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EMPLOYEE SATISFACTION AND FIRM PERFORMANCE: AN ANALYSIS OF COMMERCIAL BANK BRANCHES

A THESIS
SUBMITTED TO THE FACULTY OF THE GRADUATE SCHOOL
OF THE UNIVERSITY OF MINNESOTA
BY

YONGLIN REN

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY

MORRIS M. KLEINER, ADVISOR

DECEMBER 2001

University of Minnesota

This is to certify that I have examined this copy of a doctoral thesis by

Yonglin Ren

and have found that it is complete and satisfactory in all respects,
and that any and all revisions required by the final
examining committee have been made.

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12/27/01

Date

GRADUATE SCHOOL

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Abstract

Research of individual level employee satisfaction and employee performance has been plentiful in the literature. However, is an employer with more satisfied employees more productive than one with less satisfied employees? Employee satisfaction and firm performance at organizational level analysis has rarely been done. The main purpose of this study is to empirically investigate the relationship between employee satisfaction and firm performance, using data from a large commercial bank in a state. About 200 branches conducted employee satisfaction survey in 1994 and 1996 and detailed information of employee attitudes and job satisfaction was collected. Branch financial information was gathered from the company's income statement and balance sheet. This permits us to analyze the effect of employee satisfaction on branch performance. My analysis shows that the relationship between these two variables is weak. Several factors may contribute to the weak relationship: (1) The sample size is not large enough to detect the relationship; (2) I only have data for two year period, and this short period of time series data may not have enough variation of the variables of interests. More research with more observations over a longer time period should be implemented to further analyze the relationship between employee job satisfaction and firm performance.

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Chapter 1 Introduction

An issue much discussed in the literature, and central to many managerial strategies is the improvement of employees' job satisfaction. Both in the research literature and in industrial practices, employees' job satisfaction is a widely used term and widely researched topic. Researchers have tried to investigate the determinants and effects of employee job satisfaction. Many factors have been found to influence job satisfaction, such as positive and negative affectivity (Watson, et al., 1986), locus of control (Spector, 1982), job characteristics (Loher et al., 1985), and labor market conditions (Hamermesh, 1977, 2001). In addition, many potential effects of job satisfaction have also been identified, such as employee turnover (Bluedorn, 1982; Mobley et al., 1979; Freeman, 1978), intention to leave the organization (Blau, 1993; Shore et al., 1990; Freeman, 1978), counterproductive behavior, such as aggression against coworkers, aggression against the employer, sabotage, and theft (Chen and Spector, 1992), and organizational citizenship behavior (Schnake, 1991). It is believed that improved employee satisfaction will lead to better employee behavior in the organizations, although empirically employee satisfaction and employee performance tend to be moderately correlated (Iaffaldano and Muchinsky, 1985).

Employee satisfaction surveys are widely used in practice in organizations. Organizations use surveys to assess employee attitudes toward management and various policies, and assess whether their employees are satisfied or dissatisfied with various aspects of the company's policies, practices, operations and the compensation, coworkers,

etc. The use of employee surveys can be traced back to the beginning of 20th century (Jacoby, 1988), and is still quite popular in recent years.

Although the effect of employee satisfaction on individual employee's behavior and job performance has been studied for several decades, the benefit the firm gains from the investment in surveying employee satisfaction and improving employee satisfaction has seldom been investigated. This unanswered question "around" employee satisfaction is: Are organizations with more satisfied employees more productive? Will an organization with much higher employee satisfaction has better organizational performance than one with lower employee satisfaction?

Earlier psychology theorists (e.g., Likert, 1961; Mayo, 1933) implied that employee satisfaction and well-being are related to performance, but they did not explicitly hypothesize about the appropriate level of analysis (e.g, individual, groups or organization). Most of the empirical research examining the relationship between satisfaction and performance has been done solely on individuals within an organization. This school of research finds that employee satisfaction will have negative effects on turnover, employee's intention to leave and employee's counterproductive behavior, each of which is assumed to lower firm performance.

To explain the weak correlation between individual satisfaction and performance, Ostroff (1992) proposed that an empirical study of the relationship between satisfaction and performance at the organizational level would likely show that organizations with more satisfied employees are more productive than organizations with less satisfied employees. Furthermore, some researchers thought the satisfaction-performance relation at the organizational level might be stronger than the relationship at the individual level

(Schneider & Schmitt, 1986). Empirically, Ostroff (1992) used data collected from 298 junior or senior or junior/senior high schools, found organizational performance to be positively correlated with teachers' satisfaction, where organization performance is defined as academic achievement, student behavior, student satisfaction, teacher turnover, and administrative performance. However, this is the only empirical publication I can find that aims at exploring the relationship between employee satisfaction and performance at organizational level.

This study will make contribution to the research of relationship between employee satisfaction and performance at the organizational level in the retail banking industry. Two questions will be addressed: 1) Is higher employee satisfaction associated with better organizational performance? Will branches with higher employee satisfaction outperform the branches with lower employee satisfaction? 2) Does the change (improvement) of employee satisfaction improve the branch's productivity?

The data used in this study is gathered from a large US commercial bank. Employee satisfaction measure is collected from employee surveys conducted in 1994 and 1996 to all employees of all branches in a large metropolitan area. Financial information is collected from the company's income statement and balance sheet. The total deposit and loan in the year ("total sales") and the net change of total deposit and loan over the year ("net sales") are used as branch performance measures in this analysis ("total sales" and "net sales" will be explored more in Chapter 4). Information of the communities the branches served (the "market" of the branch) is also collected, which includes total population, owner-occupied households, per capita income, average household wealth, median years of schooling completed, unemployment rate, median

home value and estimated total sale of all industries in the area. This will help us to control the effects of the community variables on the branch performance.

The paper is organized as follows: Chapter 2 will review the relevant literature discussing determinants and effects of employee satisfaction at the individual level; Chapter 3 will discuss a general framework of job satisfaction, individual/organizational performance research, and the rationale to do an aggregate job satisfaction research; Chapter 4 will discuss the output/performance of commercial bank industry as well as the data and model; Chapter 5 will present the results and discussion.

Chapter 2 Individual Level Research on Job Satisfaction

— Current Literature Review

To understand whether firms with more satisfied employees are more productive and profitable, employee satisfaction should first be conceptualized. There are basically two schools working on employee job satisfaction: one is the behavioral researchers who are largely from industrial and organizational psychology whose interest in job satisfaction has tended to focus on individual workers and their attitudes. The other school of thought consists of economists and industrial relations researchers, who have focused more on the collective decisions of individuals in the form of labor market effects (Cappelli & Sherer, 1988). Behavioral researchers explain the variances in job satisfaction across individuals by appealing to individual characteristics and to job specific circumstances (Arvey et al., 1991; Staw & Ross, 1985). Few attempts have been tried to incorporate arguments beyond the individual and the job setting, such as the opportunities in the general labor markets. Economists and most industrial relations scholars view job satisfaction as the comparison of the utility and value associated with the job to that associated with the other jobs available (Hamermesh, 1999, 1977; Cappelli & Sherer, 1988; Oswald, 1997). This comparison could be simple as pay comparison (Dunlop, 1957).

Both schools have tried to understand how job satisfaction is affected and how it will affect other organizational factors and individual behavior, such as turnover, absenteeism, etc. This chapter will review the literature that discussed the antecedents and

effects of job satisfaction at individual level. Understanding job satisfaction at the individual level is quite helpful to understand its impacts at the aggregated level.

2.1 Determinants of Job Satisfaction

The foci of past psychological research on employee job satisfaction have been: (1) discovering the antecedents of job satisfaction, and (2) figuring out the effects of satisfaction and dissatisfaction on individual behavior and actions such as productivity, turnover, absenteeism, etc. If a casual relationship between job satisfaction and favorable employee behaviors, employee productivity, and firm performance is identified, it will be rational for organizations to make investment and implement some policies and practices to facilitate the positive change of job satisfaction, which will then have positive effect on individual performance, and possibly, firm performance. For example, if positive affectivity is a determinant of job satisfaction, organization can improve employees' job satisfaction by rigorous selecting people with higher positive affectivity, i.e., who tend to be happy in whatever conditions. If pay system, pay level and pay structure affect employee's job satisfaction, organization can change compensation policies to enhance employee job satisfaction, e.g., adjusting the pay level to be in line with the market level, implementing a lead pay level rather than a lag, or increasing employee benefits levels or diversifying employee benefits programs to accommodate different employees' needs.

Several explanations of the determinants of job satisfaction have been identified, of which, three theories are predominate: person factor theory, situational factor (Arvey et al, 1991), and comparison income (Hamermash, 1977). The first two are from psychology literatures, where the interaction effect of the situational factors and personal factors are

also discussed. The third is popular in economics literatures, where economic and labor market factors are emphasized, although, broadly the economic factors can also be thought a part of the situational factors. Those three theories will be discussed in the following parts.

2.1.1 Person Factors

Two major person factors are associated with the antecedence of job satisfaction: psychological individual difference variables, and demographic variables. Psychological individual difference variables include several personality variables, such as locus of control (Spector, 1982), neuroticism (Furnham & Zacherl, 1986), positive and negative affectivity (Watson, et al., 1986). It is argued that those psychological personality factors are quite stable, and it is the stability of those personality variables that makes job satisfaction quite stable. Demographic variables affecting job satisfaction include gender (Clark, Oswald & Warr, 1996), age (Clark et al., 1996), marital status and human capital variables such as education and experience (Blanchflower & Oswald, 2000).

The person factor theory views job satisfaction as a fairly stable characteristic of individuals (Schneider & Dachler, 1978; Staw & Ross, 1985). A person may have a stable and unique way to view the world over his/her entire life. There are stable individual characteristics that predispose people to systematically respond positively or negatively to job contexts, and thus he/she will have a stable and unique level of satisfaction. Situational changes, such as task characteristics, supervision, pay and working conditions, will have very limited impacts.

Staw and Ross (1985) observed the stability in test-retest correlations with job satisfaction, both across time and across job situation. They reasoned that if test-retest correlations on job attitudes were high, individuals must exhibit a consistency in their job attitudes. The authors assessed job satisfaction in people who changed employer and/or job type, and the results showed that job satisfaction was relatively stable in people who changed jobs. People who like one job were likely to like another job. The authors concluded that job satisfaction was in part due to personality.

Other researchers have replicated Staw and Ross's finding that job satisfaction assessments correlate across jobs (Gehart, 1987). Newton and Keenan (1991) repeatedly surveyed a group of British engineers when they were in their final year of their university studies, and when they had been in employment for just over 2 and 4 years. Although job satisfaction correlated across jobs with a moderate correlation, the attitude level were generally unstable over time, the satisfaction scores actually fell between the observed time interval, with the exception that job satisfaction was significantly increased for respondents who changed employers. This suggested that, although high retest correlations indicate similar rankings, but they cannot confirm that there has been no absolute change (and hence stability), and they therefore cannot be used to reliably infer the existence or absence of dispositional effects. This study suggests that some people are inclined to be more satisfied with their jobs than others because of their underlying personality, but job satisfaction tended to increase when the individual started a new job.

Locus of control is a cognitive variable. It represents an individual's generalized belief in his or her ability to control positive and negative reinforcements in life. Beliefs about control of reinforcements can have an effect on work attitudes. Many studies have

found significant correlation of locus of control with job satisfaction (Spector, 1982). Most locus of control research has used general measures to assess how a person tends to feel across all domains of life, such as Rotter (1966).

Positive and negative affectivity are basic, pervasive personality dimensions reflecting a person's tendency to experience positive and negative emotions, such as anxiety or depression, across a wide variety of situations. Levin & Stokes (1989) conducted both a field study and a laboratory study to examine relationships between negative affectivity and job satisfaction. In the laboratory study, Levin and Stokes employed 140 subjects scoring the upper or lower quartile in an administration of the Negative Affectivity Scale (Levin & Stokes, 1989), they found that subjects low in negative affectivity reported higher satisfaction with both an enriched and an unenriched task. In the field study, Levin and Stokes found a correlation of –0.29 between negative affectivity and scores on the Job Descriptive Index Work Itself Scale (Smith, Kendall, & Hulin, 1969) among 315 employees of a professional services firm. However, it is unclear whether persons differing in negative affectivity perceived similar jobs differently, or whether they held jobs with objectively different job characteristics.

Several mechanisms have been suggested to understand why negative affectivity correlates with job satisfaction. Moyle (1995) hypothesized that people who have high negative affectivity may experience higher levels of all sorts of negative affect at work, including job dissatisfaction. She gave an alternative explanation that people who are high in negative affectivity tend to perceive their job situation as being negative, which leads them to experience job dissatisfaction. Schaubroeck et al. (1994) speculated that low negative affectivity people make better job choices and have higher levels of job

satisfaction because they are in better jobs. Waston et al. (1986) felt that negative affectivity contaminates many organizational measures, including measures of job satisfaction. They suggested that correlations between job satisfaction and other organizational variables assessed through employee questionnaires were due to the influence of negative affectivity on responses to surveys. Recent research on this possibility finds little support that negative affectivity is the explanation for correlations of organizational variables with job satisfaction (Moyle, 1995).

The other set of person variables are demographic variables, such as age, gender, experience and education. The relationship between job satisfaction and these demographic variables encompasses a relatively large body of research, interestingly, both in economics and psychology literature. A meta-analysis conducted by Brush, Moch and Pooyan (1987) showed that the mean correlation between age and job satisfaction is .22. These studies show that in general job satisfaction increases with age. Zeitz(1990) found a curvilinear relation in which job satisfaction declines early in life, levels off in middle age, and rebounds after approximately 45 years of age. However, not all studies have been able to find evidence for a curvilinear relation (e.g., White & Spector, 1987). Clark, Oswald, and Warr(1996) surveyed more than 5000 men and women in an English study. They found clear curvilinear relations of age with global job satisfaction, as well as nature of work and pay facets for men. For women, the curvilinear pattern was of small magnitude for global job satisfaction and did not exist for either facet. The Clark et al (1996) study suggests that age distribution and gender composition of samples can affect whether or not the curvilinear pattern is detected. However, little is known about the causes for the observed relationship between age and job satisfaction, but several

hypotheses have been advanced. Wright and Hamilton (1978) proposed two likely mechanisms. First, the cohort mechanism is that expectations and values of Americans have changed over time. Older workers are more satisfied with their jobs than younger workers because they are more accepting of authority and expect less from their jobs. Second, the job change mechanism is that older workers have better jobs and more skill than their younger counterparts. The other possibilities are that over time, people have more "sunk cost" or investment in a job, and expectations can change over time. The first mechanism suggests that with time, the investment in the job in terms of benefits (e.g., pension) and rewards (e.g., pay) might contribute to job satisfaction. The latter is that people adapt to the job by adjusting their expectations to be more realistic, so that they are happier with less as they get older.

An adequate test of the cohort mechanism apparently does not yet exist. It would require a long-term longitudinal study in which a sample of people would be assessed throughout life to determine if their job satisfaction was related to age. The job change mechanism has received at least some empirical support. White and Spector (1987) showed that the age-job satisfaction relation could be explained by better job conditions for older workers. The older worker reported a closer match between what he or she had and wanted in terms of job conditions as well as higher salary. They also perceived a higher level of personal control over job rewards. Little research evidence exists that addresses the remaining two hypothesis.

Studies have shown that relations between gender and job satisfaction is extremely inconsistent across studies, although men and women in these studies do not have the same jobs (Herzberg et al., 1959; Weaver, 1978). Meta-analysis showed that

mean correlation tends to be almost zero across dozens of studies and thousands of people (Brush et al., 1987; Witt & Nye, 1992). Several explanations have been advanced to explain the equivalent job satisfaction of women to men despite nonequivalent job conditions and pay. First, it has been suggested that women may differ in expectations (Brush et al., 1987). Women expect less from work and so they are satisfied with less. This may have developed over generations in which women had to accept fewer promotion opportunities and lower pay even for the same jobs. Second, men and women might have different values. Witt and Nye (1992) discussed how there could be gender differences in perceptions of equity. Men and women sometimes view fairness in reward distribution differently. This could lead women perceiving lesser rewards as being fair than would men. Although these are possible explanations, it is not clear why women have equivalent job satisfaction despite nonequivalent work.

When a broad occupational range is sampled, a modest positive correlation between education and job satisfaction is found (Quinn & Baldi de Mandilovitch, 1977). This relationship has been shown to be nonlinear in some cases, indicative of a credentials effect. This positive relationship appears to be primarily attributable to increases in job reward and quality of employment with increases in education.

However, many studies attempting to explain relationships between demographic variables and job satisfaction have used questionable and convoluted statistical analyses without much control of other omitted variables. In addition, the causal relationship is not justified because of the cross sectional data. It is virtually impossible to determine whether their conclusions are justified. As a result, a significant portion of the research

literature intended to explain relationships between demographic variables and job satisfaction is uninterpretable (Arvey et al., 1991).

2.1.2 Situational Factors

Job environment and factors associated with the job have very important influences on job satisfaction. This view may "have emanated from a broader behavioristic paradigm in psychology which questioned the scientific utility of dispositional constructs and concentrated solely on environmental contingencies or situational variables" (Arvey et al., 1991). A large number of external situational and contextual factors have been identified and studied, including how people are treated by the employer, the job characteristics, relationship with coworkers, pay and rewards, and others.

Hackman and Oldham's job characteristics theory (Hackman & Oldham, 1976, 1980) is the most influential theory of how job characteristics affect people. They posited there are five core characteristics of a job: skill variety, task identity, task significance, autonomy and feedback. The job characteristics theory posited that people could be motivated by the intrinsic satisfaction they find in doing job tasks. When they find their work to be enjoyable and meaningful, people will like their jobs and will be motivated to perform their jobs well. The five core characteristics are thought to lead to three psychological states. Skill variety, task identity, and task significance combined induce experienced meaningfulness of work. Autonomy leads to feelings of responsibility. Feedback results in knowledge of results about the products of work. The three psychological states in turn contribute to important outcomes of job satisfaction and

motivation of employees. Hackman and Oldham (1976) included a personality variable---growth need strength in their theory. The growth need strength variable reflects an individual's need for fulfillment of higher order needs, such as autonomy or personal growth. People who prefer challenge and interest in their work will be happier and more motivated if they have complex jobs.

Several meta-analysis have provided evidence of the strong positive relationship between job characteristics and job satisfaction. Loher et al. (1985) reviewed 28 studies and showed that, the relationship between such subjectively measured job characteristics as task identity, task autonomy, skill variety, feedback, etc. and job satisfaction ranged from .24 to .34. However, as usual, when two sets of data are from the same job incumbents, there will have possible common method variance problem. Because both of the subjectively measured job characteristics and job satisfaction in those studies are provided by job incumbents, any observed correlation between these job characteristics and job satisfaction could be due to common method variance.

Objectively measured job environment factors are also investigated in the literature. In Pritchard & Peters (1974)'s research, job duties are defined by Position Analysis Questionnaire (PAQ) scores (McCormick, Jeanneret, & Mecham, 1972). They show that the correlation between a PAQ composite measure of job duties and overall satisfaction was .46 for a sample of over 600 US Navy personnel in a diverse set of jobs. This suggests that the job itself plays an important role as a determinant of job satisfaction.

A study conducted by O'Reilly & Roberts (1975) used 578 subjects from US Navy enlisted men in a high-technology naval aviation unit. They obtained three

measures of ability, measures of ten personality and motivational traits, measures of structural characteristics of the subjects' position, and a measure of job satisfaction. Canonical correlation methods were used to show that when the variance in satisfaction accounted for by personality traits was partialled out, the structural variables were significantly associated with job satisfaction. However, no significant relationships were observed between personality and job satisfaction when variance accounted for by the structural variables was partialled. Colarelli, Dean, & Konstans (1987) measured several personal variables, including cognitive ability, socioeconomic status, and career goals, as well as several situational variables, such as job feedback, autonomy, and job context, using a sample of 280 entry-level accountants. Their studies showed that 9% of the variance in job satisfaction was accounted for by the personal factors, 30% was accounted for by the situational factors, and 39% was accounted for by the joint additive effects of these sets of variables.

As noticed, person factors and environmental factors are not isolated from each other. Rather, they may work interactively to influence job satisfaction. These interaction effects could be partitioned into two research streams in psychology literature. The first one is the congruence stream, which stresses the person-environment fit and the importance of static interaction between persons and situations (Weiss & Adler, 1984). The second stream stressed the importance of dynamic interactions between persons and environments and of self-selection into and out of job environments (Schneider, 1987). However, the second research stream has received little empirical attention by job satisfaction researchers.

The congruence model thinks that people must "fit" their jobs. In order for individuals to be optimally satisfied, to perform well, there should be some degree of "congruence" between person variables and situational variables. The theory of Work Adjustment (Dawis, & Lofquist, 1984) is among the most well-known models positing the importance of person-environment congruence on job satisfaction. In the work adjustment model, job satisfaction is a function of the correspondence between the reinforcer pattern of the work environment and individual needs. Holland's (1973, 1985) congruence model has received a substantial amount of research attention: job satisfaction depends upon the congruence between personality and the work environment. Holland's theory specifies that most persons and most environments can be categorized as realistic, investigative, artistic, social, enterprising, or conventional (Holland, 1985).

Another well-recognized body of research emphasizing the importance of the interaction between person variables and situational variables in the production of job satisfaction is based on the Job Characterstics Model (Hackman and Oldham, 1976, 1980). The Job Characteristics Model proposed that the relationships between various job charactersitics and behavioral/attitudinal outcomes are moderated by growth need strength (Kulik, Oldham, & Hackman, 1987).

2.1.3 Comparison Income

Not surprisingly, economists have developed a different theory. Job satisfaction is viewed as the utility of the work and the result of the comparison of the utility from the current job and that from alternative jobs. In the eyes of economists, income plays a large part in utility. As Hamermesh (1976) stated, in psychological literature, "there is little

agreement on the appropriate theory to use in explaining job satisfaction. Furthermore, the psychological literature has usually produced pairwise correlations between measures of job satisfaction and other, presumably causative, variables. .... However, errors may enter into estimates of the effects of the causative demographic variables by the inclusion of explanatory variables that themselves measure attitudes". Hamermesh (1976) developed a theory of differential job satisfaction by occupational choice. In his theory, job satisfaction would be viewed as a quasi-rent, which is produced by compensation and nonpecuniary benefits in excess of those available to the individual in alternative jobs. In a competitive market, the entry of new workers into occupations ensures that in the long run there is no difference in job satisfaction by occupation at the time of entry, because firms will adjust the jobs, organization and policy, and the market will eliminate these quasi-rents and equate the job satisfaction of the marginal worker across occupations requiring the same investment in human capital. So in the long run equilibrium, the average level of satisfaction is independent of the levels of monetary and nonpecuniary pay in the aggregate economy. Much of the differential dissatisfaction for individuals is the result of randomness in the distribution of earnings across individual workers or the result of fixities produced by the process of investment in on-the-job-training (Hamermesh, 1976). So employee's job satisfaction is the result of a comparison when the market gives the individual opportunities for him to make comparison among jobs and define his own satisfaction with the job. This implies the higher pecuniary and nonpecuniary benefits than average with the same human capital will produce a higher job satisfaction in the short run. The neoclassical view of satisfaction will result in the following job satisfaction trend: when unemployment is low, it will be easy for a worker

to find alternative opportunities, so the job satisfaction level will be low. Nevertheless, when unemployment is high, the alternative opportunity will be less, and compared to the current job, the incumbent will report a high job satisfaction.

Cappelli and Sherer (1988) also argued that, to better understand the determinants of job satisfaction, researchers should go beyond the individual and job settings, i.e., the debate of person factors or situational (environmental) factors. Rather, researchers should also look at the labor market. This view is consistent with Hamermesh (1976). In general, those ideas stem from Adam Smith's (1976) argument that people judge the value or utility associated with any job by comparing it with the other jobs available and the utility associated with them. Thus, for Smith and others, job satisfaction is a relative concept that stems not only from individual and the circumstances of his/her current job, but also is influenced by opportunities in the general market. Hoppock (1935) noted that the higher than expected levels of job satisfaction during the Depression may have been due partly to the fact that workers felt happy just to have a job, that their judgment were in part relative and based on circumstances in the market. Equity theory (Adams, 1963) is a theory that is closely linked to current point. Equity theory asserts that individuals compare their input (skills, effort, etc) to outcomes (rewards such as pay, interesting work, etc.) with referent others. If their own rewards are not fair, inequity and dissatisfaction may result. Those perceived inequity and dissatisfaction may be restored by quitting, by reducing input, which are the variables widely researched and viewed as the results of job dissatisfaction as we will see in next section.

Bartel (1981) and Borjas (1979) used the following as a framework for the analysis of job satisfaction: Job satisfaction is expressed as a monotonic transformation of

the full wage W for individuals with a vector of characteristics X: $S = a_0 + a_1 W + a_2 X$. The coefficients on the variables in vector X would then measure the effects of the variables on the nonpecuniary components of the job and or/their direct effects on job satisfaction. Borgas (1979) argued that education and experience should have positive effects on job satisfaction even when the wage is held constant since education and experience increase an individual's efficiency in achieving a successful job match. This relationship follows from the job-matching model of Jovanovic (1979) which argues that an individual usually learns about the nonwage components of his job only after he has spent some time at the firm. Since individuals with more education and/or experience are more likely to have successfully "matched" with their employers, they would have high nonwage returns and, hence, higher satisfaction even when W is held constant. This job-matching approach ignores any direct effects of education and experience on job satisfaction, and if education and experience increase the individual's willingness to voice dissatisfaction, the sign on these variables in the equation are unclear (Bartel, 1981).

Freeman (1978) argued that job satisfaction depends not only on the objective circumstances in which an individual finds himself but also on his psychological state and thus on aspirations, willingness to voice discontent, the hypothetical alternatives to which the current job is compared, and so forth. Since job satisfaction reflects both objective and subjective factors, it is more complex than standard economic variables and requires more sophisticated and careful analysis.

The literature indicates that the antecedences of job satisfaction are more diverse, complex and sophisticated. Careful analysis should be done to understand the causes of

job satisfaction. However, as stated above, this study will not focus on the antecedences of job satisfaction, but understanding them will be quite helpful for the analysis.

2.2 Effects of Job Satisfaction

It is very common to think that a happy employee should be a productive employee. Whether or not an employee will give his or her services wholeheartedly to the organization and produce up to potential depends, in large part, on the way the worker feels about the job, fellow workers, and supervisors. To understand the importance of employee satisfaction, this section will review the literature exploring the effects of job satisfaction, again, most of which are done at the individual level.

Kopelman et al. (1990) suggests that there are three categories of pertinent behaviors for organizational effectiveness that job satisfaction may affect: attachment, performance, and citizenship. Attachment behaviors include attending to and staying in the organization, such as withdrawal behavior, including absence and quit. The cost of turnover and absenteeism is quite high, since it involves the lost of invested training on the individuals and the cost of replacing a new one, the effective functioning of the organization requires reducing these to some efficient level if some level of turnover is efficient. Performance behaviors refer to job-related tasks and activities comprising the employee's formal organizational role. Adequate performance of job duties is critical for achieving productivity. Finally, citizenship or prosocial behaviors include cooperation and collaborative efforts. Consideration of employees' attitudes and sentiments is important because they determine collaborative effort. Collaborative effort that is directed toward the organizations' objective is necessary for achievement of organizational goals,

and unhappy employees cannot effectively participate such efforts (Likert, 1961). Satisfied employees will be more likely to engage in collaborative efforts and accept organizational goals that can increase productivity, whereas dissatisfied employees either may fail to work collaboratively or may work collaboratively but divert effort away from the achievement of organizational goals.

One of the most widely studied effects of job satisfaction is job performance. Attention to the potential relationship between job satisfaction and job performance goes back at least as far as the Hawthorne studies (Roethlisberger & Dickson, 1939). Supervisor ratings have been used in most studies as the job performance measure. However, this kind of measure suffers from rating bias, restriction of range, both of which reduce measured correlations with other variables. Empirically, when supervisor evaluated job performance is used to link to individual satisfaction, moderate or no correlation is found. As Brief (1998) recently commented, "Much evidence indicates that individual job satisfaction generally is not significantly related to individual task performance" (p. 3). This finding intrigued the researchers for a long time, because people tend to believe that a satisfied person should perform better. Various explanations have been provided to explain the weak correlation, such as measurement problems (Fisher, 1980), research design characteristics (Iaffaldano & Muchinsky, 1985), the moderating effects of job characteristics (Ivancevick, 1978), constraints on performance (Bhagat, 1982), personality characteristics (Steers, 1975), and rewards (Schwab & Cummings, 1970).

Meanwhile, there is some evidence for the hypothesis that job satisfaction is the result of good job performance. Jacobs and Solomon (1977) hypothesized that the

correlation between job satisfaction and job performance would be higher in jobs where good performance was rewarded than in jobs where it was not. Under such conditions, employees who perform well get rewards, and rewards should lead to job satisfaction. Caldwell and O'Reilly (1990) provided indirect evidence that job performance can lead to job satisfaction. They showed that matching employee abilities to job requirements enhances job performance. People who are better able to do their jobs well and perform well tend to have higher job satisfaction. It seems likely that job satisfaction is caused by job performance, although this relation might be explained by the rewards given to individuals who perform well. To uncover the direction of causality of the relationship between job satisfaction and individual performance, a longitudinal study besides cross sectional analysis should be launched. However, the argument that satisfaction is quite stable or satisfaction is a quasi-rent and for a long run, the quasi-rent will disappear will make the longitudinal analysis difficult and the results will be hard to interpret.

One of the most widely believed behavior of job dissatisfaction is the withdrawal behavior: Many theories hypothesize that people who dislike their jobs will avoid them, either permanently by quitting or temporarily by being absent or coming in late and leave earlier. Especially nowadays, more organizations are implementing flexible work time, with less monitoring and more flexibility, working less by coming in late and leave earlier will reduce the actual working time, however, with the same amount of pay as full load working, the organization actually pay higher for working less, as a result, the unit labor cost will be higher, the organizational performance will be lower.

Absence is another phenomenon that can reduce organizational effectiveness and efficiency by increasing labor costs. On many jobs, floaters or substitutes are required for

each absent employee. The absent employee might continue to get paid, resulting in increased costs to pay substitutes. Unlike turnover, if unproductive employees quit and are replaced with more productive employees, a higher productivity could be achieved. However, when employees are absent, extra employees have to be used to meet the production goals, and absence thus produces a higher cost to organizations. Not surprisingly, organizations are concerned about absence. Theories of absence hypothesize that job satisfaction plays a critical role in an employee's decision to be absent (Steers & Rhodes, 1978). People who dislike their jobs should be expected to avoid coming to work. Interestingly, however, empirical support for this position has been surprisingly difficult to find. One statistical reason for the small correlations between job satisfaction and absence is the distribution of absences across employees (Hammer & Landau, 1981). In most samples, the distribution of absences is extremely skewed, with few employees having many instances of absence. The severe nonnormality of absence distributions can attenuate correlations. Some researchers noticed that correlation between job satisfaction and absence is not bigger because absence is a complex variable that can have multiple causes (Kohler & Mathieu, 1993). A person might be absent because of being ill, a family member's being ill, being fatigued, or having to conduct personal business, such as childcare, as well as just not wanting to go to work. To better understand the relationship between job satisfaction and absence, the other variables the compounding the relationship should be controlled. A regression with those control variables added should provide a statistical analysis technique to solve these problems.

Most theorists of turnover view turnover as the result of employee dissatisfaction (e.g., Bluedorn, 1982; Mobley, Griffeth, Hand, & Meglino, 1979). People who dislike

their jobs will try to find alternative employment. Studies have been reasonably consistent in showing a correlation between job satisfaction and turnover (e.g., Crampton & Wagner, 1994; Hulin, Roznowski, & Hachiya, 1985). Furthermore, it seems certain that this correlation is causal—job dissatisfaction leads to turnover. Longitudinal designs have been applied in the study of turnover and job satisfaction. Job satisfaction is measured in a sample of employees at one point in time. At a later time, perhaps a year later, the researcher determines who has quit. Job satisfaction levels are compared between those who quit and those who did not. It is clear with this design that causality must run from job satisfaction to turnover rather than the reverse because the behavior did not occur until months or in some cases years after the job satisfaction assessment. However, it is hard to defend whether the change of job satisfaction is a true change or just some noise, and the observed turnover behavior is the result of some other variables.

Job satisfaction correlates quite well with intention of quitting the job (e.g., Blau, 1993; Shore, Newton, & Thornton, 1990). Blau (1993) found that intention to quit related to job search behaviors (r=.27, .25 in two samples), such as: contacted an employment agency, prepared or revised a resume, sent resumes to employers, went on a job interview, etc.. Blau (1993) showed that these behaviors were the strongest predictor of subsequent turnover, with a correlation of .43 and .41 in two samples. It is reasonable to imagine that employees with intention to leave may not put much effort on the current job and may use current employer's assets for job search purposes.

Counterproductive behavior consists of acts committed by an employee that either intentionally or unintentionally hurt the organization. Those counterproductive behaviors include aggression against coworkers, aggression against the employer, sabotage, and

theft. These behaviors have many causes, but often, they are associated with dissatisfaction and frustration at work. Chen and Spector (1992) found that job satisfaction correlated significantly with employee reports of engaging in aggression against others, hostility toward others, sabotage, and theft at work. Keenan and Newton (1984) found a relation between experiencing feelings of hostility at work and job satisfaction. Dissatisfied employees are more likely than their satisfied counterparts to engage in all of these behaviors. Anything that an organization can do to make the workplace better for its employees has the potential of enhancing job satisfaction and reducing counterproductive behavior. Often, actions as simple as offering reasonable explanations to employees for decisions can help reduce counterproductive behaviors (Greenberg, 1990).

Concerns have been raised that both physical and psychological health might be influenced by job attitudes. Individuals who dislike their jobs could experience adverse health outcomes. These outcomes include both physical symptoms and psychological problems. It has also been suggested that job dissatisfaction results in a shortened lifespan (Palmore, 1969). If true, this makes the optimization of job satisfaction an important social priority. This suggests that employer's effort to improve employee satisfaction may benefit employees, even if employee satisfaction does not affect firm's profitability. Freeman and Kleiner (2000) also observed the similar phenomenon who found that employee involvement has only very small effect on firm productivity, but benefits employees.

Organization citizenship behavior (OCB) is an employee's intention to help coworkers or the organization. In contrast to individual job performance, OCB is the

behavior that goes beyond the formal requirements of a job (Schnake, 1991). It consists of those voluntary things employees do to help their coworkers and employers. Organizational behavior is not part of the individual's assigned responsibilities. Those OCB could include: being punctual, helping others, making suggestions to improve things, not wasting time at work (Schnake, 1991). Empirical studies have found that satisfied employees tend to have more organizational citizenship behavior.

In summary, empirical research has found that job satisfaction has a moderate positive impact on employee job performance. Job satisfaction also affects employee turnover, absenteeism, organizational citizenship behavior, and some counterproductive behaviors.

However, the aggregate effect of attachment behavior, performance and organizational citizenship behavior on firm performance is still not clear. Turnover can increase the labor cost when the organization has to replace the ones who quit, but if only the poor performance quit, the organization actually benefit from the turnover. The same conclusion holds if the absenteeism can help the organization to identify the bad employees. This calls for a research that can evaluate the aggregate effects of employee job satisfaction on firm performance, and this is where this study lies in.

Chapter 3. Job Satisfaction, Human Resources Practices and Firm Performance ---Work System and Organization Research

This dissertation is aimed at exploring the relationship between employee job satisfaction and organizational performance at organizational level. This job satisfaction -- performance relationship falls in the research of work system and organization that has been the interest of organization researchers for a century. Closely related to this is the high performance work practice research emerged in last decade, and the individual level job satisfaction research in the mid of 20th century. This chapter will discuss how job satisfaction, human resources practices and firm performance are interrelated and how they can be categorized under the work system and organization research, and justify a scenario why an exploration of employee job satisfaction and firm performance at organizational level is needed. Specifically, this chapter will provide review of research of high performance work practice on firm performance, three groups of studies of work system and organization summarized by Ichniowski et al (1996), three generation of the research of work system and organization summarized by Cappelli and Neumark (2001), , how job satisfaction research can be placed within the research of work system and organization, and why we need to conduct an organizational level research of employee job satisfaction and organizational performance.

3.1 High Performance Work Practice

Starting from 1990s, there has been a stream of research focusing on the impact of "High Performance Work Practice" (also called "Innovative Human Resources Practices"

or "High Performance Human Resources Practices") on firm performance. Three performance measures are tested: Productivity-related performance measures (Ichniowski, et al. 1997), overall firm-level performance using measures of financial outcomes (Ichniowski, 1990), and organization efficiency (Cappelli & Neumark, 2001). In the mean time, research about individual human resources practices have been examined, for example, employee involvement (Freeman, Kleiner and Ostroff, 2000).

The arguments suggest that use of High Performance Work Practices for managing employees and organizing their work might lead to superior employee performance and in turn, superior organizational performance. Those High Performance Work Practices include incentive compensation and performance management systems, extensive employee involvement and training, communication between management and employees, and etc. They not only can improve employee's skill, increase their motivation, reduce shirking, and enhance retention of quality employees while encouraging nonperformers to leave the firm (Huselid, 1995), but also encourage the employees to be more creative in terms of generating new ideas.

Empirical studies attempting to estimate the benefits associated with these "high performance" work practices still remain inconclusive, and the results indicate mixed effects. Huselid (1995) used factor analysis to construct two human resources practices index from 13 measures of employment practices, and finds that greater use of high performance practices is associated with lower turnover and higher productivity per employee, but employee incentives was not significantly related to return on assets. He also finds little evidence of human resources practices synergies, which argued that a single practice might not work well without a bundle of human resources practices, as

Milgrom and Roberts (1985) argued. However, the sample of this research is a cross-sectional data from a sample of public companies with more than 100 employees, so causality is not guaranteed.

To overcome the weakness of a cross-sectional data, Huselid and Becker (1996) conducted a panel study to investigate the relationship between work practices and organizational performance. After controlling the unmeasured firm-level heterogeneity via firm fixed effects, the cross-sectional relationship become small and insignificant.

Delery and Doty (1996) attempt to examine the relationship between synergies of High Performance Work Practices and organizational performance in the banking industry, and conclude that banks with more formalized employment systems, such as formal training systems, internal career opportunities, have higher returns on assets, although they use cross sectional data with a response rate of only 11 percent. Later Delery, Gupta, and Shaw (1997) repeat the study with a sample of trucking companies with a cross sectional data set with a response rate of 36 percent and conclude that there are very weak relationships between work practices and returns on earnings, or cost ratios.

Ichiowski (1990) is the first of the researchers who conduct the research of relationship between work practices and firm financial performance. He constructs an index of human resource management practices which includes measures for the existence of formal information sharing programs, formal training programs, merit pay, use of broad job design, and formal grievance procedures. He concludes that this index has a significant impact on business performance as measured by Tobin's q or labor productivity. Unfortunately, he uses a cross sectional data with a low overall response

rate (under seven percent) and small sample made it difficult to draw robust conclusions, but the results seemed to suggest that a cluster of work practices was associated with higher financial performance to other clusters of practices.

Black and Lynch (1997) use data from a national employers survey and finds that work practices per se have little relationship to labor productivity at the establishment level unless introduced in particular combinations with other practices.

Appelbaum, et al. (forthcoming) study the effects of work practices within several manufacturing industries on both performance and labor costs. They report that high performance work practices have little effect on establishment performance, but are associated with higher employee compensation. However, their cross sectional data may not exclude unobserved heterogeneity effect. Freeman, Kleiner and Ostroff (2000) use compustat and a national survey data to investigate the relationship between employee involvement and productivity, they also find that employee involvement has no effect on firm productivity, but benefits employees, however, employee involvement program does not hurt the employers at all. Illustrated by this, it is still good for the company to implement employee involvement program to get some "externality" effect.

Cappelli and Neumark (2001) also find that high performance work practices may raise productivity, although the statistical case is weak, however, work practices on average raise labor cots per employee, and the net result is no apparent effect on efficiency, a measure that combines labor costs and labor productivity. They suggest that firms can choose "high road" human resources practices that raise employee compensation without necessarily harming their competitiveness.

Given the mixed results from current research literature, however, the methodological problems in the research of relating work practices to organizational performance are common. Many of the studies use surveys with very low response rates that may result in selection biases. The definition and dimension of work practices in the studies is quite diversified, with little overlap between studies in the practices examined. Some studies only look at one work practice, and other studies investigate a bundle of work practices. In most cases, the studies use whether the company has a set of work practices, rather than to what extent the practices are implemented. As Black and Lynch (1997) point, "what was associated with high productivity was not so much whether or not an employer adopted a particular work practice but rather how that work practice was actually implemented within the establishment.... it is not so much what you say you do, but how you do it that matters". They said that, simply adopting a Total Quality Management system has an insignificant or negative impact on productivity unless the proportion of workers involved in regular decision making within the plant is also high. Thus, to understand the effect of high performance work practices on firm performance, it is important to see how these practices are actually implemented. Employees in the organizations can tell how the high performance work practices are actually implemented better than the Human Resources Managers (Directors) who are the typical contact people in the High Performance Work Practices research. Through employee job satisfaction survey, we can get how employee feel about the various human resources policy and the information of employee job satisfaction provides a unique way to evaluate the impact of high performance work practices on organizational performance.

3.2 Work Systems, Organizational Performance and Employee Job Satisfaction

Many researchers have been interested in the relationship between job satisfaction and performance. People tend to believe that a satisfied worker will have favorable behaviors which will result in good individual performance, and eventually good organizational performance. For example, in 1960s, major strikes had been attributed primarily to job dissatisfaction (Hamermesh, 1976), and job dissatisfaction was the key cause of the detrimental strike for most of the industrial segmentation. Although this provided some evidences that employee job satisfaction did affect organizational performance, there was very little empirical research testing the relationship between satisfaction and performance at organizational level, though, as discussed in chapter 2, substantial attention has been paid to job satisfaction and performance, turnover, absenteeism and other individual behaviors at individual level.

For at least a century, researchers are interested in how the work system can influence organization. Ichniowski et al (1996: 300-302) summarized that the studies of work system and organization fall into three groups:(1) those that focus on effort and motivation of workers and work group, (2) those that focus on the use of workers' information, knowledge, and skills, and (3) those that emphasize changes in organizational structures and human resource practices (decentralization of decision-making, investments in training, job design, and so on) (Kochan, 2000).

The first of the three groups comes close to fitting with human relations schools whose theorists often have discussed satisfaction—performance connections. Theorists taking the human relations or human resource approach suggest that satisfied workers are

productive workers. Organizational productivity is achieved through employee satisfaction and attentions to workers' physical and emotional needs (Likert, 1961). Whether or not an employee will give his or her services wholeheartedly to the organization and produce up to potential level, in large part, depends on how the worker feels about the job, his/her fellow workers, and supervisors (Ostroff, 1992).

Employee satisfaction and sentiments influence the development of routine patterns of interaction. Through daily associations with others, employees develop relationships at work that fall into routine patterns, patterns that prescribe behavioral expectations and influence behaviors. Positive attitudes result in patterns that are directed toward achieving the organization's objectives. Organ (1977) posited that the satisfaction-performance hypothesis espoused by human relations theorists could be explained by a social exchange in which employees accorded some manner of social gift would experience satisfaction and feel an obligation to reciprocate, perhaps in the form of increased productivity.

The second group is implicitly related to the organizational citizenship behavior research in I/O psychology. It is argued that employees with more organizational citizenship behavior will be more willing to share knowledge and information and help each other with coworkers, participate in teamwork, and provide effort beyond his/her formal tasks. The work to rule (slow down) in union setting exactly illustrates this story: dissatisfied employees will only do what they are asked to do and compliance with management directions, but the slowdown may significantly decrease the firm productivity (Kleiner, Leonard & Pilarski, 2002). As Lazear (1998) indicated, both stick and carrot can let employees perform their jobs and share information, however, carrot

can facilitate employees to do something that is beyond the required. As chapter 2 indicates, more satisfied employee tends to have higher organizational citizenship behavior, have better contextual performance beyond task performance. Again, improving employee satisfaction is a way to increase the probability for the employees to share the information and knowledge. Satisfied employee has higher organizational commitment, and more likely to participate in firm specific knowledge and skill acquisition.

The third group research is also closely related to traditional job satisfaction research, especially the situational factors as the cause of employee job satisfaction. As review in Chapter 2, the situational factors are in large, the cause of job satisfaction, where the majority of the situational factors of interests are actually the structure of the organization, and the human resources policies, for example, the job enrichment, job design effects on job satisfaction (e.g., Hackman and Oldham's job characteristics theory: Hackman & Oldham, 1976, 1980)

The research of the work system and organization could also be classified as three generation according to Cappelli and Neumark (2001). The research of employee job satisfaction and individual job performance is one of the three generations. The first generation is case studies in the earlier of last century, such as the Western Electric studies beginning in the 1920s and a study in the mining industry in U. K.(Trist 1981; Cappelli & Neumark, 2001). The second generation of studies was more explicitly psychological, focusing on the individual as the unit of analysis and psychological factors as explanations. The majority of these studies used employee attitudes as the dependent variable, especially job satisfaction. Although most of the studies examining work organization issues from the psychological perspective related innovation in work

organization to job satisfaction or related concepts such as employee commitment. few studies attempted to examine relationships with outcomes at the organizational level, they take granted that employee basic psychological needs should be met in order to tap important sources of motivation and ideas from employees (Cappelli & Neumark, 2001). The third generation which start during the 1990s has been focused more on the research to examine relationships between innovative work practices and organizational performance as discussed above. This classification is based on three different research methodologies: case studies, empirically research at individual level and organizational level.

As a whole, the work system and organization research that has been done could be summarized as the following chart:

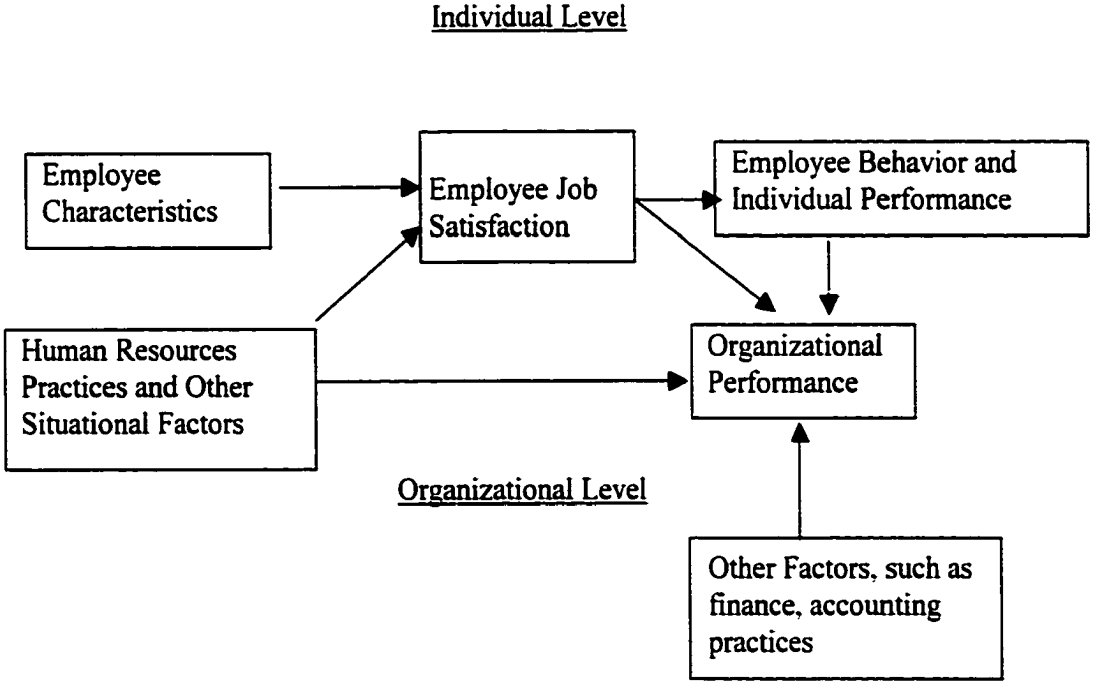

Figure 1. Job Satisfaction, Work System and Organization Research

However, these three research generations appear to be developed in isolation. A natural question could be raised: If at the individual level, human resources practices have positive effects on job satisfaction, and in the organizational level, the high performance work practices have effects on organizational performance, how can the two approaches be linked? What is the role of employee job satisfaction? Should we take granted that improvement of employee basic psychological needs and employee behavior changes would enhance the firm's productivity, as the second- generation research thought? If the satisfaction and attitudes of employees are important factors in determining their behavior and responses at work, and it is through these behaviors and responses that organizational effectiveness can be achieved, there must be some relationship between employee satisfaction and organizational performance.

To understand this, organizational level research on employee satisfaction and organization performance is needed. If good human resource practices, such as job design, job enrichment, can improve employee satisfaction, and if satisfied employees are more productive, and firms with more satisfied employees will be more productive, then good human resource practices will improve organization performance, partially via the improvement of employee job satisfaction. By introducing employee satisfaction into the framework of work system and organization, the two research generations can be integrated.

The second reason for an organizational level analysis is to overcome some of the research methodology issues in the third generation stream of research. Many such studies use whether there is a human resource practice in the organization as the measure of work

practices. In most of the work practice and firm performance research, surveys of the work practices are done at the firm level, and focused on "whether" specific practices exist, rather than "how" the practices are actually implemented and the coverage of the practices. Human resource managers or directors typically fill out the surveys and tell the researchers "what" practices exits. However, there is possibility that information asymmetry exists, and the human resources managers are not able to identify the extent to which the practices are "really" and "effectively" implemented. A simple example illustrates this point: almost all the employers in the United States have the human resource policy stating that they are an equal opportunity employers, but lawsuits claiming gender, race or age discrimination are common, and some firms pay a large amount penalty compensation. Thus, it may be better to measure the extent of work practices by directly asking employees about their satisfaction with and attitudes toward those practices.

Individual managers seem to have a greater impact on employee satisfaction than the company itself ("It's the Manager, Stupid," The Economist, August 8, 1998, p.54; Borden, 1999). This also tells us that existence of a human resources policy does not guarantee the implementation of the policy. If the individual manager of a department (group) implements the policies improperly or poorly, the policy will not have the expected effects, if otherwise the effect would be significant, if possible. Employee job satisfaction may provide a meaningful way to measure the differences between the implementation of HR policies and the existence of the policies. As Freeman (1978) indicated, satisfaction does depend on socially identifiable but missing or unobserved factors that are not easily identified. Treating satisfaction as an indicator of the omitted

aspects of the work place will help to get consistent estimation of the impact work place practices (Freeman, 1978).

On the other hand, organizational level satisfaction-performance research can help explain the failure to find a relationship between satisfaction and performance at individual level. The definition of performance in individual-level studies may have been restricted too narrowly. Moreover, lower individual performance is just one possible response to dissatisfaction. Dissatisfied employees could also file a grievance trying to improve their performance, which will eventually improve the whole working system and organization performance. Organizational effectiveness is in large part a function of employees' behaviors. Because of interactions and dependencies in the work process, it has been argued that organizational performance is not a simple sum of individual or unit performance or productivity (Mahoney, 1984). Measures of organizational effectiveness most likely reflect the combination and interaction of the salient organizational behaviors that promote organizational performance. Organizational effectiveness measures can reflect, at least in part, the cumulative responses and interactions among employees. For example, dissatisfied employees could maintain their performance levels but fail to inform supervisors of important pieces of information, which in the long run, would result in lower effectiveness for the organization (Locke, 1984).

Ostroff (1992) is the one who first tried to examine the employee satisfaction and performance at organizational level. She used survey of 298 junior and senior/junior high school, which collected employee satisfaction and attitudes, characteristics of schools and organizational performance indices. The organizational performance measures included academic achievement, student behavior, student satisfaction, teacher turnover, and

administrative performance. The school characteristics included the proportion of non-minority students in the school, the governing structure of school (private vs. public), ratio of students to teachers in the school, and average expenditure. The employee satisfaction measures included satisfaction with co-workers, supervision, pay, administration, career advancement opportunities, student discipline, school curriculum, community and parental support, physical facilities and communication. She averaged the satisfaction to school level and took the mean as the satisfaction value of the school. Regression results showed that satisfaction had a positive effect on school performance. Although both the satisfaction and performance were measured subjectively, and some missing variable problems existed, this is the pioneering paper in psychology literature on this relation at the organizational level.

A structure model as above constitutes the framework of the overall research of work system and organizations. However, the interest of my study is to explore the effects of the employee satisfaction on firm performance. Thus a reduced form of model will be investigated in this analysis. We will treat employee job satisfaction as predetermined by various employee characteristics, human resources practices and other situational factors, with only the possibility of "Endogeneity" that organizational performance may affect employee job satisfaction, which will be tested in the analysis.

Chapter 4 Branch Output, Data and Model Specification

I will use a reduced form of the general research framework presented in the last chapter to investigate the impact of employee satisfaction on branch performance at commercial bank branch level. At this aggregate level, the branch performance is specified as the consequence of average employee job satisfaction and other community data that will affect the branch performance. First, I will introduce the output of bank and output of bank branch, then the data and data sources will be described and a model specification will be presented.

4.1 Bank Output and Bank Branch Output

4.1.1 Asset Approach, User Cost Approach and Production Approach

Studies of productivity in the banking industry have struggled with the issue of what constitutes the "output" of a bank. Disagreement exists over which services banks produce and how to measure the output. Three alternative methods of evaluating the output of banks have been proposed by Berger and Humphrey (1992), they are: asset approach, user cost approach and production approach.

Asset approach, also called intermediation approach, defines banks as "financial intermediaries" between liability holders and those who receive bank funds. Loans and other assets are considered to be bank outputs, while deposits and other liabilities are inputs to the intermediation process. This is appropriate for some large banks that primarily purchase their funds from other banks and large depositors and use these funds as loans to earn money. However, as Berger and Humphrey (1992) point out, most banks

do much more than purchase funds— they also provide substantial services to depositors such as the ability to write checks and withdraw cash to attract deposits. Most banks raise a substantial portion of their funds through deposits and provide liquidity, payments, and safekeeping service to depositors to obtain these funds.

An important contrast between a bank and an industrial concern is that banks are peculiar in the way they pay for the acquisition of their raw material—that is, deposits. Whereas industrial firms make cash payments only for raw materials, banks pay in terms of cash (interest payments) and in-kind services, including protection of depositors' funds, fund transfer services, collection of checks deposited, record keeping, monthly statements, and so forth. Another important difference between banks and industrial firms is that although industrial firms usually purchase their raw materials and retain the property rights of the materials until the finished goods are sold, banks acquire the right to use their raw material (or deposits) only for as long as owners of deposits allow. This factor increases risk costs of raw materials in banking as compared to non-financial companies.

However, these services as well as the risk protection associated with the deposits are not counted as output in the asset or intermediation approach. As Berger and Humphrey (1992) point out, in the study of loan costs or profitability, it will be best to take the costs and different methods of raising funds to be exogenous. However, this is not appropriate in any studies of banking output as a whole. In this case, a structural form in which the investable funds are an intermediate output of raising deposits, and the services are provided to depositors as partial payment to obtain these funds, will be appropriate. The asset approach excludes the important differences in service output used

to raise funds from purchasing funds.

The user cost approach determines whether a financial product is an input or an output on the basis of its net contribution to bank revenue. If the financial returns on an asset exceed the opportunity cost of funds or if the financial costs of a liability are less than the opportunity cost, then the financial product will be considered to be a financial output. Otherwise, it will be considered as a financial input. Hancock (1991) employs the user cost approach to determine that loans and demand deposits categorically are bank's outputs, whereas time deposits are inputs. As Berger and Humphrey (1992) point out, several problems are associated with the user cost approach. Most significant one is that it is difficult, if not virtually impossible, to measure and unambiguously apportion financial returns and opportunity costs among various financial products of a bank. For example, borrowers are often required to hold part of their loan funds as idle demand deposit balances, so some of the bank's earnings on a loan are actually implicit and are earned by paying less than the opportunity cost of funds on the idle deposits. Further implicit earnings accrue to the bank on a loan when additional balances are kept with the bank for liquidity, clearing, or timing purposes associated with spending the loan receipts. Another difficulty is in adjusting opportunity costs for the important characteristics of bank assets and liabilities, such as differences in credit risk, liquidity, etc. Banks earn substantially higher rates for riskier, less liquid, and longer term assets and pay substantially higher rates for deposits and other liabilities that are uninsured, have fewer liquidity features, and have longer terms to maturity. Opportunity cost must be adjusted for each category or, equivalently, the financial return or cost of each category must be adjusted before applying a common opportunity, however, in practice, these adjustments are difficult to

make for every category, although there have been some attempts to do so.

The production approach, sometimes called value-added approach, considers all liability and asset categories to have some output characteristics rather than distinguishing outputs from inputs in a mutually exclusive way. This approach treats demand deposit, time deposit, saving account, commercial loans, real estate loans, installment loans and other various loans as important outputs using capital, labor and materials to do so, as Berger and Humphrey (1992) argue that the production for each financial measure of bank should be determined on the basis of operating costs, and those that have "significant" value-added should be considered the outputs of the banks. It is worth to notice that production approach is similar to those used in the Bureau of Labor Statistics (BLS) measure of bank labor productivity. In BLS study, the productivity is measured as a set of aggregate transaction flow data on major deposit and loan services, including the number of checks written for demand deposits, the number of savings deposits and withdrawals from time and saving accounts, and the number of new loans for real estate, commercial, and installment loans (BLS 1989). Unfortunately, these flow data are not available for all banks, let alone bank branches. Moreover, this use of number of account and transaction presents a problem in that it implies that there are equal cost and output across various types of accounts and transaction. Contrary to this implication, demand deposit accounts, for instance, may be more active and thus more costly to maintain than time deposit accounts; installment loan accounts may be more costly to maintain than industrial loans; and so forth. Using dollar values as the measure of output alleviates this problem.

Another measure that is quite intuitively considered representative of a bank's

output is the total revenues of a bank. However, econometric studies of the banking industry have been loathe to use revenue as an output measure, as we described above, revenues are both inputs and outputs. Interest and fees are required to hold idle deposits as a condition of the loan, and these idle deposits give rise to "implicit revenues" (Berger and Humphrey, 1992; Prasad and Harker, 1997). Berger and Humphrey demonstrate that the situation with deposits is worse, with implicit revenues contributing as much as 80% of the total deposit revenues in 1988. This lead to their conclusion: "... in banking, unlike other industries, explicit revenues are unreliable guide to determining inputs or service flows."

4.1.2 Production Approach---Sales of the Branch

For analysis at the bank level, the asset (intermediation) approach is generally preferred because it captures the essence of a bank as a financial intermediary. For analysis at the branch level, the production approach may be more appropriate. As Berger, Leusner and Mingo (1994) argued, branches act primarily as producers of depositor services on behalf of the bank, which then invests the funds in loans and other assets. The banks as a whole makes the asset and liability decisions, and branches primarily operate to raise the funds through the service provided as an exchange for deposit, such as check writing, and sell loans to the communities it serves. Since individual branch has little control over interest expense, revenues, or number of transactions required per dollar of deposit, and can only be expected to try to minimize operating costs per transaction, attract more deposits by active sales effort and lend more money to borrowers within the reasonable risk requirement. Thus, the production approach is likely the better method for

evaluating the individual branch performance.

In production approach, the sum of total deposits and loans is sometimes called sales of the bank or the branch. In modern commercial banking system, at large part, the sales of a branch depend on how often the branch staff contacts the customers and the probability that a contact will lead to a sale. The amount of contact and the probability of a sale are both function of the characteristics of the community it serves and the individuals who live in the community and the personal characteristics of the branch employees (employee job satisfaction, motivation, etc.). For example, the amount of contact depends on the volume of customer traffic at the branch and the number of calls that personal bankers make to existing and potential customer, as well as the number of competitors in the community. The probability of a sale for a contact is a function of the characteristics of the customer (e.g., wealth, age), the ability and motivation of the branch employee to make a sale, and again, the competitors in the community. The ability of the employee to make a sale is dependent on the employees' experience at the branch and their product knowledge, sales training, motivation, cooperation with other coworkers and their job satisfaction (Bartel, 2000).

In retail banking, customers have idiosyncratic needs and the interactions between these customers and bank employees takes place at the branch level. Hence, satisfied employees may be more able to handle the interactions with customers and provide customized service for different customers. Rapid changes in the technology and the use of the technology in the banking industry have changed the tasks that branch personnel perform radically. For instance, tellers simply processed customers' transactions, but today, they are being trained and evaluated on the basis of their ability to sell various

financial products or make referrals to the proper sales personnel (Bartel, 2000).

Of a branch's income, the spread income is the largest component, the other components can be summarized as: (1) liability fees, including fees from stop payment, returned checks, over draft fees, wire transfer, etc; (2) asset fees, such as fees from loan processing, late payment charge, loan application; (3) transactional fees, including ATM transaction fee, travelers' checks; and (4) brokerage commissions. As Bartel (2000) described, there is general agreement that, in the new sales-oriented environment, branches are evaluated based on their sales of products. That is to say, a good branch should be the one that has good deposits, loans and good growth of deposits and loans. Thus, production approach where the total deposits and loans are treated as the output of the branch is the best measure of branch output. However, there are some new suggestions that the net sales, rather than the total sales, could be a much better measure of commercial bank branches. Bartel (2000), Bartel, Freeman, Ichniowski and Kleiner (1999) conducted interviews with numerous branch managers and financial and accounting managers at the bank headquarters in several commercial banks both in Canada and the U.S. The managers think that branch personnel's job is to use labor and capital to "produce" deposits and loans, but unlike the specification in the standard production approach, the output of a branch is best measured by its net sales of the deposits and loan products.

Based on the discussion, there are two forms of production approach to evaluate the output of the retailing bank branch: the standard production approach (the total sales) and the new production approach (the net sales). In this study, we will consider both of these two measures in the model specification and estimation.

4.2 Data Sources, Variables and Model Specification

4.2.1 Model Specification

Sales are a function of the characteristics of the neighborhood in which the branch is located and the individuals who live there, the personal characteristics of the branch employees, and the satisfaction level of the branch employees. Based on the preceding discussion, both standard production approach where branch output is measured by total sales and new production approach where branch output is measured by net sales will be considered. Specifically, two models will be specified with different dependent variables:

$$\ln(\text{Total Sales}) = \beta_0 + \beta_1 * \text{Control Variables} + \beta_2 * \text{Employee satisfaction} \quad (1)$$

$$\ln(\text{Net Sales}) = \beta_0 + \beta_1 * \text{Control Variables} + \beta_2 * \text{Employee satisfaction.} \quad (2)$$

Model (1) is based on the standard production approach, where the logarithm of total sales of the branch is specified as the dependent variable. Model (2) is based on new production approach, where the logarithm of the net sales of the branch is specified as the dependent variable. These two models have same independent variables, however.

Fifteen control variables describing the community ("the market") the branch served and the branch's employee characteristics will be included in the models as described below. The employee satisfaction variable is either the branch level average of raw score of employee job satisfaction extracted from employee attitude survey or the average of the factor scores derived from factor analysis.

I identify 6 facets of employee job satisfaction and 1 overall satisfaction. Each facet and the overall satisfaction will be measured by the average of raw responses and average of factor scores generated from factor analysis of the individual job satisfaction.

So, for each model, there will be 14 measures of employee job satisfaction. To understand the effect of each facet of employee job satisfaction, I enter these 14 employee job satisfaction variables separately into the regression. This will create 14 cross sectional regression estimates for analysis for each model specification for each year of 1994 and 1996. When the pooled data of 1994 and 1996 is used with a year dummy, each model specification will have another 14 regression estimates. As a result, for each model specification, there will be 42 (3×14) regression estimates, of which 21 of them will use average raw responses as the measures of employee job satisfaction variables, and the other 21 will use average factor scores. For detailed discussion of the 6 facets of employee job satisfaction and 1 overall employee job satisfaction, as well as the discussion of average raw responses and average factor scores, see Section C of 4.2.2 below.

However, it is quite possible that employee job satisfaction is the consequence of branch performance. That is to say, good branch performance will lead to higher employee job satisfaction, and so, employee satisfaction is an endogenous variable, rather than an exogenous variable. To test the endogeneity of employee job satisfaction, we generate instruments for employee job satisfaction using reduced form equations, where employee job satisfaction is measured as the branch mean of the raw responses, which is used for subsequent Hausman tests. Average employee age of the branch, square of average employee age of the branch, percentage of female employee in the branch, total unemployment rate in the area, average median years of schooling completed in the area, average tenure of the employees and its square (note: not the average tenure with the branch) and per capita income in the area are used as instruments to estimate the reduced

form equations. We then used the residuals from these equations to construct Hausman-Wu tests for exogeneity of employee job satisfaction in all regressions, where employee job satisfaction variable is the branch level average of the raw employee job satisfaction survey responses. In the 42 regressions in the two model specifications (7 for model (1) for the year of 1994, 7 for model (1) for 1996, 7 for model (2) for the year of 1994 and 7 for model (2) for 1996, and 7 for model (1) for pooled 1994 and 1996 data, and 7 for model (2) for polled 1994 and 1996 data), only less than one third were we able to reject the null hypothesis of exogeneity of employee job satisfaction. In other words, we have little evidence that branch performance affects employee job satisfaction, at least in this unique dataset. Thus, our regressions use the actual values of these variables and the corresponding factor scores from factor analysis, rather than predicted values.

4.2.2 Data Source

This dissertation relies primarily on data obtained by Bartel, Freeman, Ichniowski and Kleiner (1999) on a large commercial U. S. bank ("THIS Company"). THIS Company conducted employee attitude surveys in 1994 and 1996 in its retail branches in the United States. The purpose of those surveys was to gather information about the job and work environment at THIS Company, because THIS Company believed that people are critical to its mission to be a pre-eminent customer-driven company. They want to ensure that the environment helps people to do their best work and provide the best service they could.

These surveys asked the employees about their job satisfaction, perception on how human resources practices are implemented and work environment, and their

attitudes toward their immediate supervisor/manager and senior management. Bartel et al (1999) also collect balance sheet, income statement data and employee characteristics from 86% of the branches in a metropolitan area. They also collect information of the neighborhood in which the branch was located, such as community household income, unemployment rate, and other local market information.

The questions were administered to employees in branches of THIS Company in a large metropolitan area. The response rate is 66% and 52% for 1994 and 1996 respectively. The following part will provide detailed description of these variables.

THIS Company was involved a lot of consolidation in the year of 1995, which fell in the two survey years of 1994 and 1996. Based on the financial performance of the branches of 1994 and some strategic decisions, a lot of branches were merged with nearby branches. Some employees were laid off or transferred to other branches, and the accounts (deposits and loans) were merged with the nearby branches. As a result, we have 193 branches available for analysis in 1994, but only 143 branches in 1996 (i.e., 50 branches was closed in 1995). However, we do not have exact information about what the measure of the financial performance of the branches is used to decide which branch should be closed, which branch was merged with which branch, and how the employees were laid off, or transferred to which remaining branch. This ambiguity will lead to more branch related heterogeneity, even though a fixed effect model will also be estimated, we still do not have enough evidences that the branch heterogeneity would have been eliminated in the fixed effect model.

A. Total Sales and Net Sales

Balance sheet and income statement data are from the branches' financial records. Those data include the financial information of checking account, certificate, installment, savings, and other basic bank activities. From those financial data, we are able to construct our branch financial performance data, which will be used as our dependent variables.

The measure of branch performance is defined as twofold according to the above discussion: (1) Total sales of the branch: total sales is defined as total footing in the branch from the branch's balance sheet. It is the average of total footing at the beginning and the end of each year, where total footing is the sum of total deposits and loans. (2) Net sales: net sales is defined as the growth in total footings in the branch from the branch's balance sheets, that is, the change in deposit and loans on a branch's balance sheet from the beginning to the end of the year. The growth in total footing reflects the net sales of deposits and loans if we think the bank is "producing" and "selling" deposits and loans according to production approach discussed above.

B. Control Variables

Retail bank branches operate the business in very different parts of the metropolitan area with different kinds of demographic and commercial characteristics. For example, some of the branches operate in wealthy residential areas while some in poor neighborhoods. Some are in central city while others are in the surrounding suburbs. Each branch is located within a certain zip code area, and each branch has its target service area, referred as the "market" of the branch. In a study of an anonymous Canadian bank Bartel (2000) analyzed, the "market" is defined by drawing a circle around the

branch with a radius of 2.5 kilometers. The "market" of THIS Company is defined as the zip code area it is located and serviced, although it is possible for more than 1 branch to be located within one zip code.

Those different business environments and branch "markets" are characterized by differences in the population, economic situation, labor market condition and so on in the neighborhood as well as the characteristics of the employees of the branches. To control for this heterogeneity, we will include three sets of variables describing a number of characteristics of the branches' community and the branches themselves.

The first set of control variables is the demographic variables of the community defined as the zip code area, including population, median years of schooling completed for the population, per capita income, average household wealth, number of owner occupied households, unemployment rate, median home value, and estimated sales in all establishments[1] in the zip code for the year of 1995. These data is collected and estimated by Claritas data service for the bank, which is a private company providing marketing information resources and solutions for This Company.

The second set variables are from U. S. Census Bureau Zip Code Business Patterns measuring business activity in the zip code: total number of establishments, total employees in all the establishments, total establishments of finance, insurance and real estate, total establishments of commercial banks, and total establishments of other depository institutions which are defined as savings institutions and credit unions. The

[1] There are several variables describing the community and the market of the branch in this study: estimated sales in all establishments, total number of establishments, total employees in all the establishments. They are not the variable describing the branches of THIS Company or THIS Company itself. For example, estimated sales in all establishments is neither the sales of branches of THIS company nor the sales of THIS company— it is the sales of the all the industries in the zip code area.

total establishments of commercial banks. depository institutions, and total establishments of finance, insurance and real estates provide the presence of financial institution in the zip code, which are the indicators of wealth of the community as well as the indicators of the competitors of the branch in the zip code. Unlike the first set variables, we have these data for both the year of 1994 and 1996.

However, when two or more branches are located in the same zip code, every branch within that zip code will be assigned the same variables. These kinds of branches account for 35% and 26% of total branches available in 1994 and 1996. There are potential problems associated with these first two sets of variables. We will include a dummy variable as a control.

The last set of variables is the branch characteristics: average age of the branch work force in the given year and numbers of employees in the branch. We believe that employee characteristics are likely to be correlated with their productivity which could be important determinants of branch performance. Such as the employees' experience at the branch as well as their product knowledge, sales training and motivation. However, we only have the average age of the employees, which could partially measure the employee experiences. Average number of employees could measure the scale of the branch, if the branch operates in a rational and efficient way, no excess employees will be hired and no shortage of employees exists in the branch. We also have the average tenure of the employees in THIS Company, but we do not have the average tenure of the employees in the branch.

C. Employee Job Satisfaction

Employee job satisfaction data were generated from the 1994 and 1996 surveys administered to the employees. Both surveys used 5-point Likert-type scale. In the questionnaire, "1" refers to "very satisfied" or "strongly agree to" a positive statement, "5" refers to "very dissatisfied" or "strongly disagree to" a positive statement. To make our analysis much easier to interpret, we reverse the scoring on the questions, i.e., if the answer is 1, we will recode it as 5, if the answer is 2, we will recode it as 4, and so on. As a result, "5" will be then refers to "very satisfied" or "strongly agree to" a positive statement, such as "adequate training is provided to me when job responsibilities change". In the regression, a positive coefficient will indicate a positive effect of satisfaction on branch performance.

Twenty items measuring employee satisfaction with various aspects of their jobs are identified. Those 20 questions are similar to some of the job satisfaction measurement instruments, such as Job Satisfaction Survey (Spector, 1985). A factor analysis is used to transform these 20 items into a reduced number of dimensions. As shown in figure 2, eigenvalues drop dramatically after the sixth factor, indicating that 6-factor solution could be appropriate. However, only 1 eigienvalue is greater than 1, which implies that the variation is loaded mainly in 1 factor, i.e., overall job satisfaction. In this study, we will use both 6 factors and 1 factor in the analysis, where the 6 factors refer to the 6 facets of job satisfaction, and the 1 factor refers to the overall job satisfaction. These 6 dimensions are the satisfaction with supervision, communication, training, nature of work, pay and co-workers. Cronbach's alpha for these 6 dimensions is .86, .78, .82, .73. .65 and .86 respectively when estimated by 1994 data, .85, .80, .83, .74, .65, and .85 respectively when estimated by 1996 data, and .86, .79, .82, .74, .65 and .86 when estimated by the

pooled data. The twenty items are listed in appendix 1 with the description of the facets of job satisfaction and Cronbach's alpha. The 6-factor solution was rotated using oblique and orthogonal rotation (varimax rotation) to get a factor pattern. Appendix 2 shows the factor pattern of the 6-factor solution with varimax rotation and oblique rotation using 1994, 1996 and the pooled data.

I could not get the psychometric properties of this questionnaire directly from the developer, Psychology Professor Howard Weiss at Purdue University, however, other alternative way might be used to estimate the reliability and validity for this nonstandard job satisfaction scale. The reliability estimates are calculated as internal consistency reliability estimates (Cronbach's Alpha), as showed above. Validity evidence for job satisfaction for this study is provided by studies that compare different scales with one another on the same employees. We conducted an employee satisfaction survey in an auto supply parts company in Boston to 171 engineers. Both this questionnaire (THIS) and short form of Minnesota Satisfaction Questionnaire (MSQ; Weiss et al., 1967) were used. The MSQ has a short form and a long form covering 20 facets, where a long version includes 100 items with each facet of five items, and the short version includes 20 items with each facet of 1 item. This provides us an opportunity to provide some evidences for discriminant and convergent validities by a multitrait-multimethod analysis of THIS and MSQ. The following table summarizes the intercorrelations of the THIS and MSQ, with the multitrait-multimethod matrix at the top, and the correlations between the four common subscales and additional 2 subscales at the bottom. Several researchers (e.g., Spector 1985) have used this validation strategy.

However, the facets in MSQ are in many cases more specific than other popular

satisfaction instruments, such as Job Descriptive Index (JDI; Smith, Kendall & Hulin, 1969), or Job Satisfaction Survey (JSS; Spector, 1985). For example, satisfaction with supervision is divided into a human relations component and a technical competence component, and the nature of work is reflected in several facets, including ability utilization, achievement, activity, creativity, independence, and variety. Although MSQ facets are more specific, much of its content is contained in other scales. For example, the JSS supervision items tap both the human relations and technical competence aspects. To get the validity coefficients from the satisfaction survey for this auto supply parts manufacturer, we will add corresponding items to form a more general construct, for example, the score of supervision will be the sum of scores of human relations component and technical competence component, the nature of the work will be the sum of ability utilization, achievement, activity, and etc.

We can see from the Table 1, the results fit quite well with the four criteria of Campbell and Fiske (1959). First, validity correlations between equivalent subscales from both instruments (bold and underlined) were significant larger than zero and of reasonable magnitude, .59 to .75. Second, these values were all higher than correlations between noncorresponding subscales across instruments, shown in the hetero-trait, hetero-method triangles. Third, the validity correlations were all higher than the intercorrelations among subscales within each instrument, as shown in the hetero-trait, mono-method triangles. Finally, the pattern of interrelationship among subscales for both instruments were reasonable consistent. The multitrait-multimethod matrix provides us the discriminant validity and convergent validity. From this analysis, I concluded that this is an acceptable job satisfaction instrument.

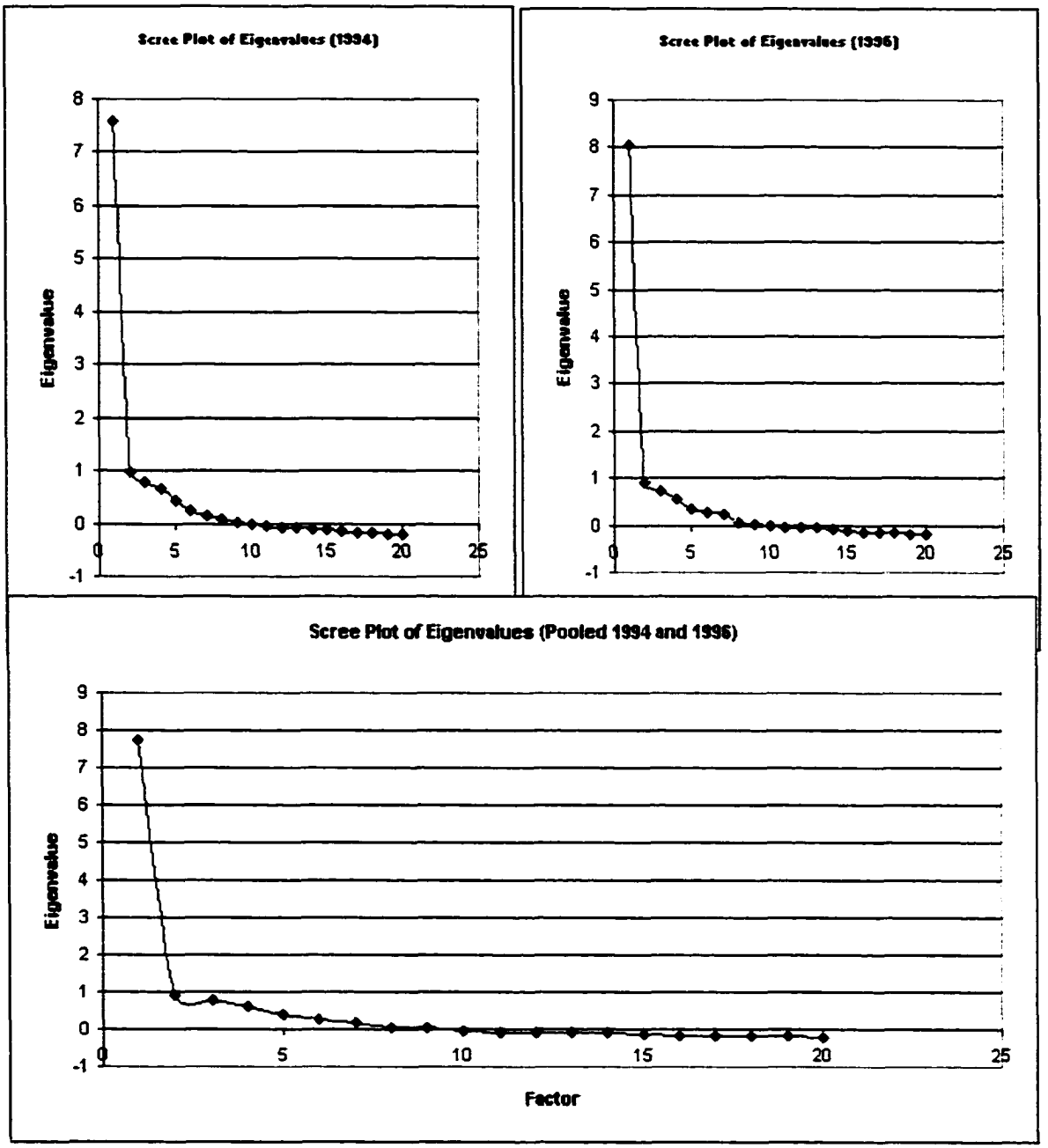

Figure 2. Scree Plot of Eigenvalues

Scale	1	2	3	4	5	6	7	8
MSQ								
1. Nature of Work								
2. Pay	31							
3. Supervision	39	23						
4. Co-workers	17	6	20					
THIS								
5. Nature of Work	**69**	32	46	25				
6. Pay	34	**65**	39	14	43			
7. Supervision	40	38	**75**	25	46	53		
8. Co-workers	16	-3	21	**59**	20	1	26	
Communication	31	26	27	15	30	31	35	9
Training	39	38	43	14	42	46	56	14

n=159, r>.19 for p<.05

Table 1 Multitrait-Multimethod Matrix for THIS and MSQ

4.3 Aggregation of the Employee Survey Responses.

Employee survey responses were reported individually, however, if we want to measure the effect of employee satisfaction on branch performance at the branch level. we need to measure employee satisfaction at the branch level. The obvious way to get the branch level measure of employee satisfaction is to use the average scores for the branches. A reasonable question will be raised: is it appropriate to use the average level of satisfaction as the branch level employee job satisfaction? Does the unit of analysis matter?

A critical point made by Roberts et al. (1978) was that unit(s) on which a theory is based should dictate the units selected for observations. Current measures and research about employee job satisfaction suggest that the unit of employee satisfaction is the individual, and the appropriate unit to select for observation is the individual. Researcher are concerned about the construct validity if the individual level job satisfaction is used to measure a higher level job satisfaction, such as group, team or even organizational level. This is maybe part of the reason why there is almost no employee satisfaction research on firm or branch level.

However, the individual level variables can be aggregated and used to describe organizations (or groups, divisions, departments, etc.) (James, 1982), since aggregated analysis may provide a powerful explanatory and predictive tool. Roberts et al (1978) recommended that one consider whether "a concept developed to refer to individuals is equally applicable to higher level units." (1978, p.83). They argued how a construct operationalized at one level of analysis is related to another form of that construct at a different level of analysis. More specifically, they stipulated that before a construct whose unit of theory is the individual is aggregated to represent a macro unit of analysis, homogeneity of within-groups or within-organizations variance must first be demonstrated. They concluded that, small within-organization variance relative to between organization variance suggests that average in the organization level might be a useful concept. A shared assignment of the satisfaction in the organization provides an opportunity to describe the organization in psychological terms in a broad way. It is quite possible that the branch level employee satisfaction construct at the aggregate level is defined in precisely the same manner as it is at the individual level.

To test whether it is appropriate to use the aggregated score from individual observations, and to assess the reliability of the mean scores, a form of intraclass correlation can be computed. The intraclass correlations are denoted as ICC(1) and ICC(2) (James, 1982; Lord & Novick, 1968). ICC(1) was computed in order to estimate whether individuals within the organization "agree" in their response. It is the mean squares furnished by the one-way analysis of variance (ANOVA) in which organizations are the independent variables. ICC(1) compares the between-organization sum of squares to the total sum of squares, and represents the proportion of variance in individuals' perceptions accounted for by differences in organizations.

ICC(2) is used to assess the reliability of mean X scores for the K organizations. It is estimated by following application of the Spearman-Brown prophecy formula (n_k is the number of observations in organization K and is assumed equal): n_k*ICC(1)/(1+(n_k-1)*ICC(1)). The ICC(2) may be interpreted as follows (Bartko, 1976): If another sample of n_k individuals were sampled randomly from each of the same K organizations, then the correlation between the two sets of means on X (i.e., the correlation between the two sets of mean X scores on a sample of K organizations) would be approximately equal to ICC(2). Another interpretation of ICC(2) is that, given significance of the F ratio in the one-way ANOVA, the K organizations can be reliably differentiated in terms of the perceptions on X. In general, ICC(1) values have ranged from 0 to .5 with a median of .12 (James, 1982).

We use the raw responses from the employee survey to calculate the ICC(1) and ICC(2) for this study. The ICC(1) and ICC(2) for the variables from the 1994 and 1996 are reported in Table 2 which indicates that there are reliable mean differences between

organizations as well as acceptable levels of "agreement". So aggregation was deemed appropriate for these variables. The n_k used to calculate ICC(2) is the average employees for each branch. n_k is 11.58 in 1994 and 15.13 in 1996.

However, employee job satisfaction is an abstract construct in the domain of psychology research. The academic disciplines of psychology and sociology have long faced the problem of measuring abstract concepts such as "intelligence", "socioeconomic status", "organizational climate", and of course, "employee job satisfaction". The standard statistical approach toward those social measurements is based on the idea of latent variables. Latent variables are hypothesized as an underlying variable that cannot be observed or measured directly. Instead, a set of manifest variables, or indicator variables, is observed which reveal information about the unobserved latent variables, sometimes also called factors. The statistical problem is to infer values of the unobserved latent variables from the observed values of the indicator variables. One way to deal with latent variables is factor analysis.

The average of the raw responses is equivalent to a method called "summated rating scales", which simply adds up the indicator variables and use their sum, or average, as the measure. For example, in the Minnesota Satisfaction Questionnaire (MSQ), each of the twenty scales of the long-form consists of 5 items, and the score of each scale is the sum of the 5 corresponding items. However, summated rating scale is a special case of principal component analysis with a restrictive assumption that all the weights of the indicator variables are same. Because of this restrictive assumption, summate rating scales is a quite crude way to analyze latent variables, however, a very easy way. This

might the reason why a lot of researchers used summated rating scales when dealing with latent variables.

To overcome the weakness of summated rating scales, we will also consider the average of the factor scores in our analysis. Each individual employee will have 6 factor scores and 1 overall satisfaction score, which will be averaged to branch level. As a result, at branch level, we will have 6 variables from average of raw responses for each facet of employee job satisfaction, 6 variables from average of factor scores for each facet of employee job satisfaction, 1 variable from average of raw responses for overall job satisfaction, and 1 variable from average of factor scores for overall job satisfaction.

Table 2. ICC(1) and ICC(2)

	Variables	1994		1996	
		ICC(1)	ICC(2)	ICC(1)	ICC(2)
V1	How do you rate the amount of pay you get on your job?	0.14	0.67	0.17	0.54
V2	Decisions about my compensation have been consistent with my performance.	0.12	0.63	0.14	0.51
V3	I am given a real opportunity to improve my skills in this company.	0.13	0.65	0.15	0.52
V4	THIS Company invests in the development of employees.	0.15	0.69	0.18	0.55
V5	Adequate training is provided to me when job responsibility change.	0.14	0.67	0.15	0.52
V6	How satisfied are you with the training you received for your present job?	0.12	0.63	0.15	0.52
V7	My manager/supervisor respects his/her employees	0.25	0.80	0.26	0.60
V8	I am dealt with in an open and honest manner.	0.17	0.72	0.2	0.56
V9	My manager /supervisor listens to my ideas and concerns.	0.19	0.74	0.21	0.57
V10	I regularly get feedback from my manager / supervisor about my performance.	0.15	0.69	0.16	0.53
V11	The people I work with cooperate to get the job done.	0.19	0.74	0.2	0.56
V12	The people in my work group share their knowledge and experience when it can benefit others.	0.18	0.73	0.18	0.55
V13	I feel proud to work for THIS Company.	0.13	0.65	0.15	0.52
V14	My job makes good use of my skills and abilities.	0.11	0.60	0.11	0.47
V15	My work gives a feeling of personal accomplishment.	0.12	0.63	0.12	0.48
V16	My job is too monotonous.	0.1	0.58	0.1	0.45
V17	Senior management has communicated a clear and consistent plan for meeting our business goals.	0.14	0.67	0.17	0.54
V18	I get enough information about our progress against national business goals.	0.13	0.65	0.16	0.53
V19	At THIS Company, plans are communicated in time for us to implement them effectively.	0.12	0.63	0.15	0.52
V20	How satisfied are you with the information you receive from management about what's going on at THIS Company?	0.15	0.69	0.18	0.55

Chapter 5. Results and Discussion

Individual employee job satisfaction will be averaged to branch level in order to do the firm level analysis. We have several ways to do so. One way is to use summated rating scales to add the raw responses of all questions for each dimension and overall satisfaction, then divide the total scores by the number of employees in that branch why filled out the survey. Another way is to use factor analysis on all the individuals to get factor score for each individual on each facet of employee job satisfaction and overall satisfaction, and then average the factor scores to branch level.

The sum of items for each dimension will be divided by the numbers of items before we get the branch mean level when we use average of raw responses, this will ensure that all the satisfaction dimensions as well as overall satisfaction will be within the range of 1 to 5. The response to the question "my job is too monotonous" will be reversed because of the "reverse" nature of this question.

5.1 Analysis and Results

Table 3 reports summary statistics for dependent and independent variables except employee job satisfaction variables. Table 4 reports summary statistics for employee job satisfaction variables. Appendix 3-1 and Appendix 3-2 report correlation matrices of all dependent variables and independent variables.

The average employee age of the branches is about 36 years old, and the average number of employees for each branch is 11.58 and 15.12 for the year of 1994 and 1996 respectively. The average number of establishments of commercial banks in the area is

9.39 in 1994 and 9.85 in 1996, and average number of establishments of finance, insurance and real estates in the area is 237.8 and 260.7 in 1994 and 1996 respectively. Employee satisfaction is also quite stable with the mean of overall satisfaction of 3.58 in 1994 and 3.62 in 1996 when average raw responses are used. Median years of schooling completed and per capita income in the area are highly correlated with correlation of .86 and .85 in 1994 and 1996 respectively. Median years of schooling completed in the area are also highly correlated with median home value in the area, but highly negatively correlated with unemployment rate in the area. This is consistent that higher education will be associated with higher employment, higher income and more wealth. Interestingly, the correlation between log of total sales and log of net sales of the branches is moderate, with the correlation coefficients only .23 and .14 in 1994 and 1996. The correlation between log of total sales of the branches and the average household wealth in the area is .05 and .13 in 1994 and 1996, and the correlation between log of total sales of the branch and total population in the area is only -.04 in both 1994 and 1996. The correlation between log of net sales of the branches and total population in the area are also very low with only -.16 and -.12 in 1994 and 1996 respectively. Surprisingly, the correlation between unemployment rate in the area and aggregate employee job satisfaction of the branches is negative with correlation coefficients -.020 in 1994 and -.01 in 1996. This is contrary to what Hamermesh (1976) predicted, who argued that when unemployment is low, it will be easy for a worker to find alternative opportunities, the job satisfaction level will be low because when unemployment is high, a worker will be more satisfied simply because he/she has a job. It may also suggest that the area where the

Table 3. Descriptive Statistics for Dependent Variables and Control Variables

Variables	1994		1996	
	Mean	Standard Deviation	Mean	Standard Deviation
Log of Total Sales of the Branch	11.71	0.63	12.08	0.64
Log of Net Sales of the Branch	0.03	0.07	0.13	0.10
Total Population in 1995 in the Area (thousand)	41.06	24.97	40.21	26.45
Owner-Occupied Households in the Area (thousand)	6.29	4.40	6.09	4.48
Per Capita Income in 1995 in the Area (thousand)	32.09	21.45	33.62	22.22
Average Household Wealth in 1995 in the Area (million)	0.15	0.07	0.15	0.08
Median Years of Schooling Completed in the Area (years)	13.76	1.50	13.90	1.55
Unemployment Rate in the Area	0.07	0.03	0.06	0.03
Median Home Value in the Area (million)	0.29	0.13	0.30	0.13
Estimated Total Sales in the Area (billion)	4.00	6.57	3.93	6.32
Total Employees in the Area (thousand)	23.84	31.33	25.61	32.56
Total Number of Establishments in the Area (thousand)	1.59	1.68	1.72	1.77
Total Establishments of Finance, Insurance and Real Estates in the Area (thousand)	0.24	0.31	0.26	0.33
Total Establishments of Commercial Banks in the Area	9.39	9.80	9.85	9.77
Total Establishments of Depository Institutions in the Area	4.76	3.58	4.00	3.21
Average Employee Age of the Branch	36.36	4.98	36.40	5.08
Average Number of Employees in the Branch	11.58	7.17	15.12	7.49
Multiple Branches in One Zip Code	0.35	0.48	0.24	0.43

Note: Variables in the upper part of the table are 1995 data only. Lower part of the table are 1994 and 1996 data respectively.

Table 4. Descriptive Statistics for Employee Job Satisfaction Variables

Variables	1994		1996	
	Mean	Standard Deviation	Mean	Standard Deviation
Overall Job Satisfaction (Raw Score)	3.582	0.306	3.622	0.320
Satisfaction With Pay (Raw Score)	2.831	0.389	2.957	0.422
Satisfaction With Training (Raw Score)	3.578	0.357	3.587	0.381
Satisfaction With Supervisor (Raw Score)	3.755	0.463	3.796	0.468
Satisfaction With Coworker (Raw Score)	3.890	0.457	3.861	0.435
Satisfaction With Work (Raw Score)	3.778	0.296	3.806	0.283
Satisfaction With Communication (Raw Score)	3.661	0.328	3.725	0.352
Overall Job Satisfaction (Factor Score)	0.040	0.449	0.030	0.484
Satisfaction With Pay (Factor Score)	-0.001	0.245	0.001	0.265
Satisfaction With Training (Factor Score)	-0.009	0.266	0.022	0.296
Satisfaction With Supervisor (Factor Score)	0.010	0.003	0.014	0.005
Satisfaction With Coworker (Factor Score)	0.030	0.392	0.005	0.382
Satisfaction With Work (Factor Score)	0.009	0.296	0.024	0.278
Satisfaction With Communication (Factor Score)	0.017	0.313	-0.021	0.318

Note: the upper part of the table are average of raw scores of employee job satisfaction survey,
The lower part of the table are average of factor score of employee job satisfaction survey.

branch was located may not be the relevant measure of employees' labor market, because people do not necessarily live in the area they work.

Several variables measuring community wealth are highly correlated. For example, median home value is correlated with per capita income in the area with correlation of .84 in both 1994 and 1996, and correlation between estimated total sales in the area and median home value in the area is .46 and 0.36 for 1994 and 1996 respectively. However, total population is negatively correlated with average household wealth with the correlation is only -.35 and -.39 for 1994 and 1996 respectively.

6 facets of employee job satisfaction are also intercorrelated, with the correlation coefficients falling between .44 to .73 in 1994 and .31 to .83 in 1996 when the average raw responses are used. Every facet of employee job satisfaction is highly correlated overall satisfaction with correlation between .74 to .85 in 1994 and 75 to .89 in 1996 if average raw responses are used. This is not surprising because overall satisfaction is the average of all the 6 facets, and thus they are highly correlated.

We have 2 models specified: (1) using log of total sales as dependent variable, and (2) using log of net sales as dependent variable. To overcome the potential problems of small sample size, we also pool the 1994 and 1996 data to estimate these two sets of models adding a dummy variable measuring the year effect. For each set of the models, each of the 6 different facets of job satisfaction and overall job satisfaction will enter the model to estimate the effects of employee job satisfaction. The 6 facets of job satisfaction

and overall job satisfaction will be either average of raw responses or average of factor scores.

As a result, each set will have: 7 regressions using average raw responses (6 facets of job satisfaction and 1 overall job satisfaction) as the measure of employee job satisfaction variable for the year of 1994, 1996 and pooled data respectively; and, 7 regressions using average factor scores (average factor scores of the 6 factors from 6-factor analysis model and the one factor from 1-factor analysis model) as the measure of employee job satisfaction variable for the year of 1994, 1996 and pooled data respectively. A fixed effect model is also tried, although the branch in 1996 is not the same branch in 1994 even if it bears the same name, same branch ID with same address, because of the branch consolidation. The fixed effects model only includes those branches open both in 1994 and 1996.

Given our sample size, the statistical power may not be large enough to detect the significant effects of employee job satisfaction. For simplicity consider the sample size we would need to detect a difference between a firm with job satisfaction responses of 3 and 4 if 1 unit of overall job satisfaction did raise productivity by .05, or 5%, the standard deviation of log of total sales in 1994 is .63, the critical size effect for detecting this .05 effect is .03. To detect such an effect at the five percent significance level with an 80% chance of success, we would need roughly 9500 observations (Kraemer and Thiemann, 1987, p. 105). With a sample of approximately 150—200 in our case, the power statistics is just about 10%. This implies that if one unit increases of overall employee job

satisfaction will increase 5% of total sales, we would have only 10% chance of detecting it at a 5% significance level. Thus, in our study, with small sample size, we will expect to find only modest significant regression coefficients, or even no significant regression coefficients, unless employee job satisfaction has much larger effects than we expect, especially when we use log of total sales as dependent variable. [2]

5.1.1 Using Log of Total Sales as Dependent Variable.

First, the average raw responses of employee job satisfaction survey data will be used as the employee satisfaction variables. In 1994 data, the control variables explain about 71.32 percent of the variance across branches in the productivities. When adding employee satisfaction variables, the model could explain extra 0.02 to 0.33 percent of the variance across branches in the productivity. None of the coefficients of employee satisfaction are significant.

Not surprisingly, the coefficients of unemployment rate in the area are negative and significant at .05 levels or .01 levels in all the seven regressions, and the coefficients of median home value are positive and significant at .05 levels or .10 in all the seven regressions. These indicate that lower unemployment rate, higher median home value, will increase the branch total sales. Another community variable that is marginal significant is median years of schooling completed, reflecting the fact that the more

[2] For a multiple regression analysis, the statistic is more complicated. (See Kraemer and Thiemann, 1987, p. 65 and Freeman, Kleiner and Ostroff, 2000).

educated the community, the more the residents can deposit money to or get loan from the bank.

Among the branch characteristics, the coefficient of number of employees of the branch is positive and significant at .05 or .01 levels in all the 7 regressions. This result reflects that bigger branch will have larger total sales. Interestingly, the total number of depository institutions is positively related to the productivity. This may be due to the difference business lines the depository institution and commercial banks are in. It is quite possible that the number of depository institutions is actually a measure of the wealth of the area, rather than the competition. It is widely acknowledged that commercial banks, savings and loan association, and credit union have different deposit and loan structures, different customers, and different lines of business pursued. Although all institutions hold most of their deposits as small time and saving deposits, it only accounts for 60 percent of total bank deposits, while it accounts for more than 80 percent for savings and loan associations and credit union. Only commercial banks have a large business in commercial lending with about one-third of all bank loans going for commercial purposes. However, savings and loan associations commit over 90 percent of their lending to mortgage financing, while commercial banks only lend its 46 percent of its loan to mortgage financing. On the other hand, credit union composed of members who have a common bond which may be based on a similarity of occupation, religious, or affiliation. It holds the overwhelming bulk of their assets as loans to members. Almost half of all credit union assets are held in the form of consumer loans to members, and

another 25 percent consist of mortgage loans to members (Kolb & Rodriguez, 1993). It is quite possible that the wealthier the area, the more numbers of savings and loan association and credit union in that area. Although these two depository institutions also compete against commercial banks for deposits and loans, they have typically dedicated customers and different market lines. But other commercial bank establishments within the community are possibly the competitors competing against the branch of This Company to get large time deposits, commercial loans, and checking accounts. However, the coefficient of the number of establishment of commercial banks is not significant, although negative.

In 1996 data, the control variables explain 74.96 percent of the variation across the branches in the productivity. When adding employee satisfaction variables, the model could explain extra 0.03 to .52 percent of the variance across branches in the productivities. Again, none of the coefficients of employee satisfaction are significant.

The coefficients on the unemployment rate are still negative and significant at .01 to .05 levels in all the seven regressions as in the 1994 model estimation. However, the coefficients of estimated sales in the area are positive and significant at .01 levels in all the 7 regressions. The coefficients of number of depository institutions are not significant, which are significant in the 1994 regressions. Again, the number of employees still can explain the total sales of the branch.

Pooling 1994 and 1996 data with additional year dummy variable added as a control, the model without employee satisfaction variable explains 73.78% of the

variance of productivity across branches. Adding employee satisfaction variables either could only explain another 0.01 to 0.23 percent of the variances. The coefficients of median years of schooling completed become significant at .01 level in all the 7 regressions. Average employee age of the branch becomes marginal significant, probably indicating that age of employees may be a good proxy of experience, and a branch with more experienced employees will have higher total sales. The estimated total sales in the area are all positive and significant at .01 levels in all the 7 regressions. This indicates that median home value and estimated total sales in the area are all positively and significantly affect branch total sales. The coefficients of the number of depository institutions in the area are positive and significant. Again, this indicates that the number of depository institutions in the area is a measure of wealth of the community. Unemployment rate is negatively related to productivity, indicating that the more people are employed in the area, the more deposit the branch can secure, and the more loans the branch can give. The coefficients of the dummy variable reflect the fact that in 1994, average branch performance was lower. This may reflect that poorer performing branches had been closed, and the account and employees had been merged to the neighbor branches during the year of 1995. In the pooled regression, only the coefficient of satisfaction with pay is significant. Overall satisfaction has no effect on branch total sales.

When average factor scores are used as the measure of employee job satisfaction, we have a similar pattern as when the average raw responses of employee job satisfaction are used. In 1994 data, adding employee job satisfaction variables will explain extra .01

to .31 percent of the variance across branches in productivity. None of the coefficients of employee job satisfaction are significant. In the control variables part, the unemployment rate is negatively related to branch productivity, the median home value in the area is positively related to branch productivity. The estimated total sales in the area is positively related to branch productivity and the number of establishments of total depository institutions in the area is positively related to branch productivity. Consistent with the estimation when the average raw responses are used, these results indicate that lower unemployment rate, higher median home value, higher estimated total sales in the area and more number of establishments of total depository institutions are associated with higher branch productivity.

When 1996 data is used, adding employee job satisfaction variables will explain extra 0.01 to 0.86 percent of the variance across branches in branch productivity. None coefficients of employee job satisfaction variables are significant except employee job satisfaction with training. Surprisingly, the coefficient of employee job satisfaction with work is negatively related to branch productivity at .05 levels. The pattern of the coefficients of unemployment rate, median home value and estimated total sales in the area is similar to the estimation of 1994.

When we use pooled data of 1994 and 1996, adding employee job satisfaction variables will explain extra 0.01 to 0.23 percent of the variance across branches in productivity. Again, none of employee job satisfaction variables are significant.

Table 5. Effects of Employee Job Satisfaction on Log of Total Sales

Variables	1994		1996		1994-1996 pooled	
	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error
Satisfation With Pay (Average Raw Response)	0.0934	0.0700	0.0882	0.0716	0.0826*	0.0491
Satisfation With Training (Average Raw Response)	0.0530	0.0787	-0.1300	0.0804	-0.0307	0.0547
Satisfation With Supervisor (Average Raw Response)	0.0840	0.0598	-0.0427	0.0653	0.0195	0.0431
Satisfation With Coworker (Average Raw Response)	-0.0200	0.0633	0.0694	0.0703	0.0189	0.0458
Satisfation With Work (Average Raw Response)	0.0443	0.0980	-0.1725	0.1132	-0.0555	0.0718
Satisfation With Communication (Average Raw Response)	0.1222	0.0874	-0.0787	0.0888	0.0229	0.0607
Overall Satisfation (Average Raw Response)	0.1018	0.0959	-0.0342	0.0967	0.0280	0.0660
Satisfation With Pay (Average Factor Score)	0.0645	0.1088	0.1743	0.1131	0.1144	0.0774
Satisfation With Training (Average Factor Score)	-0.0183	0.0993	-0.2180**	0.1042	-0.1156	0.0701
Satisfation With Supervisor (Average Factor Score)	0.0887	0.0648	-0.0138	0.0676	0.0295	0.0459
Satisfation With Coworker (Average Factor Score)	-0.0531	0.0708	0.0994	0.0796	0.0173	0.0517
Satisfation With Work (Average Factor Score)	0.0832	0.0939	-0.1374	0.1195	-0.0331	0.0719
Satisfation With Communication (Average Factor Score)	0.0611	0.0890	0.0250	0.0969	0.0456	0.0623
Overall Satisfation (Average Factor Score)	0.0706	0.0651	-0.0419	0.0647	0.0094	0.0445
Sample Size	193		143		336	

Note: *: p<.10, **: p<.05, ***:p<.01

Consistently with the fact of consolidation, the year dummy indicates the poor productivity level for some branches in 1994.

Table 5 reports only the coefficients and standard error of employee job satisfaction variables. For estimation of other control variables, see appendix 4-1 to 4-7 and 5-1 to 5-7.

5.1.2 Using Log of Net Sales as Dependent Variables

Next, we will consider using log of net sales as the dependent variable, with the similar model specification as above except the different dependent variable. When 1994 data is used, the model without employee satisfaction variables explains 26.37% of the variation of net sales across the branches. Adding employee satisfaction variables, the model can explain extra 0.54% to 4.17% of the variance, depending on what facets of the job satisfaction and the overall job satisfaction variables are added.

The coefficients of average household wealth are positive and significant at .01 levels, the coefficients of estimated total sales in the area are positive and significant at .05 levels, and the coefficients of the number of total establishments of depository institutions are positive and significant at .05 to .10 levels in all the 7 regressions. Interestingly, the number of total establishments of commercial banks is negatively related to branch net sales at .10 level, which is negative but not significant when average raw responses are used. Again, this may reflect that the commercial bank establishments are the competitors of the branch of This Company, thus measures of

competitiveness of the market. But total establishments of depository institutions are measuring the wealth of the community.

However, neither of the variables measuring employee characteristics are significant. The coefficients of satisfaction with pay and with coworker are positively and significant at .01 levels, the coefficients of satisfaction with supervisor and overall satisfaction are positive and significant at .05 levels, and the coefficients of satisfaction with communication are positive and significant at .10 levels. However, the coefficients of satisfaction with training and with work are not significant. This reflects that higher branch net sales are associated with higher overall employee satisfaction, satisfaction with supervisor, pay, coworker and supervisor, and marginally with satisfaction with communication.

In 1996 data, adding employee satisfaction variables will explain extra 0.83 to 3.06 percent of the variance. All the control variables significant in 1994 become insignificant in the 1996 regression. As Bartel (2000) indicates, the insignificance of these variables is likely due to the fact that they are stock rather than flow and may not be good predictors of net sales that are flow.

The coefficients of average number of employees are significant at .05 levels in all the 7 regressions. This may reflect the possibility that after the consolidation, the branches with more employees are more efficient in terms of the scale of economy.

The coefficients of satisfaction with pay, with training are not significant, but satisfaction with work is positive and significant at .05 levels, which is insignificant in

the 1994 regression. The coefficients of satisfaction with coworkers, and overall satisfaction are positive and significant at .05 levels. The coefficients of satisfaction with communication and satisfaction with supervisor are not significant.

When average factor scores of the survey are used as employee job satisfaction, we also get a similar pattern. In 1994 data, adding employee satisfaction variables will explain extra 0-2.95 percent of the variation. Average household wealth is positively associated with branch net sales at .01 level, estimated total sales in the area is positively related to branch net sales at .05 level, total number of establishments of depository institutions is positively related to branch net sales at .05 to .10 level, and the total number of establishment of commercial banks is negatively related to branch net sales at .10 level in all the 7 regressions. Employee job satisfaction with pay and satisfaction with coworker are positively related to branch net sales at .05 level, overall employee job satisfaction is positively related to branch net sales at .01 level, and satisfaction with supervisor is positively associated with branch net sales at .10 level. However, the coefficients of satisfaction with training, with work, and with communication are not significant.

In 1996 data, adding employee satisfaction variables will explain extra 0.01 to 2.24 percent of the variation. Similar to the regressions where average raw responses are used, none of the community control variables are significant. However, the coefficients of average number of employees of the branch are significant at .01 to .05 levels in all the

7 regressions. Again, this may indicate the improvement of the scale of economy after the consolidation of the branches.

When we use pooled 1994 and 1996 data, only the coefficients of employee satisfaction with coworker and overall satisfaction are significant at .05 levels. Other employee job satisfaction variables are not significant. None of the community control variables are significant, however, the two branch characteristic variables, i.e., average employee age of the branch and average number of employees of the branch are significant, with the former one positive and significant at .10 levels and the later one positive and significant at .05 levels in all the 7 regressions. The year dummy still indicates the effect of branch consolidation.

Table 6 reports only the coefficients and standard error of employee job satisfaction variables. For estimation of other control variables, see appendix 6-1 to 6-7 and 7-1 to 7-7.

We also estimate fixed effect models, only using the branches that are still open in 1996. Hopefully, this will eliminate the effect of some omitted branch-specific factor or an omitted manager-specific factor, which could affect the branch performance. Since some of the community control variables are 1995 only, those variables will be dropped and only variables that have both 1994 and 1996 data will be used in the fixed effect estimation. The results of the fixed effect models are reported in table 7. None of the employee job satisfaction variables are significant. Part of the reason is that, as an attitude

Table 6. Effects of Employee Job Satisfaction on Log of Net Sales

Variables	1994		1996		1994-1996 pooled	
	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error
Satisfaction With Pay (Average Raw Response)	0.0416***	0.0129	0.0241	0.0194	0.0294***	0.0112
Satisfaction With Training (Average Raw Response)	0.0215	0.0148	0.0248	0.0219	0.0152	0.0127
Satisfaction With Supervisor (Average Raw Response)	0.0245**	0.0112	0.0290	0.0176	0.0205**	0.0099
Satisfaction With Coworker (Average Raw Response)	0.0304***	0.0117	0.0415**	0.0188	0.0291***	0.0104
Satisfaction With Work (Average Raw Response)	0.0208	0.0184	0.0641**	0.0304	0.0310*	0.0165
Satisfaction With Communication (Average Raw Response)	0.0304*	0.0164	0.0391	0.0239	0.0259*	0.0139
Overall Satisfaction (Average Raw Response)	0.1927**	0.0498***	0.0177	0.0520**	0.0401***	0.015
Satisfaction With Pay (Average Factor Score)	0.0474**	0.0202	0.0099	0.0309	0.0257	0.0178
Satisfaction With Training (Average Factor Score)	-0.0090	00187	-0.0027	0.0287	-0.0106	0.0162
Satisfaction With Supervisor (Average Factor Score)	0.0222*	0.0121	0.0140	0.0183	0.0144	0.0106
Satisfaction With Coworker (Average Factor Score)	0.0290**	0.0132	0.0402*	0.0214	0.0277**	0.0118
Satisfaction With Work (Average Factor Score)	0.0011	0.0177	0.0315	0.0328	0.0116	0.0165
Satisfaction With Communication (Average Factor Score)	0.0230	0.0167	-0.0297	0.0261	-0.0062	0.0144
Overall Satisfaction (Average Factor Score)	0.0325***	0.0120	0.0260	0.0174	0.0222**	0.0102
Sample Size	193		143		336	

Note: *: p<.10, **: p<.05, ***:p<.01

variable, we lack many "big" employee job satisfaction changes, as Hamermesh (1976) posited that in long run, job satisfaction would reach equilibrium. The mean of the changes of average raw responses are in the range of .002 to.127 for all the six facets of employee job satisfaction and the overall job satisfaction, with small variations. There are also some evidences that branches that are very high in terms of productivity and net sales and employee job satisfaction in 1994 are also very high in 1996, which also helps explain the nonsignificance of the changes of employee job satisfaction on the changes of productivity and changes of net sales, although these evidences are weak.

Although we use the branch identification number to identify the branches, the branch bearing the same identification number in 1996 may not be the same branch in 1994 at all. It may have already taken the account and employees from other branches which were closed in 1995. Since we do not have the detailed information about the consolidation, it is difficult to interpret the fixed effect estimation. It is hard to say that the fixed effect estimation can actually capture the firm specific and unobserved characteristics.

I use sample of branches in 1994 that still existed in 1996 and branches that were closed in 1996 to estimate cross sectional OLS regressions using 1994 data. Since we do not know exactly whether THIS Company used the total sales or the net sales to decide which branch should be closed in 1995, we will use both total sales and net sales of the branches as the dependent variables. Table 8-1 and 8-2 report the regression results. When we only use sample of branches still open in 1996, almost none of the coefficients

of employee job satisfaction variables are significant. However, when we use sample of branches closed in 1996, several facets of employee job satisfaction and overall job satisfaction are significant, if log of net sales are used as dependent variables. This indicates that, the closed branches have poorer performance.

I also run a probit model where the dependent variable is whether the branch was still open in 1996 or not, and the independent variables are the total sale/net sales in 1994, community variables, the branch characteristics in 1994 and employee satisfaction variables in 1994. The result is report in Table 9. The results show that the higher satisfaction with training, supervisor, work, supervisor, and overall satisfaction, the higher probability that the branch would be still open in 1996. However, the coefficients of the prior performance are only significant when total sales is used as the measure of branch performance. The coefficients of total sales range from .30 to .34 and are significant at .01 level. This may suggest that the company closed the branches with poorer total sales. However, table 8-2 shows that when we run separately the cross section estimates of the effects of employee job satisfaction on branch performance for sample of branches still open in 1996 and sample of branches that are closed by the end of 1996, several of the employee satisfaction variables are significant in the closed samples, when log of net sales is used as dependent variable. However, in Table 9, the results show that higher satisfaction is associated when higher probability of being still open in 1996. This may be because among the closed branches, the net sales is more sensitive to employee job satisfaction.

Table 7. Fixed Effects Estimates of Effects of Employee Job Satisfaction on Changes in Branch Performance

Variables	Change of Log of Total Sales		Change of Log of Net Sales	
	Coefficient	Standard Error	Coefficient	Standard Error
Satisfation With Pay (Average Raw Response)	0.0569	0.0316	0.0252	0.0221
Satisfation With Training (Average Raw Response)	0.0326	0.0346	-0.0112	0.0241
Satisfation With Supervisor (Average Raw Response)	-0.0050	0.0294	-0.0232	0.0203
Satisfation With Coworker (Average Raw Response)	0.0035	0.0332	-0.0077	0.0230
Satisfation With Work (Average Raw Response)	0.0544	0.0468	0.0246	0.0326
Satisfation With Communication (Average Raw Response)	0.0329	0.0398	0.0039	0.0277
Overall Satisfation (Average Raw Response)	0.0434	0.0455	-0.0017	0.0317
Satisfation With Pay (Average Factor Score)	0.0630	0.0478	0.0157	0.0334
Satisfation With Training (Average Factor Score)	0.0020	0.0380	-0.0224	0.0263
Satisfation With Supervisor (Average Factor Score)	-0.0310	0.0316	-0.0456	0.0443
Satisfation With Coworker (Average Factor Score)	0.0040	0.0350	0.0006	0.0243
Satisfation With Work (Average Factor Score)	0.0743	0.0449	0.0471	0.0310
Satisfation With Communication (Average Factor Score)	0.0028	0.0307	-0.0122	0.0213
Overall Satisfation (Average Factor Score)	0.0117	0.0302	-0.0182	0.0209
Sample Size	143		143	

Note: *: p<.10, **: p<.05, ***:p<.01

Table 8-1. 1994 Cross-Section Estimates of the Effects of Employee Job Satisfaction on Branch Performance for Sample of Branches Still Open in 1996 and Sample of Branches That Closed By End of 1996

Dependent Variable: Log of Total Sales

Variables	Still Open in 1996		Closed in 1996	
	Coefficient	Standard Error	Coefficient	Standard Error
Satisfaction With Pay (Average Raw Response)	0.0893	0.0773	0.2713	0.1800
Satisfaction With Training (Average Raw Response)	0.1039	0.0867	0.1886	0.2254
Satisfaction With Supervisor (Average Raw Response)	0.0097	0.0714	0.2670**	0.1301
Satisfaction With Coworker (Average Raw Response)	-0.0024	0.0712	0.2061	0.1485
Satisfaction With Work (Average Raw Response)	0.0841	0.1124	-0.3601	0.2927
Satisfaction With Communication (Average Raw Response)	0.1495	0.0977	0.1527	0.2115
Overall Satisfaction (Average Raw Response)	0.1038	0.1092	0.3677	0.2480
Satisfaction With Pay (Average Factor Score)	0.1091	0.1241	0.1988	0.2503
Satisfaction With Training (Average Factor Score)	-0.1032	0.1074	-0.1321	0.2831
Satisfaction With Supervisor (Average Factor Score)	-0.0008	0.0766	0.2269	0.1354
Satisfaction With Coworker (Average Factor Score)	-0.0208	0.0805	0.1921	0.1622
Satisfaction With Work (Average Factor Score)	0.2088*	0.1082	-0.3569	0.2260
Satisfaction With Communication (Average Factor Score)	0.1461	0.0970	-0.0940	0.2132
Overall Satisfaction (Average Factor Score)	0.0974	0.0742	0.1810	0.1652
Sample Size	143		50	

Note:*: p<.10, **: p<.05, ***:p<.01

Table 8-2. 1994 Cross-Section Estimates of the Effects of Employee Job Satisfaction on Branch Performance for Sample of Branches Still Open in 1996 and Sample of Branches That Closed By End of 1996

Dependent Variable: Log of Net Sales

Variables	Still Open in 1996		Closed in 1996	
	Coefficient	Standard Error	Coefficient	Standard Error
Satisfaction With Pay (Average Raw Response)	0.0285*	0.0156	0.0575*	0.0303
Satisfaction With Training (Average Raw Response)	0.0088	0.0177	0.0588	0.0377
Satisfaction With Supervisor (Average Raw Response)	0.0104	0.0145	0.0534**	0.0218
Satisfaction With Coworker (Average Raw Response)	0.0224	0.0143	0.0507**	0.0247
Satisfaction With Work (Average Raw Response)	0.0024	0.0229	0.0423	0.0508
Satisfaction With Communication (Average Raw Response)	0.00151	0.0200	0.0703**	0.0344
Overall Satisfaction (Average Raw Response)	0.0282	0.0221	0.1070***	0.0397
Satisfaction With Pay (Average Factor Score)	0.0280	0.0252	0.0600	0.0421
Satisfaction With Training (Average Factor Score)	-0.0113	0.0219	-0.0045	0.0487
Satisfaction With Supervisor (Average Factor Score)	0.0066	0.0155	0.0557**	0.0221
Satisfaction With Coworker (Average Factor Score)	0.0254	0.0162	0.0433	0.0274
Satisfaction With Work (Average Factor Score)	-0.0136	0.0223	-0.0132	0.0402
Satisfaction With Communication (Average Factor Score)	0.0131	0.0198	0.0595	0.0351
Overall Satisfaction (Average Factor Score)	0.0165	0.0151	0.0799***	0.0252
Sample Size	143		50	

Note: *: p<.10, **: p<.05, ***:p<.01

Table 9. The Effects of Satisfaction Variables on Branch Closing by 1996
Dependent Variable: Pr(Branch Open in 1996)

Variables	Total Sales as Branch Performance		Net Sales as Branch Performance	
	Coefficient	Standard Error	Coefficient	Standard Error
Satisfation With Pay (Average Raw Response)	.0153	.0842	.0603	.0821
Satisfation With Training (Average Raw Response)	.1861**	.0896	.1946**	.0094
Satisfation With Supervisor (Average Raw Response)	.2019***	.0725	.2158***	.0702
Satisfation With Coworker (Average Raw Response)	.0520	.0755	.0624	.0752
Satisfation With Work (Average Raw Response)	.2864**	.1120	.2905***	.1095
Satisfation With Communication (Average Raw Response)	.1206	.1026	.1666*	.0997
Overall Satisfation (Average Raw Response)	.2393**	.1119	.2659**	.1084
Satisfation With Pay (Average Factor Score)	-.0451	.01296	-.0522	.1289
Satisfation With Training (Average Factor Score)	-.0886	.1130	-.0765	.1117
Satisfation With Supervisor (Average Factor Score)	.1883**	.0799	.2040***	.0778
Satisfation With Coworker (Average Factor Score)	.0184	.0841	.0150	.0846
Satisfation With Work (Average Factor Score)	.1961	.1056	.2096**	.1045
Satisfation With Communication (Average Factor Score)	.0483	.1030	.0723	.1025
Overall Satisfation (Average Factor Score)	.1702**	.0751	.1855**	.0734
Sample Size	193		193	

Note: *: p<.10, **: p<.05, ***:p<.01

5.2 Conclusion and Discussion

This research uses a unique dataset from a large commercial bank located in a metropolitan area to test the relationship between employee job satisfaction and branch performance at the commercial bank branch level of analysis. Although there are plenty of research published to address the relationship between employee job satisfaction and performance at individual employee level, this study is one of the few that empirically investigated this relationship at organizational level. A weak support was found between these two variables.

Employee attitude surveys were conducted in 1994 and 1996 to collect employee job satisfaction information. 20 items were identified that measure employee job satisfaction. Factor analysis was used to determine facets of employee job satisfaction, and 6 facets were identified: employee job satisfaction with pay, with training, with supervisor, with coworker, with work, and with communication. The individual level employee job satisfaction was aggregated to branch level, while the aggregated 6 facets and overall job satisfaction were entered into regressions separately to test the significance of effects of employee job satisfaction on branch performance, where branch performance was defined either as branch total sales of the year or the net sales of the year. These two measures follows the "production approach" used in the research of bank output. The "Production approach" posits that all liabilities and assets of a bank have some output characteristics, thus the sum of total deposits and loans (i.e., total sales of the branch) is the best measure of bank output. While the traditional production approach holds that total sale is the measure of bank output, a new production approach has argued that the net sales, i.e., the difference between the total sales at the end of the year and that of the beginning of the

year, is the best measure of branch output. In this analysis, both these two production approaches are used.

To address the potential endogeneity of employee job satisfaction, a simple Hausman-Wu test is conducted to show that there is little endogeneity in this sample, thus I decide to use the original survey responses in the analysis, rather than a predicted one. Results show that when log of net sales is used as the dependent variable, i.e., the new production approach is used to measure branch output, several employee satisfaction variables are positively related to branch performance, such as job satisfaction with pay, with supervisor, with coworker, with communication and overall job satisfaction in 1994 data. This shows that branches with more satisfied employees tended to be more effective than organizations with less satisfied employees. Based on these results, the conclusion of many researchers that employee job satisfaction and performance are only weakly related could be questioned. It might be true that the relationship between job satisfaction and performance is weak at individual level, but might not be true at organizational level. As Ostroff (1992) indicates, it is possible that, at individual level, the measures of job performance do not reflect the interactions and dependencies in the work process or the role of other salient productivity-related behaviors (e.g., attachment or citizenship) that actually affect organizational performance. However, in 1996 data, almost all employee job satisfaction variables are not significant. Pooled data of 1994 and 1996 basically shows the similar results as the 1994 data. This is partly because of the branch consolidation of THIS Company in 1995, where the poor performed branches was closed. As a result, we do not have strong evidence that there is a strong relationship between employee job satisfaction and branch performance. Limited by the variables that could be

used to test the endogeneity of employee job satisfaction, the potential simultaneity still exists in this study.

The cross sectional nature of the data set could not eliminate the unobserved branch heterogeneity. To overcome this, I also estimate a fixed effect model which is supposed to solve this problem. However, with the branch consolidation, it is hard to interpret the fixed effect model. It is possible that the positive effect of employee satisfaction on branch performance is due to the omitted branch specific factor that is both correlated with positive employee satisfaction and better branch performance. More work is being done to collect more information and data to better understand this bank, the branches and the community.

Moreover, in the fixed effect estimation, none of the employee job satisfaction variables are significant in the fixed effect estimation. This might indicate that the change of employee job satisfaction has very little effect on branch performance: It is the level of employee job satisfaction that really matters.

As Berger, Leusner and Mingo (1994) argue, there is very little empirical research on bank branch performance because branching data is generally confidential and not required by regulators. Although Bartel et al (1999) have been gained access to THIS Company's financial data, even at the branch level, they have not got the detailed aspects of the branch sales, such as the distinction between loans and deposits, sales of specific types of loans, and the estimates of spread income. On the other hand, even though production approach is the best measures to use for a study that compares the commercial bank branch performance, other measures of performance should also be tested, if possible, to get more robust results. By focusing on a very narrowly defined industry

setting within the service sector, more comparable measures of performance is possible than in economy-wide, cross-industry studies of the service sector. Bartel et al is still working on collecting more financial data to develop a detailed dataset containing detailed financial information of each branch. This provides an opportunity to develop more branch performance measures and test the effect of employee satisfaction.

The control variables used in the study are also subject to some potential problems. The biggest problem is the definition of the "market". The market of THIS Company in this analysis is largely zip code level characteristics. However, it is possible that some branches serves more than one zip code area, and some zip code contains more than one branch. In the first situation, the market of the branch is underestimated and for the latter situation, the market of the branch is probably overestimated. More work needs to be done to observe how neighborhood characteristics vary within zip codes, and what is the "real" market for the branch which serves more than 1 zip code area.

THIS Company used a questionnaire developed by Professor Howard Weiss of Psychology at Purdue University to collect employee job satisfaction survey. Although we are able to provide some psychometric property of the validity and reliability of this instrument, a standard employment job satisfaction instrument, such as JDI, Minnesota Satisfaction Questionnaire, etc. will be more appropriate. In the future research, a standard form of job satisfaction instrument should be used.

Construct validity of the employee satisfaction at the branch level may also be a potential challenge. As argued by Chan (1998), when individual level construct (employee job satisfaction in this study) is aggregated to a higher level, for example, team level, group level, or firm level, careful construct validation study should be conducted.

The weak relationship identified in this study does not necessarily mean that it is not important for the organizations to keep certain level of employee job satisfaction. It is quite possible that there are positive effects of employee job satisfaction on organizational level performance, but we just can not detect this effect because of the small sample size. We only had data in 1994 and 1996, and this short period of time series data might be not enough to produce enough variation of the variables, this might be part of the reasons why we did not observe strong relationship between employee job satisfaction and branch performance. More research with longer time span and more observations should be done to test the relationship between employee satisfaction and organizational performance.

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Appendix 1. Items of Employee Job Satisfaction and the Cronbach Alpha

Items	Facets	Cronbach Alpha		
		1994	1996	pooled
1. My manager/supervisor respects his/her employees	Supervision	0.86	0.85	0.86
2. I am dealt with in an open and honest manner.				
3. My manager /supervisor listens to my ideas and concerns.				
4. I regularly get feedback from my manager / supervisor about my performance.				
5. Senior management has communicated a clear and consistent plan for meeting our business goals.	Communication	0.78	0.8	0.79
6. I get enough information about our progress against national business goals.				
7.At THIS Company, plans are communicated in time for us to implement them effectively.				
8. How satisfied are you with the information you receive from management about what's going on at THIS Company?				
9. I am given a real opportunity to improve my skills in this company.	Training	0.82	0.83	0.82
10. THIS Company invests in the development of employees.				
11. Adequate training is provided to me when job responsibility change.				
12. How satisfied are you with the training you received for your present job?				
13. I feel proud to work for THIS Company	Nature of Work	0.73	0.74	0.74
14. My job makes good use of my skills and abilities.				
15. My work gives a feeling of personal accomplishment.				
16. My job is too monotonous.				
17. How do you rate the amount of pay you get on your job?	Pay	0.65	0.65	0.65
18. Decisions about my compensation have been consistent with my performance.				
19. The people I work with cooperate to get the job done.	Co-worker	0.86	0.85	0.86
20. The people in my work group share their knowledge and experience when it can benefit others.				

Appendix 2. Factor Patterns (1)

1994 promax

V7	**0.83**	0.01	-0.02	-0.04	0.06	0.03
V9	**0.77**	0.00	0.05	0.05	-0.08	-0.06
V10	**0.55**	0.01	0.05	0.09	-0.03	-0.11
V8	**0.63**	0.08	0.03	0.04	0.16	0.07
V3	0.11	-0.02	0.33	0.00	0.08	**-0.41**
V4	0.04	0.18	0.13	-0.01	0.23	**-0.27**
V5	0.06	0.17	-0.01	-0.02	-0.03	**-0.65**
V6	-0.04	0.14	0.01	0.05	0.06	**-0.57**
V11	0.02	0.01	0.04	**0.80**	0.04	0.04
V12	0.02	0.03	-0.01	**0.80**	0.00	-0.02
V13	0.02	0.22	**0.32**	-0.08	0.30	0.13
V14	0.02	0.03	**0.74**	0.04	-0.03	-0.02
V15	0.03	0.01	**0.77**	0.00	0.07	0.02
V16	-0.02	-0.07	**0.54**	0.03	-0.13	-0.05
V17	0.06	**0.69**	0.03	0.03	-0.02	0.01
V18	0.05	**0.73**	0.06	0.01	-0.16	0.02
V19	-0.13	**0.56**	-0.08	0.01	0.10	-0.16
V20	0.17	**0.46**	0.01	0.04	0.02	-0.15
V1	0.15	-0.02	-0.01	0.03	**0.54**	-0.04
V2	0.05	-0.13	0.04	0.05	**0.56**	-0.08

Appendix 2. Factor Patterns (2)

1996 promax

V1	-0.03	0.03	0.08	0.09	0.08	**0.58**
V2	0.14	-0.02	0.01	-0.07	-0.08	**0.59**
V3	0.10	-0.05	0.34	**0.46**	-0.03	-0.02
V4	0.11	0.01	0.15	**0.43**	-0.05	0.00
V5	0.10	0.00	-0.03	**0.72**	-0.08	-0.04
V6	0.00	0.04	0.04	**0.69**	-0.01	0.00
V7	**0.84**	0.01	-0.01	0.04	0.09	0.00
V8	**0.68**	0.05	0.02	0.00	-0.08	0.05
V9	**0.70**	0.05	0.07	0.03	-0.04	-0.04
V10	**0.46**	0.02	0.05	0.04	-0.17	0.07
V11	0.03	**0.80**	0.00	0.00	-0.01	-0.02
V12	0.05	**0.77**	-0.01	0.02	0.00	0.02
V13	0.05	-0.02	**0.32**	0.15	-0.08	0.10
V14	0.01	-0.02	**0.77**	-0.01	-0.06	0.01
V15	0.03	0.01	**0.80**	-0.01	-0.01	0.04
V16	-0.04	0.08	**0.51**	-0.05	0.03	-0.07
V17	0.00	0.01	0.05	0.01	**-0.74**	-0.06
V18	0.09	0.00	0.09	-0.03	**-0.71**	-0.04
V19	-0.11	0.00	-0.05	0.16	**-0.52**	0.14
V20	0.05	0.06	-0.02	0.33	**-0.34**	0.10

Appendix 2. Factor Patterns (3)

1994 varimax						
V7	**0.74**	0.15	0.18	0.18	0.11	-0.10
V9	**0.70**	0.15	0.23	0.27	0.02	-0.15
V10	**0.55**	0.16	0.21	0.28	0.04	-0.17
V8	**0.65**	0.21	0.23	0.23	0.19	-0.10
V3	0.33	0.21	0.45	0.23	0.15	**-0.40**
V4	0.28	0.34	0.30	0.18	0.25	**-0.33**
V5	0.27	0.37	0.21	0.23	0.08	**-0.54**
V6	0.20	0.32	0.21	0.25	0.13	**-0.49**
V11	0.24	0.11	0.17	**0.76**	0.07	-0.09
V12	0.24	0.13	0.14	**0.76**	0.04	-0.13
V13	0.22	0.28	**0.38**	0.04	0.28	-0.05
V14	0.24	0.17	**0.69**	0.21	0.05	-0.13
V15	0.27	0.16	**0.72**	0.17	0.12	-0.12
V16	0.09	0.02	**0.46**	0.12	-0.06	-0.08
V17	0.23	**0.63**	0.18	0.15	0.07	-0.13
V18	0.19	**0.63**	0.17	0.12	-0.03	-0.10
V19	0.09	**0.55**	0.08	0.11	0.15	-0.23
V20	0.34	**0.51**	0.20	0.21	0.11	-0.24
V1	0.34	0.16	0.19	0.16	**0.44**	-0.18
V2	0.26	0.07	0.20	0.16	**0.45**	-0.20

Appendix 2. Factor Patterns (4)

1996 varimax						
V1	0.20	0.14	0.22	0.24	-0.15	**0.46**
V2	0.32	0.13	0.17	0.18	-0.26	**0.47**
V3	0.30	0.13	0.48	**0.44**	-0.23	0.09
V4	0.29	0.16	0.32	**0.40**	-0.23	0.10
V5	0.31	0.17	0.24	**0.59**	-0.30	0.11
V6	0.24	0.19	0.27	**0.56**	-0.24	0.12
V7	**0.73**	0.22	0.19	0.17	-0.10	0.08
V8	**0.66**	0.26	0.22	0.18	-0.23	0.12
V9	**0.66**	0.26	0.25	0.18	-0.19	0.06
V10	**0.51**	0.21	0.23	0.20	-0.29	0.14
V11	0.23	**0.75**	0.15	0.10	-0.12	0.04
V12	0.25	**0.74**	0.15	0.12	-0.12	0.07
V13	0.22	0.12	**0.39**	0.24	-0.21	0.14
V14	0.21	0.14	**0.72**	0.16	-0.19	0.07
V15	0.24	0.17	**0.75**	0.17	-0.17	0.10
V16	0.06	0.13	**0.43**	0.03	-0.03	-0.03
V17	0.20	0.15	0.21	0.19	**-0.63**	0.06
V18	0.27	0.17	0.26	0.18	**-0.62**	0.07
V19	0.13	0.12	0.14	0.27	**-0.51**	0.19
V20	0.29	0.22	0.22	0.39	**-0.44**	0.18

Appendix 2. Factor Patterns (5)

varimax pooled

V7	**0.73**	-0.20	0.18	0.12	0.10	-0.13
V9	**0.68**	-0.27	0.24	0.17	0.03	-0.16
V10	**0.53**	-0.25	0.22	0.20	0.07	-0.20
V8	**0.65**	-0.24	0.23	0.13	0.16	-0.22
V3	0.32	-0.19	0.47	**0.43**	0.12	-0.21
V4	0.28	-0.17	0.31	**0.35**	0.20	-0.30
V5	0.28	-0.21	0.23	**0.57**	0.08	-0.33
V6	0.22	-0.23	0.24	**0.52**	0.12	-0.29
V11	0.23	**-0.75**	0.16	0.10	0.06	-0.11
V12	0.24	**-0.75**	0.14	0.13	0.05	-0.13
V13	0.23	-0.07	**0.38**	0.11	0.24	-0.27
V14	0.23	-0.18	**0.70**	0.15	0.05	-0.17
V15	0.26	-0.17	**0.73**	0.14	0.11	-0.16
V16	0.07	-0.12	**0.44**	0.05	-0.04	-0.02
V17	0.22	-0.15	0.19	0.16	0.06	**-0.63**
V18	0.22	-0.14	0.20	0.14	0.01	**-0.62**
V19	0.11	-0.12	0.11	0.26	0.16	**-0.53**
V20	0.32	-0.22	0.21	0.30	0.14	**-0.49**
V1	0.34	-0.15	0.18	0.19	**0.44**	-0.19
V2	0.24	-0.15	0.21	0.20	**0.46**	-0.11

Appendix 2. Factor Patterns (6)

promax pooled

V7	**0.84**	0.03	-0.01	-0.02	0.04	0.03
V9	**0.75**	-0.05	0.06	0.06	-0.08	0.00
V10	**0.51**	-0.07	0.05	0.11	-0.02	-0.06
V8	**0.66**	-0.04	0.03	-0.05	0.12	-0.08
V3	0.10	0.02	0.34	**0.44**	0.03	0.02
V4	0.06	0.01	0.15	**0.29**	0.16	-0.14
V5	0.07	0.01	-0.01	**0.69**	-0.05	-0.12
V6	-0.03	-0.05	0.03	**0.62**	0.03	-0.08
V11	0.02	**-0.80**	0.03	-0.03	0.03	-0.01
V12	0.03	**-0.79**	-0.01	0.03	0.01	-0.02
V13	0.04	0.07	**0.32**	-0.08	0.26	-0.19
V14	0.02	-0.02	**0.76**	0.03	-0.04	-0.04
V15	0.04	0.00	**0.78**	-0.02	0.05	-0.01
V16	-0.04	-0.06	**0.53**	0.00	-0.10	0.05
V17	0.04	-0.02	0.03	-0.01	-0.04	**-0.72**
V18	0.06	0.00	0.07	-0.03	-0.12	**-0.73**
V19	-0.12	0.00	-0.08	0.16	0.11	**-0.56**
V20	0.13	-0.05	0.00	0.19	0.06	**-0.43**
V1	0.15	-0.01	-0.02	0.01	**0.55**	-0.01
V2	0.01	-0.04	0.04	0.05	**0.59**	0.10

Appendix 3-1 Correlation Matrix of 1994

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Log of Total Sales of the Branch	1.00												
2. Log of Net Sales of the Branch	0.23	1.00											
3. Total Population in 1995 in the Area	-0.04	-0.16	1.00										
4. Owner-Occupied Households in the Area	0.04	0.00	0.64	1.00									
5. Per Capita Income in 1995 in the Area	0.49	0.32	0.05	0.33	1.00								
6. Average Household Wealth in 1995 in the Area	0.05	0.32	-0.35	0.30	0.38	1.00							
7. Median Years of Schooling Completed in the Area	0.50	0.36	-0.12	0.16	0.86	0.45	1.00						
8. Unemployment Rate in the Area	-0.31	-0.24	0.22	-0.37	-0.55	-0.73	-0.59	1.00					
9. Median Home Value	0.55	0.32	-0.04	0.10	0.84	0.23	0.82	-0.44	1.00				
10. Total Employees in the Area	0.52	0.02	0.00	-0.02	0.46	-0.22	0.42	-0.05	0.52	1.00			
11. Estimated Total Sales in the Area	0.53	0.14	-0.15	-0.14	0.42	-0.19	0.40	-0.02	0.46	0.83	1.00		
12. Total Number of Establishments in the Area	0.52	0.04	0.10	0.10	0.48	-0.20	0.41	-0.11	0.57	0.94	0.75	1.00	
13. Total Establishments of Finance, Insurance and Real Estates in the Area	0.54	0.03	0.14	0.12	0.59	-0.16	0.45	-0.14	0.59	0.89	0.70	0.90	1.00
14. Total Establishments of Commercial Banks in the Area	0.54	0.03	0.06	0.16	0.57	-0.04	0.45	-0.20	0.51	0.85	0.70	0.80	0.90
15 Total Establishments of Depository Institutions in the Area	0.42	0.04	0.21	0.27	0.23	-0.14	0.13	-0.14	0.28	0.53	0.40	0.62	0.58
16. Average Employee Age of the Branch	-0.03	0.05	-0.12	-0.02	-0.08	0.08	-0.10	-0.04	-0.11	-0.14	-0.09	-0.17	-0.14
17. Average Number of Employees of the Branch	0.74	0.09	0.05	-0.04	0.33	-0.19	0.27	-0.01	0.36	0.47	0.54	0.43	0.47
18. Satisfaction With Pay (Average Raw Score)	0.00	0.19	-0.03	0.13	0.00	0.12	-0.04	-0.11	-0.04	-0.08	-0.11	-0.08	-0.05
19. Satisfaction With Training (Average Raw Score)	-0.07	0.06	-0.01	0.12	-0.10	0.11	-0.10	-0.15	-0.12	-0.18	-0.23	-0.15	-0.14
20. Satisfaction With Supervisor (Average Raw Score)	-0.01	0.15	-0.09	0.12	-0.03	0.24	-0.04	-0.23	-0.09	-0.15	-0.15	-0.14	-0.10
21. Satisfaction With Coworker (Average Raw Score)	-0.11	0.16	-0.08	0.15	-0.10	0.23	-0.09	-0.20	-0.12	-0.18	-0.21	-0.17	-0.16
22. Satisfaction With Nature of Work (Average Raw Score)	-0.10	0.00	-0.01	0.11	-0.20	0.11	-0.22	-0.10	-0.23	-0.18	-0.21	-0.14	-0.11
23. Satisfaction With Communication (Average Raw Score)	-0.08	0.03	0.03	0.09	-0.17	0.06	-0.21	-0.11	-0.20	-0.23	-0.27	-0.19	-0.16
24. Overall Satisfaction (Average Raw Score)	-0.07	0.14	-0.05	0.15	-0.11	0.20	-0.14	-0.20	-0.16	-0.20	-0.24	-0.18	-0.15
25. Satisfaction With Pay (Average Factor Score)	-0.01	0.09	0.02	0.03	-0.03	-0.06	-0.06	0.09	-0.05	0.03	-0.04	0.00	0.02
26. Satisfaction With Training (Average Factor Score)	0.03	-0.03	-0.02	-0.02	-0.01	0.03	0.00	0.04	-0.02	0.08	0.11	0.05	0.07
27. Satisfaction With Supervisor (Average Factor Score)	0.01	-0.17	0.05	-0.13	0.03	-0.22	0.00	0.19	0.09	0.10	0.10	0.10	0.08
28. Satisfaction With Coworker (Average Factor Score)	-0.12	0.14	-0.08	0.11	-0.08	0.20	-0.07	-0.16	-0.09	-0.15	-0.19	-0.15	-0.15
29. Satisfaction With Nature of Work (Average Factor Score)	-0.07	-0.08	0.01	0.07	-0.21	-0.02	-0.24	0.03	-0.21	-0.10	-0.14	-0.07	-0.05
30. Satisfaction With Communication (Average Factor Score)	-0.10	0.00	0.08	0.05	-0.17	0.00	-0.21	-0.05	-0.21	-0.23	-0.26	-0.19	-0.16
31. Overall Satisfaction (Average Factor Score)	-0.09	0.12	-0.05	0.13	-0.13	0.19	-0.16	-0.18	-0.19	-0.22	-0.26	-0.20	-0.16
32. Multiple Branches in One Zip Code	0.26	-0.02	0.27	0.21	0.34	-0.22	0.28	-0.01	0.44	0.58	0.37	0.59	0.59

14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
1.00																		
0.61	1.00																	
-0.06	-0.02	1.00																
0.51	0.38	-0.10	1.00															
-0.01	0.04	0.11	-0.09	1.00														
-0.10	0.06	0.15	-0.18	0.58	1.00													
-0.06	0.03	0.10	-0.14	0.57	0.62	1.00												
-0.08	0.10	0.14	-0.18	0.45	0.53	0.62	1.00											
-0.07	0.10	0.23	-0.16	0.50	0.62	0.55	0.44	1.00										
-0.14	0.03	0.09	-0.16	0.44	0.73	0.61	0.52	0.60	1.00									
-0.09	0.07	0.16	-0.19	0.74	0.84	0.85	0.77	0.75	0.80	1.00								
0.03	-0.03	0.05	0.00	0.79	0.34	0.13	0.10	0.25	0.12	0.35	1.00							
0.07	-0.01	-0.07	0.07	-0.28	-0.74	-0.12	-0.09	-0.14	-0.32	-0.34	-0.25	1.00						
0.02	-0.04	-0.13	0.14	-0.50	-0.58	-0.87	-0.58	-0.49	-0.58	-0.77	-0.12	0.16	1.00					
-0.07	0.08	0.11	-0.17	0.30	0.36	0.44	0.95	0.26	0.36	0.59	0.01	-0.03	-0.43	1.00				
-0.04	0.10	0.22	-0.11	0.35	0.46	0.24	0.16	0.88	0.36	0.47	0.26	-0.15	-0.19	0.02	1.00			
-0.15	-0.03	0.02	-0.12	0.17	0.57	0.31	0.27	0.41	0.89	0.52	0.01	-0.31	-0.34	0.15	0.24	1.00		
-0.11	0.04	0.17	-0.20	0.66	0.86	0.85	0.72	0.74	0.82	0.98	0.29	-0.40	-0.79	0.55	0.49	0.58	1.00	
0.53	0.57	-0.12	0.27	-0.06	-0.14	-0.15	-0.12	-0.12	-0.17	-0.16	0.02	0.07	0.12	-0.09	-0.08	-0.18	-0.19	1.00

Appendix 3-2 Correlation Matrix of 1996

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Log of Total Sales of the Branch	1.00												
2. Log of Net Sales of the Branch	0.14	1.00											
3. Total Population in 1995 in the Area	-0.04	-0.13	1.00										
4. Owner-Occupied Households in the Area	0.18	0.13	0.64	1.00									
5. Per Capita Income in 1995 in the Area	0.51	0.09	0.12	0.45	1.00								
6. Average Household Wealth in 1995 in the Area	0.13	0.23	-0.39	0.25	0.40	1.00							
7. Median Years of Schooling Completed in the Area	0.52	0.14	-0.09	0.25	0.84	0.49	1.00						
8. Unemployment Rate in the Area	-0.42	-0.27	0.23	-0.38	-0.56	-0.74	-0.61	1.00					
9. Median Home Value	0.55	0.04	0.02	0.22	0.84	0.29	0.80	-0.48	1.00				
10. Total Employees in the Area	0.49	-0.05	0.05	0.03	0.41	-0.27	0.36	-0.03	0.44	1.00			
11. Estimated Total Sales in the Area	0.55	-0.03	-0.09	-0.10	0.32	-0.24	0.31	0.04	0.36	0.89	1.00		
12. Total Number of Establishments in the Area	0.49	-0.06	0.17	0.16	0.47	-0.26	0.35	-0.09	0.54	0.91	0.79	1.00	
13. Total Establishments of Finance, Insurance and Real Estates in the Area	0.52	-0.07	0.22	0.18	0.55	-0.24	0.38	-0.13	0.55	0.87	0.71	0.90	1.00
14. Total Establishments of Commercial Banks in the Area	0.56	0.03	0.13	0.23	0.55	-0.11	0.40	-0.19	0.48	0.84	0.75	0.81	0.89
15 Total Establishments of Depository Institutions in the Area	0.47	0.03	0.15	0.22	0.16	-0.20	0.03	-0.13	0.18	0.58	0.51	0.63	0.59
16. Average Employee Age of the Branch	0.01	0.14	0.06	0.08	-0.14	-0.04	-0.14	0.00	-0.22	-0.11	-0.06	-0.15	-0.15
17. Average Number of Employees of the Branch	0.72	0.13	0.08	0.02	0.31	-0.26	0.25	-0.04	0.35	0.54	0.61	0.49	0.54
18. Satisfaction With Pay (Average Raw Score)	-0.06	0.10	-0.07	-0.05	-0.09	0.08	-0.09	0.06	-0.10	-0.10	-0.09	-0.10	-0.09
19. Satisfaction With Training (Average Raw Score)	-0.22	0.08	-0.03	-0.03	-0.06	0.15	-0.02	-0.03	-0.10	-0.17	-0.19	-0.13	-0.12
20. Satisfaction With Supervisor (Average Raw Score)	-0.09	0.14	-0.10	-0.04	0.00	0.19	0.06	-0.08	-0.03	-0.11	-0.11	-0.09	-0.09
21. Satisfaction With Coworker (Average Raw Score)	0.02	0.18	0.07	0.17	0.02	0.14	0.03	-0.12	-0.02	-0.07	-0.10	-0.04	-0.02
22. Satisfaction With Nature of Work (Average Raw Score)	-0.26	0.17	-0.01	-0.06	-0.26	0.06	-0.20	0.10	-0.30	-0.23	-0.24	-0.24	-0.20
23. Satisfaction With Communication (Average Raw Score)	-0.24	0.11	-0.02	-0.07	-0.13	0.06	-0.13	0.07	-0.18	-0.25	-0.26	-0.21	-0.17
24. Overall Satisfaction (Average Raw Score)	-0.16	0.16	-0.03	-0.01	-0.09	0.14	-0.06	-0.01	-0.13	-0.18	-0.19	-0.15	-0.13
25. Satisfaction With Pay (Average Factor Score)	-0.03	0.01	-0.03	-0.08	-0.11	-0.01	-0.12	0.15	-0.10	-0.05	-0.03	-0.07	-0.06
26. Satisfaction With Training (Average Factor Score)	-0.24	-0.07	0.00	-0.11	-0.01	0.07	-0.01	0.01	-0.06	-0.13	-0.16	-0.10	-0.07
27. Satisfaction With Supervisor (Average Factor Score)	0.08	-0.14	0.08	0.01	0.07	-0.17	0.01	0.14	0.09	0.15	0.16	0.13	0.14
28. Satisfaction With Coworker (Average Factor Score)	0.06	0.14	0.12	0.20	0.04	0.09	0.04	-0.09	0.01	-0.03	-0.04	0.00	0.01
29. Satisfaction With Nature of Work (Average Factor Score)	-0.32	0.08	-0.01	-0.11	-0.37	-0.01	-0.30	0.14	-0.37	-0.25	-0.25	-0.27	-0.23
30. Satisfaction With Communication (Average Factor Score)	0.16	-0.08	-0.04	0.02	0.06	0.02	0.12	-0.08	0.12	0.20	0.23	0.15	0.10
31. Overall Satisfaction (Average Factor Score)	-0.19	0.11	-0.01	-0.04	-0.10	0.12	-0.07	-0.01	-0.15	-0.21	-0.23	-0.19	-0.14
32. Multiple Branches in One Zip Code	0.28	0.01	0.27	0.20	0.41	-0.18	0.36	-0.09	0.46	0.57	0.42	0.61	0.59

Appendix 3-2 Correlation Matrix of 1996

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Log of Total Sales of the Branch	1.00												
2. Log of Net Sales of the Branch	0.14	1.00											
3. Total Population in 1995 in the Area	-0.04	-0.13	1.00										
4. Owner-Occupied Households in the Area	0.18	0.13	0.64	1.00									
5. Per Capita Income in 1995 in the Area	0.51	0.09	0.12	0.45	1.00								
6. Average Household Wealth in 1995 in the Area	0.13	0.23	-0.39	0.25	0.40	1.00							
7. Median Years of Schooling Completed in the Area	0.52	0.14	-0.09	0.25	0.84	0.49	1.00						
8. Unemployment Rate in the Area	-0.42	-0.27	0.23	-0.38	-0.56	-0.74	-0.61	1.00					
9. Median Home Value	0.55	0.04	0.02	0.22	0.84	0.29	0.80	-0.48	1.00				
10. Total Employees in the Area	0.49	-0.05	0.05	0.03	0.41	-0.27	0.36	-0.03	0.44	1.00			
11. Estimated Total Sales in the Area	0.55	-0.03	-0.09	-0.10	0.32	-0.24	0.31	0.04	0.36	0.89	1.00		
12. Total Number of Establishments in the Area	0.49	-0.06	0.17	0.16	0.47	-0.26	0.35	-0.09	0.54	0.91	0.79	1.00	
13. Total Establishments of Finance, Insurance and Real Estates in the Area	0.52	-0.07	0.22	0.18	0.55	-0.24	0.38	-0.13	0.55	0.87	0.71	0.90	1.00
14. Total Establishments of Commercial Banks in the Area	0.56	0.03	0.13	0.23	0.55	-0.11	0.40	-0.19	0.48	0.84	0.75	0.81	0.89
15 Total Establishments of Depository Institutions in the Area	0.47	0.03	0.15	0.22	0.16	-0.20	0.03	-0.13	0.18	0.58	0.51	0.63	0.59
16. Average Employee Age of the Branch	0.01	0.14	0.06	0.08	-0.14	-0.04	-0.14	0.00	-0.22	-0.11	-0.06	-0.15	-0.15
17. Average Number of Employees of the Branch	0.72	0.13	0.08	0.02	0.31	-0.26	0.25	-0.04	0.35	0.54	0.61	0.49	0.54
18. Satisfaction With Pay (Average Raw Score)	-0.06	0.10	-0.07	-0.05	-0.09	0.08	-0.09	0.06	-0.10	-0.10	-0.09	-0.10	-0.09
19. Satisfaction With Training (Average Raw Score)	-0.22	0.08	-0.03	-0.03	-0.06	0.15	-0.02	-0.03	-0.10	-0.17	-0.19	-0.13	-0.12
20. Satisfaction With Supervisor (Average Raw Score)	-0.09	0.14	-0.10	-0.04	0.00	0.19	0.06	-0.08	-0.03	-0.11	-0.11	-0.09	-0.09
21. Satisfaction With Coworker (Average Raw Score)	0.02	0.18	0.07	0.17	0.02	0.14	0.03	-0.12	-0.02	-0.07	-0.10	-0.04	-0.02
22. Satisfaction With Nature of Work (Average Raw Score)	-0.26	0.17	-0.01	-0.06	-0.26	0.06	-0.20	0.10	-0.30	-0.23	-0.24	-0.24	-0.20
23. Satisfaction With Communication (Average Raw Score)	-0.24	0.11	-0.02	-0.07	-0.13	0.06	-0.13	0.07	-0.18	-0.25	-0.26	-0.21	-0.17
24. Overall Satisfaction (Average Raw Score)	-0.16	0.16	-0.03	-0.01	-0.09	0.14	-0.06	-0.01	-0.13	-0.18	-0.19	-0.15	-0.13
25. Satisfaction With Pay (Average Factor Score)	-0.03	0.01	-0.03	-0.08	-0.11	-0.01	-0.12	0.15	-0.10	-0.05	-0.03	-0.07	-0.06
26. Satisfaction With Training (Average Factor Score)	-0.24	-0.07	0.00	-0.11	-0.01	0.07	-0.01	0.01	-0.06	-0.13	-0.16	-0.10	-0.07
27. Satisfaction With Supervisor (Average Factor Score)	0.08	-0.14	0.08	0.01	0.07	-0.17	0.01	0.14	0.09	0.15	0.16	0.13	0.14
28. Satisfaction With Coworker (Average Factor Score)	0.06	0.14	0.12	0.20	0.04	0.09	0.04	-0.09	0.01	-0.03	-0.04	0.00	0.01
29. Satisfaction With Nature of Work (Average Factor Score)	-0.32	0.08	-0.01	-0.11	-0.37	-0.01	-0.30	0.14	-0.37	-0.25	-0.25	-0.27	-0.23
30. Satisfaction With Communication (Average Factor Score)	0.16	-0.08	-0.04	0.02	0.06	0.02	0.12	-0.08	0.12	0.20	0.23	0.15	0.10
31. Overall Satisfaction (Average Factor Score)	-0.19	0.11	-0.01	-0.04	-0.10	0.12	-0.07	-0.01	-0.15	-0.21	-0.23	-0.19	-0.14
32. Multiple Branches in One Zip Code	0.28	0.01	0.27	0.20	0.41	-0.18	0.36	-0.09	0.46	0.57	0.42	0.61	0.59

Appendix 4-1. Effects of Employee Job Satisfaction With Pay (Average Raw Response), Log of Total Sales as Dependent Variable

Variables	1994		1996		1994-1996 pooled	
	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error
Total Population in 1995	0.0019	0.0023	-0.0013	0.0024	0.0008	0.0017
Owner-Occupied Households	-0.0073	0.0139	0.0184	0.0150	0.0000	0.0100
Per Capita Income in 1995	-0.0060	0.0035	-0.0052	0.0037	-0.0056	0.0052
Average Household Wealth in 1995	0.4363	0.7364	-0.0963	0.8656	0.4077	0.5463
Median Years of Schooling Completed	0.0840*	0.0438	0.0889*	0.0466	0.0866***	0.0317
Unemployment Rate	-3.6856***	1.4916	-5.0364***	1.7342	-4.0913***	1.1087
Median Home Value	0.9224*	0.4741	0.7364	0.5262	0.7965**	0.3484
Total Employees in the Area	0.0033	0.0038	-0.0067	0.0053	-0.0008	0.0025
Estimated Total Sales	0.0016	0.0082	0.0404***	0.0126	0.0122*	0.0067
Total Number of Establishments in the Area	-0.0077	0.0605	-0.0150	0.0596	0.0151	0.0409
Total Establishments of Finance, Insurance and Real Estates in the Area	0.4080	0.3015	0.5236	0.3177	0.3399	0.2147
Total Establishments of Commercial Banks in the Area	-0.0124	0.0079	-0.0101	0.0083	-0.0087	0.0056
Total Establishments of Depository Institutions in the Area	0.0251**	0.0119	0.2134	0.0143	0.0207***	0.0087
Average Employee Age of the Branch	0.0080	0.0054	0.0063	0.0061	0.0071*	0.0040
Average Number of Employees of the Branch	0.0532***	0.0047	0.0451***	0.0060	0.0508***	0.0036
Satisfation With Pay (Average Raw Response)	0.0934	0.0700	0.0882	0.0716	0.0826*	0.0491
Multiple Branches in One Zip Code	-0.0195***	0.0816	-0.0357	0.0913	-0.1202**	0.0589
Year=94					-0.1666***	0.0426

Note: p<.10, **: p<.05, ***:p<.01

Appendix 4-2. Effects of Employee Job Satisfaction With Training (Average Raw Response), Log of Total Sales as Dependent Variable

Variables	1994		1996		1994-1996 pooled	
	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error
Total Population in 1995	0.0016	0.0023	-0.0011	0.0025	0.0006	0.0017
Owner-Occupied Households	-0.0056	0.0139	0.0156	0.0151	0.0012	0.0101
Per Capita Income in 1995	-0.0058	0.0035	-0.0054	0.0037	-0.0056	0.0052
Average Household Wealth in 1995	0.4448	0.7423	0.3203	0.8653	0.4559	0.5481
Median Years of Schooling Completed	0.0799*	0.0439	0.0926**	0.0465	0.0844***	0.0318
Unemployment Rate	-3.5766**	1.5052	-4.5684***	1.7107	-3.9954***	1.1116
Median Home Value	0.9505**	0.4753	0.5919	0.5316	0.8046	0.3502
Total Employees in the Area	0.0036	0.0038	-0.0072	0.0053	-0.0008	0.0025
Estimated Total Sales	0.0015	0.0083	0.0387***	0.0125	0.0114*	0.0067
Total Number of Establishments in the Area	-0.0140	0.0605	-0.0016	0.0599	0.0123	0.0411
Total Establishments of Finance, Insurance and Real Estates in the Area	0.4134	0.3027	0.5909*	0.3161	0.3575*	0.2155
Total Establishments of Commercial Banks in the Area	-0.0125	0.0080	-0.0104	0.0082	-0.0086	0.0056
Total Establishments of Depository Institutions in the Area	0.0252**	0.0120	0.0190	0.0142	0.0213**	0.0088
Average Employee Age of the Branch	0.0081	0.0054	0.0071	0.0061	0.0076*	0.0040
Average Number of Employees of the Branch	0.0532***	0.0047	0.0447***	0.0060	0.0503***	0.0036
Satisfation With Training (Average Raw Response)	0.0530	0.0787	-0.1300	0.0804	-0.0307	0.0547
Multiple Branches in One Zip Code	-0.1950**	0.0826	-0.0287	0.0910	-0.1237**	0.0592
Year=94					-0.1792***	0.0422

Appendix 4-3. Effects of Employee Job Satisfaction With Supervisor (Average Raw Response), Log of Total Sales as Dependent Variable

Variables	1994		1996		1994-1996 pooled	
	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error
Total Population in 1995	0.0016	0.0023	-0.0013	0.0025	0.0006	0.0017
Owner-Occupied Households	-0.0056	0.0138	0.0179	0.0152	0.0014	0.0101
Per Capita Income in 1995	-0.0059	0.0053	-0.0055	0.0037	-0.0056	0.0052
Average Household Wealth in 1995	0.3544	0.7359	0.1733	0.8733	0.4235	0.5505
Median Years of Schooling Completed	0.0838*	0.0438	0.0900*	0.0470	0.0838***	0.0318
Unemployment Rate	-3.4211**	1.5023	-4.6406***	1.7276	-3.9508***	1.1120
Median Home Value	0.9649**	0.4730	0.6917	0.5332	0.8264**	0.3503
Total Employees in the Area	0.0034	0.0038	-0.0068*	0.0035	-0.0007	0.0025
Estimated Total Sales	0.0009	0.0082	0.0396***	0.0126	0.0117*	0.0067
Total Number of Establishments in the Area	-0.0072	0.0605	-0.0102	0.0602	0.0118	0.0410
Total Establishments of Finance, Insurance and Real Estates in the Area	0.3883	0.3019	0.5733*	0.3194	0.3471	0.2160
Total Establishments of Commercial Banks in the Area	-0.0122	0.0079	-0.0107	0.0083	-0.0085	0.0056
Total Establishments of Depository Institutions in the Area	0.0245**	0.0119	0.0197	0.0143	0.0207**	0.0088
Average Employee Age of the Branch	0.0082	0.0054	0.0073	0.0062	0.0074*	0.0040
Average Number of Employees of the Branch	0.0534***	0.0047	0.04511***	0.0061	0.0506***	0.0036
Satisfation With Supervisor (Average Raw Response)	0.0840	0.0598	-0.0427	0.0653	0.0195	0.0431
Multiple Branches in One Zip Code	-0.1933**	0.0816	-0.0334	0.0917	-0.1219**	0.0591
Year=94					-0.1771***	0.0423

Note: p<.10, **: p<.05, ***:p<.01

Appendix 4-4. Effects of Employee Job Satisfaction With Co-Worker (Average Raw Response), Log of Total Sales as Dependent Variable

Variables	1994		1996		1994-1996 pooled	
	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error
Total Population in 1995	0.0014	0.0023	-0.0014	0.0025	0.0006	0.0017
Owner-Occupied Households	-0.0044	0.0139	0.0175	0.0151	0.0010	0.0010
Per Capita Income in 1995	-0.0059	0.0053	-0.0051	0.0037	-0.0055	0.0025
Average Household Wealth in 1995	0.4010	0.7396	-0.0039	0.8601	0.4352	0.5488
Median Years of Schooling Completed	0.0786*	0.0440	0.0840*	0.0468	0.0839***	0.0318
Unemployment Rate	-3.7106**	1.5019	-4.7246***	1.7192	-3.9567***	1.1117
Median Home Value	0.9730**	0.4770	0.7510	0.5275	0.8121**	0.3498
Total Employees in the Area	0.0038	0.0038	-0.0066*	0.0035	-0.0008	0.0025
Estimated Total Sales	0.0005	0.0083	0.0392***	0.0126	0.0118*	0.0067
Total Number of Establishments in the Area	-0.0184	0.0609	-0.0098	0.0599	0.0130	0.0412
Total Establishments of Finance, Insurance and Real Estates in the Area	0.4132	0.3030	0.4937	0.3233	0.3476	0.2160
Total Establishments of Commercial Banks in the Area	-0.0124	0.0080	-0.0086	0.0084	-0.0085	0.0056
Total Establishments of Depository Institutions in the Area	0.0274**	0.0122	0.0185***	0.0143	0.0204**	0.0089
Average Employee Age of the Branch	0.0085	0.0054	0.0066	0.0061	0.0074*	0.0040
Average Number of Employees of the Branch	0.0527***	0.0047	0.0455	0.0061	0.0506***	0.0036
Satisfation With Coworker (Average Raw Response)	-0.0200	0.0633	0.0694	0.0703	0.0189	0.0458
Multiple Branches in One Zip Code	-0.2064**	0.0822	-0.0364	0.0915	-0.1212*	0.0592
Year=94					-0.1779***	0.0422

Note: p<.10, **: p<.05, ***:p<.01

Appendix 4-5. Effects of Employee Job Satisfaction With Work (Average Raw Response), Log of Total Sales as Dependent Variable

Variables	1994		1996		1994-1996 pooled	
	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error
Total Population in 1995	0.0015	0.0023	-0.0012	0.0025	0.0006	0.0017
Owner-Occupied Households	-0.0052	0.0139	0.0173	0.0150	0.0014	0.0101
Per Capita Income in 1995	-0.0057	0.0035	-0.0061	0.0037	-0.0058	0.0052
Average Household Wealth in 1995	0.3876	0.7392	0.4082	0.8808	0.4957	0.5512
Median Years of Schooling Completed	0.0800*	0.0439	0.0936**	0.0466	0.0845***	0.0317
Unemployment Rate	-3.6214**	1.5040	-4.3351**	1.7289	-3.9649***	1.1104
Median Home Value	0.9648**	0.4754	0.5853	0.5340	0.7930**	0.3507
Total Employees in the Area	0.0038	0.0038	-0.0069	0.0035	-0.0008	0.0025
Estimated Total Sales	0.0009	0.0082	0.0377***	0.0126	0.0114**	0.0067
Total Number of Establishments in the Area	-0.0159	0.0605	-0.0086	0.0595	0.0117*	0.0410
Total Establishments of Finance, Insurance and Real Estates in the Area	0.3997	0.3047	0.6165*	0.3183	0.3731	0.2167
Total Establishments of Commercial Banks in the Area	-0.0125	0.0080	-0.0104	0.0082	-0.0086	0.0056
Total Establishments of Depository Institutions in the Area	0.0260**	0.0120	0.0183	0.0143	0.0213**	0.0088
Average Employee Age of the Branch	0.0079	0.0055	0.0080	0.0061	0.0080**	0.0040
Average Number of Employees of the Branch	0.0530***	0.0047	0.0460***	0.0060	0.0504***	0.0036
Satisfation With Work (Average Raw Response)	0.0443	0.0980	-0.1725	0.1132	-0.0555	0.0718
Multiple Branches in One Zip Code	-0.2012**	0.0819	-0.0239	0.0913	-0.1218*	0.0591
Year=94					-0.1803***	0.0423

Note: p<.10, **: p<.05, ***:p<.01

Appendix 4-6. Effects of Employee Job Satisfaction With Communication (Average Raw Response), Log of Total Sales as Dependent Variable

Variables	1994		1996		-1996 pooled	
	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error
Total Population in 1995	0.0015	0.0023	-0.0014	0.0025	0.0006	0.0017
Owner-Occupied Households	-0.0049	0.0138	0.0177	0.0151	0.0015	0.0101
Per Capita Income in 1995	-0.0058	0.0045	-0.0053	0.0037	-0.0056	0.0052
Average Household Wealth in 1995	0.4756	0.7377	0.1601	0.8636	0.4458	0.5481
Median Years of Schooling Completed	0.0860*	0.0439	0.0885*	0.0467	0.0844***	0.0318
Unemployment Rate	-3.2918**	1.5166	-4.5262***	1.7349	-3.9524***	1.1124
Median Home Value	0.9513*	0.4730	0.6717	0.5330	0.8243**	0.3503
Total Employees in the Area	0.0037	0.0037	-0.0070	0.0053	-0.0007	0.0025
Estimated Total Sales	0.0019	0.0082	0.0388***	0.0127	0.0119*	0.0067
Total Number of Establishments in the Area	-0.0121	0.0602	-0.0108	0.0599	0.0115	0.0410
Total Establishments of Finance, Insurance and Real Estates in the Area	0.3965	0.3016	0.5801*	0.3189	0.3499	0.2157
Total Establishments of Commercial Banks in the Area	-0.0126	0.0079	-0.0102	0.0083	-0.0086	0.0056
Total Establishments of Depository Institutions in the Area	0.0244**	0.0119	0.0199	0.0143	0.0207**	0.0088
Average Employee Age of the Branch	0.0083	0.0054	0.0072	0.0061	0.0075*	0.0040
Average Number of Employees of the Branch	0.0533***	0.0047	0.0449***	0.0061	0.0506***	0.0036
Satisfation With Communication (Average Raw Response)	0.1222	0.0875	-0.0787	0.0889	0.0229	0.0607
Multiple Branches in One Zip Code	-0.1891**	0.0819	-0.0308	0.0917	-0.1219*	0.0591
Year=94					-0.1763***	0.0425

Note: p<.10, **: p<.05, ***:p<.01

Appendix 4-7. Effects of Overall Employee Job Satisfaction (Average Raw Response), Log of Total Sales as Dependent Variable

Variables	1994		1996		-1996 pooled	
	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error
Total Population in 1995	0.0017	0.0023	-0.0014	0.0025	0.0006	0.0017
Owner-Occupied Households	-0.0062	0.0139	0.0186	0.0151	0.0013	0.0101
Per Capita Income in 1995	-0.0058	0.0035	-0.0055	0.0037	-0.0056	0.0052
Average Household Wealth in 1995	0.4133	0.7373	0.1288	0.8760	0.4307	0.5494
Median Years of Schooling Completed	0.0832*	0.0439	0.0882*	0.0469	0.0840***	0.0318
Unemployment Rate	-3.4935**	1.5048	-4.6584***	1.7350	-3.963***	1.1113
Median Home Value	0.9414**	0.4745	0.7149	0.5332	0.8220**	0.3499
Total Employees in the Area	0.0035	0.0038	-0.0068	0.0053	-0.0007	0.0025
Estimated Total Sales	0.0016	0.0082	0.0396***	0.0127	0.0119*	0.0067
Total Number of Establishments in the Area	-0.0095	0.0606	-0.0128	0.0601	0.0120	0.0411
Total Establishments of Finance, Insurance and Real Estates in the Area	0.4008	0.3024	0.5694*	0.3213	0.3471	0.2161
Total Establishments of Commercial Banks in the Area	-0.0125	0.0079	-0.0103	0.0083	-0.0086	0.0056
Total Establishments of Depository Institutions in the Area	0.0242**	0.0121	0.0196	0.0144	0.0206**	0.0088
Average Employee Age of the Branch	0.0079	0.0054	0.0071	0.0062	0.0074*	0.0040
Average Number of Employees of the Branch	0.0534***	0.0047	0.0450***	0.0061	0.0506***	0.0036
Overall Job Satisfaction (Average Raw Response)	0.1018	0.0959	-0.0342	0.0967	0.0280	0.0660
Multiple Branches in One Zip Code	-0.1918**	0.0822	-0.0339	0.0918	-0.1217*	0.0591
Year=94					-0.1765***	0.0424

Note: p<.10, **: p<.05, ***:p<.01

Appendix 5-1. Effects of Employee Job Satisfaction With Pay (Average Factor Score), Log of Total Sales as Dependent Variable

Variables	1994		1996		1994-1996 pooled	
	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error
Total Population in 1995	0.0016	0.0023	-0.0014	0.0025	0.0007	0.0017
Owner-Occupied Households	-0.0058	0.0139	0.0188	0.0150	0.0005	0.0100
Per Capita Income in 1995	-0.0059	0.0035	-0.0051	0.0037	-0.0056	0.0052
Average Household Wealth in 1995	0.4224	0.7402	-0.1356	0.8625	0.4181	0.5467
Median Years of Schooling Completed	0.0801	0.0439	0.0909	0.0465	0.0858***	0.0317
Unemployment Rate	-3.7548	1.5030	-5.2036	1.7378	-4.1761***	1.1161
Median Home Value	0.9566	0.4752	0.7079	0.5247	0.8014**	0.3487
Total Employees in the Area	0.0035	0.0038	-0.0068	0.0035	-0.0009	0.0025
Estimated Total Sales	0.0013	0.0083	0.0407	0.0125	0.0125*	0.0067
Total Number of Establishments in the Area	-0.0143	0.0605	-0.0143	0.0594	0.0132	0.0409
Total Establishments of Finance, Insurance and Real Estates in the Area	0.4146	0.3027	0.5480	0.3157	0.3542	0.2148
Total Establishments of Commercial Banks in the Area	-0.0125	0.0080	-0.0111	0.0083	-0.0090	0.0056
Total Establishments of Depository Institutions in the Area	0.0270	0.0119	0.0217	0.0143	0.0218**	0.0088
Average Employee Age of the Branch	0.0082	0.0054	0.0067	0.0061	0.0073*	0.0040
Average Number of Employees of the Branch	0.0528	0.0047	0.0447	0.0060	0.0504***	0.0036
Satisfation With Pay (Average Factor Score)	0.0645	0.1088	0.1743	0.1131	0.1144	0.0774
Multiple Branches in One Zip Code	-0.2027	0.0817	-0.0352	0.0909	-0.1225**	0.0589
Year=94					-0.1790***	0.0421

Note: p<.10, **: p<.05, ***:p<.01

Appendix 5-2. Effects of Employee Job Satisfaction With Training (Average Factor Score), Log of Total Sales as Dependent Variable

Variables	1994		1996		1994-1996 pooled	
	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error
Total Population in 1995	0.0015	0.0023	-0.0004	0.0025	0.0009	0.0017
Owner-Occupied Households	-0.0049	0.0138	0.0100	0.0154	-0.0009	0.0101
Per Capita Income in 1995	-0.0059	0.0045	-0.0047	0.0037	-0.0056	0.0052
Average Household Wealth in 1995	0.4185	0.7508	0.2980	0.8525	0.5863	0.5523
Median Years of Schooling Completed	0.0793*	0.0439	0.0904*	0.0461	0.0840***	0.0316
Unemployment Rate	-3.6677**	1.5007	-4.7237***	1.6963	-3.9310***	1.1069
Median Home Value	0.9585**	0.4758	0.5597	0.5272	0.7689**	0.3495
Total Employees in the Area	0.0037	0.0038	-0.0074	0.0053	-0.0010	0.0025
Estimated Total Sales	0.0009	0.0083	0.0379***	0.0125	0.0123*	0.0067
Total Number of Establishments in the Area	-0.0165	0.0605	0.0027	0.0595	0.0144	0.0409
Total Establishments of Finance, Insurance and Real Estates in the Area	0.4189	0.3039	0.5408*	0.3132	0.3675*	0.2147
Total Establishments of Commercial Banks in the Area	-0.0125	0.0080	-0.0084	0.0082	-0.0083	0.0056
Total Establishments of Depository Institutions in the Area	0.0265**	0.0119	0.0190	0.0141	0.0200**	0.0087
Average Employee Age of the Branch	0.0083	0.0054	0.0062	0.0060	0.0071*	0.0040
Average Number of Employees of the Branch	0.0530***	0.0047	0.0440***	0.0060	0.0504***	0.0036
Satisfation With Training (Average Factor Score)	-0.0182	0.0993	-0.2180**	0.1042	-0.1156	0.0701
Multiple Branches in One Zip Code	-0.2019**	0.0822	-0.0358	0.0902	-0.1137*	0.0591
Year=94					-0.1813***	0.0421

Note: p<.10, **: p<.05, ***:p<.01

Appendix 5-3. Effects of Employee Job Satisfaction With Supervisor (Average Factor Score), Log of Total Sales as Dependent Variable

Variables	1994		1996		-1996 pooled	
	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error
Total Population in 1995	0.0015	0.0023	-0.0014	0.0025	0.0005	0.0017
Owner-Occupied Households	-0.0051	0.0138	0.0184	0.0152	0.0017	0.0101
Per Capita Income in 1995	-0.0060	0.0053	-0.0054	0.0037	-0.0056	0.0052
Average Household Wealth in 1995	0.3213	0.7375	0.0977	0.8710	0.4109	0.5508
Median Years of Schooling Completed	0.0839*	0.0438	0.0879*	0.0470	0.0838***	0.0317
Unemployment Rate	-3.4324**	1.5022	-4.7219***	1.7257	-3.9183***	1.1138
Median Home Value	0.9759**	0.4732	0.7241	0.5338	0.8328	0.3505
Total Employees in the Area	0.0034	0.0038	-0.0067	0.0053	-0.0007	0.0025
Estimated Total Sales	0.0003	0.0082	0.0397***	0.0127	0.0116*	0.0067
Total Number of Establishments in the Area	-0.0064	0.0606	-0.0134	0.0600	0.0128	0.0411
Total Establishments of Finance, Insurance and Real Estates in the Area	0.3899	0.3020	0.5596*	0.3196	0.3443	0.2159
Total Establishments of Commercial Banks in the Area	-0.0121	0.0079	-0.0102	0.0084	-0.0084	0.0056
Total Establishments of Depository Institutions in the Area	0.0254**	0.0119	0.0197	0.0144	0.0208**	0.0088
Average Employee Age of the Branch	0.0083	0.0054	0.0071	0.0062	0.0074*	0.0040
Average Number of Employees of the Branch	0.0533***	0.0047	0.0451***	0.0061	0.0505***	0.0036
Satisfation With Supervisor (Average Factor Score)	0.0887	0.0648	-0.0138	0.0676	0.0295	0.0459
Multiple Branches in One Zip Code	-0.1964**	0.0815	-0.0341	0.0920	-0.1227**	0.0591
Year=94					-0.1788***	0.0422

Note: p<.10, **: p<.05, ***:p<.01

Appendix 5-4. Effects of Employee Job Satisfaction With Co-Worker (Average Factor Score), Log of Total Sales as Dependent Variable

Variables	1994		1996		1994-1996 pooled	
	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error
Total Population in 1995	0.0013	0.0023	-0.0014	0.0025	0.0006	0.0017
Owner-Occupied Households	-0.0040	0.0139	0.0164	0.0152	0.0011	0.0101
Per Capita Income in 1995	-0.0059	0.0053	-0.0051	0.0037	-0.0056	0.0052
Average Household Wealth in 1995	0.4056	0.7385	0.0474	0.8551	0.4427	0.5483
Median Years of Schooling Completed	0.0781*	0.0439	0.0827*	0.0467	0.0837***	0.0318
Unemployment Rate	-3.7126**	1.4975	-4.7335***	1.7152	-3.9694***	1.1112
Median Home Value	0.9905**	0.4765	0.7334	0.5261	0.8111**	0.3501
Total Employees in the Area	0.0039	0.0038	-0.0066	0.0053	-0.0008	0.0025
Estimated Total Sales	0.0001	0.0083	0.0383***	0.0126	0.0118*	0.0067
Total Number of Establishments in the Area	-0.0205	0.0607	-0.0081	0.0598	0.0125	0.0411
Total Establishments of Finance, Insurance and Real Estates in the Area	0.4055	0.3028	0.4884	0.3210	0.3508	0.2157
Total Establishments of Commercial Banks in the Area	-0.0122	0.0080	-0.0083	0.0084	-0.0085	0.0056
Total Establishments of Depository Institutions in the Area	0.0283**	0.0121	0.0177	0.0144	0.0205**	0.0088
Average Employee Age of the Branch	0.0085	0.0054	0.0066	0.0061	0.0075*	0.0040
Average Number of Employees of the Branch	0.0525***	0.0047	0.0459***	0.0061	0.0506***	0.0036
Satisfation With Coworker (Average Factor Score)	-0.0531	0.0708	0.0994	0.0796	0.0173	0.0517
Multiple Branches in One Zip Code	-0.2087**	0.0819	-0.0333	0.0913	-0.1214**	0.0592
Year=94					-0.1780***	0.0422

Note: p<.10, **: p<.05, ***:p<.01

Appendix 5-5. Effects of Employee Job Satisfaction With Work (Average Factor Score), Log of Total Sales as Dependent Variable

Variables	1994		1996		1994-1996 pooled	
	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error
Total Population in 1995	0.0016	0.0023	-0.0010	0.0025	0.0006	0.0017
Owner-Occupied Households	-0.0060	0.0139	0.0168	0.0149	0.0014	0.0101
Per Capita Income in 1995	-0.0055	0.0035	-0.0071	0.0083	-0.0058	0.0052
Average Household Wealth in 1995	0.4001	0.7379	0.4739	0.8710	0.4703	0.5503
Median Years of Schooling Completed	0.0799*	0.0438	0.0912**	0.0462	0.0841***	0.0318
Unemployment Rate	-3.7017**	1.4961	-4.4675***	1.7040	-3.9573***	1.1115
Median Home Value	0.9613**	0.4746	0.6172	0.5247	0.8084**	0.3501
Total Employees in the Area	0.0039	0.0038	-0.0069	0.0053	-0.0008	0.0025
Estimated Total Sales	0.0011	0.0082	0.0378***	0.0125	0.0116*	0.0067
Total Number of Establishments in the Area	-0.0169	0.0604	-0.0157	0.0591	0.0115	0.0410
Total Establishments of Finance, Insurance and Real Estates in the Area	0.3832	0.3045	0.6416**	0.3167	0.3658*	0.2169
Total Establishments of Commercial Banks in the Area	-0.0125	0.0080	-0.0096	0.0082	-0.0086	0.0056
Total Establishments of Depository Institutions in the Area	0.0257**	0.0119	0.0172***	0.0142	0.0210**	0.0088
Average Employee Age of the Branch	0.0074	0.0055	0.0084	0.0061	0.0078*	0.0040
Average Number of Employees of the Branch	0.0530***	0.0047	0.0459	0.0060	0.0505***	0.0036
Satisfation With Work (Average Factor Score)	0.0832	0.0939	-0.2374**	0.1195	-0.0331	0.0719
Multiple Branches in One Zip Code	-0.1981*	0.0818	-0.0044	0.0917	-0.1214**	0.0591
Year=94					-0.1791***	0.0422

Note: p<.10, **: p<.05, ***:p<.01

Appendix 5-6. Effects of Employee Job Satisfaction With Communication (Average Factor Score), Log of Total Sales as Dependent Variable

Variables	1994		1996		1994-1996 pooled	
	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error
Total Population in 1995	0.0014	0.0023	-0.0014	0.0025	0.0005	0.0017
Owner-Occupied Households	-0.0041	0.0139	0.0187	0.0151	0.0015	0.0101
Per Capita Income in 1995	-0.0058	0.0040	-0.0053	0.0038	-0.0055	0.0052
Average Household Wealth in 1995	0.4276	0.7401	0.0729	0.8601	0.4592	0.5480
Median Years of Schooling Completed	0.0815*	0.0440	0.0867*	0.0468	0.0844***	0.0317
Unemployment Rate	-3.4853**	1.5239	-4.6759***	1.7353	-3.8618***	1.1206
Median Home Value	0.9723**	0.4753	0.7234	0.5324	0.8118**	0.3495
Total Employees in the Area	0.0039	0.0038	-0.0068	0.0053	-0.0007	0.0025
Estimated Total Sales	0.0012	0.0082	0.0395***	0.0127	0.0118*	0.0067
Total Number of Establishments in the Area	-0.0171	0.0604	-0.0134	0.0600	0.0116	0.0410
Total Establishments of Finance, Insurance and Real Estates in the Area	0.4094	0.3027	0.5599*	0.3193	0.3573*	0.2154
Total Establishments of Commercial Banks in the Area	-0.0127	0.0080	-0.0101	0.0083	-0.0087	0.0056
Total Establishments of Depository Institutions in the Area	0.0263**	0.0119	0.0197	0.0144	0.0208**	0.0088
Average Employee Age of the Branch	0.0085	0.0054	0.0070	0.0062	0.0076*	0.0040
Average Number of Employees of the Branch	0.0530***	0.0047	0.0451***	0.0061	0.0505***	0.0036
Satisfation With Communication (Average Factor Score)	0.0611	0.0889	0.0250	0.0969	0.0456	0.0623
Multiple Branches in One Zip Code	-0.1979**	0.0820	-0.0339	0.0920	-0.1188**	0.0593
Year=94					-0.1798***	0.0422

Note: p<.10, **: p<.05, ***:p<.01

Appendix 5-7. Effects of Overall Employee Job Satisfaction (Average Factor Score), Log of Total Sales as Dependent Variable

Variables	1994		1996		1994-1996 pooled	
	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error
Total Population in 1995	0.0016	0.0023	-0.0013	0.0025	0.0006	0.0017
Owner-Occupied Households	-0.0058	0.0138	0.0176	0.0152	0.0014	0.0101
Per Capita Income in 1995	-0.0058	0.0038	-0.0055	0.0037	-0.0056	0.0025
Average Household Wealth in 1995	0.4124	0.7372	0.1810	0.8758	0.4385	0.5498
Median Years of Schooling Completed	0.0833*	0.0439	0.0891*	0.0469	0.0840***	0.0318
Unemployment Rate	-3.4681**	1.5070	-4.6411***	1.7277	-3.9614***	1.1125
Median Home Value	0.9532**	0.4741	0.6837	0.5351	0.8214**	0.3506
Total Employees in the Area	0.0035	0.0038	-0.0068	0.0053	-0.0007	0.0025
Estimated Total Sales	0.0016	0.0082	0.0393***	0.0127	0.0118*	0.0067
Total Number of Establishments in the Area	-0.0104	0.0605	-0.0125	0.0599	0.0118	0.0411
Total Establishments of Finance, Insurance and Real Estates in the Area	0.3994	0.3024	0.5828*	0.3211	0.3505	0.2162
Total Establishments of Commercial Banks in the Area	-0.0126	0.0079	-0.0104	0.0083	-0.0086	0.0056
Total Establishments of Depository Institutions in the Area	0.0246**	0.0120	0.0196	0.0143	0.0208**	0.0088
Average Employee Age of the Branch	0.0079	0.0054	0.0073	0.0062	0.0074*	0.0040
Average Number of Employees of the Branch	0.0534***	0.0047	0.0450***	0.0061	0.0505***	0.0036
Overall Job Satisfaction (Average Factor Score)	0.0706	0.0651	-0.0419	0.0647	0.0094	0.0445
Multiple Branches in One Zip Code	-0.1905**	0.0824	-0.0302	0.0920	-0.1223**	0.0591
Year=94					-0.1781***	0.0422

Note: p<.10, **: p<.05, ***:p<.01

Appendix 6-1. Effects of Employee Job Satisfaction With Pay (Average Raw Response), Log of Net Sales as Dependent Variable

Variables	1994		1996		1994-1996 pooled	
	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error
Total Population in 1995	0.0004	0.0004	-0.0011	0.0007	-0.0003	0.0004
Owner-Occupied Households	-0.0037	0.0026	0.0064	0.0041	0.0007	0.0023
Per Capita Income in 1995	0.0006	0.0006	-0.0006	0.0010	0.0001	0.0006
Average Household Wealth in 1995	0.4036***	0.1353	-0.0415	0.2346	0.1407	0.1250
Median Years of Schooling Completed	0.0104	0.0081	0.0094	0.0013	0.0113	0.0072
Unemployment Rate	0.4060	0.2741	-0.4498	0.4700	-0.0562	0.2536
Median Home Value	0.0364	0.0871	-0.0802	0.1426	-0.0113	0.0797
Estimated Total Sales	0.0036**	0.0015	-0.0014	0.0034	0.0021	0.0015
Total Employees in the Area	-0.0005	0.0007	-0.0006	0.0010	-0.0007	0.0006
Total Number of Establishments in the Area	0.0033	0.0111	0.0093	0.0162	0.0060	0.0094
Total Establishments of Finance, Insurance and Real Estates in the Area	0.0001	0.0554	-0.0651	0.0861	-0.0285	0.0491
Total Establishments of Commercial Banks in the Area	-0.0027*	0.0015	0.0013	0.0022	-0.0007	0.0013
Total Establishments of Depository Institutions in the Area	0.0045**	0.0022	-0.0022	0.0039	0.0017	0.0020
Average Employee Age of the Branch	0.0007	0.0010	0.0020	0.0017	0.0016*	0.0009
Average Number of Employees of the Branch	0.0005	0.0009	0.0041	0.0016	0.0019**	0.0008
Multiple Branches in One Zip Code	-0.0064	0.0150	0.0265	0.0247	0.0059	0.0135
Satisfation With Pay (Average Raw Response)	0.0416***	0.0129	0.0241	0.0194	0.0294***	0.0112
Year=94					-0.0898***	0.0097

Note: *: p<.10, **: p<.05, ***:p<.01

Appendix 6-2. Effects of Employee Job Satisfaction With Training (Average Raw Response), Log of Net Sales as Dependent Variable

Variables	1994		1996		1994-1996 pooled	
	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error
Total Population in 1995	0.0003	0.0004	-0.0012	0.0007	-0.0003	0.0004
Owner-Occupied Households	-0.0029	0.0026	0.0071	0.0041	0.0012	0.0023
Per Capita Income in 1995	0.0007	0.0007	-0.0006	0.0010	0.0001	0.0006
Average Household Wealth in 1995	0.4055***	0.1390	-0.0441	0.2358	0.1506	0.1259
Median Years of Schooling Completed	0.0086	0.0082	0.0078	0.0127	0.0101	0.0073
Unemployment Rate	0.4504	0.2819	-0.3940	0.4662	-0.0024	0.2554
Median Home Value	0.0493	0.0890	-0.0517	0.1449	0.0016	0.0805
Estimated Total Sales	0.0035**	0.0016	-0.0013	0.0034	0.0021	0.0015
Total Employees in the Area	-0.0003	0.0007	-0.0004	0.0010	-0.0006	0.0006
Total Number of Establishments in the Area	0.0004	0.0113	0.0072	0.0163	0.0044	0.0094
Total Establishments of Finance, Insurance and Real Estates in the Area	0.0026	0.0567	-0.0636	0.0861	-0.0251	0.0495
Total Establishments of Commercial Banks in the Area	-0.0028*	0.0015	0.0014	0.0022	-0.0007	0.0013
Total Establishments of Depository Institutions in the Area	0.0046**	0.0023	-0.0025	0.0039	0.0016	0.0020
Average Employee Age of the Branch	0.0008	0.0010	0.0021	0.0017	0.0017*	0.0009
Average Number of Employees of the Branch	0.0005	0.0009	0.0042**	0.0016	0.0019**	0.0008
Multiple Branches in One Zip Code	-0.0068	0.0155	0.0254	0.0248	0.0056	0.0135
Satisfation With Training (Average Raw Response)	0.0215	0.0148	0.0248	0.0219	0.0152	0.0127
Year=94					-0.0934***	0.0097

Note: *: p<.10, **: p<.05, ***:p<.01

Appendix 6-3. Effects of Employee Job Satisfaction With Supervisor (Average Raw Response), Log of Net Sales as Dependent Variable

Variables	1994		1996		1994-1996 pooled	
	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error
Total Population in 1995	0.0003	0.0004	-0.0012	0.0007	-0.0003	0.0004
Owner-Occupied Households	-0.0028	0.0026	0.0071	0.0041	0.0012	0.0023
Per Capita Income in 1995	0.0006	0.0006	-0.0007	0.0010	0.0001	0.0006
Average Household Wealth in 1995	0.3734***	0.1374	-0.0665	0.2345	0.1298	0.1259
Median Years of Schooling Completed	0.0097	0.0082	0.0069	0.0126	0.0102	0.0073
Unemployment Rate	0.4839*	0.2805	-0.4207	0.4640	0.0087	0.2543
Median Home Value	0.0547	0.0883	-0.0481	0.1432	0.0062	0.0801
Estimated Total Sales	0.0032**	0.0015	-0.0014	0.0034	0.0019	0.0015
Total Employees in the Area	-0.0004	0.0007	-0.0005	0.0010	-0.0007	0.0006
Total Number of Establishments in the Area	0.0022	0.0113	0.0069	0.0162	0.0051	0.0094
Total Establishments of Finance, Insurance and Real Estates in the Area	-0.0046	0.0564	-0.0694	0.0858	-0.0308	0.0494
Total Establishments of Commercial Banks in the Area	-0.0027*	0.0015	0.0018	0.0022	-0.0006	0.0013
Total Establishments of Depository Institutions in the Area	0.0046**	0.0022	-0.0027	0.0039	0.0015	0.0020
Average Employee Age of the Branch	0.0008	0.0010	0.0019	0.0017	0.0016*	0.0009
Average Number of Employees of the Branch	0.0005	0.0009	0.0041	0.0016	0.0019**	0.0008
Multiple Branches in One Zip Code	-0.0073	0.0152	0.0253	0.0246	0.0057	0.0135
Satisfation With Supervisor (Average Raw Response)	0.0245**	0.0112	0.0290	0.0176	0.0205**	0.0099
Year=94					-0.0927***	0.0097

Note: *: p<.10, **: p<.05, ***:p<.01

Appendix 6-4. Effects of Employee Job Satisfaction With Coworker (Average Raw Response), Log of Net Sales as Dependent Variable

Variables	1994		1996		1994-1996 pooled	
	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error
Total Population in 1995	0.0003	0.0004	-0.0011	0.0007	-0.0003	0.0004
Owner-Occupied Households	-0.0032	0.0026	0.0057	0.0040	0.0006	0.0023
Per Capita Income in 1995	0.0007	0.0006	-0.0005	0.0010	0.0002	0.0006
Average Household Wealth in 1995	0.3755***	0.1366	-0.0401	0.2296	0.1361	0.1248
Median Years of Schooling Completed	0.0097	0.0081	0.0070	0.0124	0.0103	0.0072
Unemployment Rate	0.4544	0.2774	-0.3650	0.4589	0.0101	0.2529
Median Home Value	0.0354	0.0881	-0.0721	0.1408	-0.0109	0.0796
Estimated Total Sales	0.0035**	0.0015	-0.0019	0.0034	0.0021	0.0015
Total Employees in the Area	-0.0005	0.0007	-0.0005	0.0009	-0.0007	0.0006
Total Number of Establishments in the Area	0.0031	0.0113	0.0120	0.0160	0.0070	0.0094
Total Establishments of Finance, Insurance and Real Estates in the Area	0.0055	0.0560	-0.0929	0.0863	-0.0336	0.0491
Total Establishments of Commercial Banks in the Area	-0.0028*	0.0015	0.0022	0.0022	-0.0005	0.0013
Total Establishments of Depository Institutions in the Area	0.0039*	0.0023	-0.0033	0.0038	0.0010	0.0020
Average Employee Age of the Branch	0.0008	0.0010	0.0019	0.0016	0.0016*	0.0009
Average Number of Employees of the Branch	0.0006	0.0009	0.0044***	0.0016	0.0020**	0.0008
Multiple Branches in One Zip Code	-0.0059	0.0152	0.0260	0.0244	0.0071	0.0135
Satisfation With Coworker (Average Raw Response)	0.0304***	0.0117	0.0415**	0.0188	0.0291***	0.0104
Year=94					-0.0935***	0.0096

Note: *: p<.10, **: p<.05, ***:p<.01

Appendix 6-5. Effects of Employee Job Satisfaction With Work (Average Raw Response), Log of Net Sales as Dependent Variable

Variables	1994		1996		1994-1996 pooled	
	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error
Total Population in 1995	0.0002	0.0004	-0.0012	0.0009	-0.0003	0.0004
Owner-Occupied Households	-0.0027	0.0026	0.0070	0.0040	0.0012	0.0023
Per Capita Income in 1995	0.0007	0.0007	-0.0004	0.0010	0.0002	0.0006
Average Household Wealth in 1995	0.3818***	0.1387	-0.1220	0.2368	0.1278	0.1263
Median Years of Schooling Completed	0.0087	0.0082	0.0064	0.0125	0.0100	0.0073
Unemployment Rate	0.4060	0.2822	-0.5088	0.4648	-0.0179	0.2544
Median Home Value	0.0554	0.0892	-0.0228	0.1435	0.0088	0.0804
Estimated Total Sales	0.0033**	0.0015	-0.0007	0.0034	0.0021	0.0015
Total Employees in the Area	-0.0003	0.0007	-0.0005	0.0009	-0.0006	0.0006
Total Number of Establishments in the Area	-0.0003	0.0113	0.0075	0.0160	0.0047	0.0094
Total Establishments of Finance, Insurance and Real Estates in the Area	-0.0040	0.0572	-0.0797	0.0856	-0.0340	0.0496
Total Establishments of Commercial Banks in the Area	-0.0028*	0.0015	0.0014	0.0022	-0.0007	0.0013
Total Establishments of Depository Institutions in the Area	0.0049**	0.0022	-0.0022	0.0039	0.0016	0.0020
Average Employee Age of the Branch	0.0007	0.0010	0.0018	0.0016	0.0015	0.0009
Average Number of Employees of the Branch	0.0004	0.0009	0.0038**	0.0016	0.0018**	0.0008
Multiple Branches in One Zip Code	-0.0092	0.0154	0.0224	0.0245	0.0046	0.0135
Satisfation With Work (Average Raw Response)	0.0208	0.0184	0.0641**	0.0304	0.0310*	0.0165
Year=94					-0.0928***	0.0112

Note: *: p<.10, **: p<.05, ***:p<.01

Appendix 6-6. Effects of Employee Job Satisfaction With Communication (Average Raw Response), Log of Net Sales as Dependent Variable

Variables	1994		1996		1994-1996 pooled	
	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error
Total Population in 1995	0.0002	0.0004	-0.0011	0.0007	-0.0003	0.0004
Owner-Occupied Households	-0.0026	0.0026	0.0070	0.0041	0.0014	0.0023
Per Capita Income in 1995	0.0007	0.0007	-0.0008	0.0010	0.0000	0.0006
Average Household Wealth in 1995	0.4052***	0.1383	-0.0411	0.2323	0.1530	0.1255
Median Years of Schooling Completed	0.0100	0.0082	0.0082	0.0126	0.0109	0.0073
Unemployment Rate	0.5048*	0.2842	-0.4624	0.4667	0.0085	0.2547
Median Home Value	0.0512	0.0887	-0.0466	0.1434	0.0047	0.0802
Estimated Total Sales	0.0035**	0.0015	-0.0010	0.0034	0.0021	0.0015
Total Employees in the Area	-0.0003	0.0007	-0.0004	0.0010	-0.0006	0.0006
Total Number of Establishments in the Area	0.0006	0.0113	0.0080	0.0161	0.0048	0.0094
Total Establishments of Finance, Insurance and Real Estates in the Area	-0.0014	0.0565	-0.0694	0.0858	-0.0282	0.0494
Total Establishments of Commercial Banks in the Area	-0.0028*	0.0015	0.0014	0.0022	-0.0007	0.0013
Total Establishments of Depository Institutions in the Area	0.0046**	0.0022	-0.0028	0.0039	0.0015	0.0020
Average Employee Age of the Branch	0.0009	0.0010	0.0020	0.0017	0.0017*	0.0009
Average Number of Employees of the Branch	0.0005	0.0009	0.0042**	0.0016	0.0019**	0.0008
Multiple Branches in One Zip Code	-0.0067	0.0154	0.0244	0.0247	0.0058	0.0135
Satisfation With Communication (Average Raw Response)	0.0304*	0.0164	0.0391	0.0239	0.0259*	0.0139
Year=94					-0.0917***	0.0097

Note: *: p<.10, **: p<.05, ***:p<.01

Appendix 6-7. Effects of Employee Job Satisfaction With Overall Satisfactio (Average Raw Response) Log of Net Sales as Dependent Variable

Variables	1994		1996		1994-1996 pooled	
	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error
Total Population in 1995	0.0003	0.0004	-0.0012	0.0007	-0.0003	0.0004
Owner-Occupied Households	-0.0032	0.0026	0.0069	0.0040	0.0010	0.0023
Per Capita Income in 1995	0.0007	0.0006	-0.0006	0.0010	0.0001	0.0006
Average Household Wealth in 1995	0.3942***	0.1362	-0.0864	0.2338	0.1311	0.1251
Median Years of Schooling Completed	0.0102	0.0081	0.0072	0.0125	0.0105	0.0072
Unemployment Rate	0.4997*	0.2779	-0.4637	0.4630	-0.0007	0.2530
Median Home Value	0.0439	0.0876	-0.0441	0.1423	0.0037	0.0797
Estimated Total Sales	0.0036**	0.0015	-0.0012	0.0034	0.0021	0.0015
Total Employees in the Area	-0.0004	0.0007	-0.0004	0.0009	-0.0007	0.0006
Total Number of Establishments in the Area	0.0028	0.0112	0.0077	0.0160	0.0055	0.0093
Total Establishments of Finance, Insurance and Real Estates in the Area	-0.0037	0.0558	-0.0795	0.0857	-0.0335	0.0492
Total Establishments of Commercial Banks in the Area	-0.0028*	0.0015	0.0017	0.0022	-0.0006	0.0013
Total Establishments of Depository Institutions in the Area	0.0040*	0.0022	-0.0026	0.0038	0.0013	0.0020
Average Employee Age of the Branch	0.0007	0.0010	0.0019	0.0016	0.0016*	0.0009
Average Number of Employees of the Branch	0.0006	0.0009	0.0042**	0.0016	0.0020**	0.0008
Multiple Branches in One Zip Code	-0.0045	0.0152	0.0246	0.0245	0.0063	0.0135
Overall Satisfaction (Average Raw Response)	0.0498***	0.0177	0.0520**	0.0258	0.4001***	0.0150
Year=94					-0.0915***	0.0097

Note: *: p<.10, **: p<.05, ***:p<.01

Appendix 7-1. Effects of Employee Job Satisfaction With Pay (Average Factc Score), Log of Net Sales as Dependent Variable

Variables	1994		1996		1994-1996 pooled	
	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error
Total Population in 1995	0.0003	0.0004	-0.0011	0.0007	-0.0003	0.0004
Owner-Occupied Households	-0.0033	0.0026	0.0065	0.0041	0.0010	0.0023
Per Capita Income in 1995	0.0006	0.0006	-0.0007	0.0010	0.0001	0.0006
Average Household Wealth in 1995	0.4055***	0.1373	-0.0079	0.2359	0.1482	0.1259
Median Years of Schooling Completed	0.0089	0.0081	0.0091	0.0127	0.0108	0.0073
Unemployment Rate	0.3536	0.2788	-0.3917	0.4753	-0.0595	0.2570
Median Home Value	0.0503	0.0881	-0.0814	0.1435	-0.0076	0.0803
Estimated Total Sales	0.0037**	0.0015	-0.0015	0.0034	0.0021	0.0015
Total Employees in the Area	-0.0004	0.0007	-0.0006	0.0010	-0.0007	0.0006
Total Number of Establishments in the Area	0.0009	0.0112	0.0095	0.0163	0.0052	0.0094
Total Establishments of Finance, Insurance and Real Estates in the Area	0.0030	0.0562	-0.0570	0.0863	-0.0234	0.0494
Total Establishments of Commercial Banks in the Area	-0.0028*	0.0015	0.0013	0.0023	-0.0008	0.0013
Total Establishments of Depository Institutions in the Area	0.0055**	0.0022	-0.0025	0.0039	0.0020	0.0020
Average Employee Age of the Branch	0.0008	0.0010	0.0021	0.0017	0.0017*	0.0009
Average Number of Employees of the Branch	0.0003	0.0009	0.0041**	0.0016	0.0018**	0.0008
Multiple Branches in One Zip Code	-0.0097	0.0151	0.0266	0.0249	0.0050	0.0136
Satisfation With Pay (Average Factor Score)	0.0474**	0.0202	0.0099	0.0309	0.0257	0.0178
Year=94					-0.0941***	0.0097

Note: *: p<.10, **: p<.05, ***:p<.01

Appendix 7-2. Effects of Employee Job Satisfaction With Training (Average Factor Score), Log of Net Sales as Dependent Variable

Variables	1994		1996		1994-1996 pooled	
	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error
Total Population in 1995	0.0002	0.0004	-0.0011	0.0007	-0.0003	0.0004
Owner-Occupied Households	-0.0026	0.0026	0.0064	0.0043	0.0010	0.0023
Per Capita Income in 1995	0.0006	0.0007	-0.0007	0.0010	0.0001	0.0006
Average Household Wealth in 1995	0.3969***	0.1412	0.0067	0.2351	0.1674	0.1276
Median Years of Schooling Completed	0.0083	0.0083	0.0089	0.0127	0.0104	0.0073
Unemployment Rate	0.4145	0.2823	-0.3644	0.4678	-0.0101	0.2557
Median Home Value	0.0523	0.0895	-0.0820	0.1454	-0.0086	0.0807
Estimated Total Sales	0.0033**	0.0016	-0.0015	0.0034	0.0020	0.0015
Total Employees in the Area	-0.0003	0.0007	-0.0006	0.0010	-0.0007	0.0006
Total Number of Establishments in the Area	-0.0006	0.0114	0.0097	0.0164	0.0051	0.0095
Total Establishments of Finance, Insurance and Real Estates in the Area	0.0052	0.0572	-0.0568	0.0864	-0.0222	0.0496
Total Establishments of Commercial Banks in the Area	-0.0028*	0.0015	0.0014	0.0023	-0.0007	0.0013
Total Establishments of Depository Institutions in the Area	0.0051**	0.0022	-0.0027	0.0039	0.0017	0.0020
Average Employee Age of the Branch	0.0009	0.0010	0.0021	0.0017	0.0017*	0.0009
Average Number of Employees of the Branch	0.0004	0.0009	0.0041**	0.0017	0.0018**	0.0008
Multiple Branches in One Zip Code	-0.0095	0.0155	0.0266	0.0249	0.0058	0.0137
Satisfation With Training (Average Factor Score)	-0.0090	0.0187	-0.0027	0.0287	-0.0106	0.0162
Year=94					-0.0942***	0.0097

Note: *: p<.10, **: p<.05, ***:p<.01

Appendix 7-3. Effects of Employee Job Satisfaction With Supervisor (Averag Factor Score), Log of Net Sales as Dependent Variable

Variables	1994		1996		1994-1996 pooled	
	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error
Total Population in 1995	0.0002	0.0004	-0.0011	0.0007	-0.0004	0.0004
Owner-Occupied Households	-0.0026	0.0026	0.0069	0.0041	0.0013	0.0023
Per Capita Income in 1995	0.0006	0.0007	-0.0007	0.0010	0.0001	0.0006
Average Household Wealth in 1995	0.3668***	0.1382	-0.0246	0.2356	0.1371	0.1265
Median Years of Schooling Completed	0.0095	0.0082	0.0080	0.0127	0.0103	0.0073
Unemployment Rate	0.4702*	0.2816	-0.3661	0.4667	0.0124	0.2558
Median Home Value	0.0573	0.0887	-0.0653	0.1444	0.0037	0.0805
Estimated Total Sales	0.0031**	0.0015	-0.0014	0.0034	0.0019	0.0015
Total Employees in the Area	-0.0004	0.0007	-0.0005	0.0010	-0.0007	0.0006
Total Number of Establishments in the Area	0.0020	0.0114	0.0090	0.0162	0.0054	0.0094
Total Establishments of Finance, Insurance and Real Estates in the Area	-0.0031	0.0566	-0.0619	0.0864	-0.0282	0.0496
Total Establishments of Commercial Banks in the Area	-0.0027*	0.0015	0.0015	0.0023	-0.0006	0.0013
Total Establishments of Depository Institutions in the Area	0.0049**	0.0022	-0.0027	0.0039	0.0017	0.0020
Average Employee Age of the Branch	0.0009	0.0010	0.0020	0.0017	0.0017*	0.0009
Average Number of Employees of the Branch	0.0005	0.0009	0.0041**	0.0016	0.0018**	0.0008
Multiple Branches in One Zip Code	-0.0085	0.0153	0.0254	0.0249	0.0050	0.0136
Satisfation With Supervisor (Average Factor Score)	0.0222*	0.0121	0.0140	0.0183	0.0144	0.0106
Year=94					-0.0942***	0.0097

Note: *: p<.10, **: p<.05, ***:p<.01

Appendix 7-4. Effects of Employee Job Satisfaction With Coworker (Average Factor Score), Log of Net Sales as Dependent Variable

Variables	1994		1996		1994-1996 pooled	
	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error
Total Population in 1995	0.0003	0.0004	-0.0011	0.0007	-0.0003	0.0004
Owner-Occupied Households	-0.0030	0.0026	0.0055	0.0041	0.0007	0.0023
Per Capita Income in 1995	0.0007	0.0006	-0.0005	0.0010	0.0002	0.0006
Average Household Wealth in 1995	0.3791***	0.1373	-0.0052	0.2300	0.1474	0.1251
Median Years of Schooling Completed	0.0091	0.0082	0.0071	0.0126	0.0100	0.0073
Unemployment Rate	0.4259	0.2784	-0.3684	0.4613	-0.0094	0.2536
Median Home Value	0.0375	0.0886	-0.0817	0.1415	-0.0127	0.0799
Estimated Total Sales	0.0035**	0.0015	-0.0022	0.0034	0.0020	0.0015
Total Employees in the Area	-0.0004	0.0007	-0.0005	0.0009	-0.0007	0.0006
Total Number of Establishments in the Area	0.0020	0.0113	0.0119	0.0161	0.0064	0.0094
Total Establishments of Finance, Insurance and Real Estates in the Area	0.0082	0.0563	-0.0833	0.0863	-0.0288	0.0492
Total Establishments of Commercial Banks in the Area	-0.0029*	0.0015	0.0020	0.0023	-0.0006	0.0013
Total Establishments of Depository Institutions in the Area	0.0042	0.0022	-0.0034	0.0039	0.0011	0.0020
Average Employee Age of the Branch	0.0008	0.0010	0.0020	0.0016	0.0016*	0.0009
Average Number of Employees of the Branch	0.0006	0.0009	0.0045***	0.0016	0.0020**	0.0008
Multiple Branches in One Zip Code	-0.0075	0.0152	0.0274	0.0245	0.0069	0.0135
Satisfation With Coworker (Average Factor Score)	0.0290**	0.0132	0.0402*	0.0214	0.0277**	0.0118
Year=94					-0.0936***	0.0096

Note: *: p<.10, **: p<.05, ***:p<.01

Appendix 7-5. Effects of Employee Job Satisfaction With Work (Average Fac Score), Log of Net Sales as Dependent Variable

Variables	1994		1996		1994-1996 pooled	
	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error
Total Population in 1995	0.0002	0.0004	-0.0012	0.0007	-0.0003	0.0004
Owner-Occupied Households	-0.0026	0.0026	0.0068	0.0041	0.0012	0.0023
Per Capita Income in 1995	0.0007	0.0007	-0.0005	0.0010	0.0001	0.0006
Average Household Wealth in 1995	0.3852***	0.1392	-0.0499	0.2389	0.1467	0.1266
Median Years of Schooling Completed	0.0084	0.0083	0.0083	0.0127	0.0103	0.0073
Unemployment Rate	0.4080	0.2822	-0.3984	0.4674	-0.0191	0.2557
Median Home Value	0.0536	0.0895	-0.0636	0.1439	-0.0015	0.0805
Estimated Total Sales	0.0032**	0.0016	-0.0012	0.0034	0.0019	0.0015
Total Employees in the Area	-0.0003	0.0007	-0.0005	0.0010	-0.0006	0.0006
Total Number of Establishments in the Area	-0.0004	0.0114	0.0098	0.0162	0.0048	0.0094
Total Establishments of Finance, Insurance and Real Estates in the Area	0.0027	0.0574	-0.0682	0.0869	-0.0275	0.0499
Total Establishments of Commercial Banks in the Area	-0.0027*	0.0015	0.0013	0.0022	-0.0007	0.0013
Total Establishments of Depository Institutions in the Area	0.0051**	0.0022	-0.0023	0.0039	0.0018	0.0020
Average Employee Age of the Branch	0.0009	0.0010	0.0020	0.0017	0.0016*	0.0009
Average Number of Employees of the Branch	0.0004	0.0009	0.0040**	0.0016	0.0018**	0.0008
Multiple Branches in One Zip Code	-0.0102	0.0154	0.0225	0.0252	0.0046	0.0136
Satisfation With Work (Average Factor Score)	0.0011	0.0177	0.0315	0.0328	0.0116	0.0165
Year=94					-0.0936***	0.0097

Note: *: p<.10, **: p<.05, ***:p<.01

Appendix 7-6. Effects of Employee Job Satisfaction With Communication (Average Factor Score), Log of Net Sales as Dependent Variable

Variables	1994		1996		1994-1996 pooled	
	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error
Total Population in 1995	0.0002	0.0004	-0.0011	0.0007	-0.0003	0.0004
Owner-Occupied Households	-0.0023	0.0026	0.0067	0.0041	0.0012	0.0023
Per Capita Income in 1995	0.0007	0.0007	-0.0008	0.0010	0.0001	0.0006
Average Household Wealth in 1995	0.3975***	0.1387	-0.0001	0.2320	0.1532	0.1262
Median Years of Schooling Completed	0.0091	0.0082	0.0093	0.0126	0.0103	0.0073
Unemployment Rate	0.4819	0.2856	-0.4209	0.4681	-0.0290	0.2581
Median Home Value	0.0578	0.0891	-0.0620	0.1436	-0.0036	0.0805
Estimated Total Sales	0.0033**	0.0015	-0.0011	0.0034	0.0019	0.0015
Total Employees in the Area	-0.0002	0.0007	-0.0005	0.0010	-0.0007	0.0006
Total Number of Establishments in the Area	-0.0008	0.0113	0.0089	0.0162	0.0048	0.0094
Total Establishments of Finance, Insurance and Real Estates in the Area	0.0011	0.0567	-0.0631	0.0861	-0.0238	0.0496
Total Establishments of Commercial Banks in the Area	-0.0028*	0.0015	0.0014	0.0022	-0.0007	0.0013
Total Establishments of Depository Institutions in the Area	0.0050**	0.0022	-0.0027	0.0039	0.0018	0.0020
Average Employee Age of the Branch	0.0009	0.0010	0.0020	0.0017	0.0017*	0.0009
Average Number of Employees of the Branch	0.0004	0.0009	0.0041**	0.0016	0.0018**	0.0008
Multiple Branches in One Zip Code	-0.0082	0.0154	0.0250	0.0248	0.0045	0.0136
Satisfation With Communication (Average Factor Score)	0.0230	0.0167	-0.0297	0.0261	-0.0062	0.0144
Year=94					-0.0937***	0.0097

Note: *: p<.10, **: p<.05, ***:p<.01

Appendix 7-7. Effects of Employee Job Satisfaction With Overall Satisfaction (Average Factor Score), Log of Net Sales as Dependent Variable

Variables	1994		1996		1994-1996 pooled	
	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error
Total Population in 1995	0.0003	0.0004	-0.0012	0.0007	-0.0004	0.0004
Owner-Occupied Households	-0.0030	0.0026	0.0072	0.0041	0.0013	0.0023
Per Capita Income in 1995	0.0007	0.0006	-0.0007	0.0010	0.0001	0.0006
Average Household Wealth in 1995	0.3932***	0.1364	-0.0653	0.2357	0.1339	0.1256
Median Years of Schooling Completed	0.0102	0.0081	0.0076	0.0126	0.0105	0.0073
Unemployment Rate	0.5058*	0.2788	-0.4156	0.4649	0.0117	0.2542
Median Home Value	0.0500	0.0877	-0.0458	0.1440	0.0077	0.0801
Estimated Total Sales	0.0036**	0.0015	-0.0012	0.0034	0.0021	0.0015
Total Employees in the Area	-0.0004	0.0007	-0.0005	0.0009	-0.0006	0.0006
Total Number of Establishments in the Area	0.0022	0.0112	0.0086	0.0161	0.0053	0.0094
Total Establishments of Finance, Insurance and Real Estates in the Area	-0.0039	0.0559	-0.0743	0.0864	-0.0322	0.0494
Total Establishments of Commercial Banks in the Area	-0.0028*	0.0015	0.0016	0.0022	-0.0007	0.0013
Total Establishments of Depository Institutions in the Area	0.0042*	0.0022	-0.0027	0.0039	0.0015	0.0020
Average Employee Age of the Branch	0.0007	0.0010	0.0019	0.0017	0.0016*	0.0009
Average Number of Employees of the Branch	0.0006	0.0009	0.0041**	0.0016	0.0019**	0.0008
Multiple Branches in One Zip Code	-0.0043	0.0152	0.0234	0.0248	0.0057	0.0135
Overall Satisfaction (Average Factor Score)	0.0325***	0.0120	0.0260	0.0174	0.0222**	0.0102
Year=94					-0.0915***	0.0097

Note: *: p<.10, **: p<.05, ***:p<.01