AN EMPIRICAL STUDY OF THE SERVICE-PROFIT CHAIN

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CERTIFICATE OF ORIGINALITY

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ABSTRACT

The extant operations management literature has extensively investigated the association among quality, customer satisfaction, and firm profitability. However, the influence of employee attributes on these performance dimensions has rarely been examined. In this research, we empirically examined the relationships among employee attributes, operational performance, and business outcomes based on the well-known conceptual framework of the service-profit chain (S-PC).

We propose relevant theories to support the conceptualization of S-PC, develop two related models for analysis, and explore some potential moderating factors. First, we develop a relatively simple framework, postulating the relationships among employee satisfaction, service quality, customer satisfaction, and firm profitability. Then, we validate the relationships among all the major constructs of S-PC as proposed by Heskett et al. (1997). We further explore the potential contextual factors, including level of employee-customer contact, market competitiveness, and switching cost, which might be moderators for some postulated relationships in S-PC.

This study was conducted in the service industry of Hong Kong. Research data were collected from two service employees and the shop-in-charge in each shop and a sample of 210 firms was collected. We applied structural equation modeling to analyze the research data. The results of the first model showed that the relationships among employee satisfaction, service quality, customer satisfaction, and firm profitability are significant, suggesting that employee satisfaction is an important determinant of operational performance in service organizations. In the

second model, we further examined the relationships stipulated in the S-PC. Most of the postulated relationships are highly significant, supporting the conceptualization of the S-PC as proposed by Heskett et al. (1994). On the other hand, using multi-group analysis, we did not find any significant moderating factors on various relationships of the S-PC. Instead, these relationships stipulated by the S-PC appear to be rather robust under different employee-customer contact levels, market competitiveness, and switching cost in the sample, supporting the generalizability of the S-PC in different operating contexts. In short, this research provides strong evidence that employee satisfaction and loyalty play a critical role in enhancing organizational performance in the service industry, contributing to our understanding in service operations management.

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CHAPTER 1 INTRODUCTION

1.1 Background

In the early 1900s, Fredrick W. Taylor developed the principles of scientific management that apply systematic analysis to eliminate waste in production processes. In the meantime, Frank and Lillian Gilbreth advocated systematic methods, such as time measurement and motion pictures, to analyze diverse manual operations for efficiency improvement in production systems. The field of operations management has since developed along this line to encourage the adoption of a systematic approach for operational improvement. The last two decades have witnessed the development of quality management, process re-engineering, and supply chain management as leading management philosophies. The main objective of these management approaches is to optimize operations for the sake of improvements in efficiency, effectiveness, and productivity.

In response to the pressure of globalization, an increasingly competitive marketplace, and volatile market dynamics, many service organizations are striving to find ways to add value to their services and improve customer satisfaction. Organizations are usually devoted to making operational efficiency a priority and the field of operations management has emphasized the optimization of service operations so as to deliver value to customers, and most importantly, to meet, or even to exceed customer expectations. Substantial research effort has gone into addressing the topics of designing, managing, and optimizing different service delivery systems, anticipating higher service quality and operational efficiency (e.g., Frei et al. 1999, Soteriou and Zenios 1999). This operational approach has been applied enthusiastically and has proved to be an effective means towards improving organizational efficiency. Nevertheless, the impact of human resources in operational systems has often been overlooked (Boudreau et al. 2003). The importance of employee attributes, such as job satisfaction, employee loyalty, and organizational commitment, and their impact on operational performance have largely been neglected in the extant literature of operations management (Boudreau 2004).

On the other hand, issues relating to human resources have been widely investigated in the fields of organizational behavior and psychology for many decades. The prevalent interest in human resources among organizational scholars and practitioners rests on the premise that employee attributes are crucial to organizational effectiveness (Vroom 1964, Schwab and Cummings 1970), which ultimately influences a firm’s profitability. Bulky research has been conducted to examine employee attributes as well as to investigate to what extent employee attributes influence job commitment and performance (e.g., Becker et al. 1996, Meyer et al. 2004).

Operations management and human resources management have long been viewed as distinct fields (Boudreau et al. 2003). Although human resources and operations management are intimately tied to one another in virtually all business scenarios, the impact of employee attributes on operations systems has largely been unexplored. The investigation into the impact of employee attributes is absolutely essential in the service industry, where the activities of service employees connect the organizations to their customers, and operations managers rely heavily on such personal interactions to impress customers (Chase 1981, Heskett et al. 1994, Oliva and Sterman 2001).

A pioneer in this topic, Heskett et al. (1994) proposed a service-profit chain (S-PC) model that integrates operations management and human resources management for organizational improvement in the context of a service organization. It explicitly hypothesizes that the success of a service organization depends on the employees' satisfaction and loyalty and their impact on customers and operational performance. Its fundamental concept has indeed inspired many researchers from various fields to explore the different issues associated with the arguments put forward by Heskett et al. (1994). Though there is a certain amount of research work in this area, the propositions hypothesized in the S-PC have not yet been validated empirically. There is insufficient theoretical and empirical support for the concept of the S-PC. In addition, potential contextual factors (i.e., factors that moderate the presumed relations) have not been considered in the development of the S-PC. The investigation into potential contextual factors enables researchers to validate the S-PC under different operational environments and understand the generalizability of this framework.

1.2 Research Objectives

The aim of this study is primarily concerned with the investigation of the relationships among employee attributes, operational outcomes, and business performance in the service industry. More specifically, we attempt to address the following questions in this research study:

- Does employee satisfaction enhance operational performance of a service organization? What are the likely relationships among employee satisfaction, service quality, customer satisfaction, and firm profitability?
- Is the prominent management philosophy, the S-PC, generally valid in service sectors as prescribed by Heskett et al. (1994)? What are the roles of employee loyalty and customer loyalty in the S-PC?
- What are some potential contextual factors that might moderate the relationships stipulated in the S-PC, and to what extent do they do so?

1.3 The Research Setting

This research was conducted in the service industry in Hong Kong. The term service industry in this study refers to those firms engaged primarily in the service delivery process through which they offer intangible services that may be accompanied by tangible products for customers to purchase. The service industry covers a variety of sectors, such as catering, retailing, agency services, and beauty care services. Though the firms are from various sectors, they are alike in that they provide similar services, including services of enquiry from customers, transactions, and the handling of customer complaints. The delivery of these typical services involves interaction and takes a certain amount of contact time between employee and customers.

Hong Kong underwent a transformation from a manufacturing center to a predominantly service-oriented economy during the 1980s and 1990s. This transformation was due to three main reasons. First, an expansion of services, such as transportation and retail services, was needed for the distribution of manufactured goods. Second, the population growth and the consumption of goods increased the services in retailing and offering durable goods (e.g., housing). Third, the increase in personal income led to enhanced spending on services, including restaurants, health care, and investment. These are the reasons why Hong Kong became widely-known internationally as a “shoppers’ paradise”. Nowadays, Hong Kong has developed itself as a service-oriented economy. According to the Census and Statistics Department of Hong Kong, the service sectors contributed 89.3% of the GDP and employed 85.7% of the working population in 2004. These figures provide statistical evidence for the significance of the service industry to Hong Kong’s economy.

Operating in an increasingly competitive marketplace, service firms in Hong Kong strive to improve their performance by adopting different service strategies. To prevail in the competitive market, service firms usually focus on the quality of service delivery and customer satisfaction. As many service organizations are offering very similar products and services in a mature service market, operations managers also place a great deal of emphasis on customer loyalty and retention. Service firms are aware of the importance of having committed employees to ensure service quality and enhance customer loyalty. Operations managers are under enormous pressure to improve service quality under limited resources, sustaining their competitiveness for survival and prosperity.

1.4 Research Plan

The intention of planning is to allocate the available resources, particularly the time and the effort, into the best use for examining the established research questions and achieving the desired aim of this study. Careful consideration is therefore brought into determining what should be done and when.

This study is divided into two main phases: a development phase and a data collection phase. The development phase aims at acquiring a comprehensive understanding of what is the intended area of study in this research. More specifically, we reviewed the relevant literature of the S-PC and the potential moderating factors. Based on the knowledge acquired from the detailed review, we developed two research models and proposed an exploratory study; each of which has a specific focus and value for investigation. The purpose of the first model is to examine the relation between employee satisfaction and operational performance; the second model is to validate the S-PC framework proposed by Heskett et al. (1994); and the last study is to explore the possible moderating factors, which may moderate some presumed relationships of the S-PC.

The data collection phase aims at obtaining the required research data from the service industry for the proposed studies. We conducted a questionnaire survey in the Hong Kong service industry and collected data from 210 shops of different service sectors. Then, we analyzed the collected data using structural equation modeling (SEM) and made interpretations from the analyzed data.

1.5 Organization of the Thesis

Seven chapters are included in this thesis. The first chapter introduces the background, aim, research questions, and the service industry of Hong Kong, and outlines the research plan and the structure of this thesis.

Chapter 2 presents a comprehensive review of the literature relevant to employee attributes, operational performance, and organizational performance in different fields, including operations management, organizational behavior, marketing, and service management. It also describes the psychological, organizational, and strategic theories which are adopted in this research.

In Chapter 3, the methodology adopted and instrument used for conducting this research are articulated. Issues concerning the research design, characteristics of sample, data collection procedures, instrument development, data validation are discussed in detail.

Chapter 4 examines the impact of employee satisfaction on operational performance in the service industry. Using SEM, the hypothesized relationships among employee satisfaction, service quality, customer satisfaction, and firm profitability are analyzed. The results of analysis and the interpretations of the results are presented.

Chapter 5 investigates the relationships among the major constructs of the S-PC by applying the partial disaggregation approach of SEM. The results of analysis and their interpretations are then discussed.

In Chapter 6, an exploratory study of the moderating effects on the relationships of some main constructs of the S-PC is included. In particular, we explore the potential contextual factors that might moderate relationships of the S-PC. We focus on the employee-customer contact level, market competitiveness, and switching cost as moderating factors and perform multiple-group SEM analyses.

The last chapter is a conclusion for this research. A summary is presented to discuss the significance of this study and its implications to the operations management of a service organization. Directions for further research are also presented.

CHAPTER 2 LITERATURE REVIEW

2.1 Introduction

The extant operations management (OM) literature has rarely investigated the impact of employee attributes on operational performance. However, the importance of employee attributes on operational performance has increasingly come to the fore in OM research in recent years. In particular, we have seen the emergence of the idea of the S-PC which highlights that the performance improvement of a service organization is potentially influenced by the satisfaction and loyalty in employees, which in turn influence customers' attitudes. An increasing number of researchers are interested in the presumed relationships postulated by the conceptualization of the S-PC and have begun to explore the potential factors that moderate such relationships.

This chapter presents a review of the previous literature to provide the background information and research directions for the present study. The review is composed of three parts. The first part is a detailed description of the key constructs proposed in the S-PC. It is intended to provide a fundamental understanding of the research constructs. The difference between satisfaction and loyalty will be discussed. The concept of "satisfaction mirror" will be highlighted and the issues relating to service quality in various disciplines will be reviewed. In the second part, a review of the previous studies on the postulated relationships in the S-PC will be presented. The objective is to reveal the potential research gaps to be addressed in this area. The literature pertinent to the possible impact of employee satisfaction on operational performance, the key issues concerning the idea of the S-PC, and the potential moderating factors that might exist in the relationships among various constructs of the S-PC will be scrutinized. In the third part, the theories supporting the conceptualization of the S-PC will be discussed and some of the sociological, psychological, and strategic theories that underpin the idea of the S-PC will be delineated.

2.2 Satisfaction and Loyalty in Employees and Customers

Job satisfaction is a positive emotional state resulting from an appraisal of an employee's job or job experience (Locke 1976). Similarly, customer satisfaction is associated with a summary of favorable cognitive and affective reactions to a service incident (Oliver 1980). In this research, satisfaction refers to either an employee's experience of his job or a customer's experience of his service encounter. Embedded in satisfaction is the emotional response of an employee to his job experience or of a customer to his experience of a service encounter.

Alder and Alder (1988) defined loyalty as "a bond formed to either the organization or to some people or group". Proponents of the capital value approach (e.g., March and Simon 1958., Becker 1975, Jovanovic 1979, Bielby and Baron 1983) have argued that employees and customers are not loyal to any organization. The bond between an employee or a customer to an organization is fundamentally economic in its base. An employee is motivated by a fair and mutually beneficial exchange of the employee's labor, skills, and economic output with the economic benefits from his employer (Becker 1975, Jovanovic 1979, Mowday et al. 1982). Similarly, a service provider and a customer are engaged in an economic and contractual relationship. A service provider is responsible for giving his customer exactly what the customer has paid for; on the other hand, a customer has no social responsibility to buy other products if his loyalty is curtailed by higher prices (Carbone 1997).

However, researchers have approached employee loyalty from a different perspective – one that is grounded in social exchange theory. Alder and Alder (1988) argued that employee loyalty has to surpass the fairly mild attachment engendered by good pay and benefits. They portrayed employee loyalty as consisting of feelings of attachment, belonging, and strongly wanting to be part of something. The bond of loyalty is described as an employee's belief to commit himself unswervingly to his employing organization. Carbone (1997) postulated that the bond of loyalty consists of the willingness of an employee to make sacrifices for his employer. Loyalty is credited as motivating employees to be devoted to the business, and is manifested by acts in which personal interests are sacrificed to group interests (Carbone 1997). MaCarthy (1997) considered loyalty to be an extra measure of "discretionary effort" that employees choose to do, as opposed to what their job descriptions obligate them to do.

By the same token, customer satisfaction and loyalty are different constructs in marketing (see Singh and Sirdeshmukh 2000). According to McCarthy (1997), the phrase "customer satisfaction" only expresses the idea of "adequate quality" and signals the absence of negative feelings. Customer loyalty, however, refers to the state where the customers of a company are completely and consistently satisfied to the extent that they express attachment or affection to the company's people, products, or services. The bond of loyalty surpasses the fair exchange generated by a purchase. It is characterized by the customer's belief and trust in the service provider, its products, or services. To prevail in today's marketplace, an organization has to do much more than simply "satisfy" its customers. The performance of employees has to exceed the expectations of customers if the latter are intended to develop a bond of loyalty to a company that will keep them from switching to competitors in the market (McCarthy 1997). Researchers in service management have realized that customer loyalty can be manifested through various types of purchase behavior, such as by referring the service firm to others and by repeat purchases. These types of behavior clearly show that customer loyalty is a prerequisite for a service provider to reap economic returns. Jones and Sasser (1995) extolled the lifetime value of a loyal customer as astronomical to a service organization.

Researchers in service management have explicitly segregated satisfaction and loyalty into two distinct, yet complementary, constructs. At the empirical level, evidence has shown that employee satisfaction and customer satisfaction are positively correlated with employee loyalty and customer loyalty, respectively (e.g., Heskett et al. 1994, Hallowell 1996, Loveman 1998, Silvestro and Cross 2000). More specifically, Heskett et al. (1994) and Loveman (1998) found in their surveys that only "highly" or "very highly" satisfied employees and customers are loyal to their employer and service provider, respectively. These findings highlight that only highly satisfied employees and customers are faithful in working for their employer and purchasing services from their service provider, respectively. Satisfaction and loyalty are evidently two distinct constructs which, however, are closely associated with each other.

In sum, satisfaction is conceptually different from loyalty. Satisfaction is primarily concerned with an employee's job experience or a customer's service experience. Loyalty involves an employee's trust in the organization or a customer's belief in the service provider. Moreover, satisfaction is focused on an employee's response to his job experience or a customer's response to his experience of a service encounter. Loyalty emphasizes an employee's attachment to his employing organization or a customer's attachment to his service provider. Although satisfaction and loyalty are different, they are closely associated with each other. Previous research has shown that a satisfied employee or customer is not loyal to an organization or service provider, respectively, until he is fully satisfied. In other words, loyalty may be regarded as the manifestation of ultimate satisfaction.

2.3 The Concept of "Satisfaction Mirror"

Researchers in organizational behavior have expended considerable effort investigating the relationship between employee satisfaction and loyalty and their impact on a firm's performance (e.g., Lau 2000, Koys 2001, Batt 2002). However, the bulk of research in marketing is concerned with studying the links between customer satisfaction and loyalty and business performance (e.g., Stank et al. 1999, Yeung and Ennew 2000, Yeung et al. 2002). Recently, researchers have been paying increased attention to the issue of bridging the gap between employee loyalty and customer loyalty. A growing stream of research suggests that employee loyalty is a prerequisite to reaping the benefits of customer loyalty and firm performance (e.g., Heskett et al. 1997, Reichheld 2001a). The postulation is that loyal employees are motivated to work hard, improve the overall performance of operations, and serve customers well. This may be particularly the case in the service context, where employees have direct and close interactions with their customers in the process of delivering services. Employee loyalty reflects the status of highly satisfied employees who are faithful, steadfast, and devoted to their employing organization. These employees envision a long tenure of employment, are willing to make discretionary effort to contribute, and are eager to take extra care of their customers for their employing organization. These actions not only improve the efficiency and effectiveness of the delivery of their services, but also enhance perception of the quality of the company's services, the satisfaction felt by customers, and customer loyalty. The latter, in turn, improves the profitability of the organization. Heskett et al. (1994) asserted that service organizations nowadays must calibrate the impact of employee satisfaction and loyalty on the value of the products or services they offer. This will enable mangers to manipulate their staff to build customer loyalty and allow managers to assess the corresponding impact on the organization's profitability.

Schlesinger and Heskett (1991) have taken another perspective in viewing the relationship between employee loyalty and customer loyalty. They have introduced the concept of "cycle of failure" to explain how employee dissatisfaction and turnover can lead to poor organizational performance in service environments. According to the notion of "cycle of failure", if an employer invests little in human resources and pays employees low wages, the rate of turnover and level of dissatisfaction among employees will increase, customer satisfaction and retention will plunge, and the organization's performance deteriorate. Therefore, Schlesinger and Heskett (1991) argued that satisfied employees will equate to highly loyal employees, leading to increased customer loyalty, and eventually improved business performance. Building on this argument, Heskett, et al. (1997) introduced the concept of the "satisfaction mirror" which suggests that business success derived from employee satisfaction is "reflected" in the perception that customers have of the services provided by an organization.

A great deal of previous research on the S-PC has been confined to examining the impact of either employee or customer satisfaction and loyalty on business performance. (The details of the S-PC can be found in Section 2.6.) Only a few studies have looked into the impact of employee satisfaction and loyalty on customer perception of the quality of an organization's services, customer satisfaction and loyalty, as well as on a firm's performance (Ryan et al. 1996, Loveman 1998, Rucci et al. 1998, Spinelli and Canavos 2000). Loveman (1998) examined the workings of the S-PC in retail banking. Rucci et al. (1998) studied the links between employee attitudes and customer satisfaction and financial performance at Sears (retailing industry). Spinelli and Canavos (2000) investigated the relationship between employee satisfaction and customer satisfaction in the hotel industry. They all found that positive correlations existed among employee loyalty, customer loyalty, and firm performance.

To conclude, the importance of closing the gap between employee loyalty and customer loyalty has been highlighted. For a service organization to be profitable and successful, it must enhance employee satisfaction and loyalty or reduce employee dissatisfaction and turnover in order to improve customer perception of the service and build up customer satisfaction and loyalty. This highlights that the inclusion of the issues relevant to employees and customers together is important to investigations in a service context.

2.4 Research on Service Quality

Service quality has been extensively studied by researchers for more than two decades. Parasuraman et al. (1985) offered one of the more popular definitions of service quality, namely, that it is a form of attitude that results from a customer's perception of a service in relation to his expectations of the service. Based on this definition, Parasuraman et al. (1988) developed SERVQUAL, a 22-item instrument for operationalizing the service quality construct. SERVQUAL compares customers' assessments of their expectations of service with their perceptions of service in order to derive a score on the gap. Although SERVQUAL was originally developed for generic use, empirical studies have revealed that some of the items in SERVQUAL are more important in particular service settings (Carman 1990, Finn and Lamb 1991). Cronin and Taylor (1992) have challenged the appropriateness of SERVQUAL for operationalizing the service quality construct. They believe that proper modification of the SERVQUAL instrument according to the specific service environment in which the instrument is applied is necessary to effectively evaluate the quality of services.

Service quality is a key construct that links employee service performance and customer purchase behavior in the S-PC. The notion is that loyal employees who are satisfied with their jobs are committed to offering high-quality services that will be favorably perceived by customers. This, in turn, will enhance the satisfaction that customers feel with the services and eventually engender customer loyalty towards their service provider. Only a handful of researchers in service management have attempted to relate service quality to employee loyalty and customer satisfaction through empirical studies (Loveman 1998, Silvestro and Cross 2000). However, their findings are not able to confirm these relationships. Loveman (1998) stated that the data they had collected failed to support the postulated link between employee loyalty and customer loyalty via service quality. Silvestro and Cross (2000) reported that their research was only able to validate the relationships in retail organizations. Hence, researchers should devote more effort to collecting sufficient data from various types of service organizations in order to confirm or modify the links between service quality and employee loyalty and customer satisfaction.

More recently, research into service quality has become a cross-disciplinary issue spanning different fields. In the literature of human resources management, there have been some studies investigating the relationships between the emotion and behavior of employees and customers' perception of the quality of the services offered by an organization (Hui et al. 2001, Pugh 2001). Pugh (2001) reported that the display of positive emotion by employees is positively correlated with customers' evaluations of the quality of the services they render. The findings of Hui, Lam and Schaubroeck (2001) showed that customer-contact employees who are instilled with the importance of service quality are able to perform high-quality services to satisfy customers. Service quality is also the focus of an increasing number of studies in operations management and marketing. Researchers have attempted to link marketing and operational variables that can improve the service delivery system in order to enhance customer loyalty and firm profits (e.g., Soteriou and Zenios 1999, Stank et al. 1999). The empirical findings of Stank, Goldsby and Vickery (1999) have shown that enhanced customer loyalty can result if both the operations-oriented and marketing-oriented dimensions of service quality are improved. Specifically, Soteriou and Zenios (1999) have demonstrated that operational measures of quality can translate into perceived quality, which in turn increases the short-term profitability and long-term revenue growth of the organization. Of particular significance is their assertion that this translation can guide managers in customizing suitable management strategies for resource allocation, aimed at minimizing the cost spent on operations and maximizing the profit gained from marketing. The integrative approach to examining service quality and how it relates to employee service performance and customer purchase performance is not only valuable in that it will help to advance research on service quality, but also particularly beneficial to service firms in that it can help them to effectively allocate resources in a strategic manner.

Overall, service quality has been subjected to extensive examination in different fields of management research for many years. The need to collect enough data from various service sectors for in-depth investigations of service quality and its relevant relationships has been highlighted. To go beyond the mere examination of service quality in a specific field, an integrative approach that investigates the relationships of service quality with employee service performance and customer purchase performance seems to be a desirable future research direction. Such an integrative approach is likely to yield results that are of practical value to service organizations, as the findings will guide them in tailoring their management strategies to allocate resources effectively for business success.

2.5 Linking Employee Satisfaction to Operational Performance

Research on employee attitudes and job performance traditionally resided on organizational psychology, not operations management. However, as operations managers are increasingly involved in service management (Oliva and Sterman 2001), they find employee attitudes a potential factor for improving organizational efficiency. On the other hand, the relationship between employee attitudes and performance has long been of interest to behavior researchers. The interest of behavior psychologists in the linkages between employee satisfaction and work behaviors goes back to the Hawthorne studies (Roethlisberger and Dickson 1939) – a landmark study that ushered in the age of scientific management (Katzell et al. 1992). In spite of decades of research, the conclusive findings have remained elusive. In their meta-analysis, Mathieu and Zajac (1990) concluded that employee satisfaction has little direct influence on performance in most instances. Although much research has been successfully conducted to correlate employee satisfaction with individual work behaviors, such as turnover, absenteeism, lateness, drug use, and sabotage (Fisher and Locke 1992), the relationship between employee satisfaction and operational performance is highly controversial (Mathieu and Zajac 1990). In particular, from the perspective of strategic operations management, employee satisfaction is not achieved without a cost, in view of the fact that reducing expenses on employees is a viable choice to achieve operational efficiency.

In operations management, although a great deal of research has been conducted to investigate the relationships between service quality, customer satisfaction, and business performance (e.g., Heim and Sinha 2001, Balasubramanian et al. 2003, Nagar and Rajan 2005), research on the impact of employee attitudes on operational performance is scarce. In the last decade, the importance of human resources to operational performance has been noted by several researchers. Roth and Jackson III (1995) have revealed that organizational knowledge residing in employees is the primary determinant of superior service quality influencing market performance. On the other hand, factor productivity, that is organizational efforts to become leaner and more efficient, may cause service quality to diminish. Lee and Miller (1999) maintained that a dedicated workforce may serve as a valuable, limited, and non-imitable resource to enhance profitability from a strategic perspective. Oliva and Sterman (2001) have found that managers' attempts to maximize throughput per employee eventually reduce the attention given to customers. The reduction of time per customer, while enabling an immediate increase in throughput, eventually gives rise to a vicious cycle of erosion of the service standards.

Inspired by the S-PC (Heskett et al. 1994, Heskett et al. 1997), attempts to examine the impact of employee attitudes on business performance from the perspective of operations management has been increasing (e.g., Loveman 1998, Silvestro and Cross 2000). Investigating the model of Malcolm Baldrige National Quality Award (MNBQA), Meyer and Collier (2001) have showed human resources management practice are related to customer satisfaction in a health care environment. Goldstein (2003) illustrated the importance of employee development in service strategy design to managing service encounters in hospitals. Based on their interviews in the private sector and further education colleges, Voss et al. (2005) developed an empirical model to account for the impact of employee satisfaction on service quality and customer satisfaction. Though such a focus of research is still rare, it provides some theoretical grounds and preliminary evidence for the importance of employee satisfaction in service operations. Hence, more research work is urged to examine the correlates of employee satisfaction to operational performance.

2.6 The Research Gap in the Service-Profit Chain

Heskett et al. (1994) proposed the S-PC that links employee attributes and operational performance for the sake of organizational improvement in the service industry. It postulates that operations contribute to the profits of a service firm via the following chain of logical deductions: (1) profit and growth are stimulated primarily by customer loyalty; (2) loyalty is a direct result of customer satisfaction; (3) customer satisfaction is largely influenced by the value of the services provided; (4) value is created by satisfied, loyal, and productive employees; and (5) employee satisfaction, in turn, results primarily from high-quality support services and policies that enable employees to deliver results to customers (Heskett et al. 1994, Heskett et al. 1997). The S-PC proposition has inspired many researchers from various fields, including operations management, marketing, human resources management, and service management (e.g., Loveman 1998, Silvestro and Cross 2000, Mittal and Kamakura 2001, Batt 2002), to explore the different issues associated with the arguments put forward Heskett, et al. (1994) and Heskett, Sasser and Schlesinger (1997). These previous studies, while scattered among different disciplines, serve as important sources of information for the consolidation of knowledge and yield insights for future research into the S-PC. Table 2.1 summarizes empirical evidence of the S-PC in the literature from different fields.

Heskett, et al. (1994) have suggested that there is a causal order in the links between employee satisfaction and loyalty, service quality, customer satisfaction and loyalty, and firm performance. However, Silvestro and Cross (2000) have criticized the study of Heskett et al. as lacking in empirical validation, which requires that data on all of the postulated linkages in the chain be collected and analyzed. For this reason, the validity of the associations proposed in Heskett, et al. (1994) has remained unverified. Loveman (1998) examined the linkages of the S-PC using data from a regional bank. He reported that the hypothesized links were significant; yet, he concluded that the relationships were still confounding, inferring that the links in the S-PC had not yet explicitly been validated in his research. To my best knowledge, apart from Loveman's (1998) work, no research work investigates all the key linkages included in the S-PC. Clearly, empirical assessments aimed at examining the key constructs in the S-PC are called for in order to verify the S-PC. Moreover, regarding Loveman's (1998) study, its intention to examine the presumed relations of the S-PC was restricted to a single service organization. Such a design may restrict the generalizability of the findings to other service sectors, therefore it is questionable whether Loveman's (1998) findings are valid in other service settings. Thus, it seems necessary to validate the relationships of the S-PC in various service contexts for the sake of generalization.

Despite the relationships of the S-PC having not yet been validated, researchers have continued to build on Heskett et al.'s (1994) proposition to justify the presumed causal linkages of the S-PC in different service settings (e.g., Jones and Sasser 1995, Hallowell 1996, Stank et al. 1999, Gronholdt et al. 2000, Lau 2000, Silvestro and Cross 2000, Spinelli and Canavos 2000, Garland 2002, Khatibi et al. 2002). Their empirical studies performed have returned different verdicts. Some studies have shown no significant link between customer satisfaction and loyalty (Khatibi et al. 2002), or between employee satisfaction and customer satisfaction (Silvestro and Cross 2000). But, other studies have displayed that customer satisfaction and loyalty were positively related (Jones and Sasser 1995, Hallowell 1996, Stank et al. 1999, Gronholdt et al. 2000) and higher satisfaction in employees led to improved customer satisfaction (Spinelli and Canavos 2000, Voss et al. 2005). One challenge to these prior studies is based on methodological grounds. All but one used small samples which usually have low statistical power, leading to low precision of sample estimates (Sawyer and Ball 1981). Furthermore, some of these studies (e.g., Stank et al. 1999, Silvestro and Cross 2000, Khatibi et al. 2002) were conducted in a single organization or industry; thus, different findings were acquired in various research environments. Moreover, the units of analysis for these studies were different – except Khatibi, et al.'s (2002) study which was in the individual level, all the aforementioned studies were in the organization level. These methodological shortcomings may be responsible for results to date that have shown equivocal relationships among constructs of the S-PC. Given these research studies that appear to be addressing issues in a similar conceptual space of the S-PC but yielding somewhat different results, it is necessary to untangle these methodological issues in conducting an empirical study.

In addition, the studies cited above provide very limited evidence of the recursive effects of customer satisfaction and loyalty, as well as business performance, on employee satisfaction and loyalty. Despite the assumption of Heskett, et al. (1994) that recursive effects are embedded among the constructs of the S-PC, only Ryan et al. (1996) empirically demonstrated the recursive effect of customer satisfaction on employee attitudes. Obviously, further work needs to be done on the linkages in the S-PC and the recursive effects embedded in those linkages in different service industries. The findings of such a study will advance the frontier of knowledge on the S-PC proposition.

Data analysis in the previous empirical work has relied primarily on simple regression analysis (e.g., Hallowell 1996, Loveman 1998, Silvestro and Cross 2000) and comparative analysis (e.g., Lau 2000, Garland 2002). Loveman (1998) has pointed out that the cause for the equivocal findings in his research was the usage of simple statistical analysis that is unable to display clearly the relationship among constructs. A main concern with simple regression analysis is that it is not possible to account for other factors that may affect the dependent variables, which may lead to erroneous conclusions concerning the relationship of interest (omitted variables bias). Moreover, simple regression analysis does not allow for a distinction between different mechanisms through which the independent variable influences the dependent variable. This issue is highly relevant in the context of this study, because one might argue that employee's job satisfaction affects customer satisfaction directly as well as indirectly (i.e., through some mediating variables related to employee's behavior, such as employee loyalty). Simple regression analysis does not allow for distinguishing direct and indirect effects. Lau (2000) has contended that comparative analysis is only suitable and useful for exploratory study. Silvestro and Cross (2000) have rightly argued that more sophisticated statistical techniques, such as multivariate data analysis, have to be applied to facilitate a better understanding of the relationships among the constructs of the S-PC.

To summarize, prior research work for the investigation of the entire S-PC was extremely limited. Moreover, previous studies have highlighted that some relationships of the S-PC were equivocal. They have also pointed out the necessity of applying some powerful and suitable statistical methods for data analysis. All these point to the need for a comprehensive empirical study to verify the associations among constructs in the S-PC, so that enough observations can be made on the performance outcomes and so that proper statistical techniques for data analysis can be employed.

2.7 Moderating Effects

Another research issue closely relevant to the S-PC is detecting the effects of pertinent moderating factors on the linkages of the constructs of the S-PC. Researchers have recognized the need to examine these moderating factors in S-PC (Anderson and Mittal 2000, Silvestro and Cross 2000, Ranaweera and Neerly 2003). The recognition of the existence of moderating factors has emerged from the common knowledge that business performance is normally contingent upon environmental variables, which have not been fully captured in the S-PC model (Silvestro and Cross 2000). Table 2.3 is a summary of the empirical evidence for moderating effects on the relevant links in the S-PC that have been detected from different fields of management research.

Contact time

Loyal employees are presumed to be positively correlated with high service quality in the S-PC (Heskett et al. 1994). Nonetheless, Silvestro and Cross (2000) have identified an inverse relationship between employee loyalty and organizational performance in the industry they surveyed, where the interaction between employees and customers was not seen as a key driver of service value. Their findings disagree with the satisfaction mirror effect postulated by Heskett et al. (1997), which states that a firm's success resulting from employee satisfaction is reflected in customers' perception of the services rendered. This suggests that the level of contact between employees and customers may account for variations in the relationship between employee loyalty and business performance. Chase (1981) considered the degree of customer contact to be a key dimension in classifying service settings. This concept can help a service provider take appropriate measures to react and customize the services it offers to its customers. Soteriou and Chase (1998) have investigated the influence of customer contact, in terms of communication time and intimacy between employees and customers, on customers' perceptions of the quality of the services that were delivered. Strictly speaking, Soteriou and Chase's (1998) study did not focus on investigating the moderating effects of customer contact on perception of the quality of services. However, their study has highlighted the significant impact of customer contact on customer perception of the quality of an organization's services. Based on the suggestion of Silvestro and Cross (2000), we suspect the contact, in particular contact time, between employees and customers may have a moderating effect on the link between employee loyalty and customer perception of service quality.

Market competitiveness and switching cost

The competitive environment of the service sector has been identified as a factor that influences the link between customer satisfaction and loyalty (Jones and Sasser 1995). In a highly competitive market where there are many alterative products and services for customers to select from and the cost of switching is low, customers are not loyal unless they are fully satisfied. Conversely, in a monopolistic market, customer satisfaction seems to have very little impact on loyalty. Jones and Sasser's (1995) study inspired Lee et al. (2001) to examine how switching cost affects the link between customer satisfaction and loyalty in the cell phone market. Lee et al. (2001) postulated that the impact of switching cost on the relationship between customer satisfaction and loyalty is affected by market structure. They have classified mobile users into three groups: economy users, standard users, and mobile-lovers, according to the amount of calling time that the user chooses at the time he signs the service contract. Their findings have shown that switching cost plays a significant role in moderating the relationship between customer satisfaction and loyalty. The link between customer satisfaction and loyalty is strong for economy and standard user groups who are price-sensitive. But the cost of switching does not affect customer loyalty in the group of mobile lovers. On the basis of Jones and Sasser's (1995) and Lee et al.'s (2001) studies, one can infer that market competitiveness, as reflected by the switching cost, affects the relationship between customer satisfaction and loyalty. However, these studies are only limited to a particular industry and based on a small sample, so their findings may not be generalizable to other service environments.

In sum, previous studies have identified contact time, market competitiveness, and switching cost as pertinent moderators that influence the direction and strength of the different linkages in the S-PC. Nevertheless, very few empirical studies have so far assessed the moderating effects of these factors. A more thorough investigation of the moderating effects on the relationships in the S-PC is necessary to build a solid theoretical foundation for the S-PC.

2.8 Theoretical Foundation of the Service-Profit Chain

The relationships among various constructs in the S-PC could be explained by social exchange theory, attitude theory, emotional contagion, and the resource-based view. On the other hand, expectancy theory and emotional labor would support some alternative arguments to the S-PC. In what follows, we will review these major theories which support the propositions of and potential relationships for the S-PC.

2.8.1 Social exchange theory

Social exchange theory is the most influential conceptual paradigm for understanding workplace relationships (e.g., Shore et al. 2004). It is widely studied in different disciplines, including sociology (e.g., Blau 1964) and social psychology (e.g., Gouldner 1960). Although there are different views on social exchange theory, theorists agree that social exchange involves a series of interactions to generate obligation (Emerson 1976, Cropanzano and Mitchell 2005) which is unspecified (Blau 1964). Moreover, these interactions are usually seen as independent of the actions of another person (Blau 1964). The reason for this is that an exchange requires a bidirectional transaction – something is given and something is returned (Cropanzano and Mitchell 2005). The transaction also has a potential to generate high-quality relationships among involved parties (Cropanzano and Mitchell 2005).

Generally speaking, there are four typical forms of social exchanges, namely reciprocal, negotiated, generalized, and productive exchanges. Reciprocal exchange is referred to as dyadic exchange relations in which contributions are usually unilateral in separate episodes (Emerson 1976). Negotiated exchange also involves dyadic exchange relations, but the contributions are immediate. Generalized exchange is concerned with the exchange among three or more people who are members of the same social group. Productive exchange is concerned with the interactions in which all parties contribute to and benefit from one socially produced event. Among them, reciprocal exchange is a more suitable form of social exchange to explain the employer-employee relationship considered in this study. The reasons are that it only involves two parties (i.e., employer and employee) in the exchange relation through which contributions are given from one party to another in each transaction.

Reciprocal exchange is characterized by an exchange relation over time, instead of immediacy (Flynn 2003). Moreover, similar to other forms of social exchange, the benefits gained from a reciprocal exchange do not have an exact price (Blau 1964). Furthermore, in reciprocal exchange, the nature of the return, timing, and value cannot be bargained explicitly (Blau 1964, Flynn 2003). Therefore, the actor leaves his expectation of reciprocity implicitly. He begins the process without knowing for certain if and when he can expect reciprocation.

In practice, reciprocal exchange evolves when employers "take care of employees", which subsequently engenders beneficial consequences (Cropanzano and Mitchell 2005). More specifically, for an employer-employee relationship in the service environment, reciprocal exchange provides a means for employees to obtain benefits from their employer. When they are satisfied with the benefits, they will be more committed to serve their employer by delivering services with a higher level of quality. On the other hand, reciprocal exchange acts as a platform through which an employer acquires their employees' commitment of serving his organization. By the norm of reciprocity, the giving and receiving among the employer and employees occur over time, not immediately. Neither employer nor employees can bargain for the nature of the return, timing, and value they would acquire from each other. Ultimately, the reciprocal exchange in the employer-employee relationship indeed leads to increasing the productivity of an organization (Blau 1964, Flynn 2003).

2.8.2 Attitude theory

Lazarus (1991) proposed that appraisal processes of internal and situational conditions lead to emotional responses; in turn, these induce coping activities: appraisal → emotional response → coping. Bagozzi (1992) applied Lazarus' (1991) theory of emotion and adaptation to explain how attitudes might be linked to behavioral intentions.

Bagozzi (1992) proposed the idea of an "outcome-desire unit" that individuals typically have a desire to achieve certain outcomes when they participate in activities. If the individual's appraisal of that activity indicates that the person has achieved the planned outcome or has had a pleasant experience with the activity, "outcome-desire fulfillment" would exist, which is followed by an affective response, for instance, satisfaction and joy. The affective response then leads to a coping response in an effort to maintain or increase the level of the induced affective response. In contrast, if the individual's appraisal of the outcome shows that the desired outcome has not yet been achieved or the pleasant experience has not yet been gained, "outcome-desire conflict" would exist, which is followed by an affective response, for example, dissatisfaction and sadness. A coping response will subsequently be generated in an effort to remove or reduce the level of the affective response.

The general theoretical framework of appraisal processes → emotional reactions → coping responses can be applied in service encounters, inferring the relationship between perceived service quality and customer satisfaction (e.g., Gotlieb et al. 1994, Brady and Robertson 2001). Bagozzi's (1992) framework suggests that perceived service quality (i.e., appraisal) will be followed by customer satisfaction (i.e., an emotional response). It also indicates that customer satisfaction has a direct influence on intention (i.e., coping response) to purchase. Therefore, this sequence of cognitive events articulates how service quality is related to customer satisfaction.

2.8.3 Emotional contagion

Schoenewolf (1990) defined emotional contagion as "a process in which a person or group influences the emotions or behavior of another person or group through the conscious or unconscious induction of emotion states and behavioral attitudes" (p. 50). Hatfield, et al. (1992) referred it to "the tendency to automatically mimic and synchronize movements, expressions, postures, and vocalizations with those of another person and, consequently, to converge emotionally" (p.153-154). Howard and Gengler (2001) defined it as "the receiver catching the emotion being experienced by the sender, wherein the emotion of the receiver converges with that of the sender" (p. 189). Accordingly, emotional contagion involves a social influence (e.g., Levy and Nail 1993) involving two parties, behavioral mimicry, and emotion transfer.

Barsade (2002) has discussed a model of emotional contagion to explain how group emotional contagion processes operate. It starts when a person enters a group, they are exposed themselves to other group members' emotions. He perceives the group members' emotions expressed primarily through their nonverbal signals, including facial expressions, vocalizations, postures, and movements. The group members' expressed emotion is then transferred to him. This transfer involves mimicry of facial expressions, speech rates, and body movements of the senders. Moreover, this behavioral mimicry is automatic, unconscious, and uncontrollable. Affective feedback from such mimicry then produces corresponding emotional experiences. Research has shown that mimicry is more likely when there is a relational bond between two parties. Moreover, mimicry is more probable when the receiver "likes" a sender.

Researchers from the fields of consumer psychology (e.g., Howard and Gengler 2001) and organizational behavior (e.g., Pugh 2001, Doucet 2004) have adopted the view of emotional contagion to examine the interaction between employees and their customers. Howard and Gengler (2001) have found that customers who are exposed to happy employees tend to have positive bias toward a product. Pugh (2001) has found that employees' display of positive emotion is positively related to customers' positive affect following the service encounter. Doucet (2004) has showed that the employees' hostility affects the hostile mood of customers. These findings provide evidence for the direct relationship of employee satisfaction to customer satisfaction based on the theory of emotional contagion.

2.8.4 The resource-based view

The resource-based view of the firm stemmed from the structure-conduct-performance paradigm of the industrial organization view of a firm (Bain 1959, Porter 1980). From the perspective of industrial organization (Bain 1959, Porter 1980), the success of a firm was only determined by its external environment. To counter this industrial organization view, the resource-based theorists suggested internal competencies of a firm are essential for a firm to become successful (e.g., Wernerfelt 1984). Hence, the resource-based view highlights that sustained competitive advantage is rooted inside a firm, in assets which are valuable, rare, and difficult-to-imitate. A firm is said to have a sustained competitive advantage when it is implementing a value creating strategy not simultaneously being implemented by any current or potential competitors and when the competitors are unable to duplicate the benefits of its strategy. Hence, a firm's management's ability to marshal its resources to produce superior performance which outperforms the competitors is a key determinant for a firm to have a sustained competitive advantage.

According to RBV theorists (e.g., Barney 1991), resources can be classified into three categories: (1) physical capital resources (Wernerfelt 1975) that include physical technology used by a firm and the equipment of a firm; (2) human capital resources (Becker 1975) which involve the experience, judgment, and relationships of an individual within a firm; and (3) organizational capital resources (Tomer 1987) that consist of a firm's formal and informal planning, controlling, and coordinating systems. However, not all the resources are strategically important to the success of the firm (Barney 1991). The reason is that a resource that is valuable in a particular industry or at a particular time might fail to have the same value in a different industry or another chronological context (Collis and Montgomery 1995).

The resource-based view of the firm supports the analysis of how customer satisfaction and loyalty influence the economic performance in the service environment for two reasons. One is that the resource-based view has a strong focus on performance as the key outcome variable. This is particularly suitable to the current study that economic performance is the ultimate outcome of the interests for the investigation. Another reason is that customer satisfaction and loyalty are viewed as human capital resources within a firm. Customer satisfaction is concerned with the experience and judgment of the customers with the services received while customer loyalty is regarded as the relationship of customers with the service provider. They serve as a source of sustained competitive advantage because they create value that is both difficult-to-imitate and rare, as described in the following.

- Value: Service providers may increase their number of satisfied and loyal customers in order to achieve a competitive edge in the market. Customers who are satisfied with the services offered by the service provider tend to be loyal to the service provider; in turn, loyal customers are committed to repurchasing from and making referrals for the service provider. Ultimately, the customers' actions enhance the economic performance of the service organization and uphold the marketing effort of improving the ability of the service organization to achieve improved business performance.

- Imitability: Customer satisfaction and loyalty are concerned with the senses of emotion and intention, respectively, in customers. Service firms can generate profits from its satisfied and loyal customers. However, it is difficult for its competitors to discern and imitate exactly what makes a customer satisfied and loyal, so as to generate profit. Hence, satisfaction and loyalty in customers cannot be transferred to or copied by competitors.

- Rarity: Satisfied and loyal customers are rare in service organizations. In low competitive markets, it may be assumed across service organizations that satisfied and loyal customers considered as a resource do not create value, when in fact they do (Anderson and Sullivan 1993, Hallowell 1996, Yeung and Ennew 2000, Kamakura et al. 2002, Yeung et al. 2002); thus, there is tremendous potential for service organizations from low competitive markets to exploit the rare characteristic of satisfied and loyal customers for generating profit. In contrast, in highly competitive markets, it is difficult for service organizations to satisfy and retain their existing customers, even when they are able to provide services with a high level of quality to their customers. This is because customers have a wide variety of choices in the market for their selection. Thus, the acquisition of satisfied and loyal customers is a means of making profit though it is hard to acquire in the highly competitive environment.

In sum, the value obtainable from a large number of satisfied and loyal customers is quite high. Moreover, in most cases, the customers' satisfaction and loyalty levels are impossible for competitors to imitate. In addition, a service organization that recognizes the benefits of and has an opportunity to exploit the satisfaction and loyalty in customers will perform better than its competitors. Based on these reasons, we contend that customer satisfaction and customer loyalty are the resources that are capable of providing sustained competitive advantage in a service context at the firm level.

2.8.5 Expectancy theory and emotional labor

Apart from the above theories, there are some conjectures that extend the relationships among some constructs in the S-PC or some notions against the original propositions of the S-PC. The theories related to these conjectures or notions are discussed in the following.

Expectancy theory

Expectancy theory was proposed by Vroom (1964) and then supplemented by a few other researchers such as (Porter and Lawler III 1968). Valence, instrumentality, and expectancy (VIE) are the three major components of expectancy theory and therefore it is frequently referred to as VIE theory, which holds a major position in the study of job motivation or employee satisfaction. The expectancy theory of motivation has received a considerable amount of research attention in the field of organizational psychology (e.g., Lawler III 1968, Naylor et al. 1980, Judge et al. 2001). There is also considerable support for adopting expectancy theory in various contexts (Mitchell 1982, Van Eerde and Thierry 1996).

Vroom (1964) referred to valence as all possible affective orientations toward outcomes, and therefore it is defined as the importance, attractiveness, desirability, and anticipated satisfaction with outcomes. Interpreted in the context of this research, valence is regarded as the service employees' anticipated desirability of a reward from their employing organization. Expectancy is the subjective probability that the effort of an employee would result in a specific outcome which is valuable to an organization. Under the service context, expectancy is considered as the extent of service employees' belief that his or her attempt to perform well in service deliveries will lead to an organization's desirable outcome (i.e., firm profitability). Instrumentality is defined as the belief of an employee that his or her effort, after leading to a desired outcome of the organization, will eventually lead to his or her own desirable outcome. In this study, instrumentality can be interpreted as the degree to which a service employee believes that his or her effort leading to firm profitability (organizational desired outcome) will eventually result in being rewarded by the organization (employee desired outcome). The anticipated desirability of valence, the belief of instrumentality, and the expectation interact with each other, influencing the motivation of service employees to deliver services to customers.

Researchers from psychological and organizational fields have shown interest in expectancy theory as it relates to job satisfaction. They have considered that expectancy theory construes broadly for the assertion of the relationship of organizational performance to satisfaction. This assertion is derived from the assumption that organizational performance results in valued outcome that satisfies the employee. Hence, expectancy theory stipulates that satisfaction follows from the reward produced by an employee's performance (Vroom 1964, Naylor et al. 1980). Subsequently, Lawler III and Porter (1967) suggested a model that shows that performance has an effect on job satisfaction through the provision of intrinsic and extrinsic rewards to the employees. Extrinsic reward refers to the reward given by the organization, for example, pay, promotion, and security. Such sort of rewards are considered as satisfying the needs of the lower level in the Maslow's (1970) needs hierarchy. Maslow's (1970) needs hierarchy divides people's needs into five types arranged in a hierarchical order. Maslow (1970) has recommended that the lower-level needs have to be satisfied first before the next level of needs in the hierarchy. Intrinsic reward is concerned with the feeling of having accomplished something worthwhile. As stipulated in Maslow's (1970) needs hierarchy, this kind of reward fulfills the needs of the higher levels. In line with this, researchers (e.g., Judge et al. 2001) attempted to adopt the expectancy theory to support the establishment of the relation of performance to satisfaction through reward.

Emotional labor

Hochschild (1983) defined emotional labor as "the management of feeling to create a publicly observable facial and bodily display" (p. 7). Her definition focuses on emotion and the management of it to comply with social norms in public. Put differently, some researchers modified her definition by emphasizing behavior that is expressed according to the emotion felt (e.g., Ashforth and Humphrey 1993, Morris and Feldman 1996). Their rationales are (1) the actual behavior that complies with the norms of an organization is directly observed and affects the recipient; and (2) the sender may behave with the compliance within the norms of an organization without managing his feelings. Hence, emotional labor is suggested to focus on behavior rather than the presumed emotion underlying the behavior.

Emotional labor is particularly relevant in the service industry. This is because service employees represent the organization in providing services to customers directly, and face-to-face interaction is necessary. The employee-customer interaction has dynamic and immediate effect on the quality of services, under the uncertainty induced by customer participation in service delivery. Service is intangible and thus the level of service quality cannot be controlled easily. These reasons highlight the strong influence of employee behavior on the quality level of services. It is therefore justifiable to consider emotional labor in the service context.

Regarding the assumptions of emotional labor, it is suggested that some degree of effort (i.e., labor) is required in expressing emotions so that the individual's felt emotion and the organizationally desired emotion are congruent. Moreover, before the expression of the organizationally desired emotion, the individual's emotion has to be privately determined. Furthermore, an organization has standards or rules on individual behavior. These standards or rules indicate which emotions are appropriate in a given situation and how those emotions should be publicly expressed. Ekman (1973) referred to such norms as display rules that guide individuals to express appropriate emotion. Based on these assumptions, previous research was attempted to adopt the theory of emotional labor to examine the relation between emotion of employees and service quality (Pugh 2001).

The expectancy theory and emotional labor will be adopted to support alternative arguments on the relationships in the S-PC (i.e., alternative structural models for comparisons).

2.9 Conclusion

In this chapter, we reviewed the literature relevant to the key constructs of and the major relations postulated in the S-PC. We also elaborated the theories that can be adopted to support the propositions of the S-PC. It is suggested that satisfaction and loyalty differs in that loyalty can be regarded as the manifestation of ultimate satisfaction. With reference to the review of postulated relationships in the S-PC, we believe that more research should be conducted to investigate the impact of employee satisfaction on operational performance and to explore the moderating effects on some proposed relationships of the S-PC. Finally, we carefully reviewed some of the theories that are relevant to the conceptualization of the S-PC. These theories may support and supplement the research models (or alternative research models) that we develop in the subsequent chapters.

Table 2.1 Summary of empirical evidence on the links in the service-profit chain.

Year	Study	Description	Sample source	Sample size	Main findings
1994	Heskett et al.	An empirical study of the relationships among employee satisfaction and loyalty, value of service, customer satisfaction and loyalty, and profit and growth across large service organizations.	Service organizations	20	A service-profit chain model is proposed.
1995	Jones and Sasser	A cross-sectional study of the relationship between customer satisfaction and loyalty across five service industries.	Companies from the following sectors: automobiles, personal computers, hospitals, airlines, and local telephone services	30	Customer satisfaction is positively correlated with customer loyalty. The competitive environment of the service industry affects the relationship between customer satisfaction and loyalty.
1996	Hallowell	A cross-sectional empirical study of the relationship among customer satisfaction, customer loyalty, and profitability in a retail bank.	Divisions of a retail bank	59	Relationships exist among customer satisfaction, customer loyalty, and profitability.
1998	Loveman	A cross-sectional empirical study to test the service-profit chain in the retail branches of a regional bank.	Branches of a regional bank in the United States	450	Employee satisfaction is positively related to stated measure of employee loyalty, not employee tenure. Employment tenure, not stated measure of employee loyalty, is positively correlated with customer satisfaction.
1998	Rucci et al.	An empirical study of the relationships among employee attitudes, customer satisfaction, and financial performance at Sears.	Stores of Sears	800	An employee-customer-profit model is proposed. A 5 unit increase in employee attitude drives for 1.3 unit increase in customer impression, which in turn leads to 0.5% increase in revenue growth.

Year	Study	Description	Sample source	Sample size	Main findings
1999	Stank et al.	A cross-sectional empirical study of the effect of the service performance of suppliers on the satisfaction and loyalty of store managers in the fast food industry.	Fast food restaurants in the six largest fast food restaurant chains in the United States	287	The link between operational service performance and customer satisfaction is stronger than that between relational service performance and customer satisfaction. Customer satisfaction has a positive, significant link with customer loyalty.
2000	Gronholdt et al.	A cross-sectional empirical study of the relationship between customer satisfaction and loyalty across service industries.	Companies from the following sectors: telecommunication industries, retail banks, supermarkets, the soft drinks industry, and fast food restaurants in Denmark	30	Customer satisfaction has a positive correlation with customer loyalty. The positive effect of customer satisfaction on customer loyalty increases with the degree of competition in the market.
2000	Lau	An ad hoc investigation of the relationship between the quality of internal services and performance in growth and profitability.	Service organizations that provide quality-of-life programs	29	Service organizations that focus on the quality of internal services for their employees tend to have better growth in sales, assets, and returns on assets.
2000	Silvestro and Cross	An exploratory study of the application of the service-profit chain in a leading grocery retailer.	Stores of a grocery retailer in the United Kingdom	6	No significant correlation exists between service value and either employee satisfaction, employee loyalty, or internal capability. A strong negative correlation exists between internal quality and service value. No relationship is identified between employee satisfaction and customer satisfaction. Employee satisfaction is negatively and significantly correlated with the store’s profit margin.

Year	Study	Description	Sample source	Sample size	Main findings
2000	Spinelli and Canavos	A cross-sectional empirical study of the relationship between employee satisfaction and guest satisfaction in the hotel industry.	Hotels in the United States	6	Employee satisfaction is positively correlated with guest satisfaction.
2000	Yeung and Ennew	An empirical study to analyze the impact of firm-level customer satisfaction on the financial performance of a business.	American Customer Satisfaction Index and Standard and Poors' CompuStat (a proprietary financial database)	Nil	Customer satisfaction has a positive impact on the financial performance indicators.
2002	Garland	A cross-sectional study of the relationships among perceived service quality, customer satisfaction, customer loyalty, level of customer contribution, and business performance in personal retail banking.	Customers from a New Zealand regional bank	1128	One third of the customers were unprofitable, one third hovered around the breakeven point, and one third contributed 98% of customer profit.
2002	Kamakura et al.	A cross-sectional study of the relationships among operational inputs (employee perceptions, attitudes, and satisfaction are considered as operational inputs), attribute performance performances, overall behavioral intentions, customer behavior, and profit in a national bank.	Customers from the branches of a national bank in Brazil	3489	The operational inputs are positively associated with the customers' behavioral intention that leads to relevant customer behavior and ultimately profits.
2002	Khatibi et al.	An empirical study of the relationships among service quality, customer satisfaction, and customer loyalty at a telecommunications service provider.	Users of the telecommunication service in Malaysia	150	No positive relationship exists between customer satisfaction and customer loyalty. Assurance and reliability of service quality are important determinants of customer satisfaction.

Year	Study	Description	Sample source	Sample size	Main findings
2002	Silvestro	A cross-sectional study of the relationships among employee satisfaction, loyalty, productivity, and profit in a single, multi-site supermarket.	Branches of a supermarket in the United Kingdom	15	Employee satisfaction is not significantly related to employee loyalty. Employee satisfaction is negatively correlated with profits. Employee loyalty is negatively correlated with profits.
2004	Anderson et al.	An empirical study of the relationship between service attributes, customer satisfaction, and customer loyalty in the transportation industry by using the Bayesian network methodology.	Transport service customers from a retail transport firm	1101	The causality between service attributes, customer satisfaction, and customer loyalty are shown.
2004	Bowman and Narayandas	A longitudinal study of the relationships among customer relationship effort, vender performance, service quality, customer satisfaction, customer loyalty, and profitability.	Vendors and customers from industries that include manufacturing, construction, transportation, electrical, and aerospace.	At least 30	Customer management effort (contact hours with the customers) affects the vendor performance, which in turn influences customer satisfaction. Customer satisfaction influences customer loyalty which in turn affects the profitability The nature of relationships between customer satisfaction and loyalty is non-linear and asymmetric. Competition plays a significant role in moderating the linkages among customer relationship effort, vender performance, service quality, customer satisfaction, customer loyalty, and profitability.

Year	Study	Description	Sample source	Sample size	Main findings
2005	Voss et al.	A cross-sectional study to compare the relationship between human resource management practices, quality procedure, employee satisfaction, service quality, and customer satisfaction in private and public service sectors.	Private organizations that includes financial services, retail, and hotels and public organizations that includes further education colleges in the United Kingdom	291	Human resource management practices have an impact on employee satisfaction, which in turn affects service quality positively in private and public organizations. Employee satisfaction is positive and significantly correlated with customer satisfaction in private organizations only.

Table 2.2 Summary of empirical evidence in related academic work on the relevant links in the service-profit chain.

Year	Study	Description	Sample source	Sample size	Main findings
1998	Rucci et al.	An empirical study of the relationships among employee attitudes, customer satisfaction, and financial performance at Sears.	Stores of Sears	800	An employee-customer-profit model is proposed.
1999	Stank et al.	A cross-sectional empirical study of the effect of the service performance of suppliers on the satisfaction and loyalty of store managers in the fast food industry.	Fast food restaurants in the United States	287	The link between operational service performance and customer satisfaction is stronger than that between relational service performance and customer satisfaction.
2000	Gronholdt et al.	A cross-sectional empirical study of the relationship between customer satisfaction and loyalty across service industries.	Companies from the following sectors: telecommunications industries, retail banks, supermarkets, the soft drinks industry, and fast food restaurants in Denmark	30	Customer satisfaction has a positive correlation with customer loyalty. The positive effect of customer satisfaction on customer loyalty increases with the degree of competition in the market.
2000	Spinelli and Canavos	A cross-sectional empirical study of the relationship between employee satisfaction and guest satisfaction in the hotel industry.	Hotels in the United States	6	Employee satisfaction is positively correlated with guest satisfaction.
2000	Yeung and Ennew	An empirical study to analyze the impact of firm-level customer satisfaction on the financial performance of a business.	American Customer Satisfaction Index and Standard and Poors' CompuStat (a proprietary financial database)	Nil	Customer satisfaction has a positive impact on the financial performance indicators.

Year	Study	Description	Sample source	Sample size	Main findings
2002	Khatibi et al.	An empirical study of the relationships among service quality, customer satisfaction, and customer loyalty at a telecommunications service provider.	Users of the telecommunication service in Malaysia	150	No positive relationship exists between customer satisfaction and customer loyalty. Assurance and reliability of service quality are important determinants of customer satisfaction.

Table 2.3 Summary of the empirical evidence on the moderating effects in the relevant links in the service-profit chain.

Year	Study	Moderator(s)	Relationship	Sample source	Sample size	Main findings
1995	Jones and Sasser	Market competitiveness, including the cost of switching and availability of products or services	Customer satisfaction and loyalty	Companies from the following sectors: automobiles, personal computers, hospitals, airlines, local telephone services	30	In a highly competitive market, customer satisfaction has a significant impact on loyalty. In a monopolistic market, customer satisfaction has little effect on loyalty.
2001	Lee et al.	Switching cost	Customer satisfaction and loyalty	Users from the cell phone market in France	256	Switching cost plays a significant moderating role on the relationship between customer satisfaction and loyalty only for economy and standard user groups. The cost of switching does not affect customer loyalty in the group of mobile lovers.
2003	Ranaweera and Neely	Price perception and customer indifference	Perception of service quality and the retention of customers	Residential telephone customers from the telecommunications industry	461	For customers who are happy with the price, perception of service quality has a significant influence on customer retention. For customers who are unhappy with the price, perception of service quality has little influence on customer retention. For a certain level of customer indifference, perception of service quality has the least impact on customer retention.

CHAPTER 3 RESEARCH METHODOLOGY AND INSTRUMENT DEVELOPMENT

3.1 Introduction

"A theory tries to make sense out of the observable world by ordering the relationships among elements that constitute the theorist's focus of attention in the real world." (p. 20) (Dubin 1976). Research is a means of creating knowledge in order to build and verify theories. In the research of operations management, the gap between theory and real practice has been understood for many years (Flynn et al. 1990). The theoretical research fails to capture the actual nature of business practice in the investigation. Empirical research is believed to be capable of acquiring the information from real practice for the purposes of theory construction. It collects data systematically from firms and then provides more generalizable evidence about the trends and norms in specific populations of organizations for theory building and verification. Research methodology is a critical part in the research process (Chadwick 1984). It basically includes the matters of research design and data collection methodology. Instrument development is another important part of the research process and is particularly referred to as a specially designed and empirical verified questionnaire and interview (Chadwick 1984, Vogt 1993) in an empirical study.

In the following, we depict the considerations of research design and instrument development for this study, based on the insights acquired from the literature review, related research work, and relevant guidelines. We then describe the validation for the data collected in this study. Lastly, we make a conclusion for this chapter.

3.2 Research Methodology

3.2.1 Research design

Research design sets up a framework for the study of the relations among variables (Kerlinger 1978). It is capable of offering the main directions to carry out research. The commonly used designs include case study, field experiment, panel study, focus group, and survey. A case study is used to investigate the operations of a sampled unit or several sampled units in depth in order to provide a careful and detailed documentation of the practice studied. Well-defined guidelines are provided for researchers to conduct a case study step-by-step (Eisenhardt 1989, Yin 1989). In a field experiment, researchers are allowed to manipulate some aspects of the natural setting and then systematically observe the resulting changes of the situation being studied (Stone 1978). A panel study is used to acquire a consensus from experts in defining terms and making predictions. The Delphi method is a technique widely used for panel study. It permits experts to express their opinions and revise others' opinions privately through writing. Similarly, focus groups are intended to acquire a consensus from experts on a set of pre-established questions; although, it is through open discussion among the group. Surveys are used to gather information from a group that may be homogeneous with respect to at least one characteristic or that may be of a large population of firms (Flynn et al. 1990). Considering the research objective of this study, survey research appears to be more appropriate. This is because this study is intended to seek generalization on the relationships among various constructs in the S-PC. The objective is to test and generalize the idea of the S-PC among the population of firms in the service industry. Survey design provides a means through which a relatively great data can be acquired effectively from a large population of service firms.

3.2.2 Data collection method

Various data collection methods are possible to acquire information for empirical study. They consist of historical archive analysis, participant observation, interviews, and questionnaires. Historical archive analysis makes use of unobtrusive measures to gather historical factual data from respondents. It is usually conducted in conjunction with case study design. Participant observation is to acquire information from the experience of respondents who are involved in the process being studied. It can be used to conduct action research that a person within an organization collects and analyses data regarding an ongoing change (Dubin 1976). Interviews offer a face-to-face platform through which researchers can obtain information from respondents about the questions intended to be investigated. Moreover, it permits researchers to make comparison between the respondents' information obtained from different respondents. Questionnaires are the most widely used data collection method in survey research. They are useful in gathering information on opinions, feelings, and beliefs, as well as reports of facts (Selnes 1976).

We chose the questionnaire method to acquire the data for this study enabling the collecting of data about the respondents' opinions and feelings, and factual data about the reality of the situation under study. Thus, it was used to gather the data of the respondents' feeling about the satisfaction with their job and loyalty to their employing organization, as well as their assessment on the operational performance and business outcome. The questionnaire method is therefore effective for gathering the data for this study.

3.2.3 Cross-sectional analysis

There are two types of research design in survey studies, namely, longitudinal research and cross-sectional research. Longitudinal analysis is used to show an exact causal relationship between antecedent and its consequence. Such design enables researchers to reveal the temporal patterns, causes, and movement from continuity to change due to time (Pettigrew 1990). Cross-sectional analysis is suitable to display the existence of relationships between two constructs without the consideration of how the time change affects the relationship. Very often, researchers suggest that longitudinal analysis would be more appropriate if the purpose of a research study is to test an exact causal relationship between two constructs. However, if the purpose of a research study is to examine the relationships among a group of variables, longitudinal design becomes difficult, if not impossible. This is because it is difficult to determine the exact time lag among a large number constructs in a longitudinal analysis (Wong and Law 1999). In particular, when research involves the examination of non-recursive effects, longitudinal design would be more difficult (e.g., Finkel 1995, Wong and Law 1999). This is because a non-recursive relationship, if it exists, cannot be observed at the same time because cause and effect synchronously influence each other (Finkel 1995, Wong and Law 1999).

In this study, time-lags may exist in the relations (1) between the improvement in employee satisfaction and loyalty as well as expected improvement in customer satisfaction and loyalty, and (2) between the improvement in customer satisfaction and loyalty as well as expected improvement in sales from repurchases and referrals and firm profitability. However, a longitudinal design may not be feasible in practice. This is because the impacts of employee satisfaction and loyalty on customer satisfaction and loyalty as well as of customer satisfaction and loyalty on business performance are likely to occur immediately, while the relationships of customer satisfaction and customer loyalty, as well as of sales from repurchases and referrals and firm profitability could evolve in vague time windows. Hence, it may not be possible to capture the actual time-lags that exist in the relations. Furthermore, this study involves the testing of non-recursive structural equation models as shown in Chapter 4 and 5. It is difficult, if not impossible, to conceptualize time-lagged reciprocal effects that develop simultaneously or interactively in no specific timeframe. As suggested by Wong and Law (1999), under this situation a cross-sectional non-recursive model is a viable representation of the reality for this study. As a result, we chose cross-sectional analysis to conduct this study.

3.2.4 Multiple informants

In operations management, the level of theoretical interest is usually at the organization or firm level, instead of the individual level. If valid empirical information can be acquired from unit-level (i.e., firm-level or organization-level) through existing sources, such as archives and accounting reports, it is preferable to use such information for analysis (Larreche and Gatignon 1990, Van Bruggen et al.

2002). Nevertheless, in practice, data may not be available or assessable from the existing sources (Kumar et al. 1993, Van Bruggen et al. 2002). In this case, relevant data can be gathered from informants' judgmental response. This introduces an important question about the quality of data in research using judgmental response.

Generally speaking, researchers are interested in capturing the relationship between the true scores of the constructs under their investigation. Yet, in practice, the observed correlation in the relationship includes the correlations between the true scores of the constructs and between the error (both systematic and random errors) present in the constructs. Thus, it is necessary to minimize the correlations caused by the systematic and random errors between the constructs, if it is intended to capture the correlation of true scores among constructs. Three possible means are available. One is to use multiple informants for different constructs of interests in a study. This can effectively reduce the systematic error if the source of systematic error stems from, for instance, the informants' organizational position while determining the correlation in the relationships (Van Bruggen et al. 2002). Another means is to select the most knowledgeable informants to respond for different constructs (Phillips 1981, Van Bruggen et al. 2002). The reason is that no a single informant is capable of providing information for all issues of interests in a study (Phillips 1981). The last means is by aggregating the responses from multiple respondents into a single composite score. The underlying rationale is that increasing the number of informants decreases the random error through the averaging process (Van Bruggen et al. 2002).

This study views using judgmental response data as necessary to minimize existing measurement error in order to acquire the correlations of the true scores among constructs being examined. Instead of using a single respondent, we selected two informants of two different positions, namely shop-in-charge person and service employee, to acquire data for this study. Moreover, they were assigned to answer the questions pertaining to different constructs, based on their knowledge about the matters concerned. In addition, for some subjective data such as employee satisfaction and loyalty, we chose to acquire data from two service employees. This can minimize the random error in determining the correlations of the relationships in this study. Thus, we believe the data collected through the abovementioned means is valid and reliable enough for analysis. More detail can be found in the subsequent section of data collection procedure.

3.2.5 Sample

The present study focused on the service industry in Hong Kong. The service industry is typically characterized by close and direct interaction between service employees and customers (Chase 1981). High-contact service industries typically involve activities in which service employees and customers have close and direct interaction for a prolong period (Chase 1981). A high contact environment is characterized by the services with high levels of communication time, intimacy of communication, and richness of information exchanged during the interaction between service employees and customers (Kellogg and Chase 1995). Through the high contact, service employees and customers have ample opportunities to build up their ties and exchange information about purchase. This enhances the ability of service employees to deliver higher level of service quality and influence their customers' purchase decision through the ties with and acquired information from customers, ultimately contributing to the business outcomes. Researchers have argued that satisfied employees are more committed to serve customers (Loveman 1998, Silvestro and Cross 2000, Yoon and Suh 2003). In line with this suggestion, satisfied employees in a high contact environment are more likely to have greater influence on service quality, customers' purchase, and organizational performance. The findings of Yoon and Suh (2003) indicated that employee satisfaction was positively correlated to service quality in travel agencies, which involve personal selling activities. Goldstein (2003) showed a positive relationship between employee satisfaction and customer satisfaction in hospitals, where a high contact level of services is involved. Thus, organizations in high-contact service sectors are particularly suited for examining how employee satisfaction affects organizational performance through service quality and direct customer contacts. We identified twelve main shopping areas in Hong Kong (e.g., Tsimshatsui and Causeway Bay) and randomly selected five major shopping centers or avenues from each area. We controlled the firm size by choosing small service organizations with 2-5 service employees. Being small organizations, the levels of employee satisfaction and loyalty tend to be more consistent (Schneider 1987, George and Bettenhausen 1990) and easier to capture. We avoided choosing large chain stores as their customer satisfaction and loyalty might be reflected at a corporate level, rather than an individual shop level. Nevertheless, we intended to cover different types of service shops to enhance the generalizability of this study (see Table 3.1).

3.3 Data Collection Procedure

We conducted a pilot study in eight different types of service shops, where we verified the relevance of the indicators to the corresponding constructs, the appropriateness of the wording, and the clarity of the instructions. Upon completing the pilot study, we made minor modifications to the questionnaires in order to improve their validity and readability. We prepared survey packets, which included a “shop-in-charge” questionnaire and two “service employee” questionnaires. The persons in charge of the shop are responsible for filling in questions on customer satisfaction, customer loyalty, sales from repurchases and referrals, firm profitability, contact time, market competitiveness, and switching cost. They are normally the shop proprietors or the shop managers with an ultimate responsibility of profits and a comprehensive understanding of the market situation and service context, thus are capable of providing very reliable information related to sales from repurchases and referrals, firm profitability, contact time, market competitiveness, and switching cost. Although it would be assumed that customers are more preferable to be the informants of customer satisfaction, empirical findings in similar studies demonstrate that the internal and external measures of customer satisfaction are highly correlated (Schneider and Bowen 1985, Goldstein 2003), justifying the use of internal measures of customer satisfaction (Soteriou and Zenios 1999). Because of the proven high correlation between internal and external measures for customer satisfaction in particular and customer data in general, we also utilized the internal measures for customer loyalty.

Service employees refer to staff members who are directly responsible for service deliveries in shops. They therefore are the relevant informants of employee satisfaction, employee loyalty, and service quality. The levels of satisfaction and loyalty in service employees are subjective questions for respondents to answer. Similarly, the level of service quality provided by a shop is a perceptual assessment from respondents. The unit of analysis for this study is at a shop level. It is therefore inaccurate to obtain these subjective data from a respondent only. To acquire the subjective data with higher accuracy, we asked two service employees in each shop to evaluate the satisfaction level with their job, the loyalty level to their employing organization, and their perceived level of service quality offered to customers. Organizational and psychological researchers have advocated the use of multiple informants from a business unit where subjectivity in judgment is anticipated (Becker and Gerhart 1996).

In the service industry, given that the population consists of professional managers who are educated with both English and Chinese language skills and experienced service employees who extensively use the Chinese language in their working environment, the shop-in-charge questionnaire was presented in both English and Chinese while the service employee questionnaire was presented only in Chinese. Regarding the translation of questionnaires, the issue of translation equivalence is usually a concern since translation may lead to threats in measuring reliability and validity (e.g., Davis et al. 1981). Translation equivalence seeks to assure that measurement instruments refer to the same thing after translation. More specifically, it is concerned with the same questionnaire items measuring the same latent constructs in different populations. To maximize the translation equivalence, we followed Mullen's (1995) suggestion to translate the items into the foreign language and then back-translate them to identify any discrepancies in meaning on syntax. Thus, we designed the questionnaires in English and then a professional language translator helped to translate them to Chinese. Subsequently, another professional translator conducted the back-translation for these questionnaires from Chinese to English. Each questionnaire included a personalized cover letter in both Chinese and English that explained the purpose of this study, provided assurances for the confidentiality of the collected information, and expressed my thanks for their support to this study.

We deployed a research team consisting of several student helpers to solicit the participation of service shops in our study. From our experience, deploying a team rather than relying on individuals improves response rate. The research team visited each shop in person to show the sincerity and clearly explain our requirements. For instance, we required the shop-in-charge persons to fill in the questionnaire based on actual accounting data and recent customer survey data available. We required the service employees to answer the questions based on their personal experience of their job and of their employing organization. Potential respondents could complete the questionnaires at their convenient time and place in the absence of our student helpers and their employers. We requested the potential respondents to put their completed questionnaires into an envelope and seal it. We collected the questionnaires when we re-visited the shops. This ensures the confidentiality in data collection.

To further enhance the respondent rate and reduce the non-respondent bias, we rewarded each respondent with a cash coupon of HK$50 (US$6.5), which is approximately equivalent to two hours wages of an unskilled service employee in Hong Kong. Experimental psychologists have showed that paid participant recruitments improve the quality of responses (Camerer and Hogarth 1999, Brase et al. 2006). The research team also revisited those service shops which had not answered by the due time. Revisiting indeed further enhanced the response rate.

Approximately 300 shops were visited over a twelve-month period. However, because of either company policy of non-response to surveys or confidentiality of information sought, only 677 questionnaires from 232 service shops were obtained. For 22 shops, data on either shop-in-charge person or one of the two service employee questionnaires was missing or not duly completed, yielding 210 sets of questionnaires from 630 participants[1]. Table 3.1 shows the distribution of different types of service organizations in the sample of this study.

Table 3.1 Distribution of sampled shops.

Service Sector	Number of shops
Agency service (e.g., estate agencies and travel agencies)	45
Beauty care services (e.g., salon and beauty shops)	40
Catering (e.g., steakhouses)	22
Fashion retailing (e.g., dress shops)	40
Optical services (optometry shops and optical shops)	22
Retailing of health care products (e.g., cosmetic shops)	10
Retailing of valuable products (e.g., jewelry shops)	10
Others	21
Total	210

3.4 Instrument Development

3.4.1 Variable measures

The measures used in this study were drawn from well-established instruments in operations management, psychology, and human resources management. A complete list of the items used is exhibited in Appendix.

[1] These figures are slightly different from that of a working paper that we submitted to an international journal as a few more questionnaires were obtained in April, 2006.

Employee satisfaction: Employee satisfaction is defined as the pleasurable emotional response of the service employee resulting from an appraisal of his perceived working conditions on the job. We therefore intended to capture the degree to which service employees are satisfied with their job. We used indicators from the Job Descriptive Index (Smith et al. 1969, Jacobs and Solomon 1977, Balzer et al. 1997), which is widely adopted in organizational behavior and psychology. We chose four questions out of five classical satisfaction facets, namely salary, job nature, promotion, and relationship with colleagues listed in the Job Descriptive Index. We did not measure their relationship with supervisors. This is because such a relationship might significantly depend on their performance in service delivery as suggested by Teas (1981) – a close indicator of service quality in this research. Each respondent was asked to rate each item on a seven-point Likert scale anchored at 1 = "totally disagree" and 7 = "totally agree".

Employee loyalty: Employee loyalty refers to a service employee's feeling of attachment to his employing organization. We assessed this construct by psychological measures that are able to capture a service employee's feelings towards his service shop. We included five indicators for employee loyalty, namely intention of absenteeism, intention to stay, willingness to perform extra-work, sense of belonging, and willingness to take up more responsibility (McCarthy 1997). A seven-point Likert-type scale anchored at 1 = "totally disagree" and 7 = "totally agree" was used.

Service quality: Service quality is concerned with the overall perception of the performance of the services offered by the service employees within a service shop. We adopted the SERVQUAL instrument developed by Parasuraman et al. (1988)

and Parasuraman et al. (1991). The SERVQUAL instrument suggests there are five dimensions of perceived service quality, namely intangibles, reliability, responsiveness, assurance, and empathy. Since the items under each of these dimensions are not equally appropriate in the service context of this study, we chose the most relevant item from each of the five dimensions for this study, instead of using all the 22 items. This is consistent with previous research in service quality (e.g., Gotlieb et al. 1994). Respondents were asked to rate these five items on a seven-point Likert-type scale (1 = “totally disagree” and 7 = “totally agree”).

Customer satisfaction: Customer satisfaction is defined as the pleasurable emotional state of a customer from their experience with a service shop, i.e., a summary evaluative response (Fornell 1992, Anderson et al. 1994). This summary response contains evaluations of the key facets that customers consider important in the service context (Oliver 1997). Compared with more transaction-specific measures of performance, an overall evaluation is more likely to influence the customer behavior that help a firm (Gustafsson et al. 2005). Four questions related to feature performance that drive satisfaction were developed, including price, enquiry service, customer service in transactions, and service handling of dissatisfaction (Heskett et al. 1997, Oliver 1997, Gustafsson et al. 2005). A seven-point Likert-type scale anchored at 1 = “totally disagree” and 7 = “totally agree” was used.

Customer loyalty: Customer loyalty refers to the feeling of attachment that a customer has to the service shop. Following the past relevant research, we selected continuity of purchase, consideration of the service shop as first priority for purchase, recommendation to others, speaking good words, and encouragement of others to purchase (Zeithaml et al. 1996, Gronholdt et al. 2000, Liao and Chuang 2004). Each respondent was asked to rate the indicators on a seven-point Likert-type scale anchored at 1 = “totally disagree” and 7 = “totally agree”.

Sales from repurchases and referrals: Sales from repurchases and referrals is concerned with the possible sales performance that is specifically incurred by existing customers as a result of their loyalty. We included three indicators for this latent variable, consisting of sales volume of customer repurchase, profit gained from customer repurchase, and profit gained from customer referral. Perceptual data was acquired. We asked shop in-charge persons to assess their profitability relative to the performance of industry competitors as suggested by Delaney and Huselid (1996). A seven-point Likert-type scale (1 = “significant decrease” and 7 = “significant increase”) was utilized to rate these indicators.

Firm profitability: Firm profitability also reflects the economic and financial performance of a service shop. Consistent with previous research, we chose return on assets (ROA), return on sales (ROS), and return on investment (ROI) as indicators for this construct (Staw and Epstein 2000, Schneider et al. 2003). Like sales from purchases and referrals, perceptual data was also obtained. We asked shop in-charge persons to assess their profitability relative to the performance of industry competitors (Delaney and Huselid 1996) for these three indicators on a seven-point Likert-type scale ranging from 1 = “significant decrease” to 7 = “significant increase”. Although perceptual data introduces limitations through increased measurement error, it is not unprecedented to use such measures (Powell 1995, Delaney and Huselid 1996, Sakakibara et al. 1997). Research has found measures of perceived organizational performance data to correlate positively (with moderate to strong associations) with objective measures of firm performance

(Dollinger and Golden 1992, Powell 1992). Although objective measures were possible for some items, the use of perceptual measures enables us to compare of measures across different shops. Most importantly, many respondents were unwilling to disclose objective and concrete financial data such as ROA and ROS. Thus, we decided to acquire perceptual data for firm profitability. For similar reasons, we intended to collect perceptual data for sales from repurchases and referrals.

Market competitiveness: Market competitiveness is regarded as the degree to which the market of the service industry is competitive. Jones and Sasser (1995) suggested measuring market competitiveness by the availability of alternative products and services. To capture a particular characteristic of the market in the service industry, we added an indicator of “availability of alternative benefit plans in the market” to assess market competitiveness. Thus, we included three questions related to the availability of alternative products, services, and benefit plans to measure market competitiveness for this study. Respondents were asked to rate these three items on a seven-point Likert-type scale (1 = “totally disagree” and 7 = “totally agree”).

Employee-customer contact time: Contact time is defined as the perceptual time that service employees and customers contact and communicate directly for the purposes of personal selling and service delivery within a transaction. We measured contact time by asking the respondents to estimate the average times they spend for personal selling and service delivery within a transaction.

Switching cost: Switching cost is concerned with the costs that a customer has to pay during the process of switching from one service provider to another. It covers the switching costs, in terms of economics, psychology, and marketing aspects (e.g., Guiltinan 1989, Jones et al. 2002). Following the six indicators developed by (Jones et al. 2002) for switching cost, we chose four indicators that are relevant to the service environment. The selected indicators are pre-switching cost for search and evaluation, post-switching cost for learning new services, after-switching cost for building relationship with new service provider, and lost performance cost due to switching (Jones et al. 2002). We adopted these four dimensions in this study. A seven-point Likert-type scale anchored at 1 = "totally disagree" and 7 = "totally agree" was used.

3.4.2 Reliability

Reliability is a statistical measure that reflects to what extent a variable or multiple measurements of a variable are consistent in what it is intended to be measured (Litwin 1995, Hair et al. 1998). A reliable instrument is desired since it enables the acquirement of consistent results when it is repeatedly used to obtain data. One form of reliability is internal consistency, which applies to the consistency among the variables in a summated scale. The underlying rationale of internal consistency is that the individual indicators of a scale have to measure the same construct, thereby being highly intercorrelated. Cronbach's alpha is a measure commonly used to assess the internal consistency of a scale (e.g., Hair et al. 1998, Koufteros 1999). The values of Cronbach's alpha range between 0 and 1.0, with higher values indicating higher reliability among the indicators. The generally agreed lower limit for Cronbach's alpha coefficient is 0.7; yet, it may be decreased to 0.6 for exploratory research (Nunnally 1978, Litwin 1995, Hair et al. 1998).

Table 3.2 is the result of reliability tests for the constructs included in this study. All constructs have the values of Cronbach's alpha higher than the cutoff point of 0.7 recommended. In particular, Cronbach's alpha values ranged from 0.820 for service quality to 0.954 for switching cost. These results provide strong evidence that the instrument especially designed for this study is highly reliable to acquire consistent data.

Table 3.2 Results of reliability test.

Construct	Cronbach's alpha
Employee satisfaction	0.860
Employee loyalty	0.859
Service quality	0.820
Customer satisfaction	0.907
Customer loyalty	0.946
Sales from repurchases and referrals	0.876
Firm profitability	0.938
Market competitiveness	0.828
Switching cost	0.954

3.4.3 Interrater agreement and reliability

In obtaining subjective measures, multiple informants within organizations are more preferable than responses from a single informant. The basic premise underlying the use of multiple raters is that minor variations due to individual differences in perceiving or reporting events will be cancelled out statistically (Jones and James 1979). Thus, the resulting score will be a more accurate representation of experiences likely to be felt by any person under a similar situation. Prior to the adoption of using multiple informants, it is necessary to demonstrate high interrater agreement and reliability in assessments of the questions. In the following, interrater agreement and reliability are depicted in more detail.

__Interrater agreement__

Interrater agreement represents the extent to which the different raters tend to assign exactly the same rating to each object (James et al. 1984, Kozlowski and Hattrup 1992, Tinsley and Brown 2000). Average within-group interrater reliability ($r_{wg(j)}$) value is a measure widely used to evaluate the inter-rater agreement for responses based on J "essentially parallel" indicators of a construct (James et al. 1984). Interrater agreement for a research construct is calculated as (James et al. 1984, Boyer and Verma 2000):

$$r_{WG(J)} = \frac{J\left[1 - \frac{S_{xj}}{\sigma_{EU}}\right]}{J\left[1 - \frac{S_{xj}}{\sigma_{EU}}\right] + \frac{S_{xj}}{\sigma_{EU}}}$$

The $r_{WG(J)}$ in the above formula refers to the interrater agreement for responses based on J "essentially parallel" indicators of the same construct. S_{xj} is the mean of the observed variances on the J indicators. σ_{EU} is the variance on X_j that would be expected if all judgments are theoretically due exclusively to random measurement error. It can be calculated using the equation for the variance of a uniform distribution (Mood et al. 1974), or σ_{EU}:= $(A^2 – 1) / 12$, where A corresponds to the number of alternatives in the response scale for X_j. The values of $r_{wg(j)}$ varies between 0 to 1.0, with higher values indicating greater agreement among raters for a construct with its corresponding indicators A recommended acceptance level is a value greater than or equal to 0.7 (James 1982).

We obtained the responses of employee satisfaction, employee loyalty, and service quality from the two service employees in each service shop. We estimated within-shop interrater agreement following the suggestions by psychologists (James et al. 1984, Lindell and Brandt 1999). The $r_{wg(j)}$ values for constructs of employee satisfaction, employee loyalty, and service quality were 0.936, 0.942, and 0.950, respectively, which are higher than research studies of similar types (e.g., Ryan et al. 1996, Schneider et al. 2003) and the commonly accepted criterion of 0.7 (James 1982), suggesting sufficient within-group agreement to aggregate the data to the shop level for analysis.

Interrater reliability

Unlike interrater agreement that is concerned with "interchangeability" among raters, interrater reliability refers to the consistency of variance among raters (Kozlowski and Hattrup 1992). Intraclass correlation (ICC) statistics, ICC(1) and ICC(2), are used to assess interrater reliability (Bartko 1976, Shrout and Fleiss 1979, Schneider et al. 1998). ICC(1) is calculated based on the suggestion of Bartko (1976),

Error! Bookmark not defined. $$\mathrm{ICC}(1) = \frac{(\mathrm{MSB} - \mathrm{MSW})}{[\mathrm{MSB} + (c-1)\mathrm{MSW}]}$$

The ICC(1) in the above represents the proportion of variance in individuals' perceptions accounted for the differences in organizations. It compares the variance between units of analysis (shops) to the variance within units of analysis using the individual ratings of each respondent. MSB is the within group variance that represents the average variation between responses from different groups. MSW is the between group variance that represents the average variation in responses from multiple respondents within the same group, while *c* is the number of raters. The generally accepted value of ICC(1) is 0.12 (James 1982).

ICC (2) is calculated as suggested by Bartko (1976):

$$\text{ICC}(1) = \frac{(\text{MSB} - \text{MSW})}{\text{MSB}}$$

ICC(2) is a measure of proportional consistency of variance. It assesses the relative status of between and within variability using the average ratings of respondents within each unit (Bartko 1976, Schneider et al. 1998). A commonly acceptable level of ICC(2) is 0.6 recommended in the fields of operations management (Boyer and Verma 2000) and psychology (Glick 1985).

We used intraclass correlation (ICC) statistics, ICC(1) and ICC(2), to assess interrater reliability (Bartko 1976, Shrout and Fleiss 1979, Schneider et al. 1998) within shops. ICC(1) compares the variance between units of analysis (shops) to the variance within units of analysis using the individual ratings of each respondent. ICC(2) assesses the relative status of between and within variability using the average ratings of respondents within each unit (Bartko 1976, Schneider et al. 1998). The ICC(1) values were 0.531, 0.438, and 0.435 for employee satisfaction, employee loyalty, and service quality, respectively, which are higher than the cutoff value of 0.12 (James 1982), indicating a sufficient inter-shop variability ratio. The ICC(2) values were 0.694, 0.609, and 0.606 for employee satisfaction, employee loyalty, and service quality, respectively, which are slightly higher than the cutoff point of 0.60 recommended in the fields of psychology (Glick 1985) and operations management (Boyer and Verma 2000), rendering sufficient interrater reliability within the shops for further analysis at a shop level.

In sum, the results of $r_{wg(j)}$, ICC(1) and ICC(2) provide strong evidence to justify the aggregation of the data of employee satisfaction, employee loyalty, and service quality in the sample of this study.

3.4.4 Validation

Validity is an assessment of the extent to which a scale accurately represents the concept of interest (Hair et al. 1998). An instrument with high validity enables researchers to obtain data for what the instrument is supposed to measure. In this study, we addressed content validity, convergent validity, and discriminant validity for to ensure that the instrument is highly capable of representing the subjects it is intended to measure.

Content validity

Content validity is an assessment of the correspondence of the variables to be included in a summated scale and its conceptual definition (Hair et al. 1998). It assesses the extent to which the content, questions, or variables reflect the universal characteristics of a subject being measured (Kerlinger 1978). Unlike other forms of validity, it cannot be determined statistically. Instead, it is justified subjectively by experts and from the literature. In practice, experts from the relevant field justify the correspondence between the summated scale and the abstract concept or a subject of interest (Flynn et al. 1990).

In this study, all items included in the questionnaires were reviewed and commented on by several practitioners from the service industry and experienced researchers from relevant academic fields. Based on their assessments, a consensus was reached stating that the items shown in the questionnaires were able to reflect the characteristics of the subjects (i.e., employee satisfaction, employee loyalty, service quality, customer satisfaction, customer loyalty, sales from repurchases and referrals, firm profitability, market competitiveness, and switching cost intended to be assessed. Hence, the content validity of the instrument for this study is acceptable, suggesting that the instrument conforms to the conceptual definitions it was specifically intended to capture.

Convergent validity

Convergent validity is concerned with the degree to which different measures of the same construct are highly correlated and hence yield the same result (Chau 1997, Hair et al. 1998). The rationale behind this is that high inter-item correlations within a construct indicate that the scale is capable of measuring its intended concept; in other words, this scale shows high convergent validity. We assessed the convergent validity of the scale by the method outlined by Fornell and Larcker (1981) and Chau (1997). Convergent validity can be assessed by the significance of *t*-value for loadings, construct (composite) reliability, and average variance extracted (AVE) (Fornell and Larcker 1981, Chau 1997). All item loadings for constructs were significant with *t*-values higher than 2.0 ($p < 0.001$). Moreover, as displayed in Appendix, all measures of the instrument were found to be highly reliable with construct reliabilities greater than 0.8 recommended by Nunnally (1978). The values of construct reliabilities ranged from 0.831 for market competitiveness to 0.954 for switching cost. The AVE values were all above 0.5 recommended by Fornell and Larcker 1981 (1981). Accordingly, the results of the significant *t*-values for item loadings, high construct (composite) reliabilities, and acceptable AVE values indicate that the relationships between the constructs and their corresponding indicators are statistically significant. In other words, these results provide sufficient evidence of convergent validity for the present study.

Discriminant validity

Discriminant validity refers to the extent to which measures of different latent constructs are unique enough to be distinguished from other constructs (Chau 1997, Hair et al. 1998). The underlying rationale is that an item should correlate more highly with items intended to measure the same construct than that of items used to measure a different construct. Similar to the assessment of convergent validity, we also followed the method outlined by Fornell and Larcker (1981) and Chau (1997) to evaluate the discriminant validity. Discriminant validity can be evaluated by fixing the correlation between various constructs at 1.0, prior to re-estimating the modified model (Segars and Grover 1993, Chau 1997). A significant difference of the chi-square statistics between the fixed and unconstrained models indicates high discriminant validity. By fixing the correlation between constructs in measurement models to the perfect correlation of 1.0, the chi-square values were increased by at least 103.084. With changes in one degree of freedom, these chi-square values were significant at $p = 0.05$ ($\Delta\chi^2 \geq 3.841$). Discriminant validity also exists if the average extracted variances of both constructs are greater than the squared correlation (Fornell and Larcker 1981, Chau 1997). Table 3.3 shows the results of extracted variances of both constructs as well as the squared correlations of the corresponding constructs. As can been seen in this table, for each listed pair of constructs, the mean value of their average variances extracted is greater than their squared correlations. Thus, the results prove support for discriminant validity.

In short, the tests of content, convergent, and discriminant validity offer enough evidence of content, convergent, and discriminant validity, thereby suggesting these are suitable for substantive analysis and interpretation.

Table 3.3 Results of average variance extracted and squared correlations for constructs.

Constructs	Average Variance Extracted	Squared Correlation
Employee satisfaction versus employee loyalty	0.587	0.534
Employee loyalty versus service quality	0.539	0.294
Service quality versus customer satisfaction	0.593	0.150
Customer satisfaction versus customer loyalty	0.705	0.689
Customer loyalty versus sales from repurchases and referrals	0.732	0.063
Sales from repurchases and referrals versus firm profitability	0.774	0.681
Customer satisfaction versus market competitiveness	0.667	0.155
Market competitiveness versus customer loyalty	0.701	0.103
Customer satisfaction versus switching cost	0.775	0.009
Switching cost versus customer loyalty	0.808	0.006

3.4.5 Assessing measurement model fit

We followed Anderson and Gerbing's (1988) two-step approach to estimate the measurement models prior to the structural models. Measurement models, which are commonly considered as sub-models in SEM, are developed by confirmatory factor analysis that is employed to confirm the theoretical beliefs (Hair et al. 1998). They specify with the indicators of the corresponding construct and measures the reliability between individual indicators and the construct (Hair et al. 1998).

Table 3.4 displays the results of the analysis for the measurement models. All constructs, except sales from repurchases and referrals, firm profitability, market competitiveness, and switching cost were verified by confirmatory factor analysis individually. Sales from repurchases and referrals, firm profitability, market competitiveness, and switching cost were tested in pairs by confirmatory factor analysis. The reason for this is that sales from repurchases and referrals, firm profitability, and market competitiveness have only three indicators, leading to under-identified models if they are verified by confirmatory factor analysis individually. The result of these tests is shown in Table 3.4.

Tests by absolute fit measures and comparative fit measures were employed to examine the measurement (or structural) models. The test of absolute fit measures is concerned with the determination of the degree to which the overall measurement (or structural) model predicts the observed covariance or correlation matrix. The measures commonly used for the assessment of absolute fit are chi-square (χ^2), Goodness of Fit Index (GFI), and root mean square residual (RMSR). The test of comparative fit measures is based on the comparison between the purposed measurement (or structural) model and a null model. The measures widely used for the evaluation of comparative fit are Normed Fit Index (NFI), Non-normed Fit Index (NNFI) (known as Tucker-Lewis Index, TLI), Comparative Fit Index (CFI), and Adjusted Goodness-of-Fit (AGFI). The generally accepted criteria of absolute fit measures and comparative fit measures are listed in Table 3.4.

In Table 3.2, the values of absolute fit measures for employee satisfaction, employee loyalty, service quality, customer satisfaction, customer loyalty, and the pairs of sales from repurchases and referrals and firm profitability as well as of market competitiveness and switching cost are well within the acceptable levels, suggesting the measurement models are capable of predicting the observed covariance or correlation matrix. The values of comparative fit measures are also above the acceptable criteria, providing significant evidence against the hypothesis of a null model. All the results of absolute fit measures and comparative fit measures support the belief that the measurement models are satisfactorily fit, thereby ready to be used in the analysis of structural models.

3.4.6 Common method variance

When two or more variables are collected from the same respondents and an attempt is made to interpret their correlation, a problem of common method variance could occur (Campbell and Fiske 1959, Fiske 1982, Podsakoff and Organ 1986). In this study, there are two relations that might be affected by this problem, namely relations between (1) employee satisfaction, employee loyalty, and service quality, and (2) customer satisfaction, customer loyalty, sales from repurchases and referrals, and firm profitability. One proactive approach to avoid common method variance is to separate the measurement items within the questionnaire (Podsakoff and Organ 1986, Drolet and Morrison 2001, Goldstein 2003), which was adopted in this research. In addition, we applied Harman's one-factor test (Podsakoff and Organ 1986) to assess the influence of common method variance in the collected data. We conducted a Harman's one factor test for the items of employee satisfaction, employee loyalty, and service quality. We also combined all possible pairs of the items of customer satisfaction, customer loyalty, sales from repurchases and referrals, and firm profitability for the Harman's one factor test. All of them yielded clearly to two separate factors except the pair of customer satisfaction and loyalty, and the pair of sales from repurchasing and referrals and firm profitability. This suggests that common method variance might exist among these two pairs. However, since the major objectives of this research are not to find out the relationship between these two pairs, such issues should not cause serious problems to our research. In addition, referring to the tests of discriminant validation conducted for the pairs of (1) customer satisfaction and loyalty and (2) sales from repurchases and referrals and firm profitability in the previous section, the two pairs of constructs appeared to be different and unique constructs. As a whole, we believe that common method variance is not serious in this research. In particular, there is no sign of common method variance among the four key components, i.e., employee perception, service quality, customer perception, and profitability.

3.5 Further Validation

As mentioned in Section 3.3, we followed the previous studies to assess the levels of satisfaction and loyalty in customers by using internal customer data. We therefore intended to validate whether the use of internal measures (i.e., shop-in-charge person or service employees), instead of external measures (i.e., customers directly) was reliable in this study. We collected the data of customer satisfaction from both employees (including the shop-in-charge persons) and customers in another 35 service shops. Based on the collected data from employees and customers, we conducted correlation tests for the items of customer satisfaction. The correlation coefficients were all significant at $p = 0.05$ and coefficient of corrections are 0.441, 0.358, 0.583, and 0.514 for price, enquiry service, customer service in transactions, and service handling of dissatisfaction, respectively, justifying the use of internal measures of customer satisfaction. Table 3.4 shows the results of correlation tests for the items of customer satisfaction.

Table 3.4 Results of zero-order correlations for the items of customer satisfaction by the data of employees and customers.

Items	1	2	3	4
1. Price	.441**			
2. Enquiry service	.322	.358*		
3. Customer service in transactions	.45**	.298	.583**	
4. Service handling of dissatisfaction	.252	.207	.551**	.514**

*p < .05
**p < .01

3.6 Conclusion

This chapter describes the research methodology and instrument development for the present study. The research instruments were developed based on the established methodology in operations management. This research was conducted in the service industry in Hong Kong. We acquired the required data from two service employees and a shop-in-charge person from different service sectors. More specifically, questionnaires from 630 respondents in 210 shops were obtained successfully. The collected data was examined by various statistical methods for their interrater agreement, intraclass correlation, content reliability, convergent validity, and discriminant validity. Primarily based on confirmatory factor analysis, we demonstrated that the collected data is reliable and valid for further analysis of various structural models. In the subsequent chapters, we will develop various research models and conduct hypothesis testing based on the established instruments and the collected data.

Table 3.5 Goodness of fit indices for measurement models.

Goodness of Fit Measures	Criteria	Employee satisfaction	Employee loyalty	Service quality	Customer satisfaction	Customer loyalty	Sales from repurchases and referrals and firm profitability	Market competition and switching cost
Sample Moments	-	10	15	15	10	15	21	28
Distinct Parameters	-	8	10	10	8	10	13	15
Chi-square (χ^2) of Estimated Model	-	4.469	8.374	7.594	5.111	6.023	12.914	15.129
Degree of Freedom	-	2	5	5	2	5	8	13
Absolute Fit Measures								
Probability of χ^2	$p \geq .05$	.107	.137	.180	.078	.304	.115	.299
Chi-square/Degree of Freedom	≤ 3.0	2.235	1.675	1.519	2.556	1.205	1.614	1.164
Goodness of Fit Index (GFI)	$\geq .90$	.989	.984	.986	.989	.988	.981	.981
Root Mean Square Residual (RMSR)	$\leq .10$	.077	.057	.050	.086	.031	.054	.028
Comparative Fit Measures								
Normed Fit Index (NFI)	$\geq .90$	.989	.987	.979	.991	.994	.988	.987
Non-normed Fit Index (NNFI)	$\geq .90$	.981	.990	.985	.983	.998	.991	.997
Comparative Fit Index (CFI)	$\geq .90$	.994	.995	.995	.994	.999	.995	.998
Adjusted Goodness of Fit Index (AGFI)	$\geq .80$	.946	.951	.957	.943	.964	.950	.958

CHAPTER 4 AN ANALYSIS OF THE IMPACT OF EMPLOYEE SATISFACTION ON OPERATIONAL PERFORMANCE

4.1 Introduction

In the previous chapters, we highlighted the existence of a research gap in operations management that researchers have rarely investigated. That is the impact of employee attitudes, such as employee satisfaction, on operational performance. Though the importance of the influence of employee satisfaction on quality, customer satisfaction, and profitability has been recognized by some researchers, little research has been conducted into these relationships. In this chapter, we attempt to address a fundamental question in OM: Does employee satisfaction have an impact on the operational performance of a service company? If so, what are the likely relationships among employee satisfaction, service quality, customer satisfaction, and firm profitability? We have chosen to study this issue specifically prior to testing the entire service-profit chain for two reasons. First, the previous literature has extensively investigated the associations among quality, customer satisfaction, and firm profitability, but not the influence of employee satisfaction on these performance measures. This study should be a significant extension of the previous studies. Second, a relatively small model with four constructs developed facilitates the use of a total disaggregation approach to scrutinize these relationships.

The full structural model of the S-PC, however, would require a partial disaggregation approach as will be discussed in the next chapter.

In the following, we first depict the hypotheses development for this study. Then, we delineate the theories that support the development of hypothesized relationships proposed in the alternative models using SEM. Following this, we present the results of structural model analysis. Subsequently, we discuss the findings acquired from the analysis. Lastly, we make a conclusion for this chapter.

4.2 Hypotheses Development

Previous studies have provided some empirical support and theoretical backing for the notion that employee satisfaction, service quality, customer satisfaction, and firm profitability are likely to be associated to one another. We develop the following hypotheses and establish a research model accordingly.

Employee satisfaction and service quality. Yoon and Suh (2003) showed that satisfied employees are more likely to work harder and provide better services via organizational citizenship behaviors. Employees who are satisfied with their jobs tend to be more involved in their employing organizations, and more dedicated to delivering services with a high level of quality. Previous research has also suggested that loyal employees are more eager to and more capable of delivering a higher level of service quality (Loveman 1998, Silvestro and Cross 2000).

The argument that employee satisfaction improves service quality is established based on the theory of equity in social exchanges (Gouldner 1960, Homans 1961, Blau 1964, Organ 1977). The underlying assumption is that most people expect social justice or equity to prevail in interpersonal transactions (Organ 1977, Cropanzano et al. 2003). An individual accorded some manner of social gift that is inequitably in excess of what is anticipated will experience gratitude and feel an obligation to reciprocate the benefactor (Gouldner 1960, Organ 1977). Such positive reciprocal relationships evolve over time into trusting, loyal, and mutual commitments (Cropanzano and Mitchell 2005). In the context of social exchange theory, when an employer offers favorable working conditions that satisfy service employees, satisfied service employees in return tend to be committed to making an extra effort to the organization as a means of reciprocity towards their organization (Wayne et al. 1997, Flynn 2005), leading to higher service quality. Based on the theory of equity in social exchanges, we posit that employee satisfaction leads to higher service quality. Hence,

Hypothesis 1: Employee satisfaction has a positive influence on service quality.

Service quality and customer satisfaction. Researchers have attempted to link operational and marketing variables (Roth and Van Der Velde 1991, Roth and Jackson III 1995). Prior studies have considered service quality as the antecedent of customer satisfaction (Cronin and Taylor 1992, Anderson et al. 1994, Gotlieb et al. 1994). Empirical findings show that service quality is related to customer satisfaction (Babakus et al. 2004). Customers who are satisfied with the perceived service quality will have a favorable emotional response, i.e., customer satisfaction.

The relationship between service quality and customer satisfaction can be accounted for by the attitude theory proposed by Lazarus (1991) and Bagozzi (1992). Their theoretical framework suggests that appraisal leads to emotional response, which in turn induces coping behaviors. Bagozzi (1992) has proposed that individuals typically engage in activities because of a desire to achieve certain outcomes. Accordingly, if the individual's appraisal of an activity indicates that the person has achieved the planned outcome, then, "desire-outcome fulfillment" exists and an affective response follows, leading to satisfaction (Gotlieb et al. 1994). When applied to service encounters, the framework infers that a favorable cognitive service quality evaluation (i.e., appraisal) leads to a primarily emotive satisfaction assessment (Bagozzi 1992, Brady and Robertson 2001). We therefore suggest the following hypothesis that service quality affects customer satisfaction.

> Hypothesis 2: Perceived service quality has a positive influence on customer satisfaction.

Employee satisfaction and customer satisfaction. Research in consumer psychology has shown that exposing customers to happy employees results in customers having a positive attitudinal bias towards a product (Howard and Gengler 2001). Likewise, research in organizational behavior has revealed that the hostility of service employees has a direct impact on the hostile mood of customers (Doucet 2004), leading to customer dissatisfaction regardless of the performance of the core tasks of the services in fulfilling the customer's needs.

The direct relationship between employee satisfaction and customer satisfaction is established based on the theory of emotional contagion (Sutton and Rafaeli 1988, Hatfield et al. 1992, Hatfield et al. 1994, Barsade 2002). Emotional contagion is defined as the tendency of a person to automatically mimic and synchronize expressions, postures, and vocalizations with those of another person and, consequently, to converge emotionally (Hatfield et al. 1992, Hatfield et al. 1994). This process occurs through the conscious or unconscious induction of emotion states and behavioral attitudes (Schoenewolf 1990). Accordingly, we conjecture that when customers are exposed to the emotional displays of employees, they experience corresponding changes in their own affective status (Pugh 2001, Barsade 2002). Service employees with a high level of job satisfaction will appear, to the customer, more balanced and pleased with their environment, leading to a positive influence on the level of customer satisfaction (Homburg and Stock 2004). In contrast, dissatisfied service employees are likely to display unpleasant emotions to customers, reducing the level of customer satisfaction through emotional contagion. Based on this argument, we propose that

> Hypothesis 3: Employee satisfaction has a positive influence on customer satisfaction.

Customer satisfaction and business performance. Customer satisfaction has a long-term financial impact on the business (Nagar and Rajan 2005). Previous research has investigated the linkage of customer satisfaction and its various outcomes, such as customer loyalty (Stank et al. 1999, Verhoef 2003) and profitability (Anderson et al. 1994, Mittal and Kamakura 2001). Highly satisfied customers of a firm are likely to purchase more frequently and in greater volume and buy other goods and services offered by the service provider (Anderson et al. 1994, Gronholdt et al. 2000). Research in accounting has also shown that customer satisfaction is an intangible asset and a leading indicator of business unit revenue (Ittner and Larcker 1998, Banker et al. 2000).

The resource-based view (RBV) of a firm suggests that firms deploy valuable resources to generate above-normal rates of return and to gain a substantial competitive advantage (Amit and Schoemaker 1993, Oliver 1997). Resources are defined as those assets that are tied semi-permanently to the firms and are inelastic in supply (Wernerfelt 1984). RBV theorists therefore advocate that a firm has to possess valuable, rare, and difficult-to-imitate resources that enable the firm to outperform its competitors (Combs and Ketchen 1999). Leading RBV proponents (Barney 1991, Srivastava et al. 2001) have recognized the role of marketing specific resources such as brands and customer relationships in gaining and sustaining a competitive advantage. In line with the resource-based view, we consider that the ability to create customer satisfaction is a valuable, rare, and difficult-to-imitate resource of a service firm. Customer satisfaction has value for the firm through the ability it has to generate economic returns (Bharadwaj et al. 1993). A RBV analysis of the link between customer satisfaction and firm profitability leads us to hypothesize that:

> Hypothesis 4: Customer satisfaction has a positive influence on firm profitability.

4.3 Data Analysis and Results

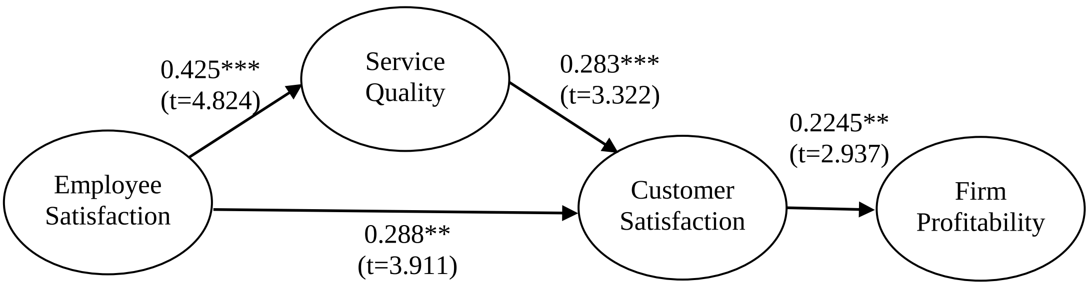
We applied SEM to examine our proposed model, using Analysis of Moment Structures (AMOS) (Arbuckle and Wothke 1999). We followed Anderson and Gerbing’s (1988) two-step approach to estimate a measurement model prior to the structural model (refer to Chapter 3 for the results of measurement models). In what follows, we present the results of structural model analysis, hypothesis testing, and comparison of competing models.

4.3.1 Structural model result and hypotheses testing

Table 4.1 shows the goodness-of-fit statistics for the hypothesized model (Model A_0). The overall fit of our structural model is good: $\chi^2 = 125.285$, $\chi^2/df = 1.253$, GFI = 0.929, AGFI = 0.903, CFI = 0.987, NFI = 0.939, NNFI = 0.984 and RMSR = 0.035. All the four hypothetical relationships are supported at the significance level of p = 0.01. The estimate of the standardized path coefficient (P) indicates that the linkage between employee satisfaction and service quality (Hypothesis 1) is highly significant (P = 0.425, t = 4.824, $p < 0.001$). Both employee satisfaction and service quality have a significant and direct impact on customer satisfaction, supporting Hypothesis 2 (P = 0.283, t = 3.322, $p < 0.001$) and Hypothesis 3 (P = 0.288, t = 3.911, $p < 0.001$), respectively. The relationship between customer satisfaction and firm profitability (Hypothesis 4) is also highly significant at p = 0.001 (P = 0.245, t = 2.937, $p < 0.01$). The hypothesized model and its path estimates are shown in Figure 4.1.

Table 4.1 Goodness of fit indices of hypothesized and competing structural models.

Goodness of Fit Measures	Criteria	Model A_0	Model A_1	Model A_2	Model A_3
Absolute Fit Measure	-				
Distinct Parameters	-	36	35	27	35
Chi-square (χ^2) of Estimated Model	-	125.285	134.349	120.649	154.579
Degree of Freedom (*df*)	-	100	101	101	101
Chi-square/Degree of Freedom (χ^2/df)	≤ 3.0	1.253	1.330	1.219	1.530
Goodness of Fit Index (GFI)	≥.90	.929	.924	.920	.931
Root Mean Square Residual (RMSR)	≤ .10	.035	.040	.032	.005
Comparative Fit Measures					
Normed Fit Index (NFI)	≥ .90	.939	.935	.941	.925
Non-normed Fit Index (NNFI)	≥ .90	.984	.979	.986	.967
Comparative Fit Index (CFI)	≥ .90	.987	.983	.989	.972
Adjusted Goodness of Fit Index (AGFI)	≥ .80	.903	.898	.906	.892



Model A_0

***p<.001; **p<.01

Figure 4.1 Hypothesized model (Model A_0) and its path estimates.

4.3.2 Comparison of competing models

SEM is best conducted in the form of comparisons among different plausible models that can be justified theoretically (Cudeck and Browne 1983, Baumgarner and

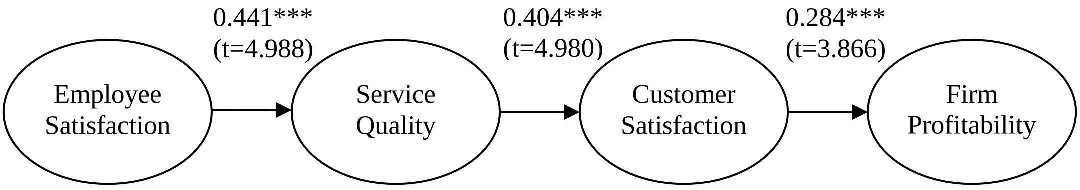
Homburg 1996). Bentler and Chou (1987) pointed out that in an ideal situation, a researcher builds a few alternative models that shed light on the key features of the hypothesized model. We developed three competing models based on alternative arguments in the literature.

The term “emotional labor” refers to the effort, planning and control needed to express organizationally desired emotion during interpersonal transactions (Morris and Feldman 1996). The job of service employees requires emotional labor, i.e., they are required to display a positive state of emotion during service encounters. Accordingly, it is argued that even if employees are dissatisfied with their jobs, they might still display a balanced and pleasant attitude to create a friendly service environment (Hochschild 1983, Pugh 2001). In addition, service organizations use practices, including recruitment and selection, and rewards and punishments, to assure that their employees will conform to normative expectations of service standards (Sutton and Rafaeli 1988). As a result, employee emotions during service encounters should be under the control of management, instead of being influenced by job satisfaction (Morris and Feldman 1996). Following this line of thought, the direct impact of employee satisfaction on customer satisfaction through emotional contagion should be minimal. We thus developed our first alternative model, Model A_1, postulating that employee satisfaction does not have a direct impact on customer satisfaction.

There is a balanced theory supporting the notion that organizational performance also leads to employee satisfaction. The conceptualization suggests that financially successful and market successful organizations provide superior benefits to employees, yielding a higher level of employee satisfaction, including job security, pay, and promotion opportunities (Koys 2001, Schneider et al. 2003). The expectancy theory of motivation further stipulates that employee satisfaction follows from the rewards derived from performance (Vroom 1964, Naylor et al. 1980). Expectancy theorists (Lawler III and Porter 1967) have argued that performance would cause job satisfaction through the provision of intrinsic and extrinsic rewards. Stated briefly, organizations with higher profitability are more likely to offer better rewards to their service employees, which in turn will lead to employee satisfaction (Judge et al. 2001). The second alternative model, Model A_2, was developed accordingly.

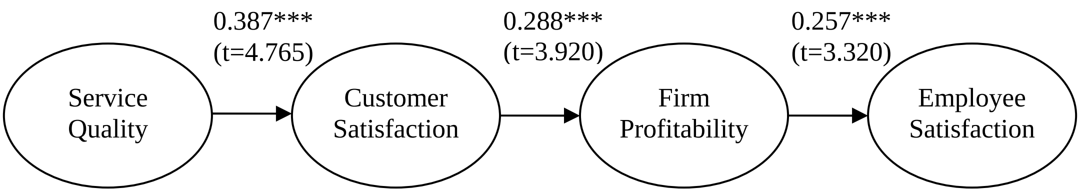
Some researchers argued that job performance will influence employee satisfaction, but employee satisfaction will not affect job performance, e.g., quality of service delivery significantly (Bagozzi 1980, Brown et al. 1993). Their rationale is that satisfaction leading to higher job performance is relatively difficult to justify. For employee satisfaction to influence service quality or customer satisfaction, a person must not only be aware of his or her own feelings of satisfaction, but also must attribute the feelings of satisfaction to specific aspects of their job and decide to act in accordance with those feelings (Bagozzi 1980). Iaffaldano and Muchinsky (1985) described employee satisfaction and job performance as an illusory correlation – a perceived relation between two variables that we intuitively think should exist, but in fact does not. Accordingly, we developed the third alternative model, Model A_3, assuming that employee satisfaction does not have any effect on service quality or customer satisfaction, but that firm profitability leads to employee satisfaction.

The results of analysis of alternative models are also shown in Table 4.1. Compared with the hypothesized model (χ^2 = 125.285), Model A_1 (χ^2 = 134.349) had a significantly higher χ^2 value ($\Delta\chi^2$ = 9.064). With an increase in one degree of freedom, the change in the χ^2 value is highly significant at $p = 0.05$ ($\Delta\chi^2 > 3.841$). Model A_1 was rejected, providing evidence against the alternative hypothesis that employee satisfaction does not have a direct impact on customer satisfaction. However, Model A_2 appeared to be a significantly better fit model as compared with the hypothesized model. With a decrease in one degree of freedom, the χ^2 value decreases by 4.636 ($\Delta\chi^2 = 125.285 - 120.649$), which was significant at $p = 0.05$ level ($\Delta\chi^2 > 3.841$). This indicates that firm profitability does have a moderate non-recursive effect on employee satisfaction. The estimated path coefficient was 0.180 ($t = 2.190$), while the original hypotheses remain significant at $p = 0.05$. The χ^2 value for Model A_3 ($\chi^2 = 154.579$) was much higher than that of the hypothesized model ($\chi^2 = 125.285$). The increase in the χ^2 value was highly significant at $p < 0.05$ (χ^2 increased by 29.294) for a change in one degree of freedom ($\Delta\chi^2 > 3.841$). The analysis of Model A_3 provides strong evidence against the hypothesis that employee satisfaction does not have any impact on service quality or customer satisfaction. All statistical indices in Table 4.1 suggest that Model A_2 is the best fit model. Consequently, Model A_2, instead of the hypothesized model (Model A_0), was selected as it best represents the "true model". Figure 4.2 displays the alternative models and their estimates.



Model A_1

Model A_2



Model A_3

***p<.001; **p<.01; *p<.05

Figure 4.2 Alternative models and their path estimates.

4.4 Discussion

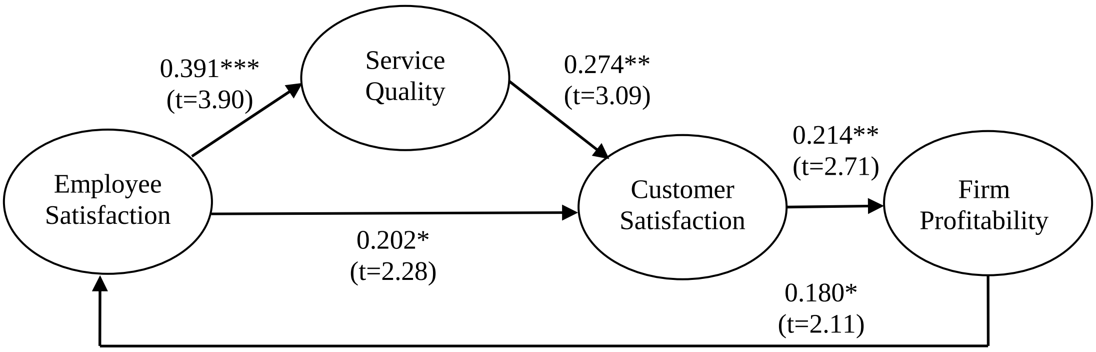
In this study, we developed and tested empirical models that depict the associations among employee satisfaction, service quality, customer satisfaction, and profitability in the service industry. The results lend strong support for the assertion that employee satisfaction is an important determinant of operational performance in service organizations. According to Chase and Bowen (1991), the drivers of service quality and competitive performance are linked to people, processes and technology. Similarly, Roth and Jackson (1995) revealed that knowledgeable employees are a primary determinant of service quality, while factor productivity – the effort of becoming lean – has a hidden cost of reduced service quality. Oliva and Sterman (2001) unambiguously showed that maximizing throughput which drives employees to work overtime trapped service organizations in a vicious cycle of declining service quality, causing severe and permanent financial losses. These studies indicate that service quality and customer satisfaction could be easily impaired by human factors, holding back overall performance. This study, complementing previous studies, explicitly showed that employee satisfaction is crucial to achieve quality and profitability in the service industry.

This research adds to growing empirical evidence that employee satisfaction has a significant impact on operations capabilities. The results support the hypotheses that employee satisfaction leads to higher service quality, and that it influences customer satisfaction directly. Service quality and customer satisfaction eventually lead to financial gains. In addition, our alternative model, Model A_2, lends some support for the assertion that firm profitability has a non-recursive effect on employee satisfaction, i.e., employee satisfaction and organizational performance may be reciprocally related. Accordingly, we speculate that employee satisfaction influences operational performance through a “satisfaction-quality-profit cycle”.

In recent years, the idea of the service-profit chain has evolved as a prominent management philosophy, which has increasingly been adopted by different organizations. The findings of this study is parallel to anecdotal evidence from such companies as Domino's Pizza and Sears, where researchers have found that an increase in employee satisfaction triggers a corresponding change in customer satisfaction, resulting in a dramatic increase in sales revenues. For example, in Sears, it was found that 5 units increase in employee satisfaction derived 1.3 units increase in customer satisfaction, which in turn led to a 0.5% increase in economic growth. The model of this study also provides some empirical support for the conceptual framework of the *balanced scorecard* (Kaplan and Norton 1992, Kaplan and Norton 1993, Kaplan and Norton. 1996). The balanced scorecard is a set of measures which gives managers a comprehensive view of their business (Kaplan and Norton 1992) and links current actions with the future goals of an organization (Kaplan and Norton. 1996). It includes employee morale and growth, internal business processes, customer satisfaction and financial measures which are regarded as four balanced quadrants that drive the strategic initiatives to improve the business performance of an organization. In case of a lack of focus on any of these four perspectives, the entire organization will be thrown out of balance, causing strategic efforts in operations to collapse.

The findings of this study bear some practical implications for service operations management. Managers in different service settings often face a similar dilemma when initiating strategic actions to enhance profitability, namely whether to focus on employees or customers. The results of this study suggest that organizational profitability emanates from satisfied employees. Service organizations should thus focus their efforts on improving employee satisfaction, then satisfied employees will uphold the service quality and ensure customer satisfaction. Employee satisfaction is a necessary condition for operations managers to boost service quality and customer satisfaction, and plays a significant role in enhancing operational performance of organizations in the service sector.

There are some limitations in data collection. Employee satisfaction and service quality are important but subjective constructs in this research. These two variables, however, were obtained from the same source (same two employees), and thus susceptible to the bias of individual raters. Accordingly, we escalated the unit of analysis (Smith et al. 1983, Podsakoff and Organ 1986). In this analysis, the responses for employee satisfaction were randomly selected from an employee, while the assessment of service quality was obtained from another. Accordingly, the data on employee satisfaction, service quality, and customer satisfaction, together with firm profitability, were obtained from three different staff members. We then re-examined the final model, Model A_2. As shown in Figure 4.2, all path estimates are comparable to those of the original model in Figure 4.1, providing some evidence of the robustness of the final model.



***p<.001; **p<.01; *p<.05

Figure 4.3 The model and its estimates after escalating unit of analysis.

This study provides strong evidence for the relationship of employee satisfaction to operational performance. Generally speaking, this highlights explicitly the fact that employee attributes have an influence on business performance. Heskett et al (1994) attempted to link employee satisfaction and loyalty to operational and financial performance; however, this entire model has not yet verified empirically sophistical analysis. Thus, in particular, it would be interesting to find out whether the relationships presumed in the S-PC are valid or not. These findings would be especially useful in tailoring more suitable business strategies for service organizations.

4.5 Conclusion

This chapter investigates the impact of employee satisfaction on operational performance in the service industry. Using SEM, we found that employee satisfaction is significantly related to service quality and to customer satisfaction, while the latter in turn influences firm profitability. We also found that firm profitability has a significant non-recursive effect on employee satisfaction, leading to a "satisfaction-quality-profit cycle". This empirical investigation suggests that operations managers should not boost service quality and customer satisfaction at the expense of employee satisfaction. In fact, the findings of this study provide strong evidence that employee satisfaction plays a critical role in enhancing the operational performance of an organization. These findings generally highlight the necessity of conducting more research examining how other employee attributes influence the operational performance of a service organization. In particular, it would be interesting to examine the relationships proposed in the S-PC with empirical data and by sophistical analysis.

CHAPTER 5 AN ANALYSIS OF THE SERVICE-PROFIT CHAIN

5.1 Introduction

In the previous chapter, we examined the impact of employee satisfaction on operational performance. The findings are basically in line with the concept of the S-PC, supporting the view that employee satisfaction has a positive impact on service quality and customer satisfaction. The study in Chapter 4 can be considered as a preliminary investigation of some of the relationships embodied in the S-PC. However, the S-PC conceptualizes the organizational performance of a service firm that is driven by a series of effects including employee loyalty and customer loyalty. The entire S-PC was not examined in the previous chapter.

This chapter investigates the idea of the S-PC as proposed by Heskett et al. (1994). We adopted the partial disaggregation approach of structural equation modeling (SEM) to examine the relationships of the key constructs in the S-PC model. In the following, we delineate the hypotheses development and the partial disaggregation approach towards SEM analysis. Subsequently, we present the statistical analysis, findings, and implications. Finally, we make a conclusion for this chapter.

5.2 Hypotheses Development

Previous studies have offered some theoretical and empirical support for the relations presumed in the S-PC. We develop the following hypotheses and a research model accordingly.

Employee satisfaction, employee loyalty, and service quality. Heskett et al. (1994) have postulated that employee satisfaction influences employee loyalty in the S-PC. The logic is that employees who are satisfied with their job, in terms of salary and promotion opportunities, are prone to be loyal to their employing organization. Loveman's (1998) empirical study has shown that employee satisfaction is positively correlated with employee loyalty. Other previous findings have shown that there is a significant, negative correlation between employee satisfaction and absenteeism (e.g., Gordon and Denisis 1995), and between employee satisfaction and employee turnover rate (e.g., Drago and Wooden 1992). The extant result of empirical investigations supports the view that employee satisfaction is related to employee loyalty.

The S-PC also purports that employee loyalty affects the customer's perception of service quality (Heskett et al. 1994). Loyal employees who are satisfied with their job demonstrate their loyalty to the employing organization by working hard and being committed to delivering services with a high level of quality to customers. Loveman (1998) has demonstrated that employee loyalty is positively correlated with service quality.

Social exchange theory is applied to account for the relationships between employee satisfaction, employee loyalty, and service quality. The norm of reciprocity in social exchange theory states that an action by one party leads to a response by another party.

A positive reciprocity orientation involves the tendency to return positive treatment for positive treatment (Uhl-Bien and Maslyn 2003, Eisenberger et al. 2004). Furthermore, the norm of equity in social exchanges suggests that people expect social equity to prevail in interpersonal transactions (Organ 1977, Cropanzano et al. 2003). An individual accorded some manner of social gift that is inequitably in excess of what is anticipated will experience gratitude and feel an obligation to reciprocate the benefactor. In the context of social exchange theory, the employer is devoted to building a relationship of long-term employment with his employees by fulfilling their needs through offering them favorable working conditions; in return, employees will be loyal to their employer by being committed to making an extra effort to offer services with a high level of quality as a means of reciprocity for their employing organization (Wayne et al. 1997, Flynn 2005). The employer's willingness to build a relationship with his employees and the employee's commitment to deliver services are key characteristics of a social exchange (Blau 1964).

Drawing on the norms of reciprocity and equity of social exchange theory, we argue that employees who perceive that working conditions are good will feel more satisfied with their job and so be more loyal to their employing organization. Furthermore, if employees are more loyal to their employing organization, they are prone to deliver services of a higher level of quality. Therefore, we theorize that employee satisfaction has a positive impact on employee loyalty. We also suggest that employee loyalty influences service quality positively. Hence,

Hypothesis 1: Employee satisfaction has a positive influence on employee loyalty.

Hypothesis 2: Employee loyalty has a positive influence on service quality.

Employee satisfaction, service quality, and customer satisfaction. The conceptualization of the S-PC suggests that external service value, i.e., the value of services perceived by customers, is linked with customer satisfaction (Heskett et al. 1994). The rationale behind this is that high-quality services offered by a firm would lead to customer satisfaction. This rationale is perceived as a common phenomenon in the service context.

Although the original model of the S-PC does not stipulate the direct impact of employee satisfaction on customer satisfaction, such a potential relationship has recently received much attention within consumer psychology, marketing, and organizational studies. Researchers have demonstrated that the sharing of emotion, i.e., emotion contagion, occurs in personal transactions in a service environment. Specifically, previous work shows that satisfied employees lead to happy customers (e.g., Bernhardt et al. 2000). A direct relationship between employee satisfaction and customer satisfaction was discussed in detail in the previous chapter. Similarly, the relationship between service quality and customer satisfaction is based on attitude theory (Lazarus 1991, Bagozzi 1992) as discussed in Chapter 4. Accordingly, we posit the following hypotheses.

> Hypothesis 3: Perceived service quality has a positive influence on customer satisfaction.

> Hypothesis 4: Employee satisfaction has a positive influence on customer satisfaction.

Customer satisfaction, customer loyalty, sales performance, and firm profitability. Heskett et al. (1994) have presumed that a customer's satisfaction with the quality of the services influences his loyalty to the service firm, which in turn affects the profitability of the service firm. Empirical findings have shown that customer satisfaction has a significant impact on the loyalty level of customers (Jones and Sasser 1995, Hallowell 1996, Heskett et al. 1997, Stank et al. 1999, Gronholdt et al. 2000), supporting the view that customers who are satisfied with the perceived service quality will become loyal to the service firm. Loyal customers have a strong intention to stay with their current service firm, which overcomes the influence of switching in the market (e.g., Lee et al. 2001). The loyalty of a customer is manifested in many customer behaviors such as making repeated purchases, purchasing in greater volume, and making referrals for the service firm to others, thereby enhancing the economic return of the service firm. This logic is in line with the empirical findings of previous research that customer loyalty has a significant, positive effect on firm profitability (Hallowell 1996, Kamakura et al. 2002).

As explicitly shown in the S-PC, customer loyalty leads to the long-term profitability of a firm. Researchers have empirically assessed the economic benefits of loyal customers to a service organization (Hallowell 1996, Loveman 1998, Kamakura et al. 2002). Loveman (1998) evaluated the economic return of customer loyalty, in terms of profitability, market share, and revenue growth. An effort to increase the loyalty in the existing customers leads to higher sales volume, more repeated purchases and customer referrals. This implies that customer loyalty should have an impact on sales performance, in particular the sales from repurchases and referrals as a result of loyal customers. Thus, we included a mediating construct of "sales from repurchases and referrals", which is believed to be an explicit and immediate consequence of customer loyalty. The increased sales income as a result of repurchases and referrals will lead to better financial performance in terms of return on assets, return on sales and return on investment. As a result, sales from repurchases and referrals should have a direct influence on firm profitability.

The arguments for the relation among customer satisfaction, customer loyalty, sales from repurchases and referrals, and firm profitability are established based on the resource-based view of the firm. The resource-based view of a firm suggests that firms deploy valuable resources to generate above-normal rates of return and to gain a substantial competitive advantage. Recent theoretical work in business strategy has given a boost to the prominence of customer satisfaction and loyalty in generating competitive advantage (Amit and Schoemaker 1993, Oliver 1997, Combs and Ketchen 1999). According to the resource-based view of the firm, firms can develop a sustained competitive advantage only by creating value in a way that is rare and difficult for competitors to imitate. Customer satisfaction and loyalty is regarded as a resource based on two prominent characteristics, namely causal ambiguity and path dependency (Barney 1991, Collis and Montgomery 1995). Firstly, it is quite difficult to grasp the precise mechanisms for which customer satisfaction and loyalty is generated in an organization. Imitation requires an understanding of how the customer satisfaction and loyalty functions in advance. However, customer satisfaction and loyalty involves the emotional attachment that is complex to replicate between competitors. Next, customer loyalty is path dependent. It is developed over time and cannot be simply purchased from competitors. A competitor can understand that customer loyalty is valuable, yet is precluded from immediate imitation which may be limited by management's ability to successfully replicate the socially complex relationship. Thus, from the perspective of the resource-based view of the firm, valuable-creating loyalty in customers is sufficiently rare and difficult-to-imitate to create a sustained competitive advantage.

On the basis of the resource-based view of the firm, we conjecture that when customer satisfaction is closely associated to customer loyalty, it results in higher sales income from repurchasing and referrals. It is also logical to posit that sales from repurchases and referrals has an impact on firm profitability positively. Accordingly, we develop the following hypotheses

Hypothesis 5: Customer satisfaction has a positive influence on customer loyalty.

Hypothesis 6: Customer loyalty has a positive influence on sales from repurchases and referrals.

Hypothesis 7: Sales from repurchases and referrals has a positive influence on organizational profitability.

Firm profitability and employee satisfaction. The relation of firm profitability to employee satisfaction is not stipulated in the traditional S-PC model. However, as explored in the previous chapter, it is found that firm profitability has a non-recursive effect on employee satisfaction. For this reason, we have included this path in the hypothesized S-PC model. Here, we assume:

Hypothesis 8: Organizational profitability has a positive influence on employee satisfaction.

In sum, we have presented the development of the aforementioned hypotheses. We examined them using SEM with the partial disaggregation approach, which is an appropriate method to operationalize latent constructs in organizational research. In subsequent sections, we describe an overview of two major approaches towards disaggregation, namely fully disaggregation and partial disaggregation. Afterwards, we show the suitability of adopting the partial disaggregation approach for the analysis conducted in this study.

5.3 Approaches of Structural Equation Modeling

Many researchers have attempted to operationalize theoretical constructs that incorporate the ideas of construct at an appropriate detail. Bagozzi and Edwards (1998) have suggested four approaches towards the representation of constructs, namely total disaggregation, partial disaggregation, partial aggregation, and total aggregation. The disaggregation approaches are suitable for obtaining detailed information about the antecedents or consequences of a particular research construct through fine-grained analyses while the aggregation approaches are more appropriate for acquiring the overall patterns among various research constructs. The decision to follow the disaggregation or aggregation approach depends on the purpose of the study. If the study is concerned with the nature, antecedents, and consequences of a particular instance or construct, the disaggregation approach is useful (e.g., Brooke et al. 1988, Mathieu and Farr 1991, Ramaswami and Singh 2003). On the other hand, the aggregation model would be more appropriate if the study is intended to examine the overall picture among many constructs.

The objective of this chapter is to examine the validity of the S-PC model, which involves many constructs and complex relationships among them. As a result, the disaggregation approach appears to be more suitable. In particular, our objective is to validate the S-PC model empirically, instead of studying specifically the antecedent or consequence of a certain construct. In what follows, we describe the advantages and disadvantages of two disaggregation approaches. We then depict the selection of the partial disaggregation approach in this study.

5.3.1 Total disaggregation approach

A total disaggregation model refers to a model where indicators are treated individually to create constructs. The main advantage of such a model is that it gives the most detailed level of analysis, in that statistical properties are evaluated for each individual item shown in the model (Bagozzi and Edwards 1998). For example, factor loadings are known and can be used to estimate the item reliability and construct reliability. Another major advantage is that the total disaggregation model is able to specify and test the distinctiveness of multiple constructs. As far as the major disadvantage is concerned, the measures of the total disaggregation model tend to exhibit large amounts of measurement error. Generally, the adversary effect of measurement errors is that it attenuates the magnitude of association amount constructs. For this reason, the resulting estimates would become less than they should be (i.e. there exist large discrepancies between correlations of indicators within and across constructs) (Judd and Kenny 1981). Such large amount of measurement errors lead to a poor-fit model, even if the data in fact provides some support for the hypothesized relations. Another key disadvantage is that, from a pragmatic point of view, it may be difficult to acquire a large sample size to achieve a reasonable ratio of sample size to the number of parameter estimates for the total disaggregation model. Normally, a rule of thumb is that a ratio of 5:1 for sample size to parameters is recommended for SEM analysis (e.g., Bentler and Chou 1987). Even if sufficient samples are collected for analysis, it is difficult to assess the path estimates with a high degree of accuracy if there are too many constructs and indictors in a model (Harries and Schaubroeck 1990). This is because measurement error increases with the complexity of the model (e.g., Bagozzi and Edwards 1998, Hair et al. 1998).

5.3.2 Partial disaggregation approach

A partial disaggregation model is structurally similar to a total disaggregation model; yet, it differs in the way that items are formed. Each item is constructed as the sum (or average) of responses to two of the indicators intended to be measured for each construct. Therefore, the partial disaggregation model is simpler than the total disaggregation model. The major advantage of the partial disaggregation model is that, because of the fewer items required for the partial disaggregation model, the number of parameters to be estimated is smaller and therefore fewer samples are required for analysis. Another major advantage is that the measures of the partial disaggregation model exhibit less measurement error. These advantages allow researchers to estimate the relationships among constructs more objectively. Unlike the total disaggregation approach, in which a measurement or structural model is constructed with all observed indicators in detail, a major disadvantage of the partial disaggregation model is the possibility of forming invalid measurement items for constructs (Bagozzi and Edwards 1998). To the extent that the hypothesized items for a construct either share more variation with items from other constructs or fail to load highly and uniformly on the proper construct, the combination of indicators may be misleading. The partial disaggregation approach, although it is rarely used in operations management, is commonly adopted in psychology (e.g., Brooke et al. 1988, Mathieu and Farr 1991).

5.3.3 The approach adopted

The presence of random measurement error in structural equation modeling affects the stability and power of statistical analysis. This is particularly the case when the model is complex with a large number of indicators and small sample size. To alleviate this concern, we adopted the *partial disaggregation approach*. Following Bagozzi and Edwards' (1998) suggestion, we established the constructs of this study by averaging their corresponding indicators with odd- and even-numbers so as to reduce the number of parameters estimated in a structural model. In effect, this practice reduced the scale indicators to two items for every construct in this study, reducing the total number of distinct parameters to be analyzed by a relatively small sample size. Bagozzi and Edwards' (1998) research suggests that structural models adopting the partial disaggregation approach results in better statistical properties than the ones using the total disaggregation approach that all indicators are used to form the constructs for a complex model with a large number of constructs and indicators.

5.4 Data Analysis and Results

We applied SEM to investigate the proposed model, using AMOS (Arbuckle and Wothke 1999). Before testing the hypothesized model, we estimated the measurement models with all observed indicators for the corresponding constructs. As discussed in Chapter 3, the results of estimation showed that the measures corresponded only to their constructs, and had acceptable reliability, and convergent and discriminant validity. Thus, constructs and their individual indicators are suitable for the second step of structural analysis (Anderson and Gerbing 1988). Unlike in the previous chapter, we adopted the partial disaggregation approach to develop the structural models. In the following, we present the results of structural model analysis based on the partial aggregation approach, hypothesis testing, and comparison of competing models.

5.4.1 Structural model result and hypotheses testing

Table 5.1 contains the structural model results for the hypothesized model (Model B_0). The overall fit of this structural model was good: χ^2 = 124.324, *df* = 69, χ^2/df = 1.802; GFI = 0.926; AGFI = 0.887; CFI = 0.974; RMSR = 0.062. All other hypothesized relationships are highly significant as shown in Figure 5.1, supporting the argument above.

5.3.2 Comparison of alternative models

Researchers have recommended that SEM is best conducted in the form of comparisons among different plausible models that are nested in one another and can be justified theoretically (Cudeck and Browne 1983, Baumgarner and Homburg 1996). Moreover, Bentler and Chou (1987) have suggested building several alternative models that can share the key features of the hypothesized model. In practice, both hypothesized and alternative models can be found to be an acceptable fit; however, the most nested model with good fit has to be selected as it best represent a "true model".

In this study, the hypothesized theoretical model includes a system of effects wherein employee satisfaction affects customer satisfaction both directly and indirectly through the mediators of employee loyalty and service quality; which in turn influences customer loyalty, sales from repurchases and referrals, and firm profitability. The hypothesis of a direct link between employee satisfaction and service quality, for example, is excluded from the original S-PC model. To examine the significance of other potential relationships systematically without forsaking parsimony, we developed a few alternative models for comparison. More specifically, the models were developed to examine or confirm the existence of a mediation effect on the corresponding relationships. The examination of a mediation effect can explain clearly how (i.e., the mechanism) a given relationship occurs (Baron and Kenny 1986, Holmbeck 1997). It is believed that the results of examination offer more insights into understanding the presumed relationships in this study. We tested the alternative models for the significance of incremental increases in model fit due to an additional link postulated. Hence, we developed three alternative models based on different arguments in the literature and then compared them with the baseline model to confirm if the hypothesized model best represents "the phenomena in the real world".

The first alternative model, Model B_1, was developed, presuming that employee satisfaction has a direct impact on service quality. In particular, this hypothesis helps confirm if employee satisfaction has a direct effect on service quality, or if such an effect mediates through employee loyalty. Similarly, we suggest another alternative model, Model B_2, postulating the idea that customer satisfaction impacts sales performance. This hypothesis helps confirm if the effect of customer satisfaction on "sales from repurchases and referrals" is mediated through customer loyalty or not. For the same purpose, we also developed the last alternative model, Model B_3, presuming customer loyalty has a direct influence on firm profitability.

The results of SEM analysis of the alternative models are shown in Table 5.1. The three alternative models, Model B_1, Model B_2, and Model B_3 were all good fit models as they meet the general criteria of both absolute and comparative fit measures. However, compared with the hypothesized model (χ^2 = 124.324), the χ^2 value of Model B_1 is almost the same (χ^2 = 124.084). The change in χ^2 value is only 0.24, much lower than the threshold value of 3.841 at p = 0.05. However, since the hypothesized model, Model B_0, is a nested (more restricted) model compared with Model B_1, the former is more parsimonious and thus more preferable. Hence, Model B_1 was rejected, providing evidence that employee satisfaction has an effect on service quality mediating through employee loyalty (Baron and Kenny 1986, Hoyle and Smith 1994, Holmbeck 1997). According to Baron and Kenny (1986) and Hoyle and Smith (1994), a mediating effect is confirmed if (1) an independent variable has a significant effect on the proposed mediating variable, (2) the proposed mediating variable has a significant effect on the dependent variable and (3) the independent variable does not have a significant direct effect on the dependent variable. Likewise, with a decrease of one degree of freedom, the difference of χ^2 statistics between Model B_0 and Model B_2 (χ^2 = 124.188) is 0.136 ($\Delta\chi^2$ = 124.324 – 124.188), which is insignificant at p = 0.05 ($\Delta\chi^2$ < 3.841). This implies that customer satisfaction does not have a direct influence on sales from repurchases and referrals. Instead, such an effect mediates through customer loyalty. Nevertheless, Model B_3 appeared to be a significant better fit model when compared with the hypothesized model. With a decrease of one degree of freedom, the χ^2 value decreases by 4.003 ($\Delta\chi^2$ = 124.321 – 120.321), which is significant at p = 0.05 level ($\Delta\chi^2 > 3.841$). The estimated path coefficient was 0.102 (p = 0.043, t = 2.024) while all the original hypotheses remain significant at p = 0.05.

In sum, all statistical indices displayed in Table 5.1 support the view that Model B_3 is the best fit structural model among the other alternative models. Accordingly, Model B_3, instead of Model B_0, was chosen as it best represents the "true model". Figure 5.2 presents the alternative models and their path estimates.

Table 5.1 Goodness of fit indices of hypothesized and competing structural models.

Goodness of Fit Measures	Criteria	Model B_0	Model B_1	Model B_2	Model B_3
Absolute Fit Measures	-				
Distinct Parameters	-	36	37	37	37
Chi-square (χ^2)of Estimated Model	-	124.324	124.084	124.188	120.321
Degree of Freedom (*df*)	-	69	68	68	68
Chi-square/Degree of Freedom (χ^2/df)	≤ 3.0	1.802	1.825	1.826	1.769
Goodness of Fit Index (GFI)	≥.90	.926	.926	.926	.928
Root Mean Square Residual (RMSR)	≤ .10	.062	.063	.063	.061
Comparative Fit Measures					
Normed Fit Index (NFI)	≥ .90	.945	.945	.945	.946
Non-normed Fit Index (NNFI)	≥ .90	.966	.965	.965	.967
Comparative Fit Index (CFI)	≥ .90	.974	.974	.974	.976
Adjusted Goodness of Fit Index (AGFI)	≥ .80	.887	.886	.886	.889

5.4 Discussion

In this study, we have empirically examined a revised version of the S-PC model. The proposed model consists of the relations among employee satisfaction and loyalty, service quality, customer satisfaction and loyalty, sales from repurchases and referrals, and firm profitability. We tested this model with the data collected from various major service sectors in Hong Kong and adopted the partial disaggregation approach of SEM. The results provided strong support for the hypothesized relationships in the S-PC model, suggesting that positive relationships exist among the key constructs as proposed by Heskett et al. (1994). Loveman (1998) explicitly pointed out a major limitation of the S-PC research, that being the absence of large sample data spanning all of the S-PC components from different service organizations. The present study fills this research gap by validating the entire S-PC relations using data from a large number of firms from different service sectors. The results unambiguously support the postulated links of the S-PC model. This shows that the profit of a service firm is bolstered by a series of cyclic effects. The cyclic effects are (i) firm profitability and sales performance are mainly stimulated by customer loyalty; (ii) customer loyalty is a direct impact of customer satisfaction; (iii) customer satisfaction is mainly affected by service quality and employee satisfaction; (iv) service quality is greatly influenced by satisfied and loyal employees; and (v) employee satisfaction results from firm profitability. Understanding such chain relationships, a service firm can look for ways to enhance employee satisfaction and loyalty for organizational improvement.

A central research issue in the S-PC is the need to investigate the antecedents and consequences of employee loyalty and customer loyalty. Previous research had investigated the relationships between employee satisfaction and service quality through the mediation effect of employee loyalty, and between customer satisfaction and profitability through the mediation effect of customer loyalty (e.g., Loveman 1998). As mentioned in Chapter 2, some past studies have demonstrated that customer satisfaction is positively linked to customer loyalty (e.g., Hallowell 1996, Stank et al. 1999), while others show no significant relationship (Khatibi et al. 2002). The findings of this study support the former. The results lend some support for the assertions that employee satisfaction leads to service quality through employee loyalty, and that customer satisfaction leads to sales performance through customer loyalty. These findings explicitly reveal that the loyalty in both employees and customers are essential elements to yield better operational and financial performance of a service firm. These findings are in line with the postulations in the S-PC.

Nevertheless, the result of Model B_3 shows that there exists a direct impact of customer loyalty on firm profitability without necessarily mediating through sales from repurchasing and referrals. One of the possible explanations for this direct relationship is an increased profit margin due to price premium as loyal customers are less price sensitive (Anderson et al. 1994). In addition, loyal customers also help reduce operating costs (e.g., less expense on attracting and serving new customers) (Reichheld and Sasser 1990). This enables the firm to increase its profits which is not captured directly from customer repurchases and referrals.

The S-PC propositions have inspired many researchers to investigate its linkages in various kinds of service setting, such as supermarket (Silvestro and Cross 2000) and banks (Loveman 1998). Various insightful results have been obtained to generate different interpretations for the corresponding service context. The present study differs from previous investigations in that the present study is conducted in many different major service sectors. Thus, the findings of this study are not limited to one particular service sector. Instead, the findings may be generalizable to major service sectors that are characterized by close interactions between service employees and customers.

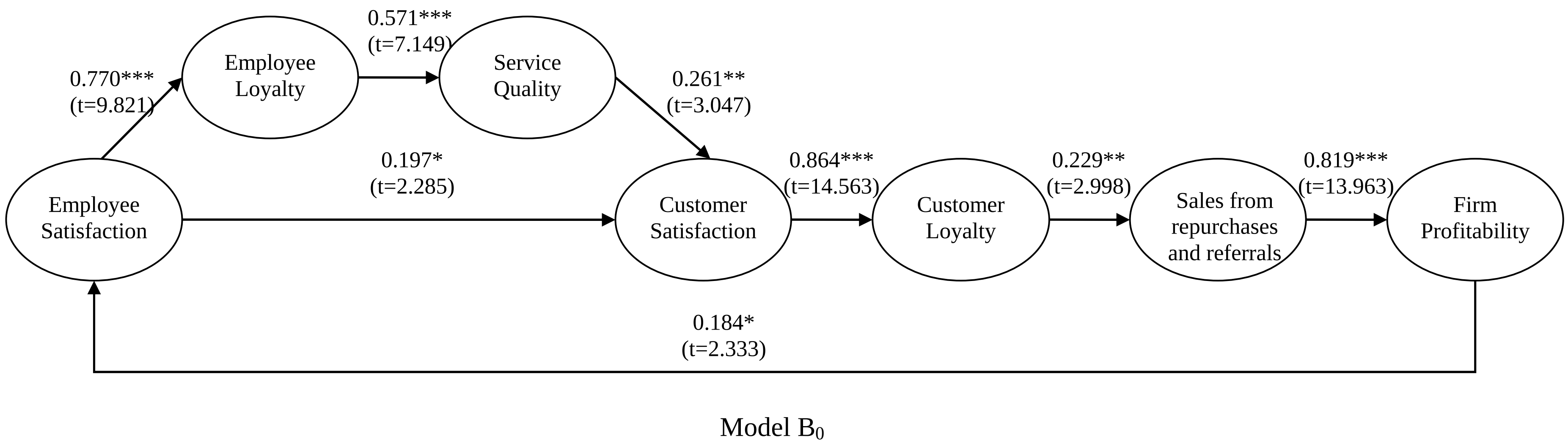
This present study bears some managerial implications. For practitioners, these results provide evidence to service firms that high levels of satisfaction and loyalty in service employees leads to a higher level of quality in services. Thus, programs to enhance employee satisfaction and loyalty are considered as effective tools for the service firm to assure service quality, to satisfy customers and to develop their customers' loyalty to the service firm. Thus, measures to improve a sales force's satisfaction and loyalty might be regarded as an investment for the long-term profitability of a firm. Accordingly, operations managers might consider formulating specific human resources policies to enhance the satisfaction and loyalty levels of the service employees.

The data of service quality was collected from two service employees within a shop, while customer information and business performance data was obtained from the shop-in-charge person. The results of interrater agreement and intra-class correlation statistics provided strong evidence that the collected data of service quality has sufficient within-group agreement and enough interrater reliability within shops for data aggregation. Our use of multiple respondents within a shop increases the reliability of our findings.

The key focus of this study is to validate the S-PC model. For this reason, the influences of the service environment on various linkages of the S-PC have been overlooked. For instance, how does employee loyalty affect service quality in different levels of contact between service employees and customers? To what extent is customer loyalty affected by customer satisfaction under various levels of market competitiveness? Investigations into the moderating effects of service contexts will provide more insights for operations managers devising effective service strategies, as will be discussed in the next chapter.

5.5 Conclusion

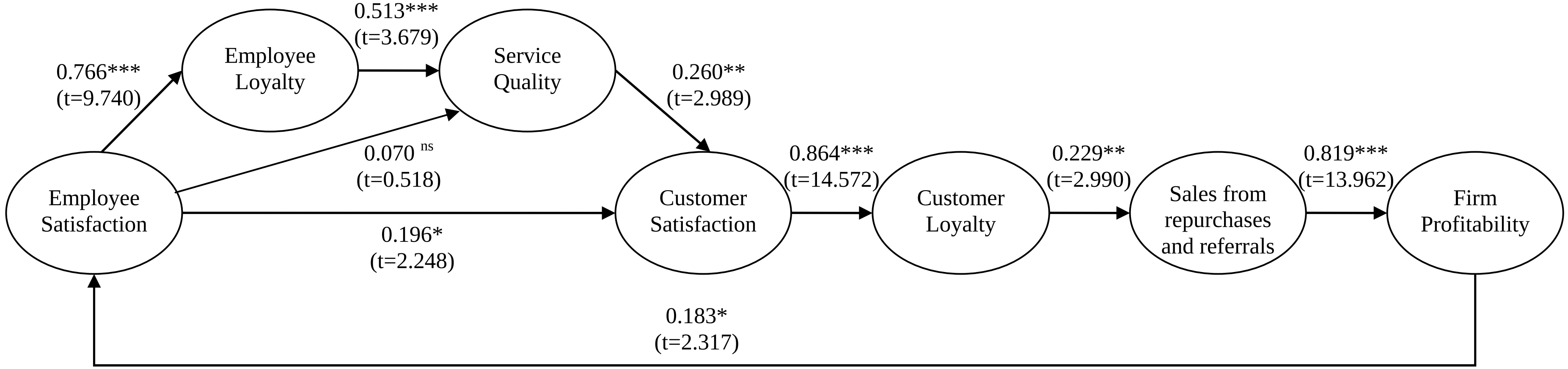
This chapter examines the major relationships embodied in the S-PC using the partial disaggregation approach of SEM. The use of structural modeling enables the estimation of a series of interrelated dependence relationships simultaneously. The adoption of the partial disaggregation approach helps minimize the confounding effects induced by measurement error as a result of increased indicators in complex structural models. The findings of this study lend support for the inter-relationships among employees, customers and profitability stipulated in the S-PC model. This suggests that the organizational performance of a service firm is driven by satisfied and loyal service employees. We also found that customer loyalty has a direct effect on sales performance and firm profitability. The results suggest that operations managers should formulate human resources policies and programs to improve the satisfaction and loyalty levels of services employees, which eventually influence operational performance and economic outcomes of a service firm. Nevertheless, analysis of moderating effects of service contexts is necessary to offer more insights into the relations of the S-PC as will be presented in the next chapter.



(****p*<.001; ***p*<.01; **p*<.05)

Figure 5.1 Baseline model (Model B_0) and its path estimates.

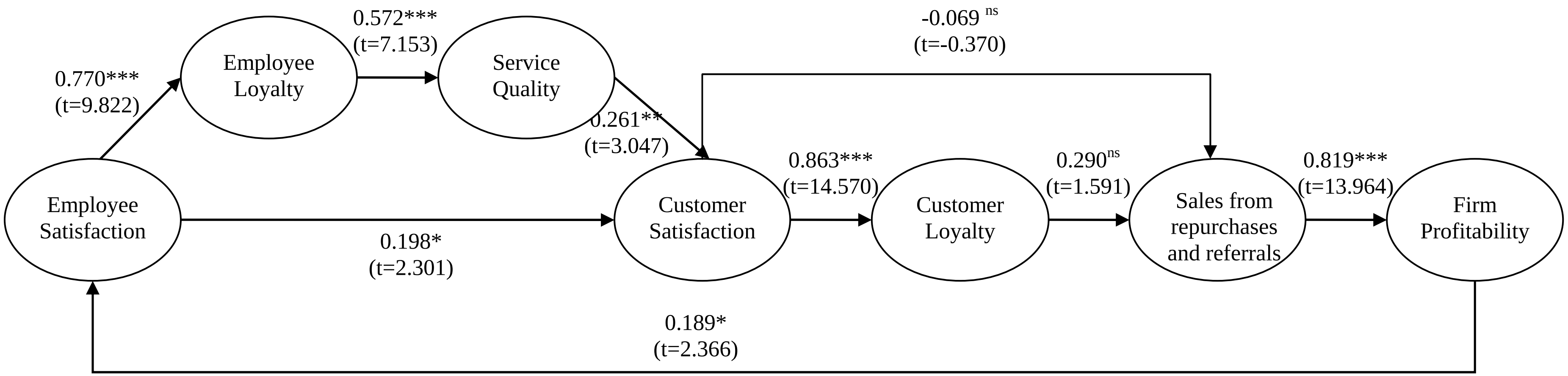
Alternative model: Model B_1



Model B_1

(****p*<.001; ***p*<.01; **p*<.05)

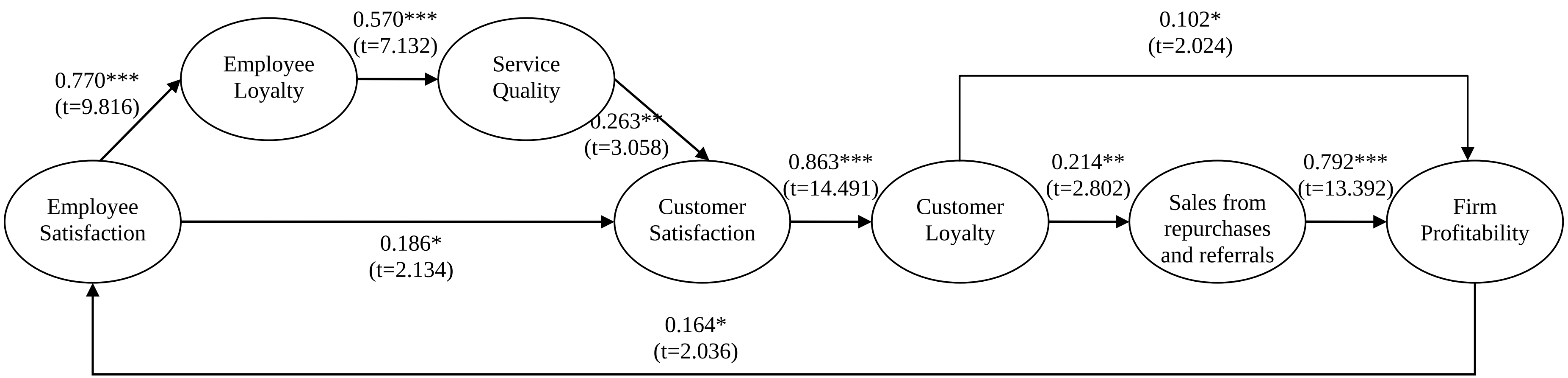
Alternative model: Model B_2



Model B_2

(***p<.001; **p<.01; *p<.05)

Alternative model: Model B_3



Model B_3

(****p*<.001; ***p*<.01; **p*<.05)

Figure 5.2 Competing models and their path estimates.

CHAPTER 6 AN ANALYSIS OF MODERATING EFFECTS

6.1 Introduction

In the previous chapter, we examined the model which postulates the relationships among employee satisfaction and loyalty, service quality, customer satisfaction and loyalty, and sales from repurchases and referrals, and firm profitability. We provided empirical support for the S-PC model as proposed by Heskett et al. (1994). Nevertheless, we have not yet examined the potential factors that may moderate these relationships. To better understand how some contextual factors might moderate some relationships of the S-PC model, we identified three potential moderators, which are employee-customer contact time, market competitiveness, and switching cost. We tested these moderating factors using multiple-group analyses of SEM. More specifically, we investigated how customer contact time moderates the relationships between employee loyalty and service quality, and how marketing competitiveness and switching cost moderate the relationships between customer satisfaction and customer loyalty. These investigations should offer valuable insights into how the conceptualization of the S-PC is contingent on a few contextual factors or, alternatively, the generalizability of the S-PC in the service sectors examined in this research.

6.2 Hypotheses Development

A moderator specifies the conditions under which a given effect occurs, or the conditions under which the direction or strength of an effect vary (Baron and Kenny 1986). A moderator, therefore, affects the relationship between two variables, so that the nature of the impact of the predictor on the criterion varies according to the level or value of the moderator. It interacts with a predictor variable in such a way as to have an effect on the level of a dependent variable. In this research, we have identified three potential moderators, namely employee-customer contact time, market competitiveness, and switching cost on different relationships between various constructs of the S-PC. Chapter 3 provided some discussion on the definition and measurement of these moderating variables. In what follows, we explain the choice of these three moderating factors and their possible impact on the relevant linkages.

Employee-customer contact time**:** Up to this point of this study, we have considered the service context between employees and customers to be a relatively fixed phenomenon in organizations as conditions that exist. However, Chase (1981) has attempted to classify service organizations into forms that are pure services, mixed services, or quasi-manufacturing. Soteriou and Chase (1998) and Kellogg and Chase (1995) have further advocated the defining characteristic of a service context to be the existence of some form of contact between employees and customers. The time spent for the contact between employees and customers is recognized as a key dimension to operationalize customer contact (Kellogg and Chase 1995, Soteriou and Chase 1998). It varies depending on factors, including servers, service, and environment (Kellogg and Chase 1995). Thus, we argue that a more realistic portrayal would represent the service environment according to the contact time between employees and customers in the service delivery process. Contact time reflects the interaction between service employees and customers regarding the transaction in which they are engaged.

The contact time might moderate the relationship between employee loyalty and service quality. When a service sector is characterized by high customer contact, the service context is most potent, and thus the loyal employees would be more capable of having a greater control on the level of quality in the services they offer. The longer the time the loyal service employee interacts with the customer, the more time there will be for the customer to express his needs to the satisfied service employee, the easier the loyal service employee will understand and react to the customer's needs, and consequently the higher the quality of service the loyal service employee will deliver to fulfill the customer's needs. Hence, we suggest the following hypothesis,

Hypothesis 1: The contact time between service employees and customers will moderate the relationship between employee loyalty and service quality in such a way that the greater the contact time, the stronger the relationship.

Market competitiveness: The theories that provide the foundation for the relationship between customer satisfaction and customer loyalty are useful for determining how customer satisfaction influences loyalty in a monopoly or competitive market (Jones and Sasser 1995). Nevertheless, given the potentially negative repercussions of switching intention and behavior encouraged by competitors who offer a greater variety of products and services with better quality, service firms typically have a strong interest in preventing such an intention and action, even if switching is explicitly or implicitly encouraged in the market. For example, a service organization may prevent its customers from forming the intention to switch and act on this intention by delivering services of a higher level of quality to satisfy customers' needs and introduce loyalty programs to retain customers. But, competitors in the market are eager to encourage switching by offering more products and better quality in services for customers. This contrast presents an interesting dilemma: if the market encourages switching, but a service firm discourages this, will the customer respond by switching?

We expect that a service firm's ability to retain customers will depend on how it satisfies its customers and encourages its customers to make repeat purchases. Conditions that diminish the level of customer satisfaction and/or enhance the switching intent and action of customers would certainly lessen the firm's influence on the decision of customers to make repeat purchases. A competitive market often strengthens the switching intention and behavior of customers by making available to them a wider variety of products and services of a higher level of quality to satisfy them. This, in turn, affects the intention to make and behavior of customers in making repeat purchases and, ultimately, has an impact on their loyalty towards the service provider. We consider that a firm's influence is limited by market competitiveness on customers. We suggest market competitiveness would have a moderating effect on the relationship between customer satisfaction and loyalty as displayed in the hypothesis below.

Hypothesis 2: Market competitiveness will moderate the relationship between customer satisfaction and customer loyalty in such a way that the higher the competitiveness in the market, the weaker the relationship.

Switching cost: As defined in Chapter 3, switching cost is regarded as the costs that a customer has to pay during the process of switching from one service firm to another. Compared with a customer who perceives a low cost needed to be paid for switching, the customer who perceives a high switching cost is likely to be loyal to his current service firm. This customer is, therefore, more likely to decide repurchase from his present service firm. The greater a customer perceives the switching cost, the more likely it is that this customer has to consider repurchases from his current service firm. Hence, we consider switching cost would have a moderating effect on the relationship between customer satisfaction and customer loyalty, as shown in the following hypothesis:

Hypothesis 3: Switching cost will moderate the relationship between customer satisfaction and customer loyalty in such a way that the greater the switching cost, the stronger the relationship.

6.3 Data Analysis and Results

We assessed the influence of three moderator variables on different relationships depicted in the previous section using multiple-group analyses of SEM. To conduct multiple-group analyses, we followed Homburg and Giering's (2001) suggestion. We firstly conducted separate median splits in the collected sample, based on the values of an individual moderator valuable. We then performed multiple-group analysis by comparing the two sub-samples (i.e., high versus low values of the moderator variable). Accordingly, we compared three pairs of models, each of which included different moderators and relationships. The first hypothesis test is concerned with the moderating effect of employee-customer contact time on the effect of employee loyalty and service quality. The other two investigations are concerned with the moderating impacts of market competitiveness and switching costs on the relationship between customer satisfaction and customer loyalty.

Multiple-group analyses of SEM involve the comparison of a general model to a restricted model. The general model normally has one degree of freedom less than the restricted model. The chi-square value is also always lower for the general model than that of the restricted model. If the improvement in chi-square value is significant when moving from the restricted model to the general model, it indicates the existence of differential effects of the moderator on the corresponding relationship in the two sub-samples. This provides statistical support to the hypothesis of a moderating effect.

Table 6.1 Results of multiple-group analyses.

Moderator variable	Low value of moderator	High value of moderator	Chi-square difference (Δdf = 1)
Employee-customer contact time	0.615 (t = 6.076)	0.504 (t = 4.158)	0.125 (187.324 – 187.199)
Market competitiveness	0.833 (t = 8.877)	0.877 (t = 10.741)	0.034 (= 211.032 – 210.998)
Switching cost	0.900 (t = 11.750)	0.765 (t = 7.475)	0.332 (= 251.866 – 251.534)

The results of the multiple group SEM analysis are shown in Table 6.1. Regarding the moderator of employee-customer contact time, the chi-square difference ($\Delta\chi^2$ = 0.125, $p < 0.05$) does not indicate the presence of a significant moderating impact on the relationship between employee loyalty and service quality (since $\Delta\chi^2 < 3.841$). Thus, Hypothesis 1 is not supported. Hypothesis 2 and Hypothesis 3 consider the moderating effects of market competitiveness and switching cost on the relationship between customer satisfaction and customer loyalty. As shown in Table 6.1, the differences of chi-square ($\Delta\chi^2$ = 0.034 for market competitiveness and $\Delta\chi^2$ = 0.332 for switching cost) are not significant at $p = 0.05$. These results do not support Hypothesis 2 or Hypothesis 3.

In sum, the chi-square differences in the multiple group analyses for each of the three suggested moderator variables are not significant with one degree of change. Thus, this study does not offer statistical support for the suggested moderator variables on the corresponding relationships. In other words, Hypotheses 1, 2, and 3 are not supported by the results of this empirical study.

6.4 Discussion

According to social exchange theory, loyal service employees who are satisfied with the working conditions offered by their employing organization will deliver services with a high level of quality to customers. The findings in Chapter 4 and Chapter 5 supported this argument explicitly. It also seems logical to consider that customer contact time is a moderator on the relationship between employee loyalty and service quality. As the duration of the service encounter in a transaction increases, the intimacy between employee and customer is also enhanced. In this case, a loyal employee has more opportunities to understand and fulfill the specific needs of his customers, leading to a greater impact of employee loyalty on service quality. Nevertheless, the result of the sampled firms in this study does not support this argument. A possible explanation is the homogeneity of the sampled firms of this study, in terms of the overall customer contact level.

For the service sector in which the contact time between employees and customers is very short (e.g., convenience stores, postal services), the quality of the service encounter is relatively less important, so is the enthusiasm of service employees. On the other hand, other factors, such as timeliness of service and store location, become more critical to service quality. Under this circumstance, employee loyalty should have a less direct impact on the overall service quality. At the other extreme, for service firms that operate in a very high employee-customer contact environment (e.g., estate agencies and beauty services), the intimate relationship between employees and customers in service delivery allows a loyal employee to provide a higher level of service quality directly. Nevertheless, service organizations with extremely low customer contact (e.g., convenience stores, postal services) were not included in this study because they are not in the scope of this research. Given this result, we suspect that the relationship between employee loyalty and service quality would diminish only in a service context which is characterized by extremely low customer contact. In addition, as referred to the five dimensions of the SERVQUAL instrument, not all the dimensions of service quality would be moderated by the contact time. For example, the impact of employee loyalty on the appearance dimension of service quality would not be moderated by the contact time. This is one of the possible reasons why the moderating effect of contact time on the relationship between employee loyalty and service quality is not significant.

Jones and Sasser (1995) suggest that the relationship between customer satisfaction and loyalty is affected by the level of market competitiveness. However, the results of this study show that market competitiveness does not have a significant moderating influence on this relationship in the sampled firms. Neither did we find that switching costs moderated the relationship between customer satisfaction and customer loyalty. Similarly, we suspect that this is because the operating environment of the investigated sample is in fact rather homogenous in terms of market competitiveness and switching cost. As a whole, the service sectors we examined are operating in a rather competitive business environment. Unlike service sectors that require professional skills (e.g., legal, architectural, or medical services) or high-capital investment (e.g., electricity, broad-band services), we focused on labor-intensive service sectors with a relatively low initial capital investment. In other words, these service sectors in the sample of this research are generally operating in a competitive market with low switching cost. As a result, we did not find any significant moderating effects. Furthermore, as can been seen in the Model B_2, the relationship of customer satisfaction to customer loyalty is very strong (P=0.86). This suggests that satisfied customers always tend to be loyal to their service providers. For this reason, other environment factors, such as market competitiveness and switching cost, may not have significant moderating effect on such a strong relationship between the satisfaction and loyalty of customers.

6.5 Conclusion

Using multiple group SEM analysis, we tested three moderating effects on the corresponding linkages of some constructs in the S-PC: (1) employee-customer contact time on the relationship between employee satisfaction and customer satisfaction; (2) market competitiveness on the linkage between customer satisfaction and customer loyalty; and (3) switching cost also on the relationship between customer satisfaction and customer loyalty. The results show that the S-PC model is rather robust in the service sectors in the current examination. Since the relationships do not differ under these three moderating factors, we believe that the S-PC model appears to be generalizable in a competitive, labor-intensive service sector with relatively high employee-customer contact, in which the majority of the service firms are operating at present. In short, we would suggest that relationships postulated by the S-PC are not very sensitive to employee-customer contact time, market competitiveness, and switching cost under a general operating context of the service industry.

CHAPTER 7 CONCLUSION

7.1 Summary of This Research

The conceptualization of the S-PC suggests employee attitudes have a significant impact on customer attitudes and business outcomes for a firm. To gain a greater understanding of this research area in order to develop our research hypotheses, we started with a review of the relevant theories that support the conceptualization of the S-PC. We reviewed extensively the theoretical background in various disciplines, including sociology, psychology and strategic management, as well as operations management. Building on the social exchange theory, attitude theory, emotional contagion, and the resource-based view of a firm, we proposed two models for further analyses. The first model postulates that employee satisfaction has an impact on service quality, customer satisfaction, and firm profitability. The second model follows the framework of the S-PC developed by Heskett et al. (1994), in which we investigated the links among employee satisfaction and loyalty, service quality, customer satisfaction and loyalty, sales from repurchases and referrals, and firm profitability. We further assessed the impact of some potential contextual factors, including the level of customer contact, market competitiveness, and switching cost, on the relations among some major constructs of the S-PC. We examined if the level of customer contact moderates the relationship between employee loyalty and service quality, and if market competitiveness and switching cost moderate the relationship between customer satisfaction and customer loyalty.

To study the two proposed models and the suggested study of the contextual factors with empirical data, we conducted a questionnaire survey in the Hong Kong service industry. We prepared survey packets that included a “shop-in-charge” questionnaire and two “service employee” questionnaires for each surveyed service firm. The persons in charge of the shop were responsible for completing questions related to customer satisfaction, customer loyalty, sales from repurchases and referrals, firm profitability, employee-customer contact time, market competitiveness, and switching cost. Two service employees in each shop were required to assess employee satisfaction, employee loyalty, and service quality. We collected usable data from 210 service organizations. We employed average within group interrater reliability ($r_{wg(j)}$) and intraclass correlation statistics, namely ICC(1) and ICC(2), to assess the agreement and reliability between the data acquired from the two service employees in each shop. The results of $r_{wg(j)}$, ICC(1), and ICC(2) provide strong statistical evidence for interrater agreement and reliability. We then analyzed the collected data using SEM for the two proposed models.

7.2 Main Findings and Implications

Traditional literature in operations management rarely focuses on the impact of employee attitudes to operational efficiency. The current study, however, highlights the importance of employee satisfaction and loyalty on service operations management. The results of this study indicate that employee satisfaction is a key determinant of operational performance and business outcomes. Our findings provide empirical evidence for the postulated relationships among the key constructs of the S-PC. These findings suggest that employee satisfaction and loyalty have a direct impact on service quality and customer satisfaction, and customer satisfaction and loyalty results in customer repurchases and referrals, and enhanced firm profitability. These findings bear significant implications for the operations managers in the service industry who attempt to devise an appropriate operations strategy under limited resources. The results of this research suggest that service firms should put primarily emphasis on employee satisfaction and loyalty. Thus, investment on improving working conditions of employees is critical for service firms. Satisfied employees will be more committed to delivering services with a high level of quality to satisfy customers' needs. Satisfied customers will in turn make repeated purchases, leading to higher profitability for the firm.

In this research, we also explored the impact of some moderators on the relationships in the S-PC. The results suggest that the S-PC model is invariant to certain operating contexts. In particular, the relationship between employee loyalty and service quality is equally strong in different levels of customer contact in the service setting. A strong relationship between customer satisfaction and customer loyalty is found under different levels of competitiveness and switching cost in the market. In short, the S-PC model is rather robust in the service sectors we examined. It is interesting to note that these results find no moderating effects on the postulated relationships of the S-PC, which contradict our hypotheses and some of the preliminary evidence in the literature (Jones and Sasser 1995, Lee et al. 2001). One possible explanation, perhaps, is the relatively homogeneity of the sampled firms in terms of the level of customer contact, market competitiveness and switching cost. As a result, it can be said that the S-PC model is generalizable in competitive, labor-intensive service sectors with relatively high contact between employees and customers.

7.3 Research Limitations and Further Research

Several potential limitations pertinent to this study necessitate some discussion here. Like many empirical studies, longitudinal design would appear to be more appropriate for deriving the causal inferences regarding the relations of the final model of the present study. However, this research involved the analysis of non-recursive effects and interactive effects among predators and criterion variables, it may not be feasible in practice to conduct a longitudinal analysis due to the practical problems in determining an "appropriate" lag. So far, little has been written on the guidelines for choosing the best time lag in longitudinal studies.

There are also some limitations related to data collection. Employee satisfaction, employee loyalty, and service quality are important but subjective constructs in this research. These three variables, however, were obtained from the same source (i.e., the same two service employees). Similarly, customer satisfaction, customer loyalty, sales profits, and financial performance were from the same source (i.e., the shop-in-charge person). As the data was obtained based on a self-reported survey research, common method variance may exit. To avoid common method variance, we explicitly separated the measurement items according to the corresponding constructs in the questionnaire. We also conducted Harmon's one factor test and examined the discriminant validation for the measurement items. The results suggest that common method bias is rather limited in this research.

We only collected satisfaction data from two service employees in each shop (out of a maximum of five). Although the interrater agreements between employees within the shops were high and the final model appears to be robust, more accurate estimates could be obtained if all the service employees in each shop were surveyed. Similarly, the use of internal customer data and perceptual financial data may make the measurements less precise. Nevertheless, such limitations are likely to make the hypothesized relationships more conservative, i.e., the actual relationships should be stronger. This study was conducted in small service shops. This issue, however, does not necessarily limit the generalizability of the present findings. This is because even large service organizations are organized in departments, units or teams; so the small service shops in this research setting may resemble small service teams in a large service organization. However, we conducted this research in labor-intensive service shops where service employees have direct and close contact with customers. This means that the results of this study may not be so readily generalized to low-customer-contact firms, e.g., convenience stores or postal services. In addition, the present research findings tend to be more valid in labor-intensive service sectors, rather than knowledge-intensive service sectors, such as accounting and legal services.

This research focuses on the investigation of two specific employee attributes, namely employee satisfaction and employee loyalty, on organizational performance. For future research, we believe that it would be interesting to find out the relationship between employee satisfaction, employee loyalty, and organizational learning. For example, would a lack of employee satisfaction and employee loyalty impede organizational learning, hindering operational efficiency? Following this line of thought, we also suggest researchers examine the relationship between employee satisfaction and innovativeness. For instance, are employee satisfaction and employee loyalty necessary conditions for innovativeness in the manufacturing industry? In line with most of the previous literature in operations management, the private service sector is our research setting. However, future research on the S-PC in non-for-profit organizations would be worthwhile.

APPENDIX QUESTIONNAIRES AND THEIR MEASUREMENT PROPERTIES

(a) Service employee questionnaire

Responses to the following questions ranged from 1 = "Totally disagree" to 7 = "Totally agree".

Employee satisfaction [Cronbach's α = 0.860, $r_{wg(j)}$ = 0.936, ICC(1) = 0.531, ICC(2) = 0.694, AVE = 0.620, Construct reliability = 0.866]

ES1	We are satisfied with the salary of this company. (0.83)[1]
ES2	We are satisfied with the promotion opportunities within this company. (0.87)
ES3	We are satisfied with our job nature within this company. (0.78)
ES4	We are satisfied with our relationships with our fellow workers within this company. (0.64)
ES5*	We are satisfied with the supervision of our supervisors within this company.

Employee loyalty [Cronbach's α = 0.859, $r_{wg(j)}$ = 0.942, ICC(1) = 0.438, ICC(2) = 0.609, AVE = 0.553, Construct reliability = 0.854]

We intend to …….

EL1	be absent from work. (0.40)
EL2	continue our employment in this company. (0.76)
EL3	contribute extra effort for the sake of this company. (0.94)
EL4	become a part of this company. (0.90)
EL5*	turn down other jobs with more pay in order to stay with this company.
EL6	take any job to keep working for this company. (0.79)

Service quality [Cronbach's α = 0.820, $r_{wg(j)}$ = 0.950, ICC(1) = 0.435, ICC(2) = 0.606, AVE = 0.524, Construct reliability = 0.844]

SQ1	Our appearance is neat and appropriate. (0.71)
SQ2	We provide services at the time we promise to do so. (0.78)
SQ3	We provide prompt services to our customers. (0.62)
SQ4	We can be trusted by our customers. (0.80)
SQ5	We do not understand our customers' needs. (0.57)

(b) Shop-in-charge questionnaire

Responses to the following questions ranged from 1 = "Totally disagree" to 7 = "Totally agree".

Customer satisfaction [Cronbach's α = 0.907, AVE = 0.662,
Construct reliability = 0.887]
Our customers are satisfied with …….

CS1	the price of their purchased product(s) sold by this company. (0.77)
CS2	the enquiry service provided by this company. (0.89)
CS3	the customer service in transactions. (0.88)
CS4	the service of handling customer dissatisfaction in this company. (0.3)

Customer loyalty [Cronbach's α = 0.946, AVE = 0.749,
Construct reliability = 0.937]
Our customers intend to ……

CL1	do more transactions with this company in the coming years. (0.82)
CL2	consider this company as their first choice for purchases. (0.87)
CL3	recommend this company to people who seek their advice on purchases. (0.93)
CL4	say something good about this company to others. (0.91)
CL5	encourage their friends and relatives to purchase from this company. (0.89)

Market competition [Cronbach's α = 0.828, AVE = 0.623,
Construct reliability = 0.831]
Characteristics of the current market:

MC1	High availability of alternative products offered in the market. (0.718)
MC2	High availability of alternative services offered in the market. (0.867)
MC3	Attractive benefit plans offered in the market. (0.776)

Switching cost [Cronbach's α = 0.954, AVE = 0.838,
Construct reliability = 0.954]

SC1	Customers have to pay a high cost for searching and evaluating information of alternative service providers before changing service provider. (0.919)
SC2	Customers have to pay a high cost to learn new services after changing service provider. (0.953)
SC3	Customers have to pay a high cost to build new relationships after changing service provider. (0.912)
SC4	Customers have to pay a high cost for the benefits lost by changing service provider. (0.876)

Responses to the following questions ranged from 1 = "Significant decrease" through 4 = "No change" to 7 = "Significant increase", regarding the changes in sales and financial performance of the company over the past three years.

Sales from repurchases and referrals [Cronbach's α = 0.876, AVE = 0.716, Construct reliability = 0.882]

SP1	Sales volume of customer repurchase (0.94)
SP2	Profit gained from customer repurchase (0.94)
SP3	Profit gained from customer referral (0.91)

Firm profitability [Cronbach's α = 0.938, AVE = 0.833, Construct reliability = 0.937]

FP1	Return on assets (0.93)
FP2	Return of sales (0.94)
FP3	Return on investment (0.91)

Responses to the following question by estimation.

Contact time

Average total time for personal selling and service in a transaction in your company (i.e. time spent on direct contact and communication with customers): _____ hour(s)___ minutes

[1]Standardarised path weight from the latent variable to the measurement item.

*Deleted item.

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