are determinants of customer satisfaction although perceived value shows a greater influence. Thus, these findings are consistent with the traditional attitude model framework Engel *et al.*, in which the cognitive component (logistics service quality and perceived value) precedes the affective component (customer satisfaction) and then affection is succeeded by the conative component (behavioral intentions). Besides, SEM analysis supports the point that switching cost dimension has direct affect on behavioral intention. Moreover, there are two mentioned dimensions of logistics service quality, information quality and convenience, which have significant effect in influencing consumers to choose the RD provider in the binary logit model. From the simulation results, we know information quality and convenience are more sensitive to changes in the market share.

The present findings have both managerial and research implications. For managers of the RD providers, how to offer the consumer satisfied quality becomes the essential running methods of the service industry businessmen. Due to the

invisible, heterogeneous, non-divisible, and easy-passing quality of the service industry, it is easy for the customers to have the sense of uncertainty and insecurity. Maintaining a great quality relationship with the customers will usually lower the customers' uncertainty and increase their sense of security. Therefore, establishing a great relationship with customers has become very important. Moreover, how to maintain a great relationship with customers also becomes an important issue for the service industry businessmen.

Additionally, SEM analysis and binary logit model indicate that an RD provider should maintain the attributes of LSQ: timeliness and personnel contact quality, and focus improving the advantages: information quality and convenience quality. It means that when consumers choosing to use the RD service, they much concerned the information quality and convenience quality. For the information quality, the website design, the tracking system and given full information of delivery goods are very important parts to consumers. Therefore, manager of RD service should (1) make the website more friendly to use, including the color of interface, Q&A information and easy to select the e-map information of the franchise store; (2) information on the delivery condition of goods should be clearly record in each step, such as the goods receiving, the goods processing, the goods shipping to the convenience store and last you can pick-up goods at the convenience store. For convenience quality, consumers prefer better accessibility to convenience stores to pick-up goods. Thus, manager could pay more intention to increasing the accessibility. It may extend the range of service, just like to set up the new stores to service more consumers. In this situation, deciding the position of new convenience store is very important for managers of RD provider. Because RD providers should concern about how to offer wide and dense franchise stores which has match consumers' requirement.

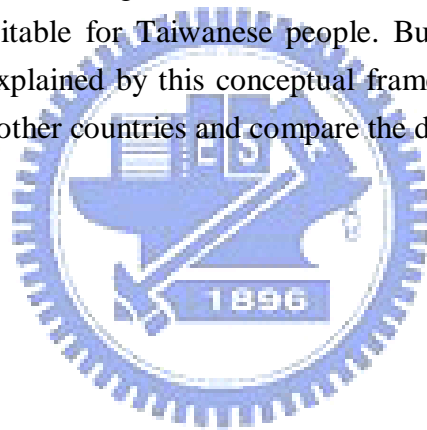
## **5.2 Suggestion**

This research has successfully corroborated the comprehensively integrated framework for understanding the complex and dynamic choice behavior. Through SEM to interpret the relationships among service quality, perceived value, perceived sacrifice, customer satisfaction, switching cost and customer behavioral intentions, the binary logit model can be used to estimate what items would influence customers choosing the RD provider in the C2C e-commerce context. Although the empirical findings are useful and may contribute to the literature for further validation, there are some suggestions to this study that future researchers can address.

1. According to previous researches, timeliness and information are important factors for goods delivery, and convenience is a concerned item for consumers to

decide the pick-up point. Price comparison also is considered as a determinant of consumer behavior. But in our study, it seems to be insignificant. The reason is we put price comparison in consumer perceived value. It should be isolated from consumer perceived value. Thus, the future research can consider price comparison as a single construct and analyze the choice effects caused by price comparison more clearly.

2. This study is assumed that consumers must to pay the delivery charge and the delivery time that RD provider promised is the same. We did not discuss the free delivery charge, different delivery time in this research. We also did not think of the brand preference in choice behavior of RD provider. They may be possibly the important parts to choose the RD provider. Therefore, the future work is suggested to collect those information to increase the completeness of the choice behavior on RD provider of the auction market.
3. Our data are all focused and gathered in Taiwan, so the conceptual framework proposed by us is suitable for Taiwanese people. But consumers with different culture may not be explained by this conceptual framework. Future research can collect samples from other countries and compare the difference.





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## APPENDIX

親愛的受訪者，您好：

感謝您撥冗填答，這是一份有關「網路購物、超商取貨」的學術研究調查問卷，目的在於透過您的網路拍賣市場購物經驗中對便利商店配送服務過程之認知感受，來瞭解該便利商店的物流配送服務品質與選擇行為之影響。本問卷的研究結果僅供為學術研究之用，絕不對外公開，請您安心作答。您的寶貴意見對本研究將有莫大助益，希望您能協助撥空填寫本問卷，謝謝您的協助。

交通大學 運輸研究所  
指導教授 馮正民博士  
黃昱凱博士  
研究生 林欣萍敬上

1、請問您有「超商取貨服務」的經驗嗎？

有 沒有

2、請問您有「網路拍賣」的經驗嗎？

有 沒有

3、請問您認為您在網拍市場中最常扮演哪種角色？

買家 賣家 兩者皆有 其他

第一部分：有關網路拍賣的行為

1、請問您使用網路拍賣的服務已經有多久的歷史？

3年以上 2~3年 1~2年(含2年) 半年~1年 半年以內

2、請問您最近半年內使用網路拍賣並成交的件數為何（不包括棄標）？

1件 2~3件 4~6件 7~10件 11~20件 21~100件 101件以上 \_\_\_\_\_

3、請問您最近半年內使用網路拍賣交易成功的單次平均購買價格(客單價)為何？

99元以下 100~199元 200~499元 500~1499元 1500~1999元 2000元以上 \_\_\_\_\_

4、請問您曾經使用那個網路拍賣平台？(可複選)

雅虎奇摩拍賣 露天拍賣 美國 eBay 大陸淘寶網  
大陸騰訊拍拍網 香港點點紅拍賣網站 其他 \_\_\_\_\_

5、請問您最常使用那個網路拍賣平台？

雅虎奇摩拍賣 露天拍賣 美國 eBay 大陸淘寶拍賣網  
大陸騰訊拍拍網 香港點點紅拍賣網站 其他 \_\_\_\_\_

原因是？(複選)：商品項目多 拍賣服務好 使用習慣 網站  
流量多 其他 \_\_\_\_\_

6、請問您在網路拍賣結標後曾經使用過的物流服務？(可複選)

宅急便 宅配通 新竹貨運 郵局便利袋 面交  
便利商店取貨 其他 \_\_\_\_\_

7、請問您在網路拍賣結標後經常使用過的物流服務？(可複選)

宅急便 宅配通 新竹貨運 郵局便利袋 面交  
便利商店取貨 其他 \_\_\_\_\_

8、請問您曾經在網路拍賣平台中買賣過哪些類別的商品？(可複選)

電腦軟硬體與 PDA 相機、攝影與視訊 手機與通訊 女裝與服飾配件  
女包精品與女鞋 男性精品與服飾 美容與保養 運動、戶外與休閒  
手錶與流行服飾 影音與生活家電 居家與園藝 食品與地方特產  
玩具與電玩 收藏品與藝術品 明星與偶像商品 音樂與影片  
圖書、雜誌與文具 嬰幼兒與孕婦 汽車與機車 旅遊、地產、服務

## 第二部分：有關網路拍賣購物後，超商取貨點的選擇行為

1、請問您使用「網路購物、超商取貨」的服務已經有多久的歷史？

2年以上 1~2年 半年~1年 半年以內

2、請問您曾經使用過哪家便利商店「網路購物、超商取貨」的服務？(可複選)

7-11 全家 萊爾富 OK

3、請問您使用「網路購物、超商取貨」的服務時，通常會選擇哪一家便利商店？

最常選擇→7-11 全家 萊爾富 OK

原因是？(複選)：距離較近 商店服務較好 寄貨時常有行銷活動

寄貨品質較佳 便利商店知名度較高(品牌) 其他 \_\_\_\_\_

次常選擇→7-11 全家 萊爾富 OK

第三部分：「網路購物、超商取貨」物流服務品質之重要程度

依據您在網路拍賣後選擇物流方式的多數經驗，請問下列敘述的重要程度為何？	非常重要	重要	普通	不重要	非常不重要
1. 我認為該超商店配系統的服務據點廣佈且可以滿足我的需求	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. 我所選擇的取貨門市要離我越近越好	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. 我很滿意該超商店配系統取件時服務人員的態度	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. 當我前往該超商門市取貨時，店員可以迅速找到我所訂購的商品	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. 我所選擇的取貨門市會與網站合作舉辦活動贈送我小禮物	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. 具有便捷的電子地圖操作介面方便我選擇取貨門市	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. 電子地圖的門市資訊準確度高	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. 該超商店配系統的網站頁面簡單明瞭，讓人容易操作使用	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. 我可以隨時上網查詢訂單處理情形	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. 該超商會以手機簡訊或 E-Mail 通知我貨物配送進度資訊	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. 我很滿意該超商店配系統的貨物配送追蹤查詢機制	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. 我很滿意該超商店配系統的貨物配送速度	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. 該超商店配系統能在約定時間內將貨物準時送達	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. 貨物配送到達該超商門市的所需時間很短	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. 我收到的商品是完好無損壞的	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

第四部分「網路購物、超商取貨」物流服務品質之同意程度

最常選擇的門市給您的同意程度					依據您在網路拍賣所使用之超商物流配送服務經驗，請問下列敘述的同意程度為何？	次常選擇的門市給您的同意程度				
非常同意	同意	普通	不同意	非常不同意		非常同意	同意	普通	不同意	非常不同意
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1. 我認為該超商店配系統的服務據點廣佈且可以滿足我的需求	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2. 我所選擇的取貨門市要離我越近越好	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3. 我很滿意該超商店配系統取件時服務人員的態度	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4. 當我前往該超商門市取貨時，店員可以迅速找到我所訂購的商品	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5. 我所選擇的取貨門市會與網站合作舉辦活動贈送我小禮物	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6. 具有便捷的電子地圖操作介面方便我選擇取貨門市	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7. 電子地圖的門市資訊準確度高	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8. 該超商店配系統的網站頁面簡單明瞭，讓人容易操作使用	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9. 我可以隨時上網查詢訂單處理情形	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	10. 該超商會以手機簡訊或E-Mail 通知我貨物配送進度資訊	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	11. 我很滿意該超商店配系統的貨物配送追蹤查詢機制	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	12. 我很滿意該超商店配系統的貨物配送速度	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	13. 該超商店配系統能在約定時間內將貨物準時送達	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	14. 貨物配送到達該超商門市的所需時間很短	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	15. 我收到的商品是完好無損壞的	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**第五部分：「網路購物、超商取貨」之轉移成本與知覺犧牲**

請依據您所選擇的超商店配系統，勾選您對下列敘述的同意程度。	非常同意	同意	普通	不同意	非常不同意
1. 我通常習慣選擇同一家超商店配系統的寄件服務	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. 若使用其他超商店配系統，我可能會增加一些額外支出	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. 若使用其他超商店配系統，我需要花一番努力才能熟悉其所提供的服務	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. 我不確定選擇其他超商店配系統會有較好的服務	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. 我認為該超商店配系統之運費很合理	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. 我認為接受目前該超商店配系統的服務不會花費很多等待時間	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. 我認為使用目前該超商店配系統網站界面很簡單	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

第六部分：「網路購物、超商取貨」之服務價值、顧客滿意度與行為意向

最常選擇的門市給您的同意程度					請依據您所選擇的超商店配系統，勾選您對下列敘述的同意程度。	次常選擇的門市給您的同意程度				
非常同意	同意	普通	不同意	非常不同意		非常同意	同意	普通	不同意	非常不同意
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1. 我認為該超商店配系統所提供的服務相對於價格是可以接受的	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2. 使用該超商店配系統的配送服務比其他超商店配系統物超所值	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3. 在這個價格下，我認為該超商店配系統所提供的服務是有價值的	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4. 整體而言，我很滿意該超商店配系統的配送服務	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5. 我認為跟該超商店配系統交易感覺很愉快	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6. 我認為該超商店配系統很重視顧客權益	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7. 我認為我是該超商店配系統的忠實顧客	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8. 我願意再次選擇使用該超商店配系統的配送服務	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9. 我願意使用該超商的其他服務	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	10. 我願意推薦其他人來使用該超商店配系統	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	11. 如果發生不愉快的消費經驗，我會轉向使用其他超商店配系統	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	12. 如果發生不愉快的消費經驗，我會向其他顧客訴苦	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	13. 如果發生不愉快的消費經驗，我會向該超商店配系統客訴	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

～ 個人基本資料 ～

■請問您的性別是：

男 女

■請問您的年齡是：

15歲以下 16~18歲 19~22歲 23~29歲 30~40歲

41~50歲 51歲以上

■請問您目前的婚姻狀況是：

單身 已婚(有小孩) 已婚(無小孩) 其他

■請問您的學歷是：

國中(含)以下 高中職 專科/大學 研究所(含)以上

■請問您的可支配所得是：

3千元以下 3千元(含)~5千元 5千元(含)~1萬元

1萬元(含)~2萬元 2萬元(含)~3萬元 3萬元(含)以上

■請問您的行業是：

學生 家管 軍公教 公務人員 教師 專業人士  
(律師、醫生、會計師) 自由業 一般上班族 製造業

資訊科技產業 零售業 其他\_\_\_\_\_

■請問您目前居住的地點是：

北部地區(基隆到苗栗) 中部地區(台中到嘉義)

南部地區(台南到屏東) 東部地區(花蓮到台東)

離島(金馬澎湖) 其他\_\_\_\_\_

～本問卷到此結束，非常感謝您的協助，謝謝～

～請協助我們檢查以上是否有遺漏作答之部分，造成不便，敬請見諒～