

**AN INDUSTRY-LEVEL EXAMINATION OF U.S. EMPLOYEE JOB SATISFACTION
FOLLOWING THE 2008 GREAT RECESSION: A STUDY OF HERZBERG'S
MOTIVATION-HYGIENE THEORY USING THE U.S. GENERAL SOCIAL SURVEY**

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Abstract

The objective of this research study is to examine the interrelationship between employee job satisfaction (dependent latent variable) and thirteen contributing factors (independent latent variables) identified in Herzberg's motivation-hygiene theory, with an emphasis on the impact of the 2008 Great Recession at the industry level among the U.S. labor force. The study utilized bi-annual, aggregated, industry-level data sets from the U.S. General Social Survey (GSS) conducted on U.S. household population in 2006 ($N = 851$) and 2010 ($N = 615$) by the National Research Center. This quantitative study employed the two-step structural equation modeling (SEM) method, using SPSS and AMOS Version 22 software, to explore interrelationship effects between 14 latent variables constructed from 37 items in the GSS quality of working life topical module. The SEM analysis resulted in three iterative measurement models in Step 1, with Model 3's goodness-of-fit values of CFI = 0.984, RMSEA = 0.044, GFI = 0.979, AGFI = 0.966, and PGFI = 0.603, and Hoelter's size effects of 517 ($p < .05$) and 584 ($p < .01$). Subsequent structural modeling resulted in the full structural Model 3 (trimmed) with goodness-of-fit values of CFI = 0.972, RMSEA = 0.052, GFI = 0.97, AGFI = 0.954, and PGFI = 0.639, and Hoelter's size effects of 292 ($p < .05$) and 321 ($p < .01$). The study concludes that (a) two motivation factors (i.e., recognition and advancement) correlate with employee job satisfaction (EJS), (b) no hygiene factor has direct influence on EJS, (c) one hygiene factor (i.e., policy and administration) has significant interrelationships with both motivation factors, and (d) economic climate influences employee attitudes toward job satisfaction. Three implications resulted from the research study's findings. From a theoretical perspective, key Herzberg's motivation factors (i.e., recognition and advancement) correlate with employee satisfaction at the industry level. From a scientific merit perspective, the SEM method optimizes and validates both measurement and structural models

with the inclusion of interrelationship effects between variables. From a practical perspective, employees prefer tangible advancements (e.g., opportunities to develop, promotion) more than comfortable environment (e.g., respect, trust) at the economic recovery phase in 2010.

Dedication

This dissertation is dedicated to my family for their encouragement and support throughout my life. Most of all, I would like to dedicate to my dearest wife, Lynn; I thank you for your love, care, patience, and sacrifice to ensure that I achieve my personal and professional goals, especially during some of the difficult times. I always love you!

To my children, Tiffany, Stan, and Brittany, you have taught me that learning is not everything, but everything requires learning; I thank you for your love and supports.

To Jack, Jennifer, and Patrick, your determination, love, and respect inspire me throughout this journey.

In memory of our parents, Lynn and I thank you for your hard work and the love that you instilled in us. Your emphasis on continuous education has been instrumental in our belief of higher education.

With faith in God and with your confidence in my ability, this lifelong dream becomes reality. This doctoral degree is for all of us, and it is forever our family's achievement!

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CHAPTER 1. INTRODUCTION

Introduction to the Problem

Despite the many studies conducted over the last few decades by scholars and business professionals regarding employee job satisfaction (EJS) and its contributing factors, there remain significant gaps in knowledge between scientific researchers and human-resource management (HRM) practitioners. Saari and Judge (2004) identified three knowledge gaps related to the understanding of employee attitudes toward job satisfaction: causes, results, and measurement methods. As stated by the authors, “organizations need HR [human resource] practitioners who know how to develop effective and research-based employee attitude measures, understand and derive valuable insights from the data, and use the results to improve employee attitudes and job performance and help lead organizational change” (Saari & Judge, 2004, p. 403). They posited that researchers and practitioners could benefit from a deeper and broader understanding of both theory- and evidence-based studies of EJS.

An essential aspect of EJS research is the study of interrelationships, or interplays, between factors that influence job satisfaction. These influential factors, such as Herzberg’s motivation and hygiene factors (Herzberg, Mausner, & Snyderman, 1959; Saari & Judge, 2004), can be intrinsic or extrinsic to employee perspectives. Other aspects of EJS research included the influence of volatile economic climates on employees and firms (Latham & Braun, 2011) and the impact of firm size and downsizing (Beer, 1994; Tsai, Yen, Huang, & Huang, 2007), industry-level characteristics (Datta, Guthrie, & Wright, 2005; Guthrie & Datta, 2008) and socioeconomic

and work-family climates (Hom & Kinicki, 2001; Smerek & Peterson, 2007). The present study focuses on these gaps in knowledge.

Background of the Study

The present study focuses on the subject of EJS in the field of organization and management, and it is grounded in the motivation-hygiene theory resulting from the seminal work of Herzberg, Mausner, and Snyderman (1959). The motivation-hygiene theory categorized the factors that influence EJS into two groups: motivation factors towards satisfaction and hygiene factors towards dissatisfaction (Herzberg, 1987; Herzberg et al., 1959; Herzberg, Mathapo, Weiner, & Wiesen, 1974). The theory suggested that both factor groups influence employees simultaneously depending on the intrinsic conditions of employees and the extrinsic states of the environment (Herzberg, 1965; Herzberg et al., 1959). The development of the motivation-hygiene theory spearheaded recent situational research that provided guidelines for organizational HRM strategies.

Recent situational research conducted to support organizational management and solidify HRM strategies identified a variety of factors that influence EJS. The goal of HRM strategies is to induce and sustain EJS in order to improve organizational outcomes. Such studies focused on a number of variables, including economic and industry conditions, firm size, work-life quality, job characteristics, motivation, and labor market conditions (Elamin, 2010; Giannikis & Mihail, 2011; Gu & Siu, 2009; Hasnain, Khan, Awan, Tufail, & Ullah, 2011; Khalifa, 2011; Lange, Pacheco, & Shrotryia, 2010; Ooi, Bakar, Arumugam, Vellapan, & Loke, 2007; Sengupta, 2011; Shaikh, Bhutto, & Maitlo, 2012; Yeager, 1981). Additionally, studies have examined the relationship between EJS and organization performance outcomes, such as productivity, talent retention, attendance, profitability, turnover, and growth (Curry, Wakefield, Price, & Mueller,

1986; Delaney & Huselid, 1996; Janssen, 2001; Judge, Thoresen, Bono, & Patton, 2001; Lee, Gerhart, Weller, & Trevor, 2008; Wofford, 1971). However, the findings suggested that, at the micro level, the factors that influence EJS varied depending on the situational environment, the population under study, and the research methods used.

A review of the literature suggested that recent studies provided, at best, situation-limited information (e.g., Smerek & Peterson, 2007; Smith & Shields, 2013). Studies continue to identify gaps in knowledge and provide recommendations for different environmental conditions, such as industry characteristics, firm size, work type, or number of earners in the family. For instance, Smerek and Peterson (2007) examined Herzberg's motivation-hygiene theory in the education industry to explore the impact of personal and job characteristics on EJS. The authors identified one of Herzberg's motivation-hygiene factors; *work itself*, as having a stronger influence on EJS, although they did not confirm Herzberg's outcomes (Herzberg et al., 1959). Smith and Shields (2013) also reported that the *work itself* factor influenced EJS; however, they also identified supervisor relationships as a significant factor while monetary-based factors were not significant. The results from both studies were situational and not generalizable.

In summary, the present study aims to contribute to the body of knowledge on EJS theory within the field of organizational management. It examines the relationships between EJS and various contributing factors identified in Herzberg's motivation-hygiene theory. The scope of the study focuses on the U.S. labor force using data from the U.S. General Social Survey (GSS) conducted by the National Research Center (General Social Survey [GSS], 2012). The study analysis is at the industry levels using the 1980 Industry Codes. Hence, the literature and gap reviews identified the research problem that is the fundamental focus of the present study.

Statement of the Problem

Gaps in knowledge in the field of EJS, organizational management, and HRM warrant deeper and broader studies that emphasize industry characteristics and socioeconomic conditions. Methods for improving HRM strategies to induce and sustain EJS and influence successful organizational outcomes have thus far been ineffective. Accordingly, examining the effect of various factors, including intrinsic and extrinsic components, is important. Such factors include motivation and hygiene factors (Herzberg et al., 1959; Saari & Judge, 2004), firm size, industry-level characteristics, economic climate, work-family climate, and downsizing (Beer, 1964; Datta et al., 2005; Hom & Kinicki, 2001; Smerek & Peterson, 2007; Tsai et al., 2007). The present purposive study examined the gaps in knowledge regarding factors that influence EJS and their interrelationships.

Purpose of the Study

The purposes of this quantitative cross-sectional study are threefold. First, the study examines the subject of EJS at the industry level using three-digit industry and occupation codes from the 1980 Industry Code. Second, the study relates EJS to motivation and hygiene factors (achievement, recognition, work itself, responsibility, advancement, possibility of growth, supervision, working conditions, interpersonal relationships, salary, job security, policies and administration, and personal life) while controlling for organization size, work type, and number of earners in the family. Lastly, the study examines workforce perceptions toward EJS in various U.S. industries during the economic expansion phase followed the 2008 Great Recession.

Rationale

From a theoretical perspective, the concept for this study involves a framework for EJS that has evolved over the past few decades. The field of EJS was established with Maslow's

seminal work on needs-based theory (Maslow, 1943), followed by the work of Herzberg et al. (1959) on motivation-hygiene theory (also known as dual factor theory). Motivation-hygiene theory categorizes the factors that influence EJS using two continuums: motivation factors towards satisfaction and hygiene factors towards dissatisfaction (Herzberg, 1987; Herzberg et al., 1959; Herzberg et al., 1974). Contemporary studies of Herzberg's motivation-hygiene theory have included industrial, economic, and personal factors. These studies emphasized the importance of providing HRM with strategic principles and tactical guidance to formulate policies that cultivate positive relationships between EJS, organizational commitment, and employee performance (Judge et al., 2001; Qureshi, Hayat, Ali, & Sarwat, 2011).

From a practical perspective, additional factors may also affect EJS. For example, Datta et al. (2005) recommended that organization behavior research should consider the inclusion of industry characteristics. The authors assumed that employees and firms in certain groups of industries shared a unique set of environmental characteristics that influenced their attitudes toward, and the criteria necessary for, EJS. Accordingly, the present study of EJS employs an industry-level perspective that reaches beyond the level of individuals and firms.

The size of a firm or organization may also affect EJS. Beer (1964) emphasized the relationship between firm or organization size and employee attitudes toward EJS using inferential research from empirical studies (Talacchi, 1960; Baumgartel & Sobel, 1959). Beer posited that organization size (i.e., number of employees) had an inverse effect on EJS. Changes in an organization's size influenced employee perceptions and attitudes toward job satisfaction as results of altering organizational structure, leadership and management, and employee needs and expectations (Terrien & Mills, 1955). Moreover, Tsai et al. (2005a; 2005b) found that firm downsizing affected EJS at both organization and individual levels, whether due to internal or

external environmental inducements. Such inducements are more severe during global recessions, which lead to job changes and losses of personal income (e.g., the 2008 Great Recession). Job changes affected work type mobility; for example, moving from full-time to part-time or even unemployment status. Job changes can also affect the number of income earners in families (Hom & Kinicki, 2001; Smerek & Peterson, 2007).

From a methodological perspective, the present study leverages several strengths of the advanced two-step structural equation modeling (SEM) method. First, SEM is an effective method for assessing multiple-construct models in terms of goodness of fit and for examining relationships between influential factors (Hom & Kinicki, 2001). The SEM method also allows for the incorporation of indicator (observed) and latent (unobserved) variables, while other regression analysis methods include only observed variables (Teo, 2011). Second, SEM allows researchers to build complex behavioral or attitudinal models while minimizing the effects of contaminated constructs associated with random measurement errors, which maximizes validity (Byrne, 2010; Garson, 2012). Third, SEM allows researchers to test hypothesized relationships between variables using specification, estimation, assessment, and distinct presentation of measurements and structural models (Anderson & Gerbing, 1988). Finally, besides the capability to model multivariate relations, SEM also provides directionality for interrelationships among latent variables (Teo, 2011). The present study uses data from the GSS (2012) to construct latent variables using motivation and hygiene factors.

In summary, the present study employs the SEM method to test hypothesized relationships between variables in multiple models through specification, estimations of fit, and modification using the IBM Statistical Package for Social Science and the Analysis of Moment Structures. The study uses industry-level data aggregated according to the 1980 Industry Code,

demographic data (e.g., firm size, work type, number of earners in the family) from 2006 and 2010 data sets, and secondary data obtained from the Quality of Work module in the GSS (2012).

Research Questions

The purpose of the study was to examine the relationships between EJS and various factors, identified in Herzberg's motivation-hygiene theory, using data from the U.S. General Social Survey (General Social Survey [GSS], 2012). The following two research questions and four hypotheses expressed the premise of the study.

Research Question 1

At the industry level, what are the relationships between Herzberg's motivation-hygiene factors (latent independent variables: achievement, recognition, work itself, responsibility, advancement, possibility of growth, supervision, working conditions, interpersonal relationships, salary, job security, policies and administration, and personal life) and EJS (latent dependent variable), while controlling for the effect of number of earners in the family, work type, and organization size (control variables)?

H₁₀: There is no relationship at the industry level between Herzberg's motivation-hygiene factors (achievement, recognition, work itself, responsibility, advancement, possibility of growth, supervision, working conditions, interpersonal relationships, salary, job security, policies and administration, and personal life) and EJS, while controlling for the effect of number of earners per family, work type, and organization size.

H_{1A}: There are significant relationships at the industry level between Herzberg's motivation-hygiene factors (achievement, recognition, work itself, responsibility, advancement, possibility of growth, supervision, working conditions, interpersonal relationships, salary, job

security, policies and administration, and personal life) and EJS, while controlling for the effect of number of earners per family, work type, and organization size.

Sub-Research Question 1

At the industry level, what is the difference between employee perceptions of EJS in the US during the economic expansion phase of the 2008 Great Recession and during the economic boom prior to the Great Recession (2006)?

H2₀: There is no difference at the industry level between employee perceptions of EJS in the US during the economic expansion phase of the 2008 Great Recession and during the economic boom prior to the Great Recession (2006).

H2_A: There is a significant difference at the industry level between employee perceptions of EJS in the US during the economic expansion phase of the 2008 Great Recession and during the economic boom prior to the Great Recession (2006).

Significance of the Study

The significance of this study lies in its contribution to the field of organization and management, specifically the topic of EJS as it applies to strategy creation in HRM. From a theoretical perspective, this study may contribute to Herzberg's motivation-hygiene theory by providing deeper and broader knowledge of the factors that influence EJS and their interrelationships. Additionally, the study intends to address key knowledge gaps identified by Saari and Judge (2004) and other situational researchers, regarding the understanding of EJS's causes, results, and measurement methods. In terms of scientific merit, this study may enhance knowledge of factors that influence EJS by leveraging the strength of the two-step SEM method to assess the interrelationships between such factors (Hom & Kinicki, 2001). The advanced multivariate technique of SEM can estimate measurement and structural models and parameters

such as magnitude, directional path, and interrelationships (Tomarken & Waller, 2005). Finally, from a business perspective, the outcomes of this study may help organizational leadership, management, and scholars in several ways, such as closing the gap between knowledge of motivation-hygiene theory and its practical application across U.S. industries (Datta et al., 2005). Information from this study may also contribute to the effective management of organizational practices and policies at different phases of the economic cycle (Latham & Braun, 2011; Smerek & Peterson, 2007). Lastly, the results of this study may solidify theoretical and practical links between motivation factors and EJS by providing insights for potential uses as compatible industry-level baselines.

Definition of Terms

This study employs several key terms and constructs defined as follows:

Achievement. This construct of motivation-hygiene theory describes employee attitudes or perceptions regarding success or failure when doing their jobs (e.g., assignments, projects, or tasks; Herzberg et al., 1959).

Advancement. This construct of motivation-hygiene theory describes employee attitudes or perceptions regarding the opportunity for a change in position, as defined by the organizational hierarchy (Herzberg et al., 1959).

Company policies. This construct of motivation-hygiene theory describes employee attitudes or perceptions toward the overall adequacy or inadequacy of company organization and management and the effects (harmful or beneficial) of company policies (Herzberg et al., 1959).

Employee job satisfaction. Wofford (1971) defined EJS as “the overall attitude of well-being with regard to the job and its environment” (p. 502). In the present study, EJS refers to

employee emotional states or attitudes toward their job and work environment (e.g., pleasure, displeasure, satisfaction, or dissatisfaction).

Interpersonal relationships. This construct of motivation-hygiene theory describes employee attitudes or perceptions regarding “verbalization about the characteristics of the interaction between the person speaking and some other individual” (Herzberg et al., 1959, p. 70), which includes superiors, subordinates, and peers.

Personal life. This construct of motivation-hygiene theory is limited to job-related factors that affect personal life, such as working hours or relocation (Herzberg et al., 1959).

Possibilities for growth. This construct of motivation-hygiene theory describes employee attitudes or perceptions regarding the opportunity to improve job status, professional skills, or outlooks, whether onward or upward (Herzberg et al., 1959).

Recognition. This construct of motivation-hygiene theory describes employee attitudes or perceptions toward acknowledgement, praise, criticism, or blame in regards to employee working actions or behaviors by anyone who associates or interacts with the employee (Herzberg et al., 1959).

Responsibility. This construct of motivation-hygiene theory describes employee attitudes or perceptions toward the availability of responsibility and authority, from which they have the freedom and flexibility to perform and make necessary decisions within their jobs (Herzberg et al., 1959).

Salary. This construct of motivation-hygiene theory includes all forms of compensation (e.g., salaries or benefits) that play a role in employee attitudes toward EJS (Herzberg et al., 1959).

Job security. This construct of motivation-hygiene theory describes employee attitudes or perceptions toward “tenure and company stability or instability, which reflected [sic] in some objective way on a person’s job security” (Herzberg et al., 1959, p. 72).

Work itself. This construct of motivation-hygiene theory describes employee attitudes or perceptions toward the nature of the job itself (e.g., routine vs. varied, creative vs. stultifying, overly easy vs. overly difficult; Herzberg et al., 1959).

Working conditions. This construct of motivation-hygiene theory describes employee attitudes or perceptions toward the “physical conditions of work, amount of work, or the facilities available for doing the work” (Herzberg et al., 1959, p. 72).

Assumptions and Limitations

This study involves several key assumptions. One theoretical assumption is that workplace factors influence EJS within organizations, because the level of EJS or dissatisfaction affects employee attitudes and performance. Another assumption is that the global economic distress experienced in 2008 affected company practices and policies regarding organizational environment, structure, and/or working conditions for a broad range of organizations throughout various U.S. industries. A methodological assumption is that patterns in the GSS data can provide insight into how workplace factors influence EJS within organizations. The assumption also include that the questionnaires were in alignment with Herzberg’s factors (1959). Another assumption is that respondents in the GSS were fully aware, comprehended the questions, and answered questions according to the purpose of the Quality of Working Life module. A final assumption is that existing industry-level norms such as industry characteristics and conditions have homogeneous distribution throughout the workforce (Datta et al., 2005).

The present study includes some limitations. For example, the analysis of data is at the industry level, but the unit of observation is at the individual level (i.e., respondents). In addition, the study used aggregated data derived from the Quality of Work module of the GSS (2012) and the use of aggregated data imposes limitations on generalizing findings to the individual level (Garson, 2012; Teo, 2011). In addition, the study adopts certain single-indicator latent variables with the assumption that there is no random measurement error, thus limiting generalizability. Finally, the scope of this study is restricted to the U.S. workforce, which limits any global implications associated with multinational organizations.

Nature of the Study

In terms of scientific merit, this study may enhance knowledge of factors that influence EJS by leveraging the strength of the two-step SEM method to assess the interrelationships between such factors (Hom & Kinicki, 2001). The advanced multivariate technique of SEM can estimate measurement and structural models and parameters such as magnitude, directional path, and interrelationships (Tomarken & Waller, 2005). Additionally, the study intends to address key knowledge gaps identified by Saari and Judge (2004). From a business perspective, the outcomes of this study may help organizational leadership, management, and scholars in several ways, such as closing the gap between knowledge of Herzberg's motivation-hygiene theory and its practical application across U.S. industries (Datta et al., 2005). Information from this study may also contribute to the effective management of organizational practices and policies at different phases of an economic cycle (Latham & Braun, 2011; Smerek & Peterson, 2007). Lastly, the results of this study may solidify theoretical and practical links between motivation factors and EJS by providing potential insights as compatible industry-level baselines.

Organization of the Remainder of the Study

This research study contains five chapters. Chapter 1 presents an introduction to the problem, the background of the study, the statement of the problem, the purpose of the study, the rationale, the research questions and hypotheses, the significance of the study, definitions of terms, and the nature of the study. Chapter 2 provides a literature review of EJS theory, including Maslow's needs-based motivation theory, Herzberg's motivation-hygiene theory, and other, more recent studies. Chapter 3 presents the research approach, design, and methodology. Chapter 4 provides the data analysis and research results. Chapter 5 offers implications drawn from the analysis in Chapter 4; it also provides an explanation of the data and discusses the conclusions and recommendations based on the results.

CHAPTER 2. LITERATURE REVIEW

Introduction

This chapter presents a review of the literature regarding the subject of employee job satisfaction (EJS). The review begins with a discussion of Maslow's (1943) seminal work on hierarchy of needs theory, followed by a comprehensive review of the motivation-hygiene theory developed by Herzberg et al. (1959). Next, this chapter focuses on the analysis of recent studies of EJS within the context of industry-level characteristics in four sectors: technology, nursing, banking, and education. This discussion includes the impact of economic, organizational, and personal climates (e.g., recession, organization size, work type, and income) on EJS. This chapter concludes with an exploration of research gaps and recommendations related to EJS in the area of human-resource management (HRM). In summary, the material presented in this chapter describes the theoretical and methodological foundations for the present study of U.S. workforce perceptions of EJS.

Employee Job Satisfaction

For decades, scholars and business professionals have studied the topic of EJS with an emphasis on employee attitudes and related factors that influence EJS. According to Wofford (1971), EJS is "the overall attitude of well-being with regard to the job and its environment" (p. 502). The concept of EJS refers to the emotional states or attitudes of employees (e.g., pleasure, displeasure, satisfaction, dissatisfaction) regarding their job and work environment. Initially, the study of EJS involved a needs-based motivation framework from Maslow's (1943) hierarchy of needs theory that conceptualized the relationships between human needs and motivation. Maslow

formulated these relationships into a five-level needs model. Using Maslow's hierarchy of needs theory as a foundation, Herzberg et al. (1959) derived a needs-based motivation theory from their seminal work. The theory, namely Herzberg's motivation-hygiene theory, conceptualized an attitudinal model of employee's satisfaction and dissatisfaction depicted onto two separate continuums (Herzberg, 1987; Herzberg et al., 1959; Herzberg et al., 1974). In subsequent research, motivation-hygiene theory evolved to include industrial, economic, and personal factors (Datta et al., 2005; Herzberg, 1965; Ewen, 1964; Lange et al., 2010; Malinovsky & Barry, 1965; Schwartz, Jenusaitis, & Stark, 1963). The driving force for this research was an emphasis on providing HRM with strategic principles and tactical guidance for formulating human resource policies that cultivate positive relationships between EJS, organizational commitment, and employee performance (Judge et al., 2001; Qureshi et al., 2011). The following discussions reviewed the progression of research on the topic of EJS from Maslow's hierarchy of needs (1943), Herzberg's motivation-hygiene theory (1959), Herzberg's human needs profiling model (1974), and to the recent research trends, which indicated more instances of hygiene factors used in research than motivation factors.

Needs-Based Motivation: Maslow's Hierarchy of Needs Theory

Hierarchy of needs theory conceptualizes relationships between needs-based motivation factors and human behaviors (Maslow, 1943). Maslow (1943) posited that, in humans, various biological, social, cultural, and personal growth needs influenced attitudes and behaviors. Maslow modeled human needs using a pyramid-like, five-level hierarchy of needs. The model posits that motivation evolves sequentially along five stages of needs grouped into two categories: deficiency needs (Stages 1 to 4) and growth needs (Stage 5). Stage 1 represents the beginning and Stage 5 is at the top of the pyramid. The classification of Stages 1 to 4 are (1)

physiological, (2) safety and security, (3) belongingness, and (4) esteem, respectively. The theory considered these needs are deficits, because they are essential for individual survival. Therefore, individuals with a strong survival instinct are motivated to work harder to fulfill their needs, which, when achieved, generate a feeling of satisfaction. On the other hand, growth needs in the fifth stage go beyond survival needs to represent self-actualization. The need at this stage stems from an inner desire to reach one's highest potential. In Stage 5, individuals look for a deeper level of satisfaction after fulfilling their essential survival needs.

In general, growth needs follow deficit needs. This progressive mobility through the five stages of the model is one of the main principles of hierarchy of needs theory. Fulfillment of needs results in personal satisfaction at each stage (Maslow, 1943). The criteria of mobility dictate that the fulfillment of needs at each stage is a prerequisite for the next stage. For instance, the first stage represents physiological needs that include basic and urgent needs to survive. These biological needs include being able to breathe, having water when thirsty, having food when hungry, or simply having time to sleep and rest. After fulfilling Stage 1 needs, people advance to Stage 2, which involves a higher level of needs related to well-being, such as good health, shelter, removal of danger, financial stability, and safety. At Stage 3, people focus on intangible needs such as belongingness, attachment, love, or affection with others (i.e., family and friends). Stage 4 includes needs that are intrinsically deeper, such as esteem, which can arise from self or from others. At Stage 5, people look to fulfill their inner desires to achieve, grow, and attain the highest levels of satisfaction. This level self-actualization represents a stage where people no longer have deficits that influence low-level or external needs.

The needs of each stage induce certain levels of motivation that influence how people behave in regards to fulfilling those needs (Maslow, 1943). In terms of the job environment,

Maslow (1943) implied that the attainment of job satisfaction required patterns of fulfillment that were similar to the hierarchy of needs. Thus, hierarchy of needs theory stimulated a variety of studies that attempted to identify motivating factors that affect EJS. One outcome of such research was the development of Herzberg's motivation-hygiene theory, also known as Herzberg's dual-factor theory (Herzberg et al., 1959).

Herzberg's Motivation-Hygiene Theory

Following Maslow's (1943) hierarchy of needs theory, and expanding on its principles, Herzberg et al. (1959) developed their seminal work on motivation-hygiene theory. This theory posits that levels of satisfaction or dissatisfaction reside on two separate continuums that correspond to two sets of influential factors, motivation and hygiene. The motivation factors and hygiene factors parallel Maslow's (1943) growth needs and deficiency needs, respectively. The two continuums range from *dissatisfaction* to *no dissatisfaction* and from *no satisfaction* to *satisfaction* (Herzberg et al., 1959). The theory considered that the two continuums are independent of one another. For example, Herzberg et al. (1959) believed that causes of dissatisfaction were primarily due to lack of fulfillment associated with hygiene factors, whereas causes of satisfaction were due to fulfillments associated with motivation factors. These premises were a direct result of the original study by Herzberg et al. (1959).

The original study

The original study by Herzberg et al. (1959) focused primarily on relationships between levels of satisfaction or dissatisfaction and the significance of employee attitudes towards job and work environment. The authors applied the critical incident method to a sample of 203 engineers and accountants through a series of interview questionnaires. The interviewers asked each participant to provide descriptions of incidents or situations that occurred in their job or

work environment that had caused them to feel exceptionally good or bad. By separating incidents into two categories, *good* and *bad*, the study segregated influential factors into two distinct sets. One set included good feelings associated with satisfaction and motivation factors and the other set included bad feelings associated with dissatisfaction and hygiene factors. The study identified 16 factors: six motivation (i.e., achievement, recognition, work itself, responsibility, advancement, and growth) and 10 hygiene (i.e., policy and administration, supervision, relationship with supervisor, work conditions, salary, relationship with peers and supervisors, personal life, status, and job security) factors (Herzberg et al., 1992, Table 1).

Herzberg et al. (1959) ranked each factor in each of the two sets, based on its level of perceived job satisfaction and dissatisfaction. On the extreme job satisfaction side, there were significantly higher frequencies of motivation factors such as achievement, recognition, work itself, responsibility, advancement, and growth (Herzberg et al., 1992 , Figure 1). Similarly, on the extreme job dissatisfaction side, there were higher frequencies of hygiene factors such as company policy and administration, supervision, relationship with supervisor, work conditions, salary, relationship with peers and supervisors, personal life, status, and security. From this data, Herzberg et al. (1959) conceptualized the two-continuum model of EJS.

The two-continuum model assumes that motivation factors have no relationship to dissatisfaction and hygiene factors have no relationship to satisfaction. Motivation factors are intrinsic, relating to what employees do and the jobs they perform. In contrast, hygiene factors are external, relating to the environment in which employees perform their jobs. Factors from each continuum influence employee satisfaction and dissatisfaction independently: motivation factors influence satisfaction, whereas hygiene factors influence dissatisfaction. This independence implies exclusiveness among factors, with no interplay between them. Subsequent

research by Schwartz et al. (1963), Herzberg (1965), and Herzberg (1976) confirmed these results, albeit with some variations in results.

Supportive Research

Schwartz et al. (1963) replicated the study by Herzberg et al. (1959) using a sample of low-level non-professional employees in the public utility industry that was composed of 111 male supervisors from 21 electric and gas companies. Schwartz et al. (1963) employed their newly developed questionnaire, based on the same questions used by Herzberg et al. (1959). The results showed similar high frequency patterns for motivation factors and satisfaction and for hygiene factors and dissatisfaction, except for a lower frequency of dissatisfaction incidents related to interpersonal relationships with supervisor and peers. Schwartz et al. (1963) attributed this difference to the fact that respondents were supervisors who moved up from lower ranks. As such, they were inclined to maintain the same identity and relationships with subordinates who were their ex-peers. This continuous relationship followed job advancement or promotion and preserved prior comfort and satisfactory relationships, which explains the low impact of interpersonal relationships with supervisor and peers on dissatisfaction. These differences in findings between Schwartz et al. (1963) and Herzberg et al. (1959) suggested the existence of interrelationships between factors (e.g., between advancement and relationships with peers). Later, Herzberg (1965) reported another variation from the original study.

Herzberg (1965) replicated the study by Herzberg et al. (1959) in Finland, focusing on a non-American culture. The study administered a translated version of the questionnaire used by Schwartz et al. (1963) to 139 low-level supervisors in Finland. The study found that hygiene factors were more strongly correlated with dissatisfaction versus satisfaction (80% and 15%, respectively) and that positive motivation factors were more strongly correlated with satisfaction

than negative motivation factors (90% and 10%, respectively). These results were consistent with the original study (Herzberg et al., 1959).

While Herzberg (1965) arrived at the same conclusions as the original study (Herzberg et al., 1959), the results showed two minor variations. First, there were movements of factor ranking along both continuums. The top four hygiene factors in descending order were supervision, policy and administration, working conditions, and relationship with peers. This ranking is different from the original study (Herzberg et al., 1959), where the top four hygiene factors were (in descending order): policy and administration, supervision, relationship with supervisors, and working conditions. Regarding motivation factors, responsibility jumped upward in rank from fourth place in the original study (Herzberg et al., 1959) to first place in the Finnish study (Herzberg, 1965), while recognition dropped from second place to fifth place. However, there were no movements across the two continuum boundaries.

The second variation found by Herzberg (1965) related to a hygiene factor, possibility of growth, in terms of different frequencies between satisfaction and dissatisfaction incidents. Herzberg stated, “The only one not found more frequently in the high versus the low feeling sequences was the possibility for growth, as with the original study” (p. 399). Both variations suggested that population culture and socioeconomic status play a role in employee attitudes towards job satisfaction and other factors that influence EJS. Herzberg attributed the minor variations in study results to the impact of favorable economic growth observed in Finland. The author believed that favorable economic growth fulfilled hygiene factors, or extrinsic needs, and therefore influenced higher levels of inner, or intrinsic, desires and increased motivation needs.

From an overall perspective, the findings of Herzberg (1965) and Schwartz et al. (1963) supported the motivation-hygiene theory (Herzberg et al., 1959) with similar empirical findings.

However, despite having confirmatory support from other studies, motivation-hygiene theory also drew criticism on the grounds of weaknesses in methodology and theoretical foundation.

Criticisms of Herzberg's Motivation-Hygiene Theory

The study by Herzberg et al. (1959) drew criticism from various researchers (Ewen, 1964; House & Wigdor, 1967; Lindsay, Marks, & Gorlow, 1967; Malinovsky & Barry, 1965). Critics questioned the instruments and methods that required participants to determine whether each separate incident or event made them satisfied or dissatisfied, but not both. They also argued against assertions by Herzberg et al. (1959) that an exclusive separation existed between satisfaction and dissatisfaction associated with motivation or hygiene factors.

Ewen (1964) criticized motivation-hygiene theory based on several proposed weaknesses. First, the original study by Herzberg et al. (1959) involved a narrow range of professionals (engineers and accountants) and a small sample, which limited the ability to generalize the results toward other job situations or occupations. Second, the original study measured job attitudes using a single method (semi-structured interviews), which led to questionable generalizability and validity. Third, the study compromised validity and reliability due to inadequate statistical evidence of test-retests. Fourth, by segregating satisfaction from dissatisfaction, and given the absence of an overall job satisfaction measure, the validity of claims of comprehensive job satisfaction or dissatisfaction could not be confirmed. Ewen (1964) supported these criticisms with an exploratory study that employed different methods and larger population samples than the original study by Herzberg et al. (1959).

Ewen (1964) showed no exclusive separation between satisfaction and dissatisfaction associated with motivation or hygiene factors. The study employed principal components and varimax rotation methods to analyze two samples of full-time life insurance agents (541

respondents from 1960 and 480 respondents from 1962) using a 58-item four-point attitudinal survey instrument. First, the study confirmed the relationships of motivation and hygiene factors to satisfaction and dissatisfaction, respectively. For example, the work itself factor related strongly to satisfaction, as in the original study by Herzberg et al. (1959). Second, Ewen (1964) found that certain factors (salary and recognition) crossed continuum boundaries. For example, in the sample from 1960, salary was a cause of satisfaction, in contrast to findings by Herzberg et al. (1959) that salary was a cause of dissatisfaction. Furthermore, in the sample from 1962, Ewen (1964) found that salary and recognition acted as causes of both satisfaction and dissatisfaction. These findings presented significant challenges to those of Herzberg et al. (1959). Ewen (1964) recommended that future studies should consider the impact of different job or occupational situations, industry characteristics, economic climate, and reliable research methods.

As in the study by Ewen (1964), Malinovsky and Barry (1965) provided both partial support and conflicting evidence regarding the independence of motivation and hygiene factors. Their study focused on the work attitudes of 117 blue-collar workers (unskilled and semi-unskilled) using a 40-item survey instrument developed by the authors (20 items each for motivation and hygiene factors). The results demonstrated that motivation and hygiene factors correlate positively to job satisfaction. The study categorized these factors into three groups. Group 1 included four single-item loadings composed of three hygiene factors (salary, technical supervision, and interpersonal relations) and one motivation factor (advancement). Group 2 included two motivation factors (individual accomplishment and work role). Group 3 included three factors related to both motivation and hygiene (physical work environment, unrecognized work efforts, and work frustration), which contradicted claims by Herzberg et al. (1959) that motivation and hygiene were independent. Moreover, Malinovsky and Barry (1965) found that

motivation and hygiene factors were not mutually exclusive with respect to satisfaction and dissatisfaction, providing further evidence of interactions among factors. In later research, Lindsay, Marks, and Gorlow (1967) confirmed similar results.

Lindsay et al. (1967) reported that motivation factors influenced both satisfaction and dissatisfaction while hygiene factors influenced satisfaction. This finding contradicted the two-continuum model (Herzberg et al., 1959), where motivation factors influenced only satisfaction and hygiene factors influenced only dissatisfaction. Lindsay et al. (1967) explained these results by criticizing various aspects of the study by Herzberg et al. (1959). First, the critical incident interview method used by Herzberg et al. lacked control over the number of incidents and the number of factors. Second, Herzberg et al. inadvertently swapped the roles of independent and dependent variables when incorporating the two-level dependent variable with high and low levels of satisfaction or dissatisfaction. Third, Herzberg et al. did not consider that the relationship between satisfaction and dissatisfaction might be interactive, nor did they consider any interactions between motivation and hygiene factors.

Lindsay et al. (1967) criticized the assumption that motivation and hygiene factors were independent based on their empirical study, which confirmed the existence of interrelationships between motivation and hygiene factors and job satisfaction and dissatisfaction. The authors employed a factorial design using three variable classifications (motivation, hygiene, and employee) on 18 groups, which included 15 industrial employees in professional and non-professional jobs. Lindsay et al. concluded that there was no absolute exclusivity between motivation and hygiene factors, as claimed previously by Herzberg et al. (1959). For example, Lindsay et al. (1967) found that job satisfaction was optimal when achievement (a motivation factor) and company policy and administration (a hygiene factor) were high. Conversely, job

satisfaction was low when achievement and company policy and administration were low. However, when achievement was low and company policy and administration was high, dissatisfaction dominated. Analysis of these three cases suggested that achievement acted as the main driver of satisfaction, while company policy and administration acted as the primary driver of dissatisfaction. Moreover, it suggested that the motivation-hygiene relationship was non-additive and, therefore, the level of job satisfaction could not be a derivative from the sum of motivation and hygiene factors. These conclusions confirmed the existence of interrelationships among motivation and hygiene factors, which contradicted assertions by Herzberg et al. (1959) that the two continuums were independent.

House and Wigdor (1967) noted inconsistencies between later research by Herzberg (1965) and previous work on motivation-hygiene theory (Herzberg et al., 1959). House and Wigdor (1967) conducted a secondary analysis of Herzberg's 1965 study, which yielded results that contradicted the unipolar characteristics of motivation-hygiene theory. House and Wigdor (1967) found that, in relation to job dissatisfaction, achievement and recognition (motivation factors) had higher frequencies than working conditions and relationship with superior (hygiene factors). Therefore, Herzberg's (1965) own data did not support the claim of unipolar and independent satisfaction and dissatisfaction continuums.

House and Wigdor (1967) concluded that interrelationships existed between variables and other factors related to EJS and that, accordingly, motivation-hygiene theory was overly simplistic in considering two separate continuums that were independent and sequential. For example, House and Wigdor found that a specific factor could affect satisfaction for one person, while affecting dissatisfaction for others. The authors speculated that these differences could be due to other variables such as age, job type, gender, education, culture, or standing in the group.

Second, House and Wigdor found that one factor could simultaneously affect both satisfaction and dissatisfaction within one sample. Third, they found that motivation factors had a greater influence on job satisfaction and dissatisfaction than hygiene factors. These observations supported previous criticisms that the conclusions of Herzberg et al. (1959) were premature and too simplistic, disregarding the interrelationships between motivation and hygiene factors and their concurrent effects on job satisfaction and dissatisfaction.

Criticisms by Ewen (1964), Malinovsky and Barry (1965), Lindsay et al. (1967), and House and Wigdor (1967) drove additional research to improve the understanding of relationships between motivation and hygiene factors. In 1976, Herzberg enhanced motivation-hygiene theory with the contribution of the human needs profiling model.

Herzberg's Human Needs Profiling Model

Herzberg (1976) introduced the human needs profiling model, which resulted from his philosophical works, in response to early criticisms of motivation-hygiene theory. These philosophical works implied the existence of interrelationships among motivation and hygiene factors, evolving motivation-hygiene theory from a one-dimensional to a two-dimensional framework. Herzberg (1976) emphasized that, under normal conditions, the needs of a typical individual consisted of two dimensions, motivation and hygiene, both of which were important. With respect to jobs, Herzberg posited that individuals strived for satisfaction using both dimensions concurrently. The human needs profiling model suggested categorizing individuals into one of the four types, as shown in Figure 1.

The first type is “the best of all possible worlds” (Herzberg, 1976, p. 62-63). This group contains individuals who achieve a high level of hygiene comfort and have a high level of motivation. Such individuals have minimum dissatisfaction, high levels of motivation

fulfillment, and maximum satisfaction with their job and its environment. For example, such individuals rate their income, relationships with people at work, house, and workplace as good. They are very comfortable with their biological and physical status (i.e., rank high on extrinsic factors). They also have meaningful jobs, high accomplishments in their job or career path, and high psychological growth (i.e., rank high on intrinsic factors). In general, such individuals have high motivation for growth in their jobs, so they experience growth and, consequently, high job satisfaction. They also have high avoidance for discomfort or pain in the workplace environment and, therefore, much less dissatisfaction than the second type.

High Hygiene	“I’m alright, Jack”	“Best of all possible worlds”
Low Hygiene	“Down and out”	“The starving artist”
	Low Motivation	High Motivation

Figure 1. Human needs profiling. Adapted from “The Managerial Choice: To Be Efficient and To Be Human,” by F. Herzberg, 1976, Dow Jones-Irwin, Homewood, IL. Copyright 1976 by Frederick Herzberg.

The second type in the human needs profiling model is “the starving artist” (Herzberg, 1976, p. 63). This group contains individuals with low levels of hygiene comfort in their job (i.e., mostly dissatisfied) and high levels of motivation fulfillment and maximum satisfaction with their job and its environment. As an example, Herzberg (1976) used the analogy of artists who very much enjoy what they do but are not happy due to certain aspects of their profession, such

as other people, the work environment, or lack of stable income. In general, individuals of this type show elevated motivation for growth in their job because they love it (intrinsic factor) and are therefore willing to find that motivation. Thus, they achieve high job satisfaction. However, such individuals also cope with discomfort or pain in the workplace environment (extrinsic factors), which they cannot avoid. Consequently, they show high levels of dissatisfaction compared to the third type.

The third type is “I’m all right Jack” (Herzberg, 1976, p. 63-64). This group contains individuals with high levels of comfort regarding survivability within their job or workplace environment, but who lack job satisfaction. For example, such individuals may feel that their job pays well, that they have pleasant relationships with peers and their supervisor, and that their job is secure. However, they also feel that their job is meaningless, with no ability to advance, and they lack a sense of accomplishment. In general, these individuals consider that their level of discomfort or pain in the workplace is manageable. Thus, they have very little motivation towards growth, even though they have a low level of job satisfaction.

The last type is “the down and out situation” (Herzberg, 1976, p. 64). Individuals in this group have high levels of job dissatisfaction (e.g., a hard job or poor wages; low hygiene factors) and low levels of satisfaction regarding their job or their possibilities for advancement or growth. This type is the worst of the four described in the human needs profiling model.

The significance of Herzberg’s (1976) human needs profiling model is its pseudo-recognition of the coexistence of motivation and hygiene factors within the conceptual framework of employee attitudes and satisfaction. The model implies the existence of interrelationships between motivation and hygiene factors, which has a profound impact on the implications of EJS, employee performance, and productivity that contribute to organizational

performance and success (Judge et al., 2001; Mahmood, Mirza, Khan, & Talib, 2011; Shaikh et al., 2012). Nevertheless, the model raises questions about the legitimacy of separating satisfaction and dissatisfaction in studies of EJS. Researchers and practitioners have used this information as a foundation for seeking additional empirical knowledge about EJS in studies grounded on motivation-hygiene and human needs profiling models. Recent research trends reflect interest in a variety of situational settings.

Recent Research Trends

A review of 40 recent empirical studies on EJS reveals that post-positivist researchers are inclined to balance their heuristic works between motivation-hygiene theory and the human needs profiling model. Situational research has generated outcomes that confirm the co-existence of motivation and hygiene factors. Figure 2 groups these 40 studies into four trend categories, or quadrants. Quadrant 1 includes studies that recognize both groups of motivation and hygiene factors. For example, Ahmed, Nawaz, Iqbal, Shaukat, and Usman (2010) built a model with five hygiene factors (policy and administrative, pay, interpersonal relationships, work conditions, and supervision) and six motivation factors (growth, advancement, responsibility, work itself, recognition, and achievement). Quadrant 2 contains works that included only motivation factors. For example, Holland, Pyman, Cooper, and Teicher (2011) used three motivation factors (work itself, empowerment, and job autonomy) to study EJS. Quadrant 3 contains studies that emphasize only hygiene factors. For example, Wu and Chiang (2007) studied three hygiene factors (policy and administrative, interpersonal relationship, and work conditions) along with additional factors, such as diversity. Quadrant 4 consists of a small number of studies that used neither motivation nor hygiene factors. Overall, researchers used more instances of hygiene factors than motivation factors (85 versus 50 factors, respectively).

<p>Hygiene Factor Usage</p>	<p>Quadrant 3: Asif, Choudhry, Akhter, Ilyas, and Lee (2011); Artz (2008); Cheng, Lai, and Wu (2010); Daley (2007); Findler, Wind, and Barak (2007); Mansoor, Fida, Nasir, and Ahmad (2011); Morrow, McElroy, and Scheibe (2011); Pepe (2010); Qu and Zhao (2012); Rehman, Irum, Tahir, Ijaz, Noor, and Salma (2012); Rogelberg, Allen, Shanock, Scott, and Shuffler (2010); Shah (2009); Wang and Sangalang (2007); Wei, Zhejiang, and Xin (2007); Wu and Chiang (2007); Yang and Kassekert (2010)</p>	<p>Quadrant 1: Ahmed et al. (2010); Chang and Lee (2007); Elamin (2011); Giannikis and Mihail (2011); Gu and Siu (2009); Hasnain et al. (2011); Khalifa (2011); Lange et al. (2010); Lee and Chang (2008); Ooi et al. (2007); Sengupta (2011); Shah, Memon, and Laghari (2011); Shaikh et al. (2012); Smerek and Peterson (2007)</p>
<p>No Hygiene Factor Usage</p>	<p>Quadrant 4: Bright (2008); Bhatti and Shahzad (2008); Dick et al. (2007); Alas (2007)</p>	<p>Quadrant 2: Halepota and Shah (2011); Javed, Rafiq, M., Ahmed, and Khan (2012); Lai et al. (2011); Holland et al. (2011); Akbar, Yousaf, Haq, and Hunjra (2011); Sarwar and Khalid (2011)</p>
	<p>No Motivation Factor Usage</p>	<p>Motivation Factor Usage</p>

Figure 2. Four trend categories. Adapted from “The motivation to work,” by F. Herzberg, B. Mausner, and B. B., Snyderman, 1992, Piscataway, NJ: Transaction Publishers. Copyright 1992 by Transaction Publishers.

In addition, Table 1 summarizes the characteristics of the 40 studies reviewed in this section. For example, the studies involved cultural regions such as the Middle East (37%), Asia (26%), America (21%), and Europe (11%). The sampling types were convenient (55%), random (35%), secondary data (8%), and stratified (3%). The populations were from several industries, such as technology (18%), banking (18%), education (13%), health services (5%), retail and service (19%), and general (30%). The data suggested that there are global interests on the

research topic of EJS in various industries. The following sections of the review focused on four noticeable industries: technology, health service, banking, and education.

Table 1. *Characteristics of Recent Studies*

Categories	Descriptions	Distributions
Region	U.S.	21%
	Asia	26%
	Middle Eastern	37%
	Europe	11%
Industry	Retail & Service	19%
	Technology	18%
	Banking	18%
	Education	13%
	Health Services	5%
	General	30%
Sample	Convenient	55%
	Random	35%
	Secondary	8%

Note. Forty recent studies.

Roles of Industry-Level Characteristics

This section evaluated recent studies of EJS in four industries: technology, health service, banking, and education. It began with a discussion of industry-level characteristics followed by an analysis of the four industries.

In organization behavior research extended from Herzberg's motivation-hygiene theory (Herzberg et al., 1959), multiple studies have identified other factors, such as industry-specific characteristics, that play an influential role in work attitudes and motivation in regards to EJS.

For example, Datta et al. (2005) recommended inclusion of industry-level effects, while controlling for lower-level differences in studies of the relationship between HRM and organizational outcomes. The authors demonstrated the necessity of considering the role of industry conditions as a moderator beyond individual or firm levels. Datta et al. (2005) employed an aggregation methodology using a sample of 33 publicly traded firms that had more than \$50 million in sales and more than 100 employees. The study concluded that industry-level characteristics, specifically capital intensity, growth, and differentiation, affected human resource systems and performance. In addition, industry-level characteristics influenced the conceptualization of EJS and firm performance outcomes in HRM research. The study confirmed that consideration of industry characteristics supports the recognition of concurrent effects among extrinsic and intrinsic factors related to EJS. Such effects were also evident within the context of cultural behavioral traits.

Lange et al. (2010) found that cultural behavioral traits and economic development were linkable to EJS, where the intrinsic influence increased as the result of individual conjectures. The study used in-person survey data collected from samples of white-collar and service-sector employees in Shillong, India, where a great economic transformation occurred for more than two decades across various industries (e.g., finance, tourism, education, and mining). The effective sample included 420 responses consisting of 63% males and 37% females, with 55% from public sectors and 45% from private sectors. The study employed ordinal probit regression modeling; the results showed statistically significant relationships between satisfaction and job security, where men had less satisfaction compared to women. The results reflected cross-national trends found in earlier research. For example, age had no significant relationship to job satisfaction, but it had strong correlation to job security. Regarding primary factors, both intrinsic job rewards

(learning, responsibility, and growth opportunities) and extrinsic job rewards (permanent contract, relative pay, and congenial work environment) influenced EJS. Two factors, growth opportunities and permanent contract, showed the strongest roles. These results demonstrate coexistence or interplay among motivation and hygiene factors. Lange et al. also confirmed that individualism played an important role in the influence of cultural and socioeconomic factors on employee behaviors and motivation across various industry sectors (technology, banking, education, and health services).

Technology Sector

In the technology sector, behavioral traits are linkable to capital intensity, innovation, and a high percentage of scientists and engineers in the workforce. In this environment, tasks and goals have a direct causal effect on EJS. According to Lai et al. (2010), achievement goal theory resulted from the influence of goal orientation (i.e., mastery and performance orientation) and task value (i.e., attainment, interest, and utility values) on EJS within the technology industry. The primary hypothesis of the study by Lai et al. was that increased employee perceptions of task value would improve EJS due to rising intrinsic levels of achievement expectation. Lai et al. studied six Taiwan-based multinational firms in several high-tech industrial parks. They administered a survey instrument comprised of 21 Likert-scale items to 156 respondents and analyzed the data using structural equation modeling (SEM) to evaluate the predictability of task value on EJS (Model 1), goal orientation on EJS (Model 2), and integrated task value and goal orientation on EJS (Model 3). The path coefficients revealed that mastery value was reduced significantly in Model 3 compared to Model 2 (0.52 versus 0.14, respectively). In addition, utility value had the highest effect on EJS. The study concluded that by raising attainment, interest, and utility value for each employee while avoiding mutually competitive conditions,

managers could nurture motivation, leading to more job satisfaction and better work performance outcomes. Further, Lai et al. revealed the need for additional studies on the interdependent effects of cultural and social environments and studies on work motivation and EJS in other countries.

Ooi et al. (2007) found that organizational culture, teamwork, trust, and customer focus had direct impacts on EJS in their study of an award-winning semiconductor-manufacturing firm in Perak, Malaysia. The study involved a sample size of 230 respondents from four occupational groups (operators, staffs, executives, and managers) and survey instruments consisting of 21 questions related to total quality management and five constructs (recognition, customer focus, organizational culture, organization trust, and teamwork). A five-item scale emphasizing the degree of satisfaction regarding work, co-workers, supervision, total pay, and promotional opportunities was used to measure EJS. The study confirmed a direct correlation between organizational culture and EJS. The level of EJS had the highest statistical significance ($r = 0.57$, $n = 230$, $p < 0.01$) where evidence of high-level teamwork was found and where employee perceptions of organizational practices were high. However, reward and recognition had no statistical effect on EJS. As defined by Ooi et al., reward and recognition included pay, benefits, or promotions resulting from performance reviews and, accordingly, belonged to the hygiene category (extrinsic). Despite the limitations of a single convenient sample, the study supported the impact of organization climate (e.g., organizational culture, teamwork, customer focus, organization trust) on EJS, consistent with motivation-hygiene theory.

Lee and Chang (2008) reiterated the direct correlation between organizational culture and EJS in their study of an organizational culture that included both innovation and teamwork cultures. The study setting was the wire and cable industry, where conservative and authoritative

management styles existed. The study found that industrial transformations toward innovation and teamwork caused employees to value external recognition more than internal satisfaction. This observation confirms traditional Chinese collectivism social culture, which suppresses individuality for the good of the group (Hofstede, 1980; Schein, 2004). The wire and cable industry favors an organizational culture that promotes teamwork and motivation among the workforce and strives for EJS and increased innovation.

In summary, Lai et al. (2011), Ooi et al. (2007), and Lee and Chang (2008) confirmed the importance of cultural and social differentiation at the industry level as factors that influence EJS. Moreover, these studies demonstrated that one-size-fits-all solutions for EJS were not realistic. The health service sector also observed the same phenomenon.

Health Service Sectors

Hegney, Plank, and Parker (2006) confirmed that a one-size-fits-all approach to EJS was unrealistic. In their study of nursing occupations across three sectors (public, private, and aged-care, which includes both public and private), human-resource solutions or policies affected employee attitudes and satisfaction differently. The study identified intrinsic work values such as emotionally challenging and physically demanding work, stress, morale, and level of autonomy and extrinsic work values such as pay rate, rewards, flexible hours, collegiate and teamwork, workplace safety, and career prospects. The population included members of the Queensland Nurses Union in Queensland, Australia. The study sample consisted of 2,800 nurses distributed equally across the three sectors with a 53% response rate. The instruments included 16 questions addressing intrinsic and extrinsic work values. The findings showed that nurse perceptions varied depending on job level and job designation. Specifically, autonomy levels were different across sectors, with the public sector having the least autonomy. Intrinsic work values affected job

satisfaction and intention to leave. This observation raised concerns that the nursing workforce was under stress and in crisis mode, resulting in inadequate satisfaction.

Regarding extrinsic work values, Hegney et al. (2006) concluded that different dissatisfaction perceptions existed across the three sectors concerning pay, rewards, flexibility in working hours, and career prospects. With regard to pay, newly employed nurses had higher dissatisfaction. General perceptions of rewards were poor across all three sectors. Flexible hours were more dissatisfactory (i.e., lacking) in the public sector than in the private sector. Lack of teamwork was low (20%), suggesting that good relationships with co-workers correlated with high EJS, as reported by Herzberg et al. (1959). In general, besides providing support for motivation-hygiene theory and its two-continuum factors affecting satisfaction and dissatisfaction outcomes, Hegney et al. (2006) reinforced the belief that organizational and social culture differences affected employees differently, as in the case of public and private sector nurses. Studies of the banking industry, where public and private sectors existed, also revealed this finding.

Banking Sectors

Studies of public and private sectors of the banking industry confirmed the different effects of motivation and hygiene factors in employee attitudes and satisfaction. Hasnain et al. (2011) showed a correlation between inequality in equity systems and EJS for public and private employees. Their study of 220 top executives, superior managers, and middle-level managers from three private banks and three public banks across three cities in Pakistan found that private sectors had higher pay and benefits compared to public banks, leading to decreased job satisfaction among public employees. However, regarding job security, employees from privately owned banks had higher levels of dissatisfaction compared to public bank employees.

These observations demonstrate that the hygiene needs of salary and job security are essential to both sectors. At the same time, lack of tenure and pay structure had a negative effect on EJS.

According to Elamin (2011), relationships between job satisfaction and factors such as salary, job characteristics, promotion, and co-worker and supervisor relationships depend on the nationality of managers in the banking industry. Elamin used a random sample of 82 bank employees in the United Arab Emirates and employed the job descriptive index instrument to assess the relationship between domestic and expatriate employees and EJS (Yeager, 1981). In general, the results showed that domestic managers had higher levels of satisfaction with their salary promotion opportunities, co-workers, and supervisors than expatriates did. Moreover, the results revealed gender effects in relation to pay and supervision factors: only male managers showed high satisfaction with pay, while female managers had higher satisfaction with supervision. Both findings could be due to social isolation among expatriates and authoritarian-style management in the Persian Gulf region. Hence, organizational and social cultures influence EJS in the context of motivation-hygiene theory.

Education Sectors

The effects of and social culture on EJS are observable in the education sector (Shah et al., 2011). Shah et al. confirmed that organizational culture had heterogeneous effects among faculty in public sector universities in Pakistan. The authors described organizational culture based on five elements: innovation and risk-taking, attention to detail, people orientation, outcome orientation, and team orientation. Faculty at two universities (Sindh University and Shah Abdul Latif University) participated in the study. The results showed no significant effect of innovation and risk-taking elements on EJS. The attention to detail element had a negative effect on EJS among faculty at Sindh University and a positive effect on EJS among faculty at

Shah Abdul Latif University. The outcome-orientation element had a positive effect on EJS among faculty at Shah Abdul Latif University, while there was no effect on faculty at Sindh University. In contrast, the people-orientation element had a positive effect on EJS at Sindh University and no effect at Shah Abdul Latif University. Lastly, the team-orientation element had a negative impact on EJS among faculty at Sindh University and a positive effect on EJS among faculty at Shah Abdul Latif University. These heterogeneous observations suggest that organizational culture affects EJS; however, the degree of impact may depend on the specific type of organizational culture.

Using a random sample of university administrative staff, Ahmed et al. (2010) found a positive relationship between motivation factors and EJS, but no relationship between hygiene factors and EJS. The foundation of the study was on motivation-hygiene theory; and the results showed significant correlations between EJS and motivation factors such as recognition, work itself, opportunities for growth, and responsibility. Ahmed et al. also identified significant gender effects, where female staff had higher levels of EJS than their male counterparts did. Another finding was the difference in effect between various job functions. For example, treasury department staff had a higher satisfaction level than staff in the examination and student registration departments. There were no differences in effect among permanent and temporary employees. However, concerning education levels, satisfaction was higher among employees with a master's degree or higher. In addition, longer tenure (5 to 10 years) was associated with a higher level of EJS. In contrast to the findings for motivation factors, the study found no correlation between hygiene factors and EJS. Ahmad et al. agreed with Smerek and Peterson (2007), who asserted that there was inconclusive evidence to support Herzberg's motivation-hygiene theory based on the impact of work environment and job characteristics. However, both

Ahmad et al. (2010) and Smerek and Peterson (2007) found that work itself could serve as a predictor of EJS in the university environment.

Several studies of EJS in the education sector have supported Herzberg's motivation-hygiene theory. For example, Islam and Islam (2011) showed that employee job dissatisfaction was related to several factors, such as pay (insufficient family income), policies and regulation (poor communication to low-level employees), and work conditions (poor facilities and IT infrastructure). However, Islam and Islam found that job security and social status had positive effects on EJS. Khalifa (2011) found positive relationships between internal equity (within an organization), external equity (outside the organization), and EJS and concluded that internal equity had a greater effect on EJS than external equity.

In summary, this evaluative review of studies from four industries suggests that motivation and hygiene factors co-exist and influence both satisfaction and dissatisfaction. The majority of studies reviewed here identified organizational and social culture as factors that affect EJS and influence how employees perceive their work attitudes and job satisfaction. Overall, researchers have raised various practical considerations to guide HRM in maximizing job satisfaction and organizational performance.

Emergent Implications

Despite the fact that many of the studies described above are not generalizable, positivist researchers have confirmed Herzberg's motivation-hygiene theory in conjunction with the human needs profiling model. Such studies have identified additional factors that influence EJS in order to support HRM strategies that induce and sustain EJS for positive organizational outcomes. They also offer practical suggestions for managing EJS.

The job descriptive index, a derivative of Herzberg's motivation-hygiene theory, has become a strategic framework for evaluating and formulating a satisfactory workforce that leads to growth, productivity, advancement, and attainment. According to Yeager (1981) and Herzberg (1987), the job descriptive index contains a subset of intrinsic and extrinsic factors, including work itself and promotion opportunities (intrinsic) and supervision, coworkers, and pays (extrinsic). This is consistent with findings by Findler et al. (2007) showing that employee attitudes react favorably based on how they perceive management behaviors and organizational support of diversity, fairness, inclusion, work environment, workload, task identity, or societal supports. These extrinsic factors influence employee attitudes toward the social environment. Economic aspects, pay performance, bonus incentives, or task values could be a strategic way to promote responsibility and accountability by sharing the benefits of organizational performance (Artz, 2008; Lai, Chi, & Yang, 2011). This works in high-tech and innovative environments, where employees value inclusion at the intellectual and business partnership level (Cheng et al., 2010). Moreover, several studies have highlighted the importance of cultural effects such as innovative and teamwork cultures, as seen in the technology sector.

Changes in organizations, whether operational, cultural, innovational, or economical, affect employee well-being and attitudes toward jobs, environment, and personal feelings and, therefore, levels of satisfaction or dissatisfaction (Latham, 2011). Cheng et al. (2010) and Lee and Chang (2008) confirmed such effects in the context of Chinese collectivism culture (Schein, 2004). Managers must be mindful of the one-size-fit-all concerns raised by studies of nursing and banking sectors, and they should be aware of the difference between collectivism and individualism in the East and the West (Schein, 2004). However, whether collectivistic or

individualistic, teamwork culture may drive organizational performance via effects on employee attitudes and satisfaction.

Other implications involve pragmatic platforms that institutionalize teamwork, total quality management, and pay performance. Organizations should contemplate total quality management practices that improve teamwork and work conditions (Deming, 1986, 1988; Ooi et al., 2007). Pay performance culture could be an essential factor for job satisfaction, especially in the high-tech industry. Organizations should formulate pay and bonus systems, together with task values, as a form of reward and recognition to enhance employee performance and retention (Artz, 2008; Lai et al., 2011). Furthermore, organizational operations could serve as means to establish shared goals and visions, cooperation, personal mastery, and leadership effectiveness to nurture EJS (Chang & Lee, 2007).

Up to this point, the practical implications of EJS research have been situational, applicable across different economic environments and cultures. However, globalization requires that empirical values for Herzberg's motivation-hygiene theory be considered when coping with EJS, performance, and productivity at multinational and industrial levels. A better understanding of influential climates within a socioeconomic context is also essential.

Economic Climate Impacts

According to Klonoski (2011), "work motivation is shaped by both cultural and economic circumstances" (p. 95). Klonoski found that economic and cultural indicators were had stronger correlations with work motivation levels when considered together rather than separately. Smerek and Peterson (2007) recommended that future studies include economic climate as an external influence on EJS. Beer (1964) stated that economic crises, such as recessions, affect firm size through downsizing and layoffs. Datta et al. (2005) emphasized the

need to include industry characteristics and firm size in the study of organizational behaviors. Hom and Kinicki (2001) discussed the impact of work-life factors such as family income or number of earners in the family on EJS and employee turnover. Collectively, these studies suggest that research on EJS that employs the concepts of needs-based motivation (i.e., Maslow's hierarchy of needs) or motivation-hygiene theory should include the effects of cultural and socioeconomic conditions within the context of industry-level characteristics such as economic recession, firm size, and work type. The following sections will discuss these three industry-level characteristics.

2008 Great Recession

Recessions have adversarial effects across cultural and socioeconomic environments, especially in today's global economy (Latham & Braun, 2011). The 2008 Great Recession, which took place between 2007 and 2009, affected every industry in the US. At the global level, firm HRM faced with challenges in regards to managing employee attitudes and EJS in the context of economic-related changes such as organizational downsizing. Veleva (2010) found that the majority of executives chose to maintain a focus on aspects of corporate citizenship, especially in respect to employee well-being, such as work-life balance (79%), treating employees well (81%), compensation for profitable ideas (45%), and increasing health insurance coverage (87-91%). HRM employed these strategies as positive practices that were vital for maintaining employee performance and organizational productivity during the shortage of labor arising from downsizing. Nevertheless, at the individual level, downsizing also produced negative effects in terms of work type (e.g., permanent part-time).

Work Types

According to Giannikis and Mihail (2011), there is a significant difference in EJS with regard to work type and status among part-time and full-time employees. Their study of the Greek retail industry following the 2008 Great Recession employed the 19-item job diagnostic survey and the 11-item instrument for reward-related motivation factors. The latter instrument was composed of six extrinsic and five intrinsic factors. Extrinsic factors included pay, promotion, job security, praise, friendliness, and respect from co-workers. Intrinsic factors included self-satisfaction, skill development, learning, accomplishment, and freedom. The study involved 15 organizations in Northern Greece and 488 respondents consisting of 275 full-time and 213 part-time low-level employees in the secondary labor market, which included only non-managerial and non-professional occupations. The results showed that “part-time retail employees report lower satisfaction with pay than full-time employees” and “part-time retail employees report lower satisfaction with job security than full-time employees” (Giannikis & Mihail, 2011, p. 132). In contrast, there was no significant relationship between EJS, supervisor, and promotion in either group (part-time or full-time). The authors also reported evidence of a relationship between EJS, working hours, and reward-related expectations. In summary, even though the study by Giannikis and Mihail (2011) was not longitudinal, it provided an adequate view of workforce perceptions and work attitudes in the aftermath of a severe global recession, when an abundance of unemployed skilled workers was available as the result of firm downsizing.

Firm Size and Downsizing

Beer (1964) posited that firm size (number of employees) had an inverse impact on EJS. That assertion is based on the premise that when organization size changes, other changes are

induced, specifically changes in organizational structure, leadership and management, and employee needs and expectations, which affect employee perceptions of job satisfaction (Terrien & Mills, 1955). Beer applied inferential analysis to existing empirical studies such as Talacchi (1960), Baumgartel and Sobel (1959).

Talacchi (1960) found an inverse relationship between organization size (number of employees) and EJS. This study assessed the relationship between organization size, community size, economic activity, and job satisfaction and aimed to determine whether job dissatisfaction would lead to negative behaviors such as absenteeism and turnover. Talacchi used data from the 73-item employee-attitude questionnaire administered by the Industrial Relations Center at the University of Chicago. The data were collected over a five-year period from 93 industrial organizations and grouped into three sizes, 10 to 500 employees (62 firms), 501 to 1000 employees (21 firms), and 1001 to 1800 employees (10 firms). In terms of economic activity, 66 firms were in manufacturing and 27 were from non-manufacturing sectors. Talacchi believed that different jobs or work environments in these two sectors might have different impacts on the nature of the work itself and work demands and expectations. For the community aspects, it grouped the organizations into three size categories: populations of 300,001 and over (63), populations of 50,001 to 300,000 (12), and populations of 100 to 50,000 (18). The findings showed a strong inverse correlation ($\beta = -.67, p < .05$) between size and job satisfaction. However, there was no significant relationship found between organization size, community size, and economic activity elements. In considering community size, Talacchi attempted to identify the effects of different lifestyles and patterns associated with socioeconomic and cultural differences. The author concluded that the larger the organization, the less satisfaction among employees. Such effects were likely the result of downsizing.

Recession-induced downsizing could have a mixture of favorable and unfavorable effects on employee attitudes and behaviors, as well as organizational commitment, as the result of changes in organization strategy, management, and design (Akdogan & Cingoz, 2009; Dewitt, 1998; Gurkov & Settles, 2011). Brockner, Grover, Reed, and Dewitt (1992) suggested that layoffs resulting from firm downsizing affected the work attitudes and behavior of surviving employees and, thereby, their level of motivation. The study involved 597 layoff-surviving employees from a chain of national U.S. retail stores (773 stores) that had recently closed many stores. A significant finding of this study was the demonstration of interactions between factors such as perceived control, perceived threat, and economic need that influenced motivation levels and work effort. Survivor economic needs positively influenced work efforts derived from extrinsic motivation factors. The interaction effects suggested some interplay between Herzberg's factors, as job security was a hygiene factor and responsibility was a motivation factor. Understanding downsizing effects requires management to consider strategic and mindful choices from the perspective of firms and industries.

In summary, this review emphasizes the need to include socioeconomic and cultural conditions that affect employee attitudes, motivation, and job satisfaction within the framework of Herzberg's motivation-hygiene theory. The review demonstrates that needs-based motivation plays a critical role in shaping how employees perceive their job satisfaction. Other factors associated with cultural and socioeconomic conditions include recession, industry, firm size, and work type. The review also identifies research gaps and recommendations for future studies.

Knowledge Gaps and the Conceptual Framework

Despite a vast amount of research, gaps in knowledge between scientific researchers and HRM practitioners on the topic of EJS and its influential factors still exist. Saari and Judge

(2004) identified three plausible knowledge gaps relating to causes, measurements, consequences, and influences on EJS. The authors argued that “organizations need HR practitioners who know how to develop effective and research-based employee attitude measures, understand and derive valuable insights from the data, and use the results to improve employee attitudes and job performance and help lead organizational change” (p. 403). They posited that researchers and practitioners could benefit from a deeper and broader understanding of EJS and its influential factors. These gaps in knowledge are an important consideration for empirical studies that leverage both theoretical and pragmatic foundations.

In today’s organizational environment, pragmatic research must resolve practical needs by grounding on factors connecting organizational, economic, and employee climates. For example, Beer (1964) discussed the impact of organization size on EJS using inferential research. Hom and Kinicki (2001) discussed the impact of work-life factors on EJS and employee turnover. Datta et al. (2005) demonstrated a significant impact of industry characteristics in organization behavior research. Smerek and Peterson (2007) recommended the inclusion of economic climate as an external influential force in studies of EJS. Tsai, Yen, Huang, and Huang (2007) studied post-downsizing effects and found two gaps: one was the author-identified cultural gap that prevented generalization outside the study’s population (i.e., to non-Chinese societies), and the other was the impact of economic downturns that result in severe global organizational downsizing, such as the 2007-2009 global recession.

Considering these gaps, the present study aims to frame and align the EJS research problem, questions, and methodology, not just from the perspective of factors that influence EJS, but also the interrelationships between these factors. For instance, in studying the relationships between EJS, performance, and productivity, researchers need to evaluate and consider several

models (Judge et al., 2001). Wofford (1971) provided a substantial model, backed by empirical data, of the relationship between motivation, job satisfaction, and job performance. The model built upon expectancy theory and included five constructs: job satisfaction, need gratification, expectation, critical satisfaction incidents, and performance indices. The results supported the principal domain of expectancy theory, which connects performance level with need gratification. Secondly, Judge, Locke, Durham, and Kluger (1998) developed the core self-evaluation theory based on four elements: self-esteem, self-efficacy, locus of control, and neuroticism; these elements affect employee job and life satisfaction, as well as perception of work characteristics. The addition of core self-evaluation theory supported the existence of interrelationships among extrinsic and intrinsic factors. Accordingly, the foundation for the present study grounded on Herzberg's motivation-hygiene theory. The study backdrop includes the U.S. labor force population, the secondary attitudinal survey from the U.S. GSS (2012), the 2008 Great Recession, and controls for socioeconomic climate (i.e., work type, number of family earners). Figure 3 shows the conceptual framework for the present study.

In summary, these knowledge and research gaps represent a research problem that warrants a deeper and broader study of EJS and organizational management in order to enhance practical HRM strategies. Such a study should include an additional examination of factors that influence EJS and the interrelationships between them. They include motivation and hygiene factors, such as *achievement, recognition, work itself, responsibility, advancement, possibility of growth, supervision, working conditions, interpersonal relationships, salary, job security, policies and administration, and personal life* (Herzberg et al., 1959). It also should emphasize industry characteristics, and socioeconomic conditions, such as firm size, industry-level

characteristics, economic climate, work-family climate, and downsizing (Beer, 1964; Datta et al., 2005; Hom & Kinicki, 2001; Smerek & Peterson, 2007; Tsai et al., 2007).

Conclusion

This chapter described the theoretical and methodological framework of the present study, which seeks to examine U.S. workforce perceptions of EJS at the industry level, following the 2008 Great Recession. This chapter reviewed seminal and recent (or contemporary) literature in the field of employee job satisfaction (EJS). The discussion identified needs-based motivational theories from Maslow's hierarchy of needs theory (Maslow, 1943) and provided a comprehensive review of the seminal works on motivation-hygiene theory (Herzberg et al., 1959), including support and criticisms. The chapter continued with an evaluation of recent research on EJS in four industries (technology, banking, health service, and retail). The review identified several knowledge gaps that led to a synthesis of the conceptual framework for this study of EJS in the field of organizational management. The following chapters provide the research methodology, results, and conclusion.

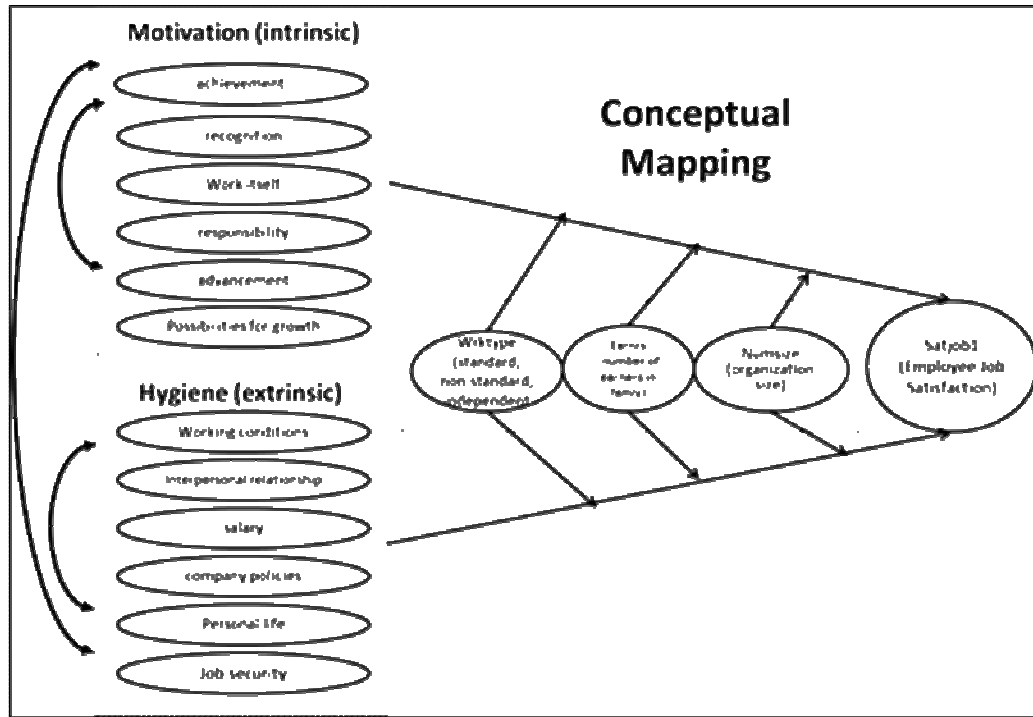


Figure 3. The conceptual framework.

CHAPTER 3. METHODOLOGY

Introduction

This chapter presents the research design methodology. The chapter includes discussions of the research design, data set, data analysis, validity and reliability, and ethical considerations. Quantitative methodology was selected with the utilization of the two-step SEM method to analyze the data to answer the research questions regarding the relationships between employee job satisfaction, and contributing factors derived from Herzberg's (1959) motivation-hygiene theory.

Research Question 1

At the industry level, what are the relationships between Herzberg's motivation-hygiene factors (latent independent variables: achievement, recognition, work itself, responsibility, advancement, possibility of growth, supervision, working conditions, interpersonal relationships, salary, job security, policies and administration, and personal life) and EJS (latent dependent variable), while controlling for the effect of number of earners in the family, work type, and organization size (control variables)?

H₁₀: There is no relationship at the industry level between Herzberg's motivation-hygiene factors (achievement, recognition, work itself, responsibility, advancement, possibility of growth, supervision, working conditions, interpersonal relationships, salary, job security, policies and administration, and personal life) and EJS, while controlling for the effect of number of earners per family, work type, and organization size.

H1_A: There are significant relationships at the industry level between Herzberg's motivation-hygiene factors (achievement, recognition, work itself, responsibility, advancement, possibility of growth, supervision, working conditions, interpersonal relationships, salary, job security, policies and administration, and personal life) and EJS, while controlling for the effect of number of earners per family, work type, and organization size.

Sub-Research Question 1

At the industry level, what is the difference between employee perceptions of EJS in the US during the economic expansion phase of the 2008 Great Recession and during the economic boom prior to the Great Recession (2006)?

H2₀: There is no difference at the industry level between employee perceptions of EJS in the US during the economic expansion phase of the 2008 Great Recession and during the economic boom prior to the Great Recession (2006).

H2_A: There is a significant difference at the industry level between employee perceptions of EJS in the US during the economic expansion phase of the 2008 Great Recession and during the economic boom prior to the Great Recession (2006).

Research Design

A research design methodology contains three components: philosophical assumptions, strategies of inquiry, and research methods (Creswell & Brown, 1992; Creswell, 2009). In the present study, the philosophical assumptions stem from the paradigm of postpositivism, which asserts a belief in the absolute and measureable truth of reality. The strategy of inquiry is a survey method. The research method involves publicly available secondary data from the General Social Survey (GSS, 2012), which is funded by the Sociology Program of the National Science Foundation.

The present study employs a nonexperimental, descriptive quantitative method. The quantitative method is suited to the philosophical assumptions of postpositivism. The data include multiple scaled measurements from the biennial closed-ended survey from the GSS Quality of Working Life topical module (General Social Survey [GSS], 2012; Smith, Kim, Koch, & Park, 2006). The interval-type survey data reflect participants' attitudes toward their job and workplace. The present study used two IBM's statistical software packages (i.e. Statistical Package for Social Science [SPSS] Version 22, Analysis of Moment Structures [AMOS] Version 22) to analyze and perform structural equation modeling (SEM) for hypothesis testing.

Two-step SEM is a multivariate technique that estimates measurement and structural models and parameters, such as magnitude, directional path, and inter-relationships (Tomarken & Waller, 2005). This method allows for the incorporation of observed and latent (i.e., unobserved) variables, which is not the case with other regression analysis methods (Anderson & Gerbing, 1988; Teo, 2011). Two-step SEM provides a means by which complex behavioral or attitudinal models may be built with minimum effects from contaminated constructs associated with random measurement errors, which maximizes the validity of the study (Byrne, 2010; Garson, 2012). Thus, the SEM approach was selected for this study to ensure optimum scientific merit.

Data Set Description

The present study employs a strategy of survey inquiry using existing secondary data from the GSS database. The GSS is a sociological survey program conducted by the National Opinion Research Center (NORC) across U.S. household populations that employs a full-probability, cluster-randomized, and single-interview methodology (Smith, Marsden, Hout, & Kim, 2011). Between 1972 and 1994, NORC administered the survey every year in February,

March, and April, except in 1979, 1981, and 1992. Beginning in 1994, the survey frequency changed to every other year. The survey involves face-to-face interviews and takes approximately 90 minutes to administer. Key characteristics of the survey are as follows.

- Development of the baseline item and the initial questionnaire in 1972 involved 105 sociologists and scientists. As of 2010, 28 surveys had been completed with 5,417 variables and 55,087 respondents.
- Word retention remains the same for replication and trending analysis.
- Leading social scientists serve on a Board of Overseers to monitor topics and questionnaires.
- The survey includes three types of items: permanent (every year), rotating (two out of every three surveys), and occasional (single survey). Beginning in 1988, rotating items were included every year, but only in two-thirds of surveys.
- From 1972 to 2004, respondents were 18 years or older and English speaking only. Beginning in 2006, Spanish-speaking participants were added to the sample.
- Data processing follows NORC procedures.
- Since 2002, the survey has used computer-assisted personal interviewing (Smith et al., 2011). The general cleaning procedures for data inconsistencies and illegitimate codes were reported previously (Smith et al., 2011).
- Data files, the codebook, and other documents are available through the GSS website. Data files are per year and include merged files in various formats (e.g., SPSS, STATA).

The present study draws on the GSS 1972-2010 Cross-Sectional Cumulative Data file (Release 2, February 2012), which contains all data points from 1972 to 2010. The initial data set

for this study was limited to surveys conducted in 2006 and 2010 ($N = 2,882$ cases) in SPSS-readable format. The data includes 36 independent variables, 8 controlling variables, and a dependent variable. Table 2 describes the 36 independent variables and a dependent variable from the GSS codebook for the Quality of Working Life topical module, which emphasizes the attitudinal study of job satisfaction and work environment (Smith et al., 2011). For the present study, these variables were converted from ordinal scale to interval scale in order to meet the primary level-of-measurement assumptions, which require interval-type data (Byrne, 2010; Field, 2009). Table 3 presents definitions of the 14 latent (unobserved) variables used in this study and derived from Herzberg's motivation-hygiene theory (Herzberg, 1959).

Data Analysis

The present study employed conventional descriptive data analysis followed by two-step SEM statistical methods to test assumptions, validity, reliability, and hypotheses. The level of significance was $p < .05$. Data analysis included the assessment of sample size, aggregation of data, descriptive statistical analysis, and hypothesis testing.

Sample size has a significant impact on statistical significance and model fit adequacy in multivariate techniques (Byrne, 2010; Garson, 2012; Kline, 2010). However, there is no consensus in the literature regarding appropriate sample size (Bentler & Chou, 1987; Hair, Black, Babin, & Anderson, 2006; Hu & Bentler, 1999; Loehlin, 1992; Stevens, 1996). Sample size in the present study was based on a minimum of 15 cases per measured variable, as recommended by Stevens (1996), and Hoelter's critical N , in which greater than 200 is adequate and less than 75 is unacceptable (Garson, 2012). The AMOS analysis includes Hoelter's critical N as part of the model fit results.

Table 2. List of Independent and Dependent Variables

GSS Variables	Study Variables	GSS Description	GSS Survey Questions	Types	Levels	Scales
satjob1	satjob1_mean	Job satisfaction in general	All in all, how satisfied would you say you are with your job?	DV	Interval ^a	1, 2, 3, or 4 ^c
prodctiv	prodctivgd_mean	Work conditions allow productivity	Conditions on my job allow me to be about as productive as I could be	IV	Interval ^a	1, 2, 3, or 4 ^d
wkpraise	wkpraisegd_mean	R are likely to be praised by supervisor	When you do your job well, are you likely to be praised by your supervisor or employer?	IV	Interval ^a	1, 2, or 3 ⁱ
workfast	workfastgd_r_mean ^f	Job requires R to work fast	My job requires that I work very fast	IV	Interval ^a	1, 2, 3, or 4 ^d
overwork	overworkgd_r_mean ^f	R has too much work to do well	I have too much work to do everything well	IV	Interval ^a	1, 2, 3, or 4 ^d
toofewwk	toofewwkgd_r_mean ^f	How often not enough staff	How often are there not enough people or staff to get all the work done?	IV	Interval ^a	1, 2, 3, or 4 ^f
workdiff	workdiffgd_mean	R does numerous things on job	I get to do a number of different things on my job	IV	Interval ^a	1, 2, 3, or 4 ^d
knowwhat	knowwhatgd_mean	R know what's expected on job	On my job, I know exactly what is expected of me	IV	Interval ^a	1, 2, 3, or 4 ^d
wkdecide	wkdecidegd_mean	How often R take part in decisions	In your job, how often do you take part with others in making decisions that affect you?	IV	Interval ^a	1, 2, 3, or 4 ^f
hlpequip	hlpequipgd_mean	Enough help and equip to get the job done	I receive enough help and equipment to get the job done	IV	Interval ^a	1, 2, 3, or 4 ^g
haveinfo	haveinfogd_mean	Enough info to get the job done	I have enough information to get the job done	IV	Interval ^a	1, 2, 3, or 4 ^g
wkfreedm	wkfreedmgd_mean	A lot of freedom to decide how to do job	I am given a lot of freedom to decide how to do my own work	IV	Interval ^a	1, 2, 3, or 4 ^g
condemnd	condemndgd_mean	R free from conflicting demands	I am free from the conflicting demands that other people make of me	IV	Interval ^a	1, 2, 3, or 4 ^g
wrktime	wrktimegd_mean	R has enough time to get the job done	I have enough time to get the job done	IV	Interval ^a	1, 2, 3, or 4 ^g

Table 2. *List of Independent and Dependent Variables (continued)*

GSS Variables	Study Variables	GSS Description	GSS Survey Questions	Types	Levels	Scales	
	promteok	promteokgd_mean	R chances for promotion good	The chances for promotion are good	IV	Interval ^a	1, 2, 3, or 4 ^g
	promtefr	promtefrgd_mean	Promotions are handled fairly	Promotions are handled fairly	IV	Interval ^a	1, 2, 3, or 4 ^g
	learnnew	learnnewgd_mean	job requires R to learn new things	My job requires that I keep learning new things	IV	Interval ^a	1, 2, 3, or 4 ^d
	myskills	myskillsgd_mean	job allows R use of skills	My job lets me use my skills and abilities	IV	Interval	1, 2, 3, or 4 ^d
	opdevel	opdevelgd_mean	Opportunity to develop my abilities	I have an opportunity to develop my own special abilities	IV	Interval ^a	1, 2, 3, or 4 ^d
	fairearn	fairearngd_r_mean	How fair is what R earn on the job	How fair is what you earn on your job in comparison to others doing the same type of work you do?	IV	Interval ^a	1, 2, 3, 4, or 5 ⁱ
	fringeok	fringeokgd_mean	Fringe benefits are good	My fringe benefits are good	IV	Interval ^a	1, 2, 3, or 4 ^g
55	teamsafe	teamsafegd_mean	Management and employees work together related safety	Where I work, employees and management work together to ensure the safest possible working conditions	IV	Interval ^a	1, 2, 3, or 4 ^d
	safefrst	safefrstgd_mean	No shortcuts on worker safety	There are no significant compromises or shortcuts taken when worker safety is at stake	IV	Interval ^a	1, 2, 3, or 4 ^d
	safetywk	safetywkgd_mean	Worker safety priority at work	The safety of workers is a high priority with management where I work	IV	Interval ^a	1, 2, 3, or 4 ^d
	manvsemp	manvsempgd_mean	Relations between management and employees	In general, how would you describe relations in your work place between management and employees?	IV	Interval ^a	1, 2, 3, 4, or 5 ^h
	cowrkhlp	cowrkhlpgd_mean	Coworkers can be relied on when R needs help	The people I work with can be relied on when I need help	IV	Interval ^a	1, 2, 3, or 4 ^g
	cowrkint	cowrkintgd_mean	Coworkers take a personal interest in R	People I work with take personal interest in me	IV	Interval ^a	1, 2, 3, or 4 ^g
	trustman	trustmangd_mean	R trust management at work	I trust management at the place where I work	IV	Interval ^a	1, 2, 3, or 4 ^d
	respect	respectgd_mean	R treated with respect at work	At the place where I work, I am treated with respect	IV	Interval ^a	1, 2, 3, or 4 ^d

Table 2. *List of Independent and Dependent Variables (continued)*

GSS Variables	Study Variables	GSS Description	GSS Survey Questions	Types	Measurement	Scales
suphelp	suphelpgd_mean	Supervisor helpful to R in getting job done	My supervisor is helpful to me in getting the job done	IV	Interval ^a	1, 2, 3, or 4 ^g
supcares	supcaresgd_mean	Supervisor concerned about welfare	My supervisor is concerned with the welfare of those under him or her	IV	Interval ^a	1, 2, 3, or 4 ^g
wksmooth	wksmoothgd_mean	Workplace runs in smooth manner	The place where I work is run in a smooth and effective manner	IV	Interval ^a	1, 2, 3, or 4 ^d
safelth	safelthgd_mean	Safety and health condition good at work	The safety and health conditions where I work are good	IV	Interval ^a	1, 2, 3, or 4 ^d
famvswk	famvswkgd_r_mean ^r	How often family life interfere job	How often do the demands of your family interfere with your work on the job?	IV	Interval ^a	1, 2, 3, or 4 ^f
wkvsfam	wkvsfamgd_r_mean ^r	How often job interfere family life	How often do the demands of your job interfere with your family life?	IV	Interval ^a	1, 2, 3, or 4 ^f
famwkoff	famwkoffgd_mean	How hard to take time off	How hard is it to take time off during your work to take care of personal or family matters?	IV	Interval ^a	1, 2, 3, or 4 ^e
jobsecok	jobsecokgd_mean	The job security is good	The job security is good	IV	Interval ^a	1, 2, 3, or 4 ^g

Note. GSS = General Social Survey; DV = Dependent variable; IV = independent variable; R = RS = Respondent. Adapted from "General social surveys, 1972-2010," by T. W. Smith, P. V. Marsden, M. Hout, and J. Kim, 2011, *National Opinion Research Center*.

a Transformed from nominal to interval

b Parametric analysis

c With 1 = Very satisfied, 2 = Some satisfied, 3 = Not too satisfied, or 4 = Not at all satisfied

d With 1 = Strongly agree, 2 = Agree, 3 = Disagree, , or 4 = Strongly disagree

e With 1 = Not at all hard, 2 = Not too hard, 3 = Somewhat hard, , or 4 = Very hard

f With 1 = Often, 2 = Sometime, 3 = Rarely, or 4 = Never

g With 1 = Very true, 2 = Somewhat true, 3 = Not too true, or 4 = Not at all true

h With 1 = Very good, 2 = Quite good, 3 = Neither good nor bad, 4 = Quite bad, or 5 = Very bad

i With 1 = Much less than you deserve, 2 = Somewhat less than you deserve, 3 = About as much as you deserve, 4 = Somewhat more than you deserve, or 5 = Much more than you deserve

j With 1 = Yes, 2 = Maybe, or 3 = No

l Excluding 0 = IAP, 8 = Don't know, 9 = No answer, and BK = Not applicable

r Reversed item

Table 3. *List of Construct Variables*

Construct Names	Definitions	Citations	LV Names
<i>Employee job satisfaction</i>	Employee job satisfaction is “the overall attitude of well-being with regard to the job and its environment” (p. 502). This refers to the employees’ emotional state or attitudes (i.e. pleasure, displeasure, satisfaction, or dissatisfaction) toward their job and work environment.	Wofford (1971)	<i>jobsat</i>
<i>Achievement</i>	This construct describes employee’s attitudes or perceptions toward their success or the absent of accomplishments in doing their jobs (i.e. assignment, project, or tasks, etc.).	Herzberg et al. (1992)	<i>achiev</i>
<i>Recognition</i>	This construct describes employee’s attitudes or perceptions toward speaking acts, whether to acknowledge, praise, criticize, or to blame, given by anyone associates or interacts with them, regarding their working actions or behaviors.	Herzberg et al. (1992)	<i>rcogni</i>
<i>Work Itself</i>	This construct describes employee’s attitudes or perceptions toward the nature of the job itself such as “routine or varied, creative or stultifying, overly easy or overly difficult” (p. 72).	Herzberg et al. (1992)	<i>wrkits</i>
<i>Responsibility</i>	This construct describes employee’s attitudes or perceptions toward the availability of responsibility and authority, from which they have the freedom and flexibility to perform and to make necessary decisions within their jobs.	Herzberg et al. (1992)	<i>respon</i>
<i>Advancement</i>	This construct describes employee’s attitudes or perceptions toward the opportunity for actual change in position defined by organizational hierarchy.	Herzberg et al. (1992)	<i>advanc</i>
<i>Possibilities for Growth</i>	This construct describes employee’s attitudes or perceptions toward the opportunities to improve the likelihood of job status, professional skills, or outlooks, whether upward or onward.	Herzberg et al. (1992)	<i>posgro</i>
<i>Supervision</i>	This construct described employee’s attitudes or perceptions toward the characteristics of over-all supervision such as “competence or incompetence, fairness or unfairness of the supervisor” (p. 71).	Herzberg et al. (1992)	<i>superv</i>
<i>Working Conditions</i>	This construct describes employee’s attitudes or perceptions toward the “physical conditions of work, amount of work, or the facilities available for doing the work” (p. 72).	Herzberg et al. (1992)	<i>wrkcon</i>
<i>Interpersonal Relationships</i>	This construct describes employee’s attitudes or perceptions toward “some verbalization about the characteristics of the interaction between the person speaking and some other individual” (p. 70), which includes superiors, subordinates, and peers.	Herzberg et al. (1992)	<i>intper</i>
<i>Salary</i>	This construct includes “all sequences of events in which compensation plays the roles in employee’s attitudes” (p. 70), such as salary and fringe benefits.	Herzberg et al. (1992)	<i>salary</i>

Table 3. *List of Construct Variables (continued)*

Construct Names	Definitions	Citations	LV Names
<i>Company Policies / Administration</i>	This construct describes employee's attitudes or perceptions toward the "over-all aspect of the company ... One involves the adequacy or inadequacy of company organization and management" and "... the harmfulness or beneficial effects of company's policies" (p. 72).	Herzberg et al. (1992)	<i>poladm</i>
<i>Personal Life</i>	This construct refers and limits only to the job-related factors that affect personal life (i.e. unwanted relocation, invasive off-hour works, inadequate salary for family needs, etc.)	Herzberg et al. (1992)	<i>perlif</i>
<i>Job Security</i>	This construct describes employee's attitudes or perceptions toward the "tenure and company stability or instability, which reflected in some objective way on a person's job security" (p. 73).	Herzberg et al. (1992)	<i>jobsec</i>

Note. Adapted from "General social surveys, 1972-2010," by T. W. Smith, P. V. Marsden, M. Hout, and J. Kim, 2011, *National Opinion Research Center*, retrieved from http://publicdata.norc.org/GSS/DOCUMENTS/BOOK/GSS_Codebook.pdf

In this study, the unit of analysis is the aggregated industry level, and the unit of observation is the individual level (i.e., respondents). The industry-level analysis involved a simple means aggregation algorithm that created unweight aggregated averages of individual-level measurements grouped at higher levels (Kumar, Stern, & Anderson, 1993; Mason & Griffin, 2002). This procedure involved four steps. In Step 1, all original 2006 and 2010 data from the GSS database were collected, including measured values at the individual level. In Step 2, invalid values were filtered. Valid values were defined as (a) job satisfaction measures (*satjob1*) containing valid values from 1 to 4, and (b) all other independent variable measures with no missing values listwise (Acock, 2005; Byrne, 2010; Weston & Gore, 2006). In Step 3, demographic variables were coded, as defined in Table 4. In Step 4, individual-level measures were aggregated into industry-level measures using the aggregate-means function in SPSS. The estimate means were grouped by the break variables (i.e., *indus80*, *year*, *earners*, *wrktype*, *age*, *marital*, *orgsize*, and *sex*). The total aggregated mean sample size was 1,466 cases, which included 615 and 851 cases for 2006 and 2010, respectively.

Table 4. *Demographic Variables*

Demographic Variable	Definitions	Level of Measurements	Labels
sex	Code respondent's sex	Nominal	1 = male, 2 = female
marital	Marital status	Nominal	1 = married 2 = widowed 3 = divorced 4 = separated 5 = never married
age	Respondent's age	Nominal	Recode as of 2010 for 1 = baby boomer (50-67) 2 = gen X (29-49) 3 = millennial (18-28)
year	GSS year for respondents	Nominal	2006 or 2010
workfor	R work for whom	Nominal	1 = Private company 2 = Non-profit organization 3 = Government or government agency
wrktype	Work arrangement at main job	Nominal	Recode for 1 = standard (regular, permanent) 2 = non-standard (temp, on call) 3 = Independent contractor/consultant/freelance worker
earnrs	Number of family earners	Nominal	Recode for 1 = single earners 2 = multiple earners
numorg	Number of employee in organization	Nominal	Recode for 1 = small (<100) 2 = medium (100-999) 3 = large (1000-9999) 4 = very large (>10000)
indus80	Respondent industry code	Nominal	GSS Coded using the U.S. Bureau of the Census 3 digit occupation and industries codes for 1980

Note. Adapted from "General social surveys, 1972-2010," by T. W. Smith, P. V. Marsden, M. Hout, and J. Kim, 2011, *National Opinion Research Center*, retrieved from http://publicdata.norc.org/GSS/DOCUMENTS/BOOK/GSS_Codebook.pdf

The descriptive statistical analysis used in this study involved demographic characteristics of the sample population, measurements of central tendency, normality and outliers (i.e. Mahalanobis distance, Kolmogorov-Smirnov and Shapiro-Wilk, and Cook's distance), correlation and covariance, reversal data detection, and assumption testing (linearity, multicollinearity, and homoscedasticity). The study transformed all data to interval scale in order to meet the assumptions of the SEM maximized likelihood (ML) estimation.

For hypothesis testing, this study employed the two-step SEM statistical method. The two steps refer to the sequential testing of two models: measurement and structural. The method requires that a good-fit measurement model be established prior to development of the structural model (Byrne, 2010; Crockett, 2012; Garson, 2012; Weston & Gore, 2006). The study applied a five-stage approach, as described previously by Crockett (2012, p. 34).

Stage 1, model specification, involves specifying the operationalization of the study's conceptual and theoretical framework using observed indicators, and their associated latent variables. The measurement model tests the relationship between observed and latent variables including measurement error estimation. The primary criteria metric is a bivariate correlation or covariance matrix. The essential tests include construct validity and reliability. For the present study, the acceptance criteria included achieving construct validity and reliability.

In Stage 2, model identification, the capability of the specified model to produce SEM estimations is determined. The objective is to assure that the model is overidentified. The primary criteria metric is the degrees of freedom (DF), where a positive DF suggests an overidentified model. A higher DF illustrates a more parsimonious model that fits the data well and assures the importance of any associations between observed and latent variables.

In Stage 3, model estimation, the model parameters that fit the theoretical model are estimated. The goal is to yield a value for covariance that is as close to the observed covariance unstandardized model as possible. The present study used maximum likelihood fitting functions for the estimation.

In Stage 4, model testing, measurement and structural models are tested to determine the fit of the entire model and the individual model. The present study employed confirmatory factor analysis (CFA) and exploratory factor analysis (EFA) and used several model-fit indices and criteria: standardized root mean square residual (SRMR, $< .08$), comparative fit index (CFI, $> .90$), root mean square error of approximation (RMSEA, $< .05$), goodness-of-fit index or adjusted goodness-of-fit index (GFI or AGFI, $> .90$), and parsimony goodness of fit index (PGFI, $> .50$).

Stage 5, model modification, involves theory trimming or adding new parameters to improve the fit of theoretical model to the data.

In summary, the two-step SEM method has several strengths that allow an effective examination of constructs and their relationships. First, it allows the incorporation of both observed and latent (unobserved) variables while other regression analysis methods would only allow observed variables (Teo, 2011). Second, the two-step SEM approach allows users to test hypothesized relationships between variables from specification, estimation, and assessment of both measurements and structural models distinctly (Anderson & Gerbing, 1988). Lastly, the two-step SEM method ensures an effective examination of the study hypothesis through the estimation of model goodness of fit and measures of construct validity and reliability (Byrne, 2010; Garson, 2012).

Validity and Reliability

The establishments of construct validity and reliability are important elements of SEM (Gaskin, 2012; Hair et al., 2010). Construct validity includes face, convergent, and discriminant validities. Face validity is the measure of the construct's face value based on the assumption that it measures what it claims (Garson, 2012). In this study, the assumption of face validity was based on priori from Herzberg's (1959), GSS's (2012) quality of working life module, and Smerek and Peterson's (2007) studies. Convergent validity measures the level of relatedness between construct items (Garson, 2012). In this study, the convergent validity measurements include Composite Reliability (CR) and Average Variance Extracted (AVE); the acceptable levels of convergent validity are $CR > .7$, $AVE > .5$, and $CR > AVE$ (Gaskin, 2012; Hair et al., 2010). Discriminant validity measures the level of distinctness between constructs (Garson, 2012). The measures are AVE, Maximum Shared Variance (MSV), and Average Shared Variance (ASV). The acceptable discriminant validity requires $AVE > MSV$ and $AVE > ASV$ (Gaskin, 2012; Hair et al., 2010). Lastly, for measurement of the item's internal consistency (or reliability), Cronbach's alpha is commonly used (Cronbach, 1951; Garson, 2012c). According to Garson (2012c), the acceptable criteria includes $>.60$ for exploratory, and $>.70$ for confirmatory (preferably $>.80$ as good) purposes. This study used Cronbach's alpha statistic to confirm good overall internal consistencies within the data set.

Ethical Considerations

The use of GSS data for analysis does not require formal permission and has no associated costs. Informed consent forms are not required for the present study because the researcher has no access to the identity of the original respondents or organizations. Downloaded GSS data and analysis results were stored on the researcher's privately owned, password-

controlled laptop. However, NORC requires a copy of the completed study report and the researcher intends to fulfill this obligation.

Conclusion

This chapter provided details of the methodology for this study, including the research design, data set, data analysis, validity and reliability, and ethical considerations. In summary, the study adopted the non-experiment quantitative methodology that utilized survey results from GSS (2012). The hypothesis testing used two-step SEM method that used 5-Stage described by Crockett (2012). Within the SEM method, the study measured construct validity and reliability based on Cronbach's alpha, convergent, and discriminant validities. The study also adopted appropriate ethical standards as required. Finally, the study utilized two statistical software tools (i.e. SPSS and AMOS version 22) to perform all modeling and statistical analyses to answer both research questions 1 and 2. The following Chapter 4 presents the results and findings in detail.

CHAPTER 4. RESULTS

Introduction

This chapter presents the analyses and results of the study. Following a brief summary of the research questions and hypotheses, this chapter provides detailed descriptions of the population and sample, assumption test results, summary of hypothesis testing, and details analysis. The data analyses involved using statistical software tools SPSS, AMOS, and MS Excel 2013. The main purpose of the analyses were to answer the research questions regarding the relationships between EJS and contributing factors derived from Herzberg's (1959) motivation-hygiene theory.

Research Question 1

At the industry level, what are the relationships between Herzberg's motivation-hygiene factors (latent independent variables: achievement, recognition, work itself, responsibility, advancement, possibility of growth, supervision, working conditions, interpersonal relationships, salary, job security, policies and administration, and personal life) and EJS (latent dependent variable), while controlling for the effect of number of earners in the family, work type, and organization size (control variables)?

H1₀: There is no relationship at the industry level between Herzberg's motivation-hygiene factors (achievement, recognition, work itself, responsibility, advancement, possibility of growth, supervision, working conditions, interpersonal relationships, salary, job security, policies and administration, and personal life) and EJS, while controlling for the effect of number of earners per family, work type, and organization size.

H1_A: There are significant relationships at the industry level between Herzberg's motivation-hygiene factors (achievement, recognition, work itself, responsibility, advancement, possibility of growth, supervision, working conditions, interpersonal relationships, salary, job security, policies and administration, and personal life) and EJS, while controlling for the effect of number of earners per family, work type, and organization size.

Sub-Research Question 1

At the industry level, what is the difference between employee perceptions of EJS in the US during the economic expansion phase of the 2008 Great Recession and during the economic boom prior to the Great Recession (2006)?

H2₀: There is no difference at the industry level between employee perceptions of EJS in the US during the economic expansion phase of the 2008 Great Recession and during the economic boom prior to the Great Recession (2006).

H2_A: There is a significant difference at the industry level between employee perceptions of EJS in the US during the economic expansion phase of the 2008 Great Recession and during the economic boom prior to the Great Recession (2006).

Population and Sample

The present study used existing secondary data from the GSS database. The GSS is a sociological survey program conducted by the National Opinion Research Center (NORC) across U.S. household populations that employs a full-probability, cluster-randomized, and single-interview methodology (Smith, Marsden, Hout, & Kim, 2011). The initial data set for this study was limited to surveys completed in 2006 and 2010 ($N = 2,882$ cases) in SPSS-readable format. The data includes 36 independent variables, eight controlling variables, and one dependent variable. Before testing hypotheses using SEM methods, the study conducted data screening to

prepare and assessing statistical assumptions (Hair et al., 2010). This section provided details on data screening and treatments, including missing data, aggregation, outliers, data reversal, measures of central tendency, bivariate correlations and covariance, and internal reliability.

Variables

This study employed parametric analysis; thus, the primary level-of-measurement assumption was that the data was at least interval scale (Field, 2009). As shown in Table 2 previously, this study involved 36 independent variables, eight controlling variables, and one dependent variable (Smith et al., 2011).

Missing Values and Data Reversal Treatment

Acock (2005) noted that GSS data sets have historical problems with missing data; thus, the author recommended listwise deletions. However, removing cases with missing data can be problematic in terms of weakening statistical power. In the present study, because of the large sample size, listwise deletions did not compromise reliability. Thus, to eliminate cases with missing values, the study included only cases with (a) job satisfaction measures (*satjob1*) containing valid values from 1 to 4 and (b) measures with no missing values listwise (all other independent variables). The original set of valid data contained 2,882 cases from the 2006 and 2010 data sets (Smith et al., 2011). Of these, 543 (< 19 %) were excluded listwise due to missing data; thus, the new data set contained 2,339 cases prior to data aggregation.

Moreover, internal reliability analysis revealed that six variables had reverse-phrase conflicts (*workfast*, *overwork*, *toofewwk*, *fairearn*, *famvswk*, and *wkvsfam*). Following reversal treatment and aggregation, these items became *workfastgd_r_mean*, *overworkgd_r_mean*, *toofewwkgd_r_mean*, *fairearngd_r_mean*, *famvswkgd_r_mean*, and *wkvsfamgd_r_mean*.

Aggregation

In this study, the unit of analysis was the aggregated industry level, and the unit of observation was the individual level (i.e., respondents). The industry-level analysis involved a simple means aggregation algorithm that created unweight aggregated averages of individual-level measurements grouped at higher levels (Kumar, Stern, & Anderson, 1993; Mason & Griffin, 2002).

The study data set included 1,466 cases (851 and 615 cases in 2006 and 2010, respectively). The breakdown by gender for both groups combined was 797 males (54.4%) and 669 females (45.6%). The ratio was approximately the same for 2006 and 2010 groups when considered separately. The breakdown by age groups for both 2006 and 2010 combined was dominated by *gen X* (738, or 50.3%), followed by *baby boomer* (426, or 29.1%), and *millennial* (302, or 20.6%). This distribution was approximately the same for 2006 and 2010 groups when considered separately. The breakdown by number of earners in the family for both groups combined was 751 for a single earner (51.2%) and 715 for multiple earners (48.8%). The ratio was approximately the same for 2006 and 2010 groups when considered separately. Regarding work types in both groups combined, standard jobs accounted for 1,132 cases (77.2%), followed by nonstandard (191, or 13%) and independent contractor jobs (143, or 9.8%). With reference to organization size for both groups combined, 629 respondents (42.9%) worked for small firms. However, the number of respondents that worked for small firms was 7% higher in 2010 compared to 2006, while smaller increase (1%) was observable in very large firms.

Notably, four demographic ratios (i.e. gender, age groups, number of earners in the family, and work types) were consistent across 2006, 2010, and the combined data set. However, the ratio of organization size was different between 2006 and 2010, whereas small organizations

(<100 employees) increased from 40% to 47% in 2010, and very large organizations (>10,000 employees) increased slightly from 14.7% to 15.6%. The increase was from the reduction in medium and large organizations.

Table 5. Demographic Data for Study Population

Variable and Scale	2006 n = 851	2010 n = 615	Total n = 1466
Gender			
1 = male	464 (54.5%)	333 (54.1%)	797 (54.4%)
2 = female	387 (45.5%)	282 (45.9%)	669 (45.6%)
Age Groups			
1 = baby boomer (50-67)	232 (27.3%)	194 (31.5%)	426 (29.1%)
2 = gen X (29-49)	442 (51.9%)	296 (48.1%)	738 (50.3%)
3 = millennial (18-28)	177 (20.8%)	125 (20.3%)	302 (20.6%)
Earners in Family			
1 = single earner	442 (51.9%)	309 (50.2%)	751 (51.2%)
2 = multiple earners	409 (48.1%)	306 (49.8%)	715 (48.8%)
Work Types			
1 = standard (regular, permanent)	658 (77.3%)	474 (77.1%)	1132 (77.2%)
2 = nonstandard (temp, on call)	85 (10.0%)	58 (9.4%)	143 (9.8%)
3 = Independent contractor/ consultant/freelance worker	108 (12.7%)	83 (13.5%)	191 (13.0%)
Organization Size			
1 = small (<100)	340 (40.0%)	289 (47.0%)	629 (42.9%)
2 = medium (100-999)	210 (24.7%)	130 (21.1%)	340 (23.2%)
3 = large (1000-9999)	176 (20.7%)	100 (16.3%)	276 (18.8%)
4 = very large (>10000)	125 (14.7%)	96 (15.6%)	221 (15.1%)

Note. Adapted from "General social surveys, 1972-2010," by T. W. Smith, P. V. Marsden, M. Hout, and J. Kim, 2011, *National Opinion Research Center*, retrieved from http://publicdata.norc.org/GSS/DOCUMENTS/BOOK/GSS_Codebook.pdf

As Table 5 summarized several demographic data, Table 6 provided additional details of the industry-level distribution by gender across 28 sectors based on the *indus80* code (Smith et al., 2011). It was noteworthy to recognize that 53.5% of the sample was from the top five sectors (i.e. professional and related services with 16.8%, retail trade with 12.3%, public administration with 8.7%, business and repair services with 7.9%, and finance, insurance, and real estate with 7.8%). The rest of 23 sectors were ranging from 0.5% to 5.6%.

Table 6. Aggregated Industry Groups and Gender Demographic Descriptive Data

	2006		2010		Total <i>n</i> = 1466
	Male <i>n</i> = 464	Female <i>n</i> = 387	Male <i>n</i> = 333	Female <i>n</i> = 282	
Agriculture, forestry, and fisheries	17 (74%)	6 (26%)	17 (68%)	8 (32%)	48 (3.3%)
Mining	4 (67%)	2 (33%)	3 (100%)	0 (0%)	9 (0.6%)
Construction	40 (89%)	5 (11%)	26 (84%)	5 (16%)	76 (5.2%)
Manufacturing - electrical, machinery, equipment, and supplies	6 (67%)	3 (33%)	6 (86%)	1 (14%)	16 (1.1%)
Manufacturing - lumber and wood products, except furniture	11 (92%)	1 (8%)	4 (100%)	0 (0%)	16 (1.1%)
Manufacturing - machinery except electrical	13 (72%)	5 (28%)	7 (87%)	1 (13%)	26 (1.8%)
Manufacturing - metal industries	14 (70%)	6 (30%)	6 (67%)	3 (33%)	29 (2.0%)
Textile mill products	5 (83%)	1 (17%)	0 (0%)	1 (100%)	7 (0.5%)
Rubber and miscellaneous plastic products	9 (90%)	1 (10%)	4 (100%)	0 (0%)	14 (1.0%)
Printing, publishing, and allied industries	10 (71%)	4 (29%)	5 (62%)	3 (38%)	22 (1.5%)
Paper and allied products	3 (75%)	1 (25%)	3 (100%)	0 (0%)	7 (0.5%)
Food and kindred products	5 (50%)	5 (50%)	5 (62%)	3 (38%)	18 (1.2%)
Chemical and allied products	7 (58%)	5 (41%)	7 (64%)	4 (36%)	23 (1.6%)
Transportation equipment	15 (68%)	7 (32%)	8 (57%)	6 (43%)	36 (2.5%)
Stone, clay, glass, and concrete products	5 (83%)	1 (17%)	4 (80%)	1 (20%)	11 (0.8%)
Professional and photographic equipment, and watches	7 (58%)	5 (42%)	8 (80%)	2 (20%)	22 (1.5%)
Utilities and sanitation services	14 (70%)	6 (30%)	5 (56%)	4 (44%)	29 (2.0%)
Transportation	32 (68%)	15 (32%)	21 (60%)	14 (40%)	82 (5.6%)
Communications	13 (62%)	8 (38%)	7 (64%)	4 (36%)	32 (2.2%)
Wholesale trade - Nondurable goods	11 (61%)	7 (39%)	8 (67%)	4 (33%)	30 (2.0%)
Wholesale trade - Durable goods	14 (88%)	2 (12%)	5 (62%)	3 (38%)	24 (1.6%)
Retail trade	42 (43%)	56 (57%)	36 (43%)	47 (57%)	181 (12.3%)
Finance, insurance, and real estate	25 (37%)	43 (63%)	24 (51%)	23 (49%)	115 (7.8%)
Business and repair services	44 (58%)	32 (42%)	24 (60%)	16 (40%)	116 (7.9%)
Personal services	8 (22%)	28 (78%)	8 (23%)	27 (77%)	71 (4.8%)
Entertainment and recreational services	7 (47%)	8 (53%)	9 (53%)	8 (47%)	32 (2.2%)
Professional and related services	48 (37%)	83 (63%)	48 (42%)	67 (58%)	246 (16.8%)
Public administration	35 (46%)	41 (54%)	25 (48%)	27 (52%)	128 (8.7%)

Note. Adapted from "General social surveys, 1972-2010," by T. W. Smith, P. V. Marsden, M. Hout, and J. Kim, 2011, *National Opinion Research Center*, retrieved from http://publicdata.norc.org/GSS/DOCUMENTS/BOOK/GSS_Codebook.pdf

Measurements of Central Tendency

Whereas Table 5 and Table 6 summarized the demographic and distribution data, Table 7, Table 8, and Table 9 presented the descriptive characteristics of the data sets of full, 2006, and 2010. All items were scored on a Likert scale ranging from 1 to 4, except *wkpraisegd_mean* (1 to 3) and *trustmangd_mean* and *suphelpgd_mean* (1 to 5).

Table 7 summarized the full data set of 1,466 responses from 2006 and 2010 combined. The means ranged from 1.53 to 2.43 and standard deviations (*SD*) ranged from 0.565 to 0.916. In addition, measurements of skewness ranged from -0.236 (*toofewwwkgd_r_mean*) to 1.368 (*wkfreedmgd_mean*) with seven items having values > 1.000. Measurements of kurtosis ranged from -0.827 (*wkvsfamgd_r_mean*) to 2.533 (*haveinfogd_mean*) with 13 items having values > 1.000. The data suggested that some items deviated from normality (Field, 2009).

Table 8 provided data for 2006 with the means ranged from 1.59 to 3.43 and *SD* ranged from 0.559 to 0.991, measurements of skewness ranged from -0.213 (*workfastgd_r_mean*) to 1.325 (*wkfreedmgd_mean*) with seven items having values > 1.000. Measurements of kurtosis ranged from -0.827 (*wkvsfamgd_r_mean*) to 2.381 (*haveinfogd_mean*) with nine items having values > 1.000. The data suggested that some items deviated from normality (Field, 2009).

Table 9 data for 2010 with means ranged from 1.52 to 3.49, and *SD* ranged from 0.542 to 0.931. The measurements of skewness ranged from -0.104 (*workfastgd_r_mean*) to 1.434 (*wkfreedmgd_mean*) with nine items having values > 1.000. Measurements of kurtosis ranged from -0.834 (*wkvsfamgd_r_mean*) to 2.739 (*haveinfogd_mean*) with 15 items having values > 1.000. The data suggested that some items deviated from normality (Field, 2009)

Table 7. Descriptive Statistics for 2006 and 2010 Combined

Item	Description	Min	Max	Mean	SD	Skewness	Kurtosis
satjobl_mean	Job satisfaction in general	1.00	4.00	1.72	0.684	1.027	1.395
prodctivgd_mean	Work conditions allow productivity	1.00	4.00	1.93	0.627	0.493	0.737
wkpraisegd_mean	R are likely to be praised by supervisor	1.00	3.00	1.64	0.704	0.740	-0.687
workfastgd_r_mean	Job requires R to work fast	1.00	4.00	2.87	0.706	-0.171	-0.244
overworkgd_r_mean	R has too much work to do well	1.00	4.00	2.25	0.666	0.562	0.665
toofewwkgd_r_mean	How often not enough staff	1.00	4.00	2.75	0.893	-0.236	-0.730
workdiffgd_mean	R does numerous things on job	1.00	4.00	1.73	0.642	0.690	0.432
knowwhatgd_mean	R know what's expected on job	1.00	4.00	1.67	0.571	0.607	0.893
wkdecidegd_mean	How often R take part in decisions	1.00	4.00	1.94	0.878	0.815	-0.044
hlpequipgd_mean	Enough help and equip to get the job done	1.00	4.00	1.73	0.743	1.073	1.113
haveinfofgd_mean	Enough info to get the job done	1.00	4.00	1.53	0.604	1.304	2.533
wkfreedmgd_mean	A lot of freedom to decide how to do job	1.00	4.00	1.62	0.764	1.368	1.591
condemndgd_mean	R free from conflicting demands	1.00	4.00	2.11	0.781	0.547	0.146
wrktimegd_mean	R has enough time to get the job done	1.00	4.00	1.79	0.742	0.934	0.860
promteokgd_mean	R chances for promotion good	1.00	4.00	2.42	0.918	0.197	-0.781
promtefrgd_mean	Promotions are handled fairly	1.00	4.00	2.13	0.893	0.635	-0.260
learnnewgd_mean	job requires R to learn new things	1.00	4.00	1.76	0.741	0.942	0.705
myskillsgd_mean	job allows R use of skills	1.00	4.00	1.74	0.634	0.783	1.050
opdevelgd_mean	Opportunity to develop my abilities	1.00	4.00	1.90	0.793	0.814	0.361
fairearngd_r_mean	How fair is what R earn on the job	1.00	4.00	1.79	0.837	1.086	0.678
fringeokgd_mean	Fringe benefits are good	1.00	4.00	1.76	0.794	1.159	1.110
teamsafegd_mean	Management and employees work together related safety	1.00	4.00	1.72	0.565	0.659	1.631
safefrstgd_mean	No shortcuts on worker safety	1.00	4.00	2.11	0.706	0.582	0.571
safetywkgd_mean	Worker safety priority at work	1.00	4.00	1.74	0.607	0.812	1.595
manvsempgd_mean	Relations between management and employees	1.00	4.00	2.00	0.760	0.722	0.488
cowrkhlpgd_mean	Coworkers can be relied on when R needs help	1.00	4.00	1.82	0.740	0.953	0.966
cowrkintgd_mean	Coworkers take a personal interest in R	1.00	4.00	1.65	0.694	1.210	1.785

Table 7. Descriptive Statistics for 2006 and 2010 Combined (continued)

Item	Description	Min	Max	Mean	SD	Skewness	Kurtosis
trustmangd_mean	R trust management at work	1.00	5.00	2.07	0.908	0.853	0.751
respectgd_mean	R treated with respect at work	1.00	4.00	2.09	0.991	0.658	-0.609
suphelpgd_mean	Supervisor helpful to R in getting job done	1.00	5.00	2.54	0.764	0.061	0.711
supcaresgd_mean	Supervisor concerned about welfare	1.00	4.00	1.69	0.632	0.830	1.114
wksmoothgd_mean	Workplace runs in smooth manner	1.00	4.00	1.73	0.626	0.765	1.036
safehlthgd_mean	Safety and health condition good at work	1.00	4.00	1.76	0.600	0.623	1.046
famvswkgd_r_mean	How often family life interfere job	1.00	4.00	1.98	0.913	0.691	-0.383
wkvsfamgd_r_mean	How often job interfere family life	1.00	4.00	2.32	0.916	0.132	-0.827
famwkoffgd_mean	How hard to take time off	1.00	4.00	2.03	0.794	0.379	-0.461
jobsecokgd_mean	The job security is good	1.00	4.00	1.71	0.811	1.236	1.152

Notes: $N = 1466$. Adapted from "General social surveys, 1972-2010," by T. W. Smith, P. V. Marsden, M. Hout, and J. Kim, 2011, *National Opinion Research Center*, retrieved from http://publicdata.norc.org/GSS/DOCUMENTS/BOOK/GSS_Codebook.pdf Adapted from General Social Survey

Table 8. Descriptive Statistics for 2006

Item	Description	Min	Max	Mean	SD	Skewness	Kurtosis
satjob1_mean	Job satisfaction in general	1.00	4.00	1.72	0.679	1.035	1.442
prodctivgd_mean	Work conditions allow productivity	1.00	4.00	1.94	0.637	0.498	0.650
wkpraisegd_mean	R are likely to be praised by supervisor	1.00	3.00	1.64	0.705	0.748	-0.679
workfastgd_r_mean	Job requires R to work fast	1.00	4.00	2.86	0.715	-0.213	-0.162
overworkgd_r_mean	R has too much work to do well	1.00	4.00	2.22	0.659	0.605	0.844
toofewwkgd_r_mean	How often not enough staff	1.00	4.00	2.80	0.896	-0.305	-0.732
workdiffgd_mean	R does numerous things on job	1.00	4.00	1.74	0.654	0.685	0.285
knowwhatgd_mean	R know what's expected on job	1.00	4.00	1.69	0.592	0.701	1.089
wkdecidegd_mean	How often R take part in decisions	1.00	4.00	1.97	0.887	0.728	-0.240

Table 8. *Descriptive Statistics for 2006 (continued)*

Item	Description	Min	Max	Mean	SD	Skewness	Kurtosis
hlpequipgd_mean	Enough help and equip to get the job done	1.00	4.00	1.77	0.753	0.996	0.863
haveinfogd_mean	Enough info to get the job done	1.00	4.00	1.54	0.592	1.215	2.381
wkfreedmgd_mean	A lot of freedom to decide how to do job	1.00	4.00	1.64	0.773	1.325	1.389
condemndgd_mean	R free from conflicting demands	1.00	4.00	2.11	0.778	0.510	0.086
wrktimegd_mean	R has enough time to get the job done	1.00	4.00	1.80	0.743	0.867	0.657
promteokgd_mean	R chances for promotion good	1.00	4.00	2.39	0.908	0.240	-0.740
promtefrgd_mean	Promotions are handled fairly	1.00	4.00	2.13	0.881	0.627	-0.216
learnnewgd_mean	job requires R to learn new things	1.00	4.00	1.79	0.758	0.967	0.779
myskillsgd_mean	job allows R use of skills	1.00	4.00	1.74	0.638	0.764	0.958
opdevelgd_mean	Opportunity to develop my abilities	1.00	4.00	1.93	0.803	0.789	0.285
fairearngd_r_mean	How fair is what R earn on the job	1.00	5.00	3.43	0.769	-0.054	0.795
fringeokgd_mean	Fringe benefits are good	1.00	4.00	2.07	0.991	0.662	-0.613
teamsafegd_mean	Management and employees work together related safety	1.00	4.00	1.76	0.603	0.573	0.809
safefrstgd_mean	No shortcuts on worker safety	1.00	4.00	1.73	0.645	0.781	0.891
safetywkgd_mean	Worker safety priority at work	1.00	4.00	1.67	0.619	0.775	0.929
manvsempgd_mean	Relations between management and employees	1.00	5.00	2.10	0.916	0.851	0.820
cowrkhlpgd_mean	Coworkers can be relied on when R needs help	1.00	4.00	1.65	0.678	1.220	2.026
cowrkintgd_mean	Coworkers take a personal interest in R	1.00	4.00	1.82	0.732	0.941	0.984
trustmangd_mean	R trust management at work	1.00	4.00	2.01	0.776	0.635	0.204
respectgd_mean	R treated with respect at work	1.00	4.00	1.73	0.605	0.803	1.522
suphelpgd_mean	Supervisor helpful to R in getting job done	1.00	4.00	1.76	0.795	1.160	1.128
supcaresgd_mean	Supervisor concerned about welfare	1.00	4.00	1.78	0.819	1.090	0.781
wksmoothgd_mean	Workplace runs in smooth manner	1.00	4.00	2.14	0.724	0.493	0.287
safelthgd_mean	Safety and health condition good at work	1.00	4.00	1.71	0.559	0.589	1.337
famvswkgd_r_mean	How often family life interfere job	1.00	4.00	2.01	0.784	0.311	-0.602
wkvsfamgd_r_mean	How often job interfere family life	1.00	4.00	2.26	0.903	0.149	-0.832
famwkoffgd_mean	How hard to take time off	1.00	4.00	1.95	0.910	0.741	-0.293
jobsecokgd_mean	The job security is good	1.00	4.00	1.69	0.805	1.232	1.083

Notes: $N = 851$. Adapted from "General social surveys, 1972-2010," by T. W. Smith, P. V. Marsden, M. Hout, and J. Kim, 2011, *National Opinion Research Center*, retrieved from http://publicdata.norc.org/GSS/DOCUMENTS/BOOK/GSS_Codebook.pdf

Table 9. *Descriptive Statistics for 2010*

Item	Description	Min	Max	Mean	SD	Skewness	Kurtosis
satjobl_mean	Job satisfaction in general	1.00	4.00	1.71	0.691	1.019	1.353
prodctivgd_mean	Work conditions allow productivity	1.00	4.00	1.90	0.612	0.479	0.873
wkpraisegd_mean	R are likely to be praised by supervisor	1.00	3.00	1.64	0.704	0.730	-0.693
workfastgd_r_mean	Job requires R to work fast	1.00	4.00	2.89	0.695	-0.104	-0.381
overworkgd_r_mean	R has too much work to do well	1.00	4.00	2.30	0.673	0.505	0.471
toofewwkgd_r_mean	How often not enough staff	1.00	4.00	2.67	0.883	-0.148	-0.684
workdiffgd_mean	R does numerous things on job	1.00	4.00	1.72	0.626	0.695	0.668
knowwhatgd_mean	R know what's expected on job	1.00	4.00	1.65	0.542	0.413	0.365
wkdecidegd_mean	How often R take part in decisions	1.00	4.00	1.89	0.865	0.943	0.296
hlpequipgd_mean	Enough help and equip to get the job done	1.00	4.00	1.69	0.725	1.193	1.563
haveinfogd_mean	Enough info to get the job done	1.00	4.00	1.52	0.620	1.418	2.739
wkfreedmgd_mean	A lot of freedom to decide how to do job	1.00	4.00	1.61	0.753	1.434	1.922
condemndgd_mean	R free from conflicting demands	1.00	4.00	2.11	0.785	0.598	0.238
wrktimegd_mean	R has enough time get the job done	1.00	4.00	1.78	0.740	1.032	1.177
promteokgd_mean	R chances for promotion good	1.00	4.00	2.47	0.931	0.136	-0.823
promtefrgd_mean	Promotions are handled fairly	1.00	4.00	2.12	0.911	0.648	-0.311
learnnewgd_mean	job requires R to learn new things	1.00	4.00	1.73	0.716	0.889	0.518
myskillsgd_mean	job allows R use of skills	1.00	4.00	1.73	0.629	0.810	1.203
opdevelgd_mean	Opportunity to develop my abilities	1.00	4.00	1.86	0.777	0.850	0.486
fairearngd_r_mean	How fair is what R earn on the job	1.00	5.00	3.49	0.756	-0.069	0.606
fringeokgd_mean	Fringe benefits are good	1.00	4.00	2.11	0.993	0.655	-0.600
teamsafegd_mean	Management and employees work together related safety	1.00	4.00	1.77	0.598	0.695	1.403
safefrstgd_mean	No shortcuts on worker safety	1.00	4.00	1.72	0.600	0.731	1.262
safetywkgd_mean	Worker safety priority at work	1.00	4.00	1.72	0.648	0.889	1.296
manvsempgd_mean	Relations between management and employees	1.00	5.00	2.03	0.896	0.858	0.654
cowrkhlpgd_mean	Coworkers can be relied on when R needs help	1.00	4.00	1.66	0.717	1.195	1.502
cowrkintgd_mean	Coworker take personal interest in R	1.00	4.00	1.81	0.751	0.971	0.959
trustmangd_mean	R trust management at work	1.00	4.00	1.97	0.737	0.853	0.981
respectgd_mean	R treated with respect at work	1.00	4.00	1.74	0.609	0.825	1.714
suphelpgd_mean	Supervisor helpful to R in getting job done	1.00	4.00	1.75	0.795	1.161	1.104
supcaresgd_mean	Supervisor concerned about welfare	1.00	4.00	1.81	0.861	1.079	0.550
wksmoothgd_mean	Workplace runs in smooth manner	1.00	4.00	2.05	0.677	0.707	1.110
safelthgd_mean	Safety and health condition good at work	1.00	4.00	1.73	0.573	0.749	1.999
famvswkgd_r_mean	How often family life interfere job	1.00	4.00	2.04	0.807	0.462	-0.305
wkvsfamgd_r_mean	How often job interfere family life	1.00	4.00	2.42	0.927	0.098	-0.834
famwkoffgd_mean	How hard to take time off	1.00	4.00	2.01	0.917	0.625	-0.484
jobsecokgd_mean	The job security is good	1.00	4.00	1.74	0.818	1.245	1.252

Notes: $N = 651$. Adapted from "General social surveys, 1972-2010," by T. W. Smith, P. V. Marsden, M. Hout, and J. Kim, 2011, *National Opinion Research Center*, retrieved from http://publicdata.norc.umd.edu/GSS/DOCUMENTS/BOOK/GSS_Codebook.pdf

Bivariate Correlation

In the SEM method, the analysis relied on correlation and covariance between variables as the basic building blocks (Garson, 2012; Byrne, 2009). Within the context of SEM, bivariate correlation analysis was essential for the assessment of the strength and direction of relationships between two variables (Field, 2009). The present study employed parametric bivariate correlation analysis using Pearson's r coefficient. Appendix A presents the results of bivariate correlation analysis of the complete data set. For this study, the p (2-tailed) benchmark was used to define correlations as weak ($r_s = \pm .01$ to $.09$), moderate ($r_s = \pm .10$ to $.29$), good ($r_s = \pm .30$ to $.99$), or perfect ($r_s = \pm 1.0$) (Byrne, 2010; Field, 2009; Garson, 2012). The results showed five moderate correlations (*overworkgd_r_mean*, *toofewwkgd_r_mean*, *learnnewgd_mean*, *famvswkgd_r_mean*, and *wkvsfamgd_r_mean*), and three weak correlations (*workfastgd_r_mean*, *suphelpgd_mean*, and *famwkoffgd_mean*). The three weak items (i.e. had consistently low correlation coefficients $r_s (< .1)$).

Internal Reliability

Internal reliability determined the level of replicability, or consistency, of measures obtained in research (Vogt, 2007). Poor reliability could lead to incorrect or missed estimates of relationships amongst variables. The reliability level used Cronbach's alpha coefficients ranging from zero to one, where zero referred to completely inconsistent, and one is completely consistent (Cronbach, 1951). In general, Cronbach's alpha values of $> .700$ were acceptable (Vogt, 2007).

Table 10 presented the results of internal reliability testing. The overall reliability coefficients (i.e. Cronbach's alpha) for the full (2006-2010 combined), 2006, and 2010 data sets were .900, .893, and .909, respectively. These values met the minimum acceptable values of $>$

.700; moreover, the Cronbach's alpha values of $> .900$ were considered as excellent (Vogt, 2007).

Table 10. *Internal Reliability for full data set (2006-2010 combined)*

year	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	Number of Items
2006 and 2010	.900	.906	37
2006	.893	.899	37
2010	.909	.915	37

Note. $N = 1466$. Adapted from "General social surveys, 1972-2010," by T. W. Smith, P. V. Marsden, M. Hout, and J. Kim, 2011, *National Opinion Research Center*, retrieved from http://publicdata.norc.org/GSS/DOCUMENTS/BOOK/GSS_Codebook.pdf

Furthermore, Table 11 provided additional reliability data related to designated items. The second to last column (i.e. Corrected Item-Total Correlation) presented the correlation of the item designated with the summated score for all other items. According to Vogt (2007), values of $< .30$ might be problematic and removed to improve internal reliability. There are nine items with values of $< .3$; they were *suphelpgd_mean*, *famwkoffgd_mean*, *workfastgd_r_mean*, *wkvsfamgd_r_mean*, *learnnewgd_mean*, *overworkgd_r_mean*, *workdiffgd_mean*, *wkdecidegd_mean*, and *toofewwkgd_r_mean*. However, the rightmost column (i.e. *Cronbach's alpha if item deleted*) suggested that the overall Cronbach's alpha value would be if a particular item was deleted from the data set. Reviewing of these values found that no further improvements could be obtainable by any deletion. No action was necessary.

Table 11. *Internal Reliability per Item for Full Data Set (2006-2010) Combined*

Item	Description	Internal Reliability	
		Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
satjob1_mean	Job satisfaction in general	0.607	0.895
productivgd_mean	Work conditions allow productivity	0.561	0.896
wkpraisegd_mean	R are likely to be praised by supervisor	0.486	0.897
workfastgd_r_mean	Job requires R to work fast	0.095	0.902
overworkgd_r_mean	R has too much work to do well	0.229	0.900
toofewwkgd_r_mean	How often not enough staff	0.297	0.900
workdiffgd_mean	R does numerous things on job	0.263	0.900
knowwhatgd_mean	R know what's expected on job	0.328	0.899
wkdecidegd_mean	How often R take part in decisions	0.274	0.900
hlpequipgd_mean	Enough help and equip to get the job done	0.548	0.896
haveinfogd_mean	Enough info to get the job done	0.436	0.898
wkfreedmgd_mean	A lot of freedom to decide how to do job	0.452	0.897
condemndgd_mean	R free from conflicting demands	0.450	0.897
wrktimegd_mean	R has enough time to get the job done	0.411	0.898
promteokgd_mean	R chances for promotion good	0.388	0.899
promtefrgd_mean	Promotions are handled fairly	0.606	0.895
learnnewgd_mean	job requires R to learn new things	0.224	0.901
myskillsgd_mean	job allows R use of skills	0.471	0.897
opdevelgd_mean	Opportunity to develop my abilities	0.535	0.896
fairearngd_r_mean	How fair is what R earn on the job	0.581	0.895
fringeokgd_mean	Fringe benefits are good	0.563	0.896
teamsafegd_mean	Management and employees work together related safety	0.561	0.896
safefrstgd_mean	No shortcuts on worker safety	0.659	0.894
safetywkgd_mean	Worker safety priority at work	0.613	0.896
manvsempgd_mean	Relations between management and employees	0.682	0.894
cowrkhlpgd_mean	Coworkers can be relied on when R needs help	0.534	0.896
cowrkintgd_mean	Coworkers take a personal interest in R	0.486	0.897
trustmangd_mean	R trust management at work	0.642	0.894
respectgd_mean	R treated with respect at work	0.345	0.900
suphelpgd_mean	Supervisor helpful to R in getting job done	0.011	0.904
supcaresgd_mean	Supervisor concerned about welfare	0.547	0.896
wksmoothgd_mean	Workplace runs in smooth manner	0.504	0.897
safehlthgd_mean	Safety and health condition good at work	0.601	0.896
famvswkgd_r_mean	How often family life interfere job	0.308	0.900
wkvsfamgd_r_mean	How often job interfere family life	0.170	0.902
famwkoffgd_mean	How hard to take time off	0.070	0.903
jobsecokgd_mean	The job security is good	0.426	0.898

Note. $N = 1466$. Adapted from "General social surveys, 1972-2010," by T. W. Smith, P. V. Marsden, M. Hout, and J. Kim, 2011, *National Opinion Research Center*, retrieved from http://publicdata.norc.org/GSS/DOCUMENTS/BOOK/GSS_Codebook.pdf

Assumption Tests

The present study employed SEM and parametric analysis; thus, the primary assumptions were sample size, interval data, normality and outliers, linearity, and multicollinearity (Field, 2009; Garson, 2012). As described in Table 1 previously, the study transformed all independent and dependent variables to interval scales to comply with the assumption of interval scale data. The following sections provide information on additional assumption tests.

Sample Size

One of the main SEM assumptions was the adequate sample size. According to Garson (2012), the SEM method required large sample size of at least 50 plus 8 times the number of variables. Using this recommendation, the sample size requirement, for this present study of 37 variables, was 346 cases at minimum. The actual data set included 1466 cases, which exceeded the requirements.

Internal Data Level

The second SEM assumption was that data level should be interval (Garson, 2012). In this study, all dependent and independent variables had measures in Likert-scales; thus, all data were transformed to interval data to meet the SEM assumption. All control variables remained as nominal data.

Normality and Outlier Analysis

Another SEM assumption was that the data should reflect a normal distribution; otherwise, the results may not be reliable (Leedy & Ormrod, 2005). Analysis of these data showed that skewness values ranged from -0.236 to 1.368, with seven items having skewness values greater than 1.000 (see Table 7). For kurtosis, the values ranged from -0.827 to 2.533, with 13 items having kurtosis values greater than 1.000 (see Table 7). These skewness and

kurtosis data suggested that the distributions of some variables deviated from normal (Field, 2009).

Table 12 presented the results of outlier and multivariate normality analysis. The results confirmed the departure from multivariate normality using observations farthest from the centroid (Mahalanobis distance) and p1 probability of less than .05 (Gao, Mokhtarian, & Johnston, 2008; Garson, 2012). Investigation of extreme values revealed a high percentage of responses with Likert scores of 1 or 4, suggesting the skewness in the data was natural.

Table 12. *Analysis of Outliers and Multivariate Normality*

Observation number	Mahalanobis d-squared	p1	p2	Observation number	Mahalanobis d-squared	p1	p2
1263	177.814	0.000	0.000	289	92.549	0.000	0.000
8	151.767	0.000	0.000	1164	91.781	0.000	0.000
1375	142.960	0.000	0.000	981	91.552	0.000	0.000
522	131.362	0.000	0.000	1231	91.439	0.000	0.000
1014	130.083	0.000	0.000	1084	91.026	0.000	0.000
119	128.432	0.000	0.000	258	90.349	0.000	0.000
25	127.584	0.000	0.000	929	90.196	0.000	0.000
1155	121.313	0.000	0.000	442	90.127	0.000	0.000
645	118.615	0.000	0.000	1143	89.442	0.000	0.000
1447	118.502	0.000	0.000	429	89.088	0.000	0.000
532	116.272	0.000	0.000	24	88.723	0.000	0.000
152	116.088	0.000	0.000	368	88.452	0.000	0.000
343	113.081	0.000	0.000	1260	88.332	0.000	0.000
810	112.785	0.000	0.000	427	88.274	0.000	0.000
864	111.429	0.000	0.000	1244	88.161	0.000	0.000
543	111.329	0.000	0.000	1267	87.623	0.000	0.000
599	111.024	0.000	0.000	850	86.512	0.000	0.000
1336	110.965	0.000	0.000	445	86.506	0.000	0.000
747	110.827	0.000	0.000	300	86.304	0.000	0.000
631	110.104	0.000	0.000	363	85.418	0.000	0.000
314	109.865	0.000	0.000	410	84.781	0.000	0.000
284	107.282	0.000	0.000	931	84.775	0.000	0.000
765	107.276	0.000	0.000	1061	84.667	0.000	0.000
838	106.637	0.000	0.000	1065	84.477	0.000	0.000
556	106.569	0.000	0.000	606	83.986	0.000	0.000

Table 12. *Analysis of Outliers and Multivariate Normality (continued)*

Observation number	Mahalanobis d-squared	p1	p2	Observation number	Mahalanobis d-squared	p1	p2
129	106.536	0.000	0.000	1101	83.938	0.000	0.000
181	105.105	0.000	0.000	1126	83.771	0.000	0.000
939	104.589	0.000	0.000	187	83.684	0.000	0.000
630	104.528	0.000	0.000	1278	82.692	0.000	0.000
234	104.263	0.000	0.000	1312	82.576	0.000	0.000
361	103.387	0.000	0.000	1032	82.268	0.000	0.000
1035	101.599	0.000	0.000	1417	82.255	0.000	0.000
1136	100.636	0.000	0.000	867	81.852	0.000	0.000
440	100.634	0.000	0.000	270	81.575	0.000	0.000
638	99.996	0.000	0.000	1195	81.564	0.000	0.000
176	99.525	0.000	0.000	98	81.393	0.000	0.000
304	98.611	0.000	0.000	210	81.340	0.000	0.000
257	98.218	0.000	0.000	677	80.555	0.000	0.000
293	97.759	0.000	0.000	751	80.438	0.000	0.000
694	97.723	0.000	0.000	932	80.435	0.000	0.000
501	97.688	0.000	0.000	829	80.187	0.000	0.000
1013	97.586	0.000	0.000	320	79.474	0.000	0.000
974	96.180	0.000	0.000	1421	79.229	0.000	0.000
1057	95.775	0.000	0.000	33	79.092	0.000	0.000
41	95.420	0.000	0.000	141	79.005	0.000	0.000
803	94.747	0.000	0.000	1376	78.942	0.000	0.000
789	94.163	0.000	0.000	40	78.815	0.000	0.000
811	93.254	0.000	0.000	341	78.768	0.000	0.000
1222	93.213	0.000	0.000	614	78.608	0.000	0.000
1348	92.908	0.000	0.000	620	77.745	0.000	0.000

Note. $N = 1466$. Adapted from "General social surveys, 1972-2010," by T. W. Smith, P. V. Marsden, M. Hout, and J. Kim, 2011, National Opinion Research Center, retrieved from http://publicdata.norc.umd.edu/GSS/DOCUMENTS/BOOK/GSS_Codebook.pdf

In addition, Kolmogorov-Smirnov and Shapiro-Wilk analyses could be used to confirm univariate normality (Field, 2009). The significance of Kolmogorov-Smirnov or Shapiro-Wilk results suggested deviation from normality. In

Table 13, the results showed that all values were significant with $p < .05$; thus, all items experienced univariate non-normality. These deviations warranted an analysis of outliers in the data set by assessing Cook's Distance.

Table 13. *Analysis of Univariate Normality*

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
satjob1_mean	.221	1466	.000	.824	1466	.000
prodctivgd_mean	.276	1466	.000	.846	1466	.000
wkpraisegd_mean	.268	1466	.000	.797	1466	.000
workfastgd_r_mean	.220	1466	.000	.890	1466	.000
overworkgd_r_mean	.288	1466	.000	.853	1466	.000
toofewwkgd_r_mean	.173	1466	.000	.908	1466	.000
workdiffgd_mean	.213	1466	.000	.842	1466	.000
knowwhatgd_mean	.238	1466	.000	.819	1466	.000
wkdecidegd_mean	.217	1466	.000	.858	1466	.000
hlpequipgd_mean	.208	1466	.000	.825	1466	.000
haveinfofgd_mean	.262	1466	.000	.768	1466	.000
wkfreedmgd_mean	.252	1466	.000	.772	1466	.000
condemndgd_mean	.237	1466	.000	.882	1466	.000
wrktimegd_mean	.224	1466	.000	.837	1466	.000
promteokgd_mean	.192	1466	.000	.908	1466	.000
promtefrgd_mean	.233	1466	.000	.877	1466	.000
learnnewgd_mean	.208	1466	.000	.840	1466	.000
myskillsgd_mean	.230	1466	.000	.834	1466	.000
opdevelgd_mean	.232	1466	.000	.859	1466	.000
fairearngd_r_mean	.208	1466	.000	.894	1466	.000
fringeokgd_mean	.212	1466	.000	.859	1466	.000
teamsafegd_mean	.242	1466	.000	.830	1466	.000
safefrstgd_mean	.227	1466	.000	.829	1466	.000
safetywkgd_mean	.214	1466	.000	.822	1466	.000
manvsempgd_mean	.212	1466	.000	.879	1466	.000
cowrkhlpgd_mean	.223	1466	.000	.799	1466	.000
cowrkintgd_mean	.238	1466	.000	.841	1466	.000
trustmangd_mean	.262	1466	.000	.863	1466	.000
respectgd_mean	.239	1466	.000	.823	1466	.000
suphelpgd_mean	.219	1466	.000	.813	1466	.000
supcaresgd_mean	.219	1466	.000	.819	1466	.000
wksmoothgd_mean	.280	1466	.000	.861	1466	.000
safehlthgd_mean	.257	1466	.000	.804	1466	.000
famvswkgd_r_mean	.188	1466	.000	.893	1466	.000
wkvsfamgd_r_mean	.153	1466	.000	.910	1466	.000
famwkoffgd_mean	.192	1466	.000	.864	1466	.000
jobsecokgd_mean	.226	1466	.000	.795	1466	.000

Note. N = 1466. Adapted from "General social surveys, 1972-2010," by T. W. Smith, P. V. Marsden, M. Hout, and J. Kim, 2011, *National Opinion Research Center*, retrieved from http://publicdata.norc.org/GSS/DOCUMENTS/BOOK/GSS_Codebook.pdf

^a Lilliefors Significance Correction.

The influence of outlier cases could be assessable using Cook's distance analysis (Cook, 1977). According to Field (2009), the Cook's Distance values of > 1.0 were a concern. Table 14 presented the results that showed values ranged from 0.000 to 0.006; thus, the influence of outliers were insignificant.

Table 14. *Analysis of Outliers and Residuals*

	N	Minimum	Maximum	Mean
Cook's Distance	1466	.00000	.00657	.0007064
Centered Leverage Value	1466	.00124	.12129	.0252387

Note. Adapted from "General social surveys, 1972-2010," by T. W. Smith, P. V. Marsden, M. Hout, and J. Kim, 2011, *National Opinion Research Center*, retrieved from http://publicdata.norc.org/GSS/DOCUMENTS/BOOK/GSS_Codebook.pdf

Therefore, by considering additional cutoff benchmarks for non-normally distributed data in terms of skewness, kurtosis, and deletions of outliers, the study retained the full aggregated data set. For instance, the values for skewness and kurtosis were within the range of values suggested by Curran, West, and Finch (1996), where skewness < 2.0 and kurtosis < 7.0 . The values for skewness and kurtosis were also within the range of ± 1.5 for skewness and kurtosis recommended by Garson (2012). Hence, the study must balance between cost and benefits when dealing with non-normal data. Garson (2012) emphasized that the key assumption of maximum likelihood estimation was large sample size, which was the case in the present study ($N = 1,466$). According to Garson, the effect of violating the normal distribution assumption does not pose significant problems in structural modeling.

Linearity Analysis

The assumptions of SEM require a consistency relationship for each independent variable and the dependent variable. Linearity analysis assesses the consistency of the changing slope of that relationship. The present study used the analysis of variance (ANOVA) to measure

deviations from linearity. Table 15 presents the results. Each item tested against the dependent variable (*satjob1_mean*) had insignificant F values, suggesting there were no deviations from linearity.

Table 15. Deviations from Linearity

Between Groups	Sum of Squares	df	Mean Square	F	Sig.
prodctivgd_mean	6.522	33	.198	.501	.992
wkpraisegd_mean	7.277	40	.182	.427	.999
workfastgd_r_mean	7.100	40	.178	.375	1.000
overworkgd_r_mean	5.564	38	.146	.311	1.000
toofewwkgd_r_mean	9.062	48	.189	.406	1.000
workdiffgd_mean	6.778	38	.178	.398	1.000
knowwhatgd_mean	2.653	30	.088	.195	1.000
wkdecidegd_mean	7.048	41	.172	.382	1.000
hlpequipgd_mean	5.344	41	.130	.299	1.000
haveinfoegd_mean	3.918	33	.119	.266	1.000
wkfreedmgd_mean	4.742	39	.122	.282	1.000
condemndgd_mean	4.497	40	.112	.254	1.000
wrktimegd_mean	6.852	38	.180	.398	1.000
promteokgd_mean	9.643	48	.201	.458	.999
promtefrgd_mean	5.461	40	.137	.335	1.000
learnnewgd_mean	4.632	39	.119	.258	1.000
myskillsgd_mean	10.494	35	.300	.794	.800
opdevelgd_mean	4.287	44	.097	.251	1.000
fairearngd_r_mean	6.411	51	.126	.262	1.000
fringeokgd_mean	7.733	42	.184	.429	1.000
teamsafegd_mean	6.108	34	.180	.426	.999
safefrstgd_mean	2.677	35	.076	.174	1.000
safetywkgd_mean	10.295	29	.355	.850	.696
manvsempgd_mean	7.035	44	.160	.415	1.000
cowrkhlpgd_mean	6.755	39	.173	.405	1.000
cowrkintgd_mean	5.807	37	.157	.374	1.000
trustmangd_mean	7.621	40	.191	.502	.996
respectgd_mean	5.407	35	.154	.402	.999
suphelpgd_mean	10.321	38	.272	.655	.948
supcaresgd_mean	4.896	39	.126	.307	1.000
wksmoothgd_mean	4.633	35	.132	.347	1.000
safehlthgd_mean	6.221	31	.201	.473	.994
famvswkgd_r_mean	5.144	43	.120	.251	1.000
wkvsfamgd_r_mean	6.783	40	.170	.360	1.000
famwkoffgd_mean	6.872	33	.208	.455	.997
jobsecokgd_mean	5.138	36	.143	.344	1.000

Note. Adapted from "General social surveys, 1972-2010," by T. W. Smith, P. V. Marsden, M. Hout, and J. Kim, 2011, *National Opinion Research Center*, retrieved from http://publicdata.norc.org/GSS/DOCUMENTS/BOOK/GSS_Codebook.pdf

Multicollinearity

One of the regression assumptions is that no strong multicollinearity exists between two or more independent variables (Field, 2009). The study used two statistical indicators to measure multicollinearity: variance inflation factor (VIF) and tolerance (1/VIF). According to Field (2009), there are no concerns if $VIF < 10$ or if tolerance > 0.10 . The results in Table 16 show VIF values of less than 3.0 for all items except *teamsafegd_mean*, with a value of 3.156. The tolerance values ranged from 0.31 to 0.96. Both results support the assumption of no multicollinearity.

Summary of Results

The results of this study provided empirical evidence to reject both null hypotheses, $H1_0$ and $H2_0$. The analysis began with the initial a priori model that utilized the full set of Herzberg's motivation-hygiene factors (Herzberg et al., 1959) and the GSS Quality of Working Life module questionnaire (Smerek & Peterson, 2007). The analysis employed five-stage SEM to establish a model fit with the GSS data set (Crockett, 2012; GSS, 2012). Based on the goodness of fit results for Model 3, the study concluded with the rejection of both $H1_0$ and $H2_0$ and the acceptance of $H1_A$ and $H2_A$.

The acceptance of hypothesis $H1_A$ was only in part, however. While the results suggested there were significant relationships at the industry level between Herzberg's motivation-hygiene factors and EJS, a number of constructs did not meet the necessary validity and reliability. Thus, not all motivation-hygiene factors had significant relationships with EJS. On the other hand, $H2_A$ was accepted in full, indicating a significant difference at the industry level between employee perceptions of EJS in the US during the economic boom (i.e. 2006) and expansion (i.e. 2010) phases prior and post 2008 Great Recession, respectively.

Table 16. *Multicollinearity Analysis*

Items	Collinearity Statistics	
	Tolerance	VIF
productivgd_mean	0.550	1.819
wkpraisegd_mean	0.701	1.427
workfastgd_r_mean	0.830	1.205
overworkgd_r_mean	0.725	1.379
toofewwkgd_r_mean	0.731	1.368
workdiffgd_mean	0.704	1.420
knowwhatgd_mean	0.688	1.453
wkdecidegd_mean	0.788	1.269
hlpequipgd_mean	0.559	1.790
haveinfogd_mean	0.669	1.495
wkfreedmgd_mean	0.668	1.498
condemndgd_mean	0.688	1.453
wrktimegd_mean	0.595	1.680
promteokgd_mean	0.695	1.438
promtefrgd_mean	0.515	1.943
learnnewgd_mean	0.614	1.629
myskillsgd_mean	0.584	1.711
opdevelgd_mean	0.536	1.867
fairearmgd_r_mean	0.959	1.043
fringeokgd_mean	0.730	1.369
teamsafegd_mean	0.317	3.156
safefrstgd_mean	0.424	2.356
safetywkgd_mean	0.399	2.507
manvsempgd_mean	0.481	2.079
cowrkhlpgd_mean	0.698	1.432
cowrkintgd_mean	0.616	1.622
trustmangd_mean	0.392	2.550
respectgd_mean	0.509	1.964
suphelpgd_mean	0.550	1.818
supcaresgd_mean	0.526	1.902
wksmoothgd_mean	0.426	2.346
safehlthgd_mean	0.412	2.425
famvswkgd_r_mean	0.738	1.354
wkvsfamgd_r_mean	0.613	1.630
famwkoffgd_mean	0.768	1.301
jobsecokgd_mean	0.728	1.374

Note. Adapted from "General social surveys, 1972-2010," by T. W. Smith, P. V. Marsden, M. Hout, and J. Kim, 2011, National Opinion Research Center, retrieved from http://publicdata.norc.org/GSS/DOCUMENTS/BOOK/GSS_Codebook.pdf

Details of Analyses and Results

The following sections provided the details of hypothesis testing using the two-step SEM method based on the five-stage process: specification, identification, estimation, testing, and modification (Crockett, 2012). The study used SPSS and AMOS Version 22 to conduct SEM tests, beginning with hypotheses $H1_0$ and $H1_A$, followed by hypotheses $H2_0$ and $H2_A$.

Testing Hypotheses $H1_0$ and $H1_A$

In this section, the hypothesis testing evolved through three measurement models and one full structural model. Three measurement models were developed sequentially as Model 1, Model 2, and Mode 3. Model 1 started with a priori model developed from contents of Herzberg's factors (1959), GSS's quality of working life items (Smith et al., 2006), and Smerek and Peterson's study (2007); the model assessment used confirmatory factor analysis (CFA). Model 2 followed the misspecified Model 1 using exploratory factor analysis (EFA). Model 3 followed Model 2 using model trimming approach. The full structural model followed the specified Model 3. Key criteria for Measurement Model acceptance were covariance matrix (Byrne, 2009) and construct validity and reliability tests. For full structural model, the criteria were multiple goodness-of-fits, including standardized root mean square residual (SRMR, $< .08$), comparative fit index (CFI, $> .90$), root mean square error of approximation (RMSEA, $< .05$), goodness-of-fit index or adjusted goodness-of-fit index (GFI or AGFI, $> .90$), and parsimony goodness of fit index (PGFI, $> .50$).

Table 17. *Latent Variable Indicators for Measurement Model 1*

MV	LV	Herzberg et al. (1959)	GSS (2012); Smith et al. (2006)	Smerek and Peterson (2007)
satjob1_mean	jobsat	Job Satisfaction	Job satisfaction in general	X
prodctivgd_mean	achiev	Achievement	Work conditions allow productivity	
wkpraisedgd_mean	rcogni	Recognition	R are likely to be praised by supervisor	X
workfastgd_r_mean	wrkits	Work Itself	Job requires R to work fast	
overworkgd_r_mean			R has too much work to do well	
toofewwkgd_r_mean			How often not enough staff	
workdiffgd_mean	respon	Responsibility	R does numerous things on job	X
knowwhatgd_mean			R know what's expected on job	X
wkdecidegd_mean			How often R take part in decisions	X
hlpequipgd_mean			Enough help and equip to get the job done	X
haveinfofgd_mean			Enough info to get the job done	X
wkfreedmgd_mean			A lot of freedom to decide how to do job	X
condemndgd_mean			R free from conflicting demands	X
wrktimegd_mean			R has enough time to get the job done	X
promteokgd_mean	advanc	Advancement	R chances for promotion good	X
promtefrgd_mean			Promotions are handled fairly	X
learnnewgd_mean	posgro	Possibility of Growth	job requires R to learn new things	X
myskillsgd_mean			job allows R use of skills	X
opdevelgd_mean			Opportunity to develop my abilities	X
suphelpgd_mean	superv	Supervision	Supervisor helpful to R in getting job done	
supcaresgd_mean			Supervisor concerned about welfare	X
wksmoothgd_mean	wrkcon	Working Conditions	Workplace runs in smooth manner	
safehlthgd_mean			Safety and health condition good at work	
respectgd_mean	intper	Interpersonal Relationship	R treated with respect at work	
trustmangd_mean			R trust management at work	
cowrkhlpgd_mean			Coworkers can be relied on when R needs help	X
cowrkintgd_mean			Coworkers take a personal interest in R	X
manvsempgd_mean			Relations between management and employees	

Table 17. *Latent Variable Indicators for Measurement Model 1 (continued)*

MV	LV	Herzberg et al. (1959)	GSS (2012); Smith et al. (2006)	Smerek and Peterson (2007)
fairearngd_r_mean	salary	Salary	How fair is what R earn on the job	X
fringeokgd_mean			Fringe benefits are good	X
safetywkgd_mean	poladm	Policy and Administrative	Worker safety priority at work	
safefrstgd_mean			No shortcuts on worker safety	
teamsafegd_mean			Management and employees work together related safety	
famvswkgd_r_mean	perlif	Personal Life	How often family life interfere job	
wkvsfamgd_r_mean			How often job interfere family life	
famwkoffgd_mean			How hard to take time off	
jobsecokgd_mean	jobsec	Job Security	The job security is good	

Note. GSS = General Social Survey; LV = Latent variable; MV = manifest variable; R = RS = Respondent. Adapted from "General social surveys, 1972-2010," by T. W. Smith, P. V. Marsden, M. Hout, and J. Kim, 2011, National Opinion Research Center, retrieved from http://publicdata.norc.org/GSS/DOCUMENTS/BOOK/GSS_Codebook.pdf

Testing hypotheses $H1_0$ and $H1_A$ started with the priori model: Model 1. Table 17 listed the model elements that included 37 manifested variables (MV) and 14 latent variables (LV). All 37 manifest variables, or indicators, that were GSS' items that measured respondent attitudes. All 14 were from Herzberg's factors (1959). The MV-LV associations were synthesized from the contents of Herzberg's factors (1959), GSS's quality of working life items (Smith et al., 2006), and Smerek and Peterson's study (2007). Figure 4 presented the model in AMOS' graphical format.

Figure 4 presents the AMOS graphical representation of the Measurement Model 1. This initial model contained 37 manifest variables (MV) in rectangle shapes, and 14 latent variables (LV) in oval. Due to the nature of the study constraint to fit all 14 Herzberg's factors, the model included four single-indicator LV (i.e. *jobsat*, *achiev*, *rcogni*, and *jobsec*). There were four

double-indicator LV (i.e. *advanc*, *superv*, *salary*, and *wrkcon*). There were six LV with more than two indicators (i.e. *wrkits*, *respon*, *intper*, *posgro*, *poladm*, and *perlif*). All items in small circles represent measurement errors in SEM analysis.

Furthermore, in the model, two types of arrows and two number values defined the association among variables. One-way arrows represented path loading, and bi-directional and curved arrows represented covariance. Two values (i.e. 0 or 1) were designated in the model for particular item or one-way arrow; they represented the constraint parameters. All single-indicator LV had a value of 0 representing zero error parameters. For each LV, at least one indicator with one-arrow must have a loading parameter of 1. Other arrows that have no assigned value parameters were free for estimation in the model (Byrne, 2010). The model was ready for Stage 1 Measurement Model testing.

Stage 1: Measurement model specification.

Measurement Model 1. Model specification involved testing the operationalization of the conceptual and theoretical framework for this study using observed indicators and latent variables. In SEM, this involves testing the measurement model fit to ensure the validity and reliability of the constructs (Byrne, 2010; Garson, 2012; Hair et al., 2010). Figure 4 presents the initial model, Measurement Model 1.

Using AMOS tools for testing, Model 1 failed the specification test. AMOS concluded that the results were not admissible. Investigation of standardized residual covariance revealed a large number of items with values that were greater than the cutoff of 2.58 (Byrne, 2010; Jöreskog & Sörbom, 1993). There were 77 items with values ranging from -16.98 to 11.35.

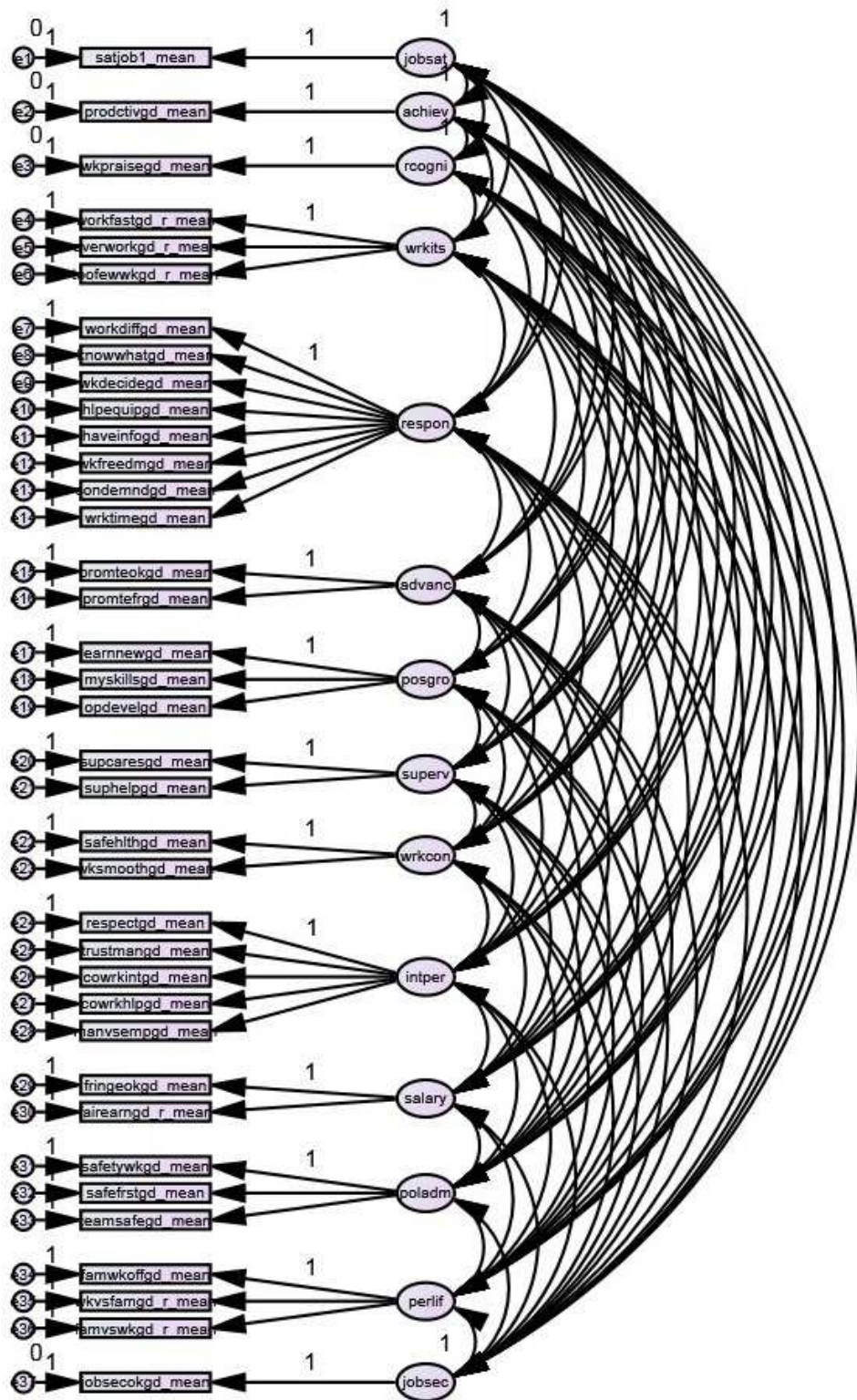


Figure 4. Measurement model 1. Adapted from AMOS Version 22. One-way arrows are path loading. Bi-directional arrows are covariance between variables.

Table 18. *Measurement Model 1 Construct Validity Results*

Constructs	CR	AVE	MSV	ASV	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
1 perlif	0.66	0.43	0.30	0.06	0.65														
2 jobsat	1.00	1.00	0.67	0.46	0.23	1.00													
3 achiev	1.00	1.00	0.77	0.45	0.24	0.72	1.00												
4 rcogni	1.00	1.00	0.59	0.38	0.18	0.64	0.62	1.00											
5 wrkits	0.52	0.27	0.53	0.20	0.55	0.44	0.44	0.37	0.52										
6 respon	0.80	0.35	0.82	0.54	0.31	0.75	0.79	0.69	0.73	0.60									
7 advanc	0.74	0.60	0.74	0.51	0.19	0.72	0.66	0.69	0.40	0.79	0.77								
8 posgro	0.78	0.55	0.75	0.49	0.09	0.81	0.78	0.66	0.28	0.77	0.78	0.74							
9 superv	0.83	0.71	0.80	0.51	0.19	0.73	0.69	0.74	0.45	0.83	0.83	0.73	0.85						
10 wrkcon	0.80	0.67	0.98	0.61	0.24	0.80	0.88	0.71	0.54	0.89	0.83	0.85	0.83	0.82					
11 intper	0.89	0.63	0.98	0.61	0.23	0.82	0.82	0.77	0.53	0.91	0.86	0.87	0.90	0.99	0.79				
12 salary	0.27	0.25	0.67	0.38	0.07	0.69	0.54	0.55	0.22	0.61	0.82	0.71	0.72	0.67	0.65	0.50			
13 poladm	0.92	0.79	0.95	0.45	0.16	0.66	0.74	0.60	0.37	0.73	0.72	0.76	0.71	0.98	0.83	0.61	0.89		
14 jobsec	1.00	1.00	0.45	0.31	0.15	0.60	0.51	0.51	0.29	0.61	0.65	0.55	0.65	0.60	0.65	0.67	0.50	1.00	

Note. Convergent Validity: composite reliability (CR > .7) and average variance extracted (AVE > .5), and CR > AVE; Discriminant validity: AVE > MSV and AVE > ASV (Gaskin, 2012; Hair et al., 2010). Adapted from "General social surveys, 1972-2010," by T. W. Smith, P. V. Marsden, M. Hout, and J. Kim, 2011, *National Opinion Research Center*, retrieved from http://publicdata.norc.org/GSS/DOCUMENTS/BOOK/GSS_Codebook.pdf; "Structural Equation Modeling" by J. Gaskin, 2012, Gaskination's StatWiki, retrieved from <http://statwiki.kolobkreations.com>

In addition, the analysis of construct validity and reliability resulted in several concerns. See Table 18. According to Gaskin (2012) and Hair, Black, Babin, and Anderson (2010), construct reliability criteria used Composite Reliability (CR), Average Variance Extracted (AVE), Maximum Shared Variance (MSV), and Average Shared Variance (ASV). Convergent validity criteria included $CR > .70$, average variance extracted ($AVE > .50$), and $CR > AVE$; and discriminant validity criteria include $AVE > MSV$ and $AVE > ASV$. As shown in Table 18, three constructs, *perlif*, *wrkits*, and *salary*, did not meet CR requirement of $> .70$; they were .66, .52, and .27, respectively. In addition, four constructs (*perlif*, *wrkits*, *respon*, and *salary*) did not meet AVE requirement of $> .50$; they were .43, .27, .35, and .25, respectively. Nine constructs (*wrkits*, *respon*, *advanc*, *posgro*, *superv*, *wrkcon*, *intper*, *salary*, *poladm*) had discriminant validity concerns where AVE was less than MSV. Based on these construct validity results, Model 1 was rejected.

Measurement Model 2. SEM method used both confirmatory factor analysis (CFA) and exploratory factor analysis (EFA; Byrne, 2009; Garson, 2012), especially in the case where CFA failed to confirm model specification, as in Measurement Model 1. Hence, following the rejection of Measurement Model 1, the analysis continued with exploratory factor analysis (EFA) with the intent to develop a better model. To establish a new model, the study employed SPSS Version 22 to perform EFA to operationalize empirically model constructs. The EFA used maximum likelihood estimates with Promax rotation. Table 19 showed the result of pattern matrix used for the initial 14-construct Measurement Model 2.

Table 19. *Factor Loadings for Model 2*

	Factor ^a													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
teamsafegd_mean	.870													
safefrstgd_mean	.841													
safetywkgd_mean	.822													
safelhthgd_mean	.765													
suphelpgd_mean		.826												
supcaresgd_mean		.697												
wkpraisegd_mean		.368												
jobsecokgd_mean														
learnnewgd_mean			.838											
workdiffgd_mean			.566											
myskillsgd_mean			.364										.307	
wkdecidegd_mean														
trustmangd_mean				.832										
wksmoothgd_mean				.764										
manvsempgd_mean				.542										
toofewwkgd_r_mean				.414	.397									
respectgd_mean				.411										
overworkgd_r_mean					.725									
wrktimegd_mean					.509									
workfastgd_r_mean														
wkvsfamgd_r_mean						1.012								
famvswkgd_r_mean						.510								
wkfreedmgd_mean							.831							
condemndgd_mean							.365							
famwkoffgd_mean							.304							

Table 19. Factor Loadings for Model 2 (continued)

	Factor ^a													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
knowwhatgd_mean								.811						
promteokgd_mean									.808					
promtefrgd_mean									.417					
opdevelgd_mean							.338		.384					
haveinfo_d_mean										.769				
hlpequipgd_mean										.414				
fringeokgd_mean											.707			
cowrkhlpgd_mean												.571		
cowrkintgd_mean												.488		
fairearngd_r_mean														
satjob1_mean													.624	
prodctivgd_mean														.520

Note. Extraction method = maximum likelihood. Rotation method = Promax with Kaiser normalization.

^a Rotation converged in 32 iterations.

Using AMOS tools for testing, Measurement Model 2 also failed the specification test initially. AMOS concluded that the results were not admissible. Investigation of standardized residual covariance revealed a large number of items with values that were greater than the cutoff of 2.58 (Byrne, 2010; Jöreskog & Sörbom, 1993). There were values ranging from -6.976 to 8.718. To improve specification, the study used model trimming (Garson, 2012).

Model trimming involved adding or deleting paths one at a time based on theory and the modification index. Seven variables with no loading or low communalities were deleted from Model 2. They were *jobsecokgd_mean*, *wkdecidegd_mean*, *workfastgd_r_mean*, *fairearngd_r_mean*, *toofewwkgd_r_mean*, *overworkgd_r_mean*, and *fringeokgd_mean*. The final Measurement Model 2 retained 30 items and 10 constructs classified as job satisfaction (*jobsat*), policy and administration (*poladm*), supervision (*super*), possibilities for growth (*posgro*), working conditions (*wrkcon*), recognition (*recogn*), personal life (*perlif*), work itself (*wrkits*), advancement (*advanc*), and interpersonal relationship (*intper*). See Figure 5.

Despite meeting the requirements for the minimum achievable model with specification declared by AMOS, the construct validity and reliability of Model 2 did not meet the criteria. According to Gaskin (2012) and Hair, Black, Babin, and Anderson (2010), construct reliability criteria used Composite Reliability (CR), Average Variance Extracted (AVE), Maximum Shared Variance (MSV), and Average Shared Variance (ASV). Convergent validity criteria included (a) $CR > .70$, (b) average variance extracted ($AVE > .50$), and (c) $CR > AVE$; and discriminant validity criteria included (a) $AVE > MSV$ and (b) $AVE > ASV$.

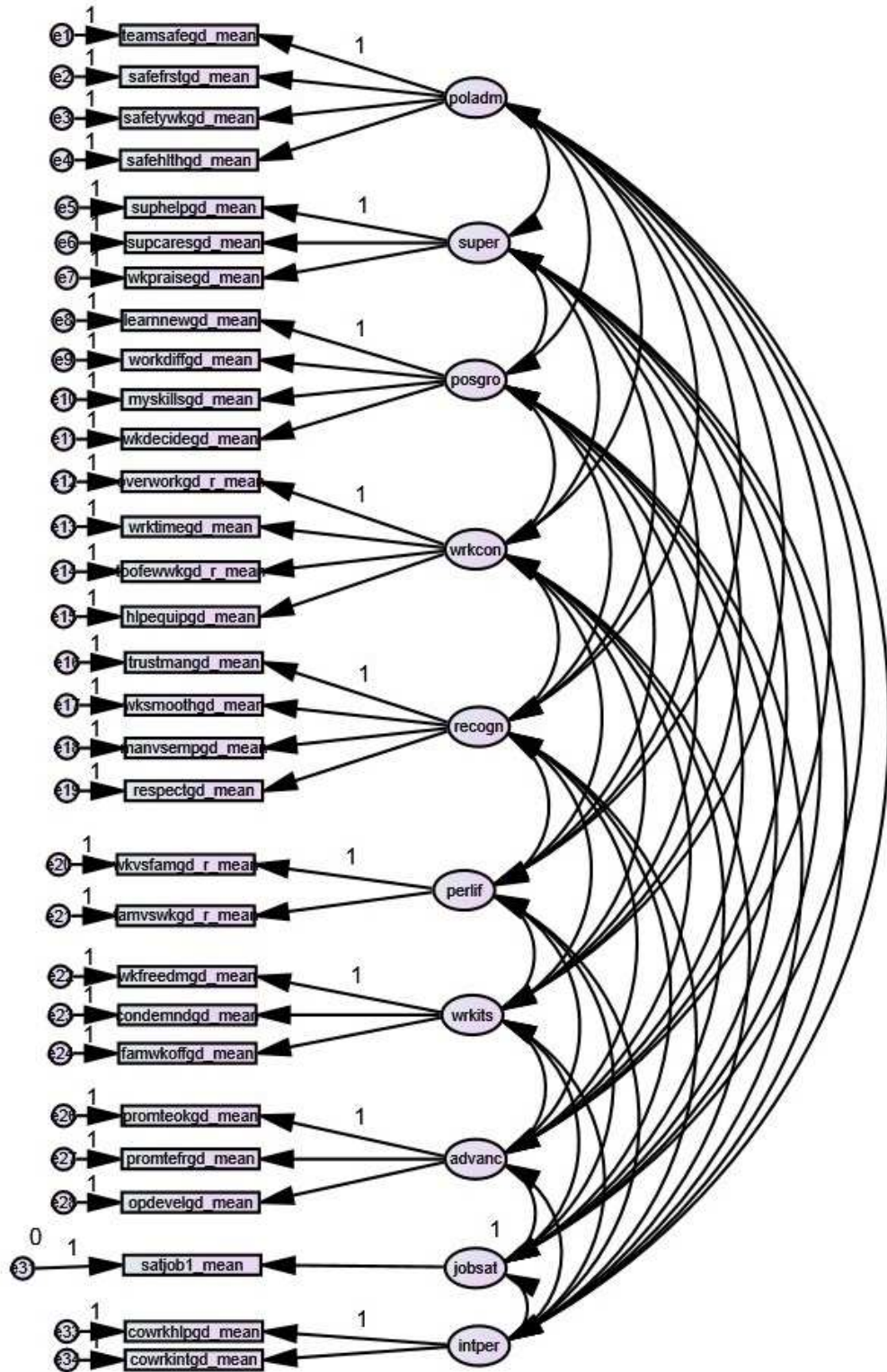


Figure 5. *Measurement model 2*. Adapted from AMOS Version 22. One-way arrows are path loading. Bi-directional arrows are covariance between variables.

Table 20. *Measurement Model 2 Construct Validity Results*

Constructs	CR	AVE	MSV	ASV	1	2	3	4	5	6	7	8	9	10
1 jobsat	1.000	1.000	0.341	0.219	1.000									
2 poladm	0.892	0.674	0.480	0.227	0.386	0.821								
3 super	0.721	0.467	0.707	0.360	0.509	0.527	0.683							
4 posgro	0.666	0.336	0.444	0.200	0.477	0.497	0.422	0.580						
5 wrkcon	0.679	0.351	0.500	0.227	0.347	0.365	0.517	0.005	0.593					
6 recogn	0.840	0.569	0.561	0.393	0.580	0.693	0.749	0.490	0.603	0.754				
7 perlif	0.700	0.555	0.144	0.033	0.115	0.037	0.060	0.183	0.380	0.123	0.745			
8 wrkits	0.510	0.263	0.520	0.342	0.506	0.406	0.671	0.337	0.707	0.711	0.283	0.513		
9 advanc	0.668	0.405	0.604	0.388	0.584	0.577	0.729	0.666	0.445	0.745	0.012	0.699	0.636	
10 intper	0.571	0.401	0.707	0.386	0.520	0.505	0.841	0.564	0.561	0.696	0.068	0.721	0.777	0.633

Note. Convergent Validity: composite reliability (CR > .7) and average variance extracted (AVE > .5), and CR > AVE; Discriminant validity: AVE > MSV and AVE > ASV (Gaskin, 2012; Hair et al., 2010). Adapted from “Structural Equation Modeling” by J. Gaskin, 2012, Gaskination's StatWiki, retrieved from <http://statwiki.kolobkreations.com>

The construct validity analysis on Measurement Model 2 resulted in several issues regarding convergent and discriminant validities. See Table 20. In this model, five constructs (i.e. *posgro*, *wrkcon*, *wrkits*, *advanc*, and *intper*) did not meet the minimum requirements of CR; their CR values were .67, .68, .51, .67, and .57, respectively. Six constructs (i.e. *super*, *posgro*, *wrkcon*, *wrkits*, *advanc*, and *intper*) did not meet AVE requirements of $> .50$; their AVE values were .47, .34, .35, .26, .41, and .40. However, four constructs met the validity and reliability requirements; they were *jobsat*, *poladm*, *recogn*, and *perlif*. Accordingly, the study rejected Measurement Model 2. The study continued with Model 3 development using the model trimming approach.

Measurement Model 3. Following the rejection of Model 2, the study focused on establishing essential construct validity and reliability. According to Byrne (2010), Garson (2012), and Hair et al. (2010), achieving construct validity and reliability is critical and necessary for evaluating model validity. As shown in the Model 2 assessment, six constructs deviated from the validity and reliability criteria. Thus, the study used model trimming to develop Model 3.

Model trimming involved adding or deleting paths one at a time, based on theory and the modification index (Garson, 2012). In the present study, the procedure resulted in Model 3, as illustrated in Figure 6. In this model, four constructs were attainable: job satisfaction (*jobsat*), policy and administration (*poladm*), recognition (*recogn*), personal life (*perlif*), and advancement (*advanc*). The retained manifest variables were *satjob1_mean*, *safehlthgd_mean*, *safetywkgd_mean*, *safefrstgd_mean*, *opdevelgd_mean*, *promtefrgd_mean*, *promteokgd_mean*, *respectgd_mean*, *manvsempgd_mean*, *wksmoothgd_mean*, and *trustmangd_mean*.

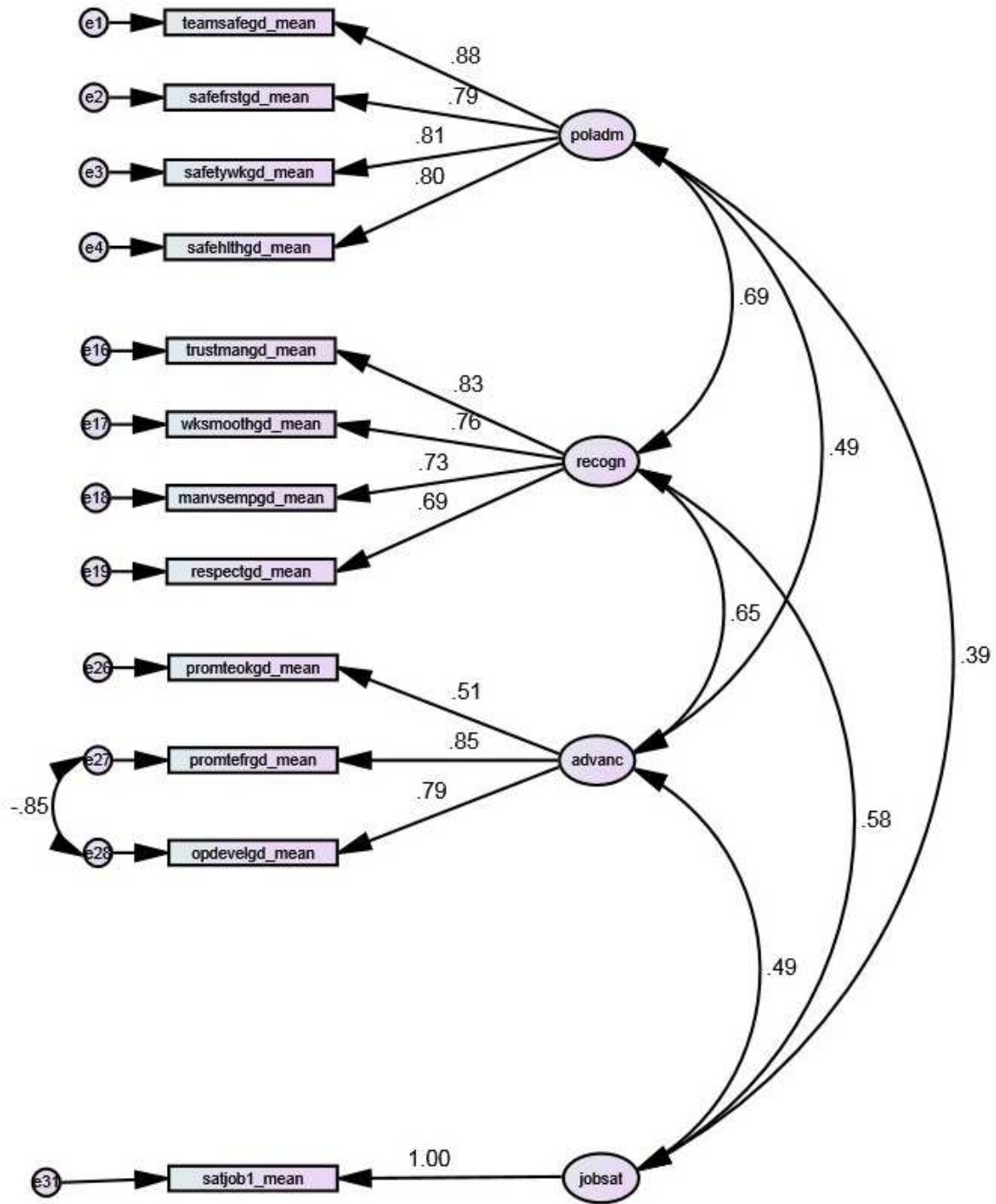


Figure 6. Measurement model 3. Adapted from AMOS Version 22. One-way arrows are path loading. Bi-directional arrows are covariance between variables.

The measurement model minimum was achieved in AMOS. Investigation of standardized residuals found two out of 72 parameters with values greater than the cutoff of 2.58 (those values were 2.832 and 2.706; Byrne, 2010; Jöreskog & Sörbom, 1993). In terms of construct validity and reliability, all four constructs met the criteria of $CR > .70$, $AVE > .50$, $CR > AVE$, $AVE > MSV$, and $AVE > ASV$, as shown in Table 21. The internal reliability analysis results showed a Cronbach's α of .90 ($p < .05$; see Table 13). Based on these results, Model 3 was accepted.

Table 21. Measurement Model 3 Construct Validity Results

Constructs	CR	AVE	MSV	ASV	1	2	3	4
1 advanc	0.770	0.538	0.421	0.302	0.733			
2 poladm	0.892	0.674	0.479	0.290	0.493	0.821		
3 recogn	0.840	0.569	0.479	0.412	0.649	0.692	0.755	
4 jobsat	1.000	1.000	0.335	0.242	0.492	0.386	0.579	1.000

Note. Convergent Validity: composite reliability ($CR > .7$) and average variance extracted ($AVE > .5$), and $CR > AVE$; Discriminant validity: $AVE > MSV$ and $AVE > ASV$ (Gaskin, 2012; Hair et al., 2010). Adapted from "Structural Equation Modeling" by J. Gaskin, 2012, Gaskination's StatWiki, retrieved from <http://statwiki.kolobkreations.com>

Stage 2: Measurement model identification.

Model identification determines the capability of the specified model to produce SEM estimation. The objective is to assure that the model is overidentified. The primary criteria metric was DF where a positive DF suggests an overidentified model. The higher DF, the more parsimonious the model, which assures a good fit with the data and an important association between observed and latent variables. Table 24 summarizes goodness of fit results for the three measurement models. Model 3 was the specified model, with $DF = 48$, indicating the model was overidentified. Hence, the model had the capability to produce SEM estimation.

Stage 3: Measurement model estimation.

This step involved the estimation of the model parameters that fit the theoretical model to yield a covariance as close to the observed covariance unstandardized model as possible. In this study, estimation involved maximum likelihood fitting functions using AMOS Version 22 to perform SEM estimation of Model 3.

Stage 4: Measurement model testing.

Model testing assesses the goodness of fit of the measurement model. The present study used several model-fit indices, including CMIN (Chi-square), a measure of absolute fit. Despite of having small CMIN value (184.86), the probability level of .000 suggested that the model did not fit data. However, CMIN was sensitive to large sample size and non-normally distributed data; hence, the study used other fit indices in assessing the goodness of fit for the model (Garson, 2012).

The study data set was large ($N = 1,466$) and non-normally distributed. Thus, the following fit indices and criteria included standardized root mean square residual (SRMR, $< .08$), comparative fit index (CFI, $> .90$), root mean square error of approximation (RMSEA, $< .05$), goodness-of-fit index or adjusted goodness-of-fit index (GFI or AGFI, $> .90$), and parsimony goodness of fit index (PGFI, $> .50$). Table 22 indicated that Model 3 had good fit levels. The CFI was .98, RMSEA was 0.04, AGFI was .96, and PGFI was 0.60.

Stage 5: Measurement model modification.

Model modification involves theory trimming or the addition of new parameters to improve the fit of the theoretical model to the data (Garson, 2012). A review of the modification index procedure suggested that additional modification would not improve the goodness of fit (Byrne, 2010; Hair et al., 2010); thus, the study retained the current fitting to avoid over fitting.

Table 22. *Goodness-of-Fit Results*

Measurement Models	CMIN	DF	CMIN/DF	CFI	RMSEA	GFI	AGFI	PGFI	HOELTER	
									p < .05	p < .01
Model-1	4548.45	546	8.33	0.793	0.071	0.853	0.811	0.662	194	202
Model-2	1983.68	361	5.495	0.901	0.055	0.913	0.888	0.709	301	315
Model-3	184.855	48	3.851	0.984	0.044	0.979	0.966	0.603	517	584

Note. CFI = Comparative Fit Index; RMSEA = Root Mean Square Error of Approximation; GFI = Goodness-of-Fit Index; AGFI = Adjusted Goodness-of-Fit Index; PGFI = Parsimony Goodness-of-Fit Index.

So far, the study evaluated three measurement models sequentially: Model 1, Model 2, and Model 3. Only Model 3 met key criteria for Measurement Model acceptance based on covariance matrix (Byrne, 2009) and construct validity and reliability tests. Measurement Model 3 also met minimum goodness-of-fits criteria as shown in Table 22 for standardized root mean square residual (SRMR, < .08), comparative fit index (CFI, > .90), root mean square error of approximation (RMSEA, < .05), goodness-of-fit index or adjusted goodness-of-fit index (GFI or AGFI, > .90), and parsimony goodness of fit index (PGFI, > .50). Upon the acceptance of Measurement Model 3, the model was ready for full structural path analysis that utilized five-similar five-stage process (Crockett, 2012; Weston & Gore, 2006) starting with Stage 1 structural model specification

Stage 1: Structural model specification.

Model specification involved testing the operationalization of the conceptual and theoretical framework of the study based on a good fit measurement model (Byrne, 2010; Garson, 2012). Figure 7 presents the full structural model. The full path structural model included all elements from Measurement Model 3 with the addition of three controlling

variables: number of earners in family (*earnrsgp*), work types (*wrktypegp*), and organization size (*numorggp*). In this model, the dependent latent variable was job satisfaction (*jobsat*). Three independent constructs were policy and administration (*poladm*), recognition (*recogn*), and advancement (*advanc*). Using maximum likelihood estimation in AMOS, the full structural Model 3 achieved minimum requirement per AMOS. The model passed specification test. However, while the model specification was empirically valid, as indicated by a Chi-square of 541.07, the results indicated poor fit ($p < .001$).

Stage 2: Structural model identification.

Model identification determined the capability of the specified model to produce SEM estimation. The objective is to assure that the model is overidentified. The primary criteria metric was DF, where a positive DF indicates an overidentified model. For the initial full structural Model 3, $DF = 84$, indicating that the model achieved over identification status. Hence, the model had the capability to produce SEM estimation.

Stage 3: Structural model estimation.

This step involved estimation of the model parameters that fit the theoretical model to yield a covariance as close to the observed covariance unstandardized model as possible. Maximum likelihood fitting functions were employed using AMOS Version 22 to perform SEM estimation of the full structural Model 3.

The overall absolute fit (i.e., Chi-square) was not achievable; thus, the significance of path coefficients was essential in determining model capability. For this study, the benchmark used for critical values was $C.R. > 1.98$ ($p < .05$). Table 23 showed the initial path estimation results indicating that all path coefficients were significant except paths from *earnrsgp*, *poladm*, and *numorggp* toward *jobsat*, with C.R. p values of .99, .14, and .70, respectively.

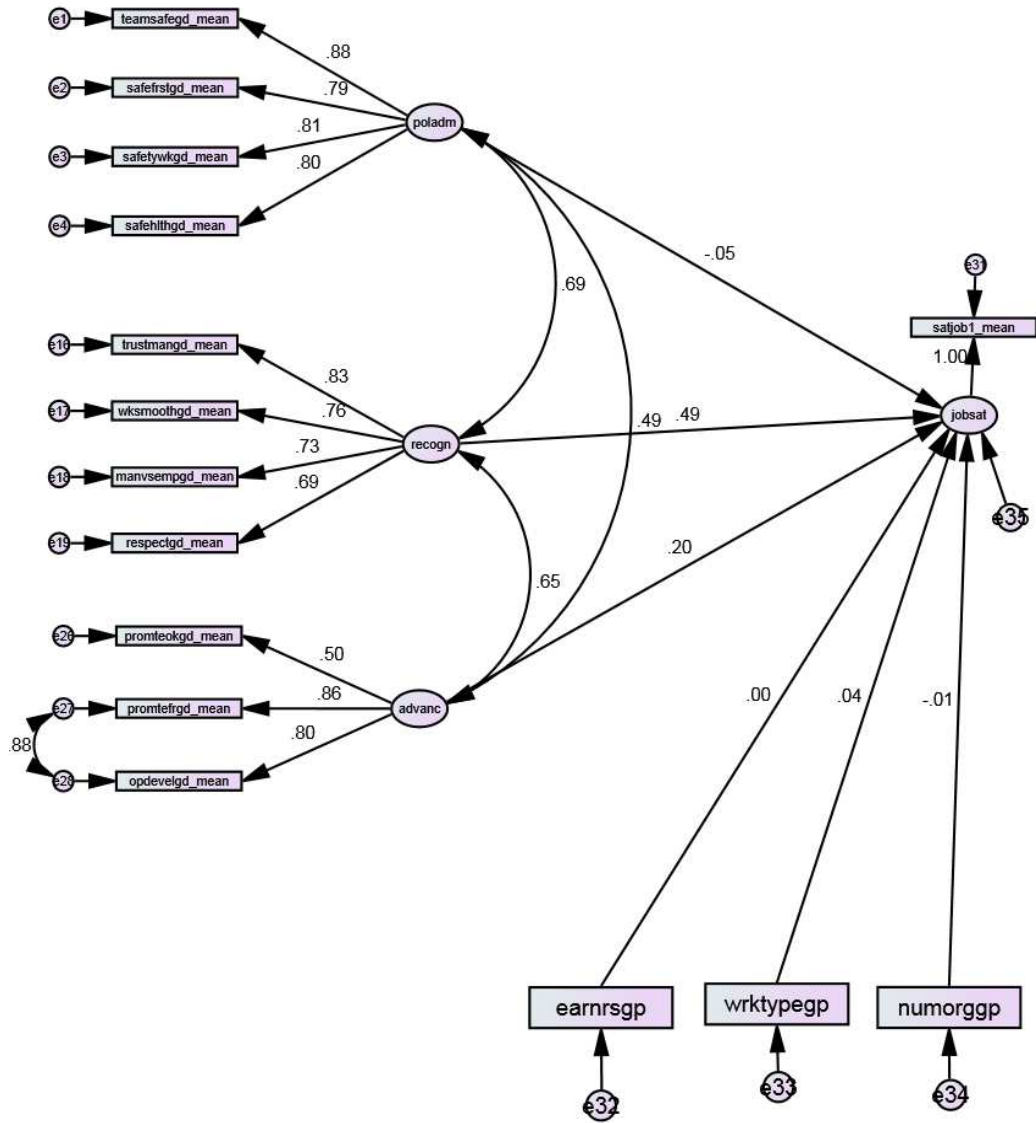


Figure 7. Full structural Model 3 with controlling variables (standardized estimates). Adapted from AMOS Version 22. One-way arrows are path loading. Bi-directional arrows are covariance between variables.

Stage 4: Structural model testing.

Model testing assesses the goodness of fit of the measurement model. The present study used several model-fit indices, including CMIN (Chi-square), which is a test of absolute fit.

While the CMIN had a small value (541.07), the probability level of .000 suggests that the model did not fit data. Thus, the study used other fit indices to assess the goodness of fit of the model.

The study data set was large ($N = 1,466$) and non-normally distributed. Thus, the following fit indices and criteria included standardized root mean square residual (SRMR, $< .08$), comparative fit index (CFI, $> .90$), root mean square error of approximation (RMSEA, $< .05$), goodness-of-fit index or adjusted goodness-of-fit index (GFI or AGFI, $> .90$), and parsimony goodness of fit index (PGFI, $> .50$). Table 26 indicates the results that the full structural Model 3 had acceptable goodness-of-fits. The CFI was .95, RMSEA was 0.06, AGFI was .93, and PGFI was 0.67.

Table 23. Full Structural Model Regression Weights with Controlling Variables

	Path		Estimate	S.E.	C.R.	P	Label
jobsat	<---	wrktypegp	0.041	0.021	1.986	0.047	par_12
jobsat	<---	recogn	0.538	0.049	10.885	***	par_13
jobsat	<---	advanc	0.3	0.049	6.155	***	par_14
jobsat	<---	earnrsgp	0	0.029	-0.011	0.991	par_15
jobsat	<---	poladm	-0.067	0.046	-1.461	0.144	par_16
jobsat	<---	numorggp	-0.005	0.013	-0.389	0.697	par_17
teamsafegd_mean	<---	poladm	1				
safefrstgd_mean	<---	poladm	0.934	0.025	36.8	***	par_1
safetywkgd_mean	<---	poladm	0.968	0.025	38.398	***	par_2
safehlthgd_mean	<---	poladm	0.851	0.023	37.392	***	par_3
trustmangd_mean	<---	recogn	1				
wksmoothgd_mean	<---	recogn	0.859	0.027	31.331	***	par_4
manvsempgd_mean	<---	recogn	1.062	0.036	29.83	***	par_5
respectgd_mean	<---	recogn	0.668	0.024	27.691	***	par_6
promteokgd_mean	<---	advanc	1				
promtefrgd_mean	<---	advanc	1.65	0.121	13.69	***	par_7
opdevelgd_mean	<---	advanc	1.361	0.102	13.335	***	par_8
satjobl_mean	<---	jobsat	1				

Note. Adapted from "Structural Equation Modeling" by J. Gaskin, 2012, Gaskination's StatWiki, retrieved from <http://statwiki.kolobkreations.com>

*** $p < .001$

Table 24. Goodness of Fit for Full Structural Model 3 (Trimmed and Untrimmed)

Full Structural Model	CMIN	DF	CMIN/DF	CFI	RMSEA	GFI	AGFI	PGFI	HOELTER	
									p < .05	p < .01
Model-3 Full	541.07	84	6.44	0.94	0.06	0.95	0.93	0.67	289	317
Model-3 Full-trimmed	299.40	60	4.99	0.97	0.05	0.97	0.96	0.64	292	321

Note. SRMR = Standardized Root Mean Square Residual; CFI = Comparative Fit Index; RMSEA = Root Mean Square Error of Approximation; GFI = Goodness-of-Fit Index; AGFI = Adjusted Goodness-of-Fit Index; PGFI = Parsimony Goodness-of-Fit Index.

Stage 5: Structural model modification.

Model modification involved the process of theory trimming or the addition of new parameters to improve the fit of the theoretical model to the data (Garson, 2012). The full structural Model 3 included three controlling variables, *earnrsgp*, *wrktypegp*, and *numorggp*. The investigation of regression weights indicated that paths from *earnrsgp* and *numorggp* to *jobsat* were insignificant, which confirmed that they were indeed controlled and had no effects on the model. In addition, the path from *poladm* to *jobsat* was also insignificant. Accordingly, the study trimmed these paths from the model, and the resulting model (i.e. Model 3 Full Trimmed) shown in Figure 8. Table 24 showed the goodness of fit results that indicated improved goodness of fit. CFI was .97, RMSEA was 0.05, AGFI was .95, and PGFI was 0.64.

Table 25 showed the estimation results of the full (trimmed) structural Model 3. All path coefficients were significant. The path from *recogn* toward *jobsat* had the highest regression weights (.49). There was no influential effect between *poladm* and *jobsat*.

In summary, the results established a full SEM with an acceptable goodness of fit. The trimmed model showed improved goodness of fit and confirmed two control variables (i.e. number of earners in family as *earnrsgp*, and organization size as *numorggp*). The outcomes

support the rejection of $H1_0$ and the acceptance of $H1_A$. Using the full path trimmed structural Model 3, the study tested hypotheses $H2_0$ and $H2_A$.

Table 25. Full Structural Model Regression Weights (Trimmed)

	Path		Estimate	S.E.	C.R.	P	Label
jobsat	<---	wrktypegp	0.041	0.021	1.977	0.048	par_12
jobsat	<---	recogn	0.492	0.039	12.744	***	par_13
jobsat	<---	advanc	0.302	0.049	6.225	***	par_14
teamsafegd_mean	<---	poladm	1				
safefrstgd_mean	<---	poladm	0.934	0.025	36.787	***	par_1
safetywkgd_mean	<---	poladm	0.969	0.025	38.404	***	par_2
safehlthgd_mean	<---	poladm	0.851	0.023	37.377	***	par_3
trustmangd_mean	<---	recogn	1				
wksmoothgd_mean	<---	recogn	0.858	0.027	31.356	***	par_4
manvsempgd_mean	<---	recogn	1.061	0.036	29.866	***	par_5
respectgd_mean	<---	recogn	0.666	0.024	27.68	***	par_6
promteokgd_mean	<---	advanc	1				
promtefrgd_mean	<---	advanc	1.656	0.121	13.648	***	par_7
opdevelgd_mean	<---	advanc	1.365	0.103	13.293	***	par_8
satjob1_mean	<---	jobsat	1				

Note. Adapted from “Structural Equation Modeling” by J. Gaskin, 2012, Gaskination's StatWiki, retrieved from <http://statwiki.kolobkcreations.com>

*** $p < .001$

Testing Hypotheses $H2_0$ and $H2_A$

Hypotheses $H2_0$ and $H2_A$ were tested based on the full structural Model 3. The study employed the method of multi-group testing to evaluate significant differences between the categorical variable (*year*) for 2006 and 2010 (Byrne, 2010; Garson, 2012; Gaskin, 2012). The aim was to determine whether the hypothesized relationship was different in the full structural Model 3. The study tested groups 2006 and 2010 separately using Chi-square difference and critical ratio in terms of z-scores (Gaskin, 2012).

Table 26 showed the hypothesis estimation results when testing groups 2006 and 2010 separately. The results indicate significant differences between four paths: *advanc* → *jobsat*, *earnrsgp* → *jobsat*, *poladm* → *safethlthgd_mean*, and *poladm* → *safetywkgd_mean*, with z-scores of 2.124, 1.811, 1.700, and 2.573, respectively. Thus, the outcome supported the rejection of H₂₀ and the acceptance of H_{2A}.

Table 26. Hypothesized Testing For Hypotheses H₂₀ and H_{2A}

			2006		2010		z-score
			Estimate	P	Estimate	P	
jobsat	<---	wrktypegp	0.028	0.306	0.045	0.149	0.409
jobsat	<---	recogn	0.497	***	0.336	***	-1.346
jobsat	<---	advanc	0.318	0.001	0.625	***	2.124**
jobsat	<---	poladm	-0.073	0.195	-0.085	0.292	-0.117
jobsat	<---	earnrsgp	-0.049	0.202	0.058	0.197	1.811*
jobsat	<---	numorggp	0.019	0.281	-0.021	0.291	-1.506
safefrstgd_mean	<---	poladm	0.952	***	0.907	***	-0.881
safetywkgd_mean	<---	poladm	0.912	***	1.042	***	2.573**
safethlthgd_mean	<---	poladm	0.816	***	0.894	***	1.7*
wksmoothgd_mean	<---	recogn	0.871	***	0.847	***	-0.454
manvsempgd_mean	<---	recogn	1.098	***	1.011	***	-1.214
respectgd_mean	<---	recogn	0.659	***	0.69	***	0.643
promtefrgd_mean	<---	advanc	1.269	***	1.306	***	0.239
opdevelgd_mean	<---	advanc	1.001	***	1.106	***	0.814
teamsafegd_mean	<---	poladm	1		1		
trustmangd_mean	<---	recogn	1		1		
promteokgd_mean	<---	advanc	1		1		
satjob1_mean	<---	jobsat	1		1		

Notes: Adapted from "Structural Equation Modeling" by J. Gaskin, 2012, Gaskination's StatWiki, retrieved from <http://statwiki.kolobkreations.com>

* $p < .05$, ** $p < .01$, *** $p < .001$.

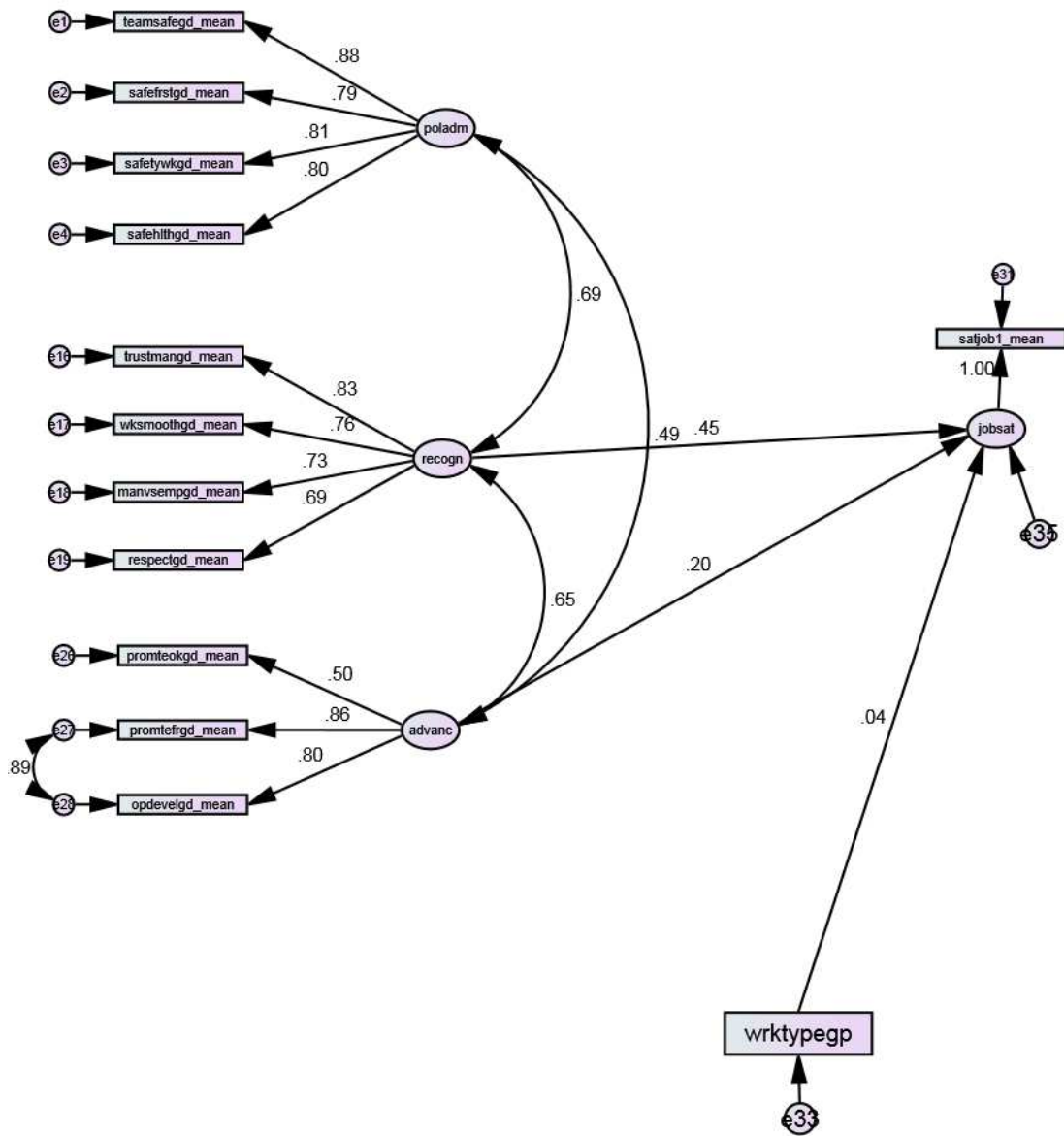


Figure 8. Full structural Model 3 with controlling variables (trimmed). Adapted from AMOS Version 22. All loading values are statistically significant at $p < .05$. One-way arrows are path loading. Bi-directional arrows are covariance between variables. $N = 1466$.

Conclusion

This chapter presented the analyses and results of this study, including a detailed description of population and sample, assumption test results, summary of hypothesis testing, and details analysis. The outcomes of the analyses provided empirical evidence to reject both null hypotheses, $H1_0$ and $H2_0$. The partial acceptance of alternative hypothesis $H1_A$ suggested that there were significant relationships at the industry level between Herzberg's motivation-hygiene factors and EJS, while controlling for the effect of number of earners per family, work type, and organization size. The acceptance of $H2_A$ suggested a significant difference at the industry level between employee perceptions of EJS in the US during the economic expansion phase of the 2008 Great Recession and during the economic boom prior to the Great Recession (2006).

CHAPTER 5. DISCUSSIONS, IMPLICATIONS, RECOMMENDATIONS

Introduction

This chapter presented a discussion of the results, conclusions, and recommendations pertinent to the study of employee job satisfaction (EJS) in the field of organization and human-resource management. It included the summary of the results, discussion, implications of the results, limitations of the study, and recommendations for future research. The chapter ended with the conclusion of the study.

Summary of the Results

The purpose of this study was to examine the relationships between EJS and various factors identified in Herzberg's motivation-hygiene theory using data from the U.S. GSS (2012). The study aimed to examine essential aspects of EJS research through the study of relationships between factors that influence job satisfaction (Herzberg et al., 1959; Saari & Judge, 2004). Other aspects of EJS research included the influence of volatile economic climates on employees and firms (Latham & Braun, 2011), the impact of firm size and downsizing (Beer, 1994; Tsai et al., 2007), industry-level characteristics (Datta et al., 2005), and socioeconomic and work-family climates (Hom & Kinicki, 2001; Smerek & Peterson, 2007) on EJS. The present study employed the SEM method to test hypothesized relationships between variables in multiple models through specification, estimations of fit, and modification using SPSS and AMOS. The present study used existing secondary data from the GSS (2012) database. The GSS was a sociological survey program conducted by the National Opinion Research Center (NORC) across U.S. household populations that employs a full-probability, cluster-randomized, and single-interview

methodology (Smith, Marsden, Hout, & Kim, 2011). The initial data set for this study was limited to surveys completed in 2006 and 2010 ($N = 2,882$ cases) in SPSS-readable format. The data includes 36 independent variables, eight controlling variables, and one dependent variable. Overall, the study aimed to answer research questions pertaining to the relationships between EJS and contributing factors derived from Herzberg's motivation-hygiene theory.

Research Question 1

At the industry level, what are the relationships between Herzberg's motivation-hygiene factors (latent independent variables: achievement, recognition, work itself, responsibility, advancement, possibility of growth, supervision, working conditions, interpersonal relationships, salary, job security, policies and administration, and personal life) and EJS (latent dependent variable), while controlling for the effect of number of earners in the family, work type, and organization size (control variables)?

H1₀: There is no relationship at the industry level between Herzberg's motivation-hygiene factors (achievement, recognition, work itself, responsibility, advancement, possibility of growth, supervision, working conditions, interpersonal relationships, salary, job security, policies and administration, and personal life) and EJS, while controlling for the effect of number of earners per family, work type, and organization size.

H1_A: There are significant relationships at the industry level between Herzberg's motivation-hygiene factors (achievement, recognition, work itself, responsibility, advancement, possibility of growth, supervision, working conditions, interpersonal relationships, salary, job security, policies and administration, and personal life) and EJS, while controlling for the effect of number of earners per family, work type, and organization size.

Sub-Research Question 1

At the industry level, what is the difference between employee perceptions of EJS in the US during the economic expansion phase of the 2008 Great Recession and during the economic boom prior to the Great Recession (2006)?

H2₀: There is no difference at the industry level between employee perceptions of EJS in the US during the economic expansion phase of the 2008 Great Recession and during the economic boom prior to the Great Recession (2006).

H2_A: There is a significant difference at the industry level between employee perceptions of EJS in the US during the economic expansion phase of the 2008 Great Recession and during the economic boom prior to the Great Recession (2006).

The results of analyses provided empirical evidence to reject both null hypotheses, H1₀ and H2₀, and to accept both alternate hypotheses, H1_A and H2_A. The analysis began with the initial priori model, which utilized a full set of Herzberg's motivation-hygiene factors (Herzberg et al., 1959) and the GSS Quality of Working Life module questionnaire (Smerek & Peterson, 2010). The analysis employed a five-stage SEM to establish a model fit with the GSS data set (Crockett, 2012; GSS, 2012). The study accepted hypothesis H1_A in part, which implied significant relationships at the industry level between Herzberg's motivation-hygiene factors and EJS, while controlling for the effects of number of earners per family, work type, and organization size. The acceptance, in part of hypothesis H1_A regarding the relationships between Herzberg's motivation-hygiene factors and employee job satisfaction, was due to a number of constructs that did not meet the essential construct validity and reliability criteria. The acceptance of H2_A implied significant differences at the industry level between employee perceptions of EJS in the US during the economic expansion phase of the 2008 Great Recession and during the economic boom prior to the Great Recession.

Discussion of the Results

The present study employed a data set from GSS (2012) consisting of 2,882 cases collected in 2006 and 2010 across U.S. households. The study aggregated the data from individual level to the industry level using the 1980 Industry Code. The resulting data set consisted of 1,466 cases, representing a large data set that met necessary assumptions of SEM and maximum likelihood estimation methods in terms of adequate sample size, interval data, normality, linearity, and no perfect multicollinearity (Byrne, 2010).

Data Analysis

Regarding the aggregated data, there were several notable distributions. First, the distribution was highly concentrated toward five sectors (53.5% totaled): professional and related services (16.8%), retail trade (12.3%), public administration (8.7%), business and repair services (7.9%), and finance, insurance, and real estate (7.8%). The rest of 23 sectors were ranging from 0.5% to 5.6%. This may limit generalization across industry sectors. Secondly, the ratios were similar between the full data set (i.e. 2006 and 2010 combined), and 2006 and 2010 groups separately. For instance, the distribution of gender ratios was approximately equal across all three groups (2006, 2010, and combined) with 54% of males and 45% of females. The distribution of number of earners in the family was about 52% for single earners and 48% for multiple earners. Work types exhibited similar distributions across groups with 77% standard, 10% nonstandard, and 13% independent contractors. Thirdly, organization size (*numorggp*) differed, with 47% working for small companies in the 2010 group compared to 40% in the 2006 group. Furthermore, the changed distribution showed that the labor force mobility had shifted from medium and large organizations (between 100 and 10,000 employees) mostly toward small

organizations (< 100 employees) and slightly toward very large organizations (>10,000 employees). These notable findings may lead to future research to understand their effects.

Assumption Tests

Regarding assumptions test results, sample size effects were acceptable according to Hoelter's (1983) criteria of > 200. Hoelter's numbers for measurement Model 3 and the full structural Model 3 were 517 ($p < .05$) and 292 ($p < .05$), respectively (see Table 24). These high values minimized sample size issues that could present problems for model fitting. Thus, the results showed there was appropriate sample size effect within the data set.

Other tests of assumptions provided evidence that the data set met SEM requirements with regard to normality, linearity, and no multicollinearity. For normality, the data exhibited non-normal distribution based on skewness, kurtosis, Kolmogorov-Smirnov, and Shapiro-Wilk values. However, the large sample size ($N = 1466$) and adequate sample size effect (Hoelter's numbers of > 200) compensated for the assumption violation. In addition, the majority of skewness and kurtosis measurements were within cutoffs ranges of ± 1.5 (Garson, 2012). Those outside the cutoff range were due to a high concentration of extreme scales naturally collected from respondents. Furthermore, Gao et al. (2008) stated, "the multivariate normality required for the appropriate application of hypothesis testing in SEM estimation with [maximum likelihood estimation] is almost never achieved with raw empirical data" (p. 123). Hence, the study considered the normality violation a non-issue, and retained the aggregated data without performing any transformations. The results of linearity tests showed no deviations (see Table 18), which provided additional support for retaining the full aggregated data set.

Hypothesis Testing

Testing hypotheses using SEM requires establishing models with theoretical supports. The initial model (Measurement Model 1) was based on the Herzberg's motivation-hygiene theory with the original 13 factors that influenced job satisfaction. The SEM method was used to assess and refine the model to fit the GSS data (Byrne, 2010; Garson, 2012). The model included 37 items from the Quality of Working Life module in GSS. The alignment of GSS items (observed variables) and Herzberg's constructs (latent variables) established face validity. Empirical construct validity and reliability were confirmed using CFA and model specification.

AMOS classified measurement Model 1 as inadmissible and confirmed its misspecification. The investigation revealed a lack of critical construct validity and reliability due primarily to evidence of weakness in the alignment of the observed variables and the latent variables (i.e., Herzberg's factors). This also confirmed weakness in the face validity process performed during the development of Measurement Model 1 (Garson, 2012). When the analysis resulted in misspecification, Model 1 was no longer valid and the study terminated CFA. Subsequently, the study shifted to exploratory factor analysis (EFA) to develop Measurement Model 2.

The second model (Model 2) was the result of expanding exploratory factor analysis (EFA) using SPSS tools. The aim at this stage was to establish a loading factor that included all observed items from GSS and the 14 Herzberg factors, including the dependent construct of job satisfaction. Forcing the maximum likelihood estimate to extract 14 factors resulted in Model 2. The review of item loading against Herzberg's factor definitions, Smerek and Peterson's (2007) questionnaire, and the GSS Quality of Working Life (GSS, 2012) items revealed acceptable and improved specification. For example, the top loading items were associated with safety

(*teamsafegd_mean*, *safefrstgd_mean*, *safetywkgd_mean*, and *safehlthgd_mean*) under Herzberg's category of policy and administration. The maximum likelihood pattern matrix also revealed several nonloading and low communality items (*jobsecokgd_mean*, *wkdecidegd_mean*, *workfastgd_r_mean*, *fairearngd_r_mean*, *toofewwkgd_r_mean*, *overworkgd_r_mean*, and *fringeokgd_mean*). Nonloading items correlated with those that had overall weak bivariate correlation coefficients (*workfastgd_r_mean*, *suphelpgd_mean*, and *famwkoffgd_mean*). Subsequently, using AMOS, the process of specifying Model 2 resulted in a smaller model with 30 items and 10 constructs. However, the model failed to meet construct validity and reliability on six of the ten constructs. Four constructs that met the validity and reliability requirements were *jobsat*, *poladm*, *recogn*, and *perlif*. Therefore, the study rejected Model 2 despite meeting all goodness of fit criteria.

In search of a better-fitted measurement model, the trimming method was used to build from Model 2 (Garson, 2012). The trimming method used the process of eliminating constructs and items that caused poor validity and reliability. This resulted in Model 3, with four constructs. This model yielded acceptable construct validity and reliability in terms of convergent and discriminant validities. As shown in Table 21, CRs were greater than .70 and AVEs were greater than .50. For particular constructs, CR was greater than AVE and AVE was greater than both MSV and ASV (Hair et al., 2010; Hu & Bentler, 1999). Model 3 also passed AMOS specification Chi-square and covariance tests. Thus, the study accepted Model 3 based on the fulfillment of construct validity and reliability and on the goodness of fit indices (Garson, 2010; Hair et al., 2010).

Finding an acceptable measurement model provided a high probability of finding a good structural model (Byrne, 2010; Hu & Bentler, 1999). Therefore, the original proposed model was

rejected, because of the misspecification of Model 1 and Model 2. Thus, this study continued building on Model 3. The benefits of having a full model with complete construct validity and reliability outweighed the cost of omitting 10 constructs.

The initial full structural model (Model 3) included three exogenous constructs (*poladm*, *recogn*, and *advanc*), one endogenous construct as dependent variable (*jobsat*), and three control variables (*earnrsgp*, *wrktypegp*, and *numorggp*). The full structural Model 3 achieved specification in AMOS and met full construct validity and reliability (see Table 25). This allowed SEM to estimate model fits with sufficient statistical power (Garson, 2012; Hu & Bentler, 1999).

In the present study, the overall absolute fit (Chi-square) was typically not achievable, as indicated with $p < .001$ in the AMOS results. Thus, the significance of path coefficients was essential in determining model capability for testing the study hypothesis. The insignificant paths had a critical ratio of less than 1.98 for $p < .05$. The process concluded with the final full structural Model 3 (trimmed). This model yielded excellent goodness of fit values across all indices. The results supported the rejection of the null hypotheses $H1_0$ and the acceptance of $H1_A$. This acceptance only partially addressed the research questions, due to the lack of validated paths constructed from other Herzberg factors, which limited generalization beyond this sample.

For $H2_0$ and $H2_A$, the study used the multigroup method to test the difference between two categorical groups (Byrne, 2010; Garson, 2012; Gaskin, 2012). This method employed the estimate of z-scores to test the hypothesized relationship between 2006 and 2010. The method tested groups for 2006 and 2010 separately and the criteria involved Chi-square difference and critical ratios in terms of z-scores (Gaskin, 2012). When testing groups 2006 and 2010 separately, the results indicated significant differences between four paths: *advanc* → *jobsat*,

earnrsgp → *jobsat*, *poladm* → *safethlthgd_mean*, and *poladm* → *safetywkgd_mean*, with z-scores of 2.124, 1.811, 1.700, and 2.573, respectively. Specifically, there was a statistically significant shift in attitude from before the 2008 recession (i.e., in 2006) to after the 2008 recession (i.e., 2010). In 2006, recognition was dominant, with higher loadings than advancement (.50 vs. .14 for recognition and advancement, respectively). However, in 2010, recognition loading decreased to .37 while advancement increased to .30. This outcome supported the rejection of H_{20} and the acceptance of H_{2A} . The results positively addressed sub-research question 1, which asked whether there was a difference at the industry level between employee perceptions of EJS in the US during the economic expansion phase (2010) and during the economic boom (2006) prior to the 2008 Great Recession (2006). In summary, from a methodological perspective, the study partially answered research question 1 and fully answered sub-research question 1.

Implications of the Study Results

This study aimed to address key knowledge gaps in the field of organization and management. Saari and Judge (2004) identified three knowledge gaps related to the understanding of employee attitudes toward job satisfaction: causes, results, and measurement methods. As stated by Saari and Judge (2004), “organizations need [human resource] practitioners who know how to develop effective and research-based employee attitude measures, understand and derive valuable insights from the data, and use the results to improve employee attitudes and job performance and help lead organizational change” (p. 403). They posited that researchers and practitioners could benefit from a deeper and broader understanding of both theory- and evidence-based studies of EJS.

Theoretical Implication

In terms of theoretical implications, the results of this study supported Herzberg's motivation-hygiene theory. The outcomes implied, through full structure Model 3 (trimmed), two key motivation constructs from Herzberg's factors (i.e. recognition and advancement) positively correlated with employee satisfaction at the industry level. However, it also found that one hygiene factor (i.e. policy and administration) had no direct influence on EJS. Nevertheless, by utilizing the SEM method, interrelationships were confirmed between this hygiene factor and the two motivation factors. This finding was consistent with earlier conclusions by Lindsay, Marks, and Gorlow (1967), which suggested that there was no absolute exclusivity between motivation and hygiene factors, as claimed previously by Herzberg et al. (1959). The results of this study also concurred with findings by House and Wigdor (1967), in which motivation factors had a greater influence on job satisfaction and dissatisfaction than hygiene factors had. Finally, the results of this study correlated with results identified by Findler et al.(2007) showing that employee attitudes reacted favorably, based on how employees perceived management behaviors and organizational supports (e.g., good relationships between management and employees, healthy trust of management, respectful interrelationships). Besides these theoretical supports, the study also provided organizations and management with empirical evidence regarding employee attitudes toward job satisfaction at the industry level.

Scientific Merit

In terms of scientific merit, the findings of this study implied that there are benefits to leveraging the strength of the two-step SEM method in the study of interrelationships between factors (Hom & Kinicki, 2001; Tomarken & Waller, 2005). One of the benefits was the validation of the model using the mandate of having acceptable construct validity and reliability.

The strength of SEM allowed the estimation process to assess and refine both measurement and structural model development. It prevented weaknesses in model specification and face validity. The study results support the notion that strong evidence of construct validity and reliability in research are critical for obtaining meaningful results.

Practical Implication

From a practical perspective, comparison of cross-sectional (i.e., non-longitudinal) data on the influence of two motivation factors (recognition and advancement) on EJS revealed a shift in attitude from before the 2008 recession (i.e., in 2006) to after the recession (i.e., in 2010). This shift was statistically significant. In 2006, recognition was dominant by virtue of higher loadings than advancement. However, in 2010, recognition loading decreased while advancement increased. This implied that following the economic downturn and at the positive economic recovery phase, employees preferred tangible advancements (e.g., the opportunity to develop, promotion), over a comfortable environment (e.g., respect, trust). This finding suggested that it was essential for organizational management to consider making organizational changes ahead of economic cycles. For instance, according to Veleva (2010), a majority of executives chose to maintain a focus on aspects of corporate citizenship, such as work-life balance, treating employees well, and increasing health insurance coverage, over compensation or profit-based business ideas at post-recession. This was in contrast with the study's findings. Thus, it raised the question for future research as to what caused the shift in employee attitudes between 2006 and 2010. In summary, along with these findings, there were also limitations in this study.

Limitations

The present study raised some limitations. First, the study used industry-level aggregated data derived from the GSS quality of working life module (GSS, 2012) and the use of aggregated

data imposes limitations on generalizing findings to the individual level (Garson, 2012; Teo, 2011). Second, the utilization of single-indicator latent variables limits generalization due to the assumption that there was no random measurement error. Thirdly, the scope of this study was restricted to the U.S. workforce, which limits any global implications associated with multinational organizations.

Besides these limitations, it was noteworthy to recognize that 53.5% of the sample was from the top five sectors (i.e., professional and related services with 16.8%, retail trade with 12.3%, public administration with 8.7%, business and repair services with 7.9%, and finance, insurance, and real estate with 7.8%). The rest of 23 sectors had sample distribution ranging from 0.5% to 5.6%. From this distribution, the actual numbers of cases were as high as 246 cases as in professional and related services (16.8%), and as low as 7 cases as in textile or paper mills (0.5%). This skewed distribution posed a threat to the implications across industries equally. Thus, future research on this topic may need to consider narrowing the scope of the sample or the industry.

Recommendations for Further Research

The primary purpose of this quantitative cross-sectional study was to examine EJS and its contributing factors based on Herzberg's motivation-hygiene theory. Even though the study answered the research questions, there are opportunities for future research. First, using the full omnibus list of Herzberg's factors during the development of the initial Model 1 posed challenges in correlating observed items and latent constructs. Future research may scale down the number of factors for better modeling. For example, researchers may consider operationalizing constructs to segregate motivation and hygiene factors that can lead to

identification of moderator or mediator factors within the model (e.g., employee engagement, education levels, years on the job, manager versus non-manager, etc.).

Secondly, the distribution across industry sectors was highly concentrated among the top five industries, which comprised 53.1% of the cases. Future researchers may need to scale their samples to these five industries to search for clarity about the differences among these sectors. For example, the current set of data in the top five sectors contained 24.7% of services jobs, 20.1% in sales, and 8.7% in public administration. Future research may focus specifically to these top five sectors to investigate the industrial impacts on employee job satisfaction (i.e., services versus sales, and public versus private).

A third recommendation as a next step for future research is to investigate the causes for the increased percentage in small organization prior and post-recession. The increase in the number of small organizations with less than 100 employees was approximately seven percent; it rose from 40% in 2006 to 47% in 2010. It may be important to distinguish the level of satisfaction that relates not only to the workforce reduction, but also considers causes related to job mobility, whether volunteering or not (i.e., new job, new organization, lean organization, or threat of being layoffs).

In summary, this chapter provided a detailed discussion of the results, implications of the outcomes, limitations for the study, and several recommendations for future or follow-up research.

Conclusion

The purposes of this quantitative cross-sectional study were threefold. First, the study examined the subject of employee job satisfaction (EJS) at the industry level using three-digit industry and occupation codes from the 1980 Industry Code. Second, the study related EJS to

motivation and hygiene factors (achievement, recognition, work itself, responsibility, advancement, possibility of growth, supervision, working conditions, interpersonal relationships, salary, job security, policies and administration, and personal life) while controlling for organization size, work type, and number of earners in the family. Lastly, the study examined U.S. workforce perceptions toward EJS during the economic phase prior (2006) and post (2010) 2008 Great Recession, using General Social Survey (GSS, 2012) data completed in 2006 and 2010.

The study did not find the complete influence of all 13 Herzberg's motivation-hygiene factors; only in partiality, it confirmed the influence of two factors, as well, as the organization size, toward EJS. The partiality was possibly due several reasons found at several stages of the study. One of the key aspects highlighted in Chapter 1 was the assumption that the GSS' quality of working life modules were in alignment with Herzberg's factors (1959). This assumption was the basis of the development of the initial Model 1. The misalignment of the original intent of the question may inadvertently have causes issue with content validity of the constructs. Another issue was the utilization of four single-indicator and four double-indicator latent variables; single-indicator in SEM method was problematic (Garson, 2012). Future research should consider revisiting these assumptions to improve construct validity.

Chapter 2 provided a literature review of EJS theory. The comprehensive review started with the discussion of Maslow's (1943) seminal work on hierarchy of needs theory, followed by a comprehensive review of the motivation-hygiene theory developed by Herzberg et al. (1959). Next, it analyzed recent studies of EJS within the context of industry-level characteristics in four sectors: technology, nursing, banking, and education. This discussion included the impact of economic, organizational, and personal climates (e.g., recession, organization size, work type,

and income) on EJS. In summary, Chapter 2 built the theoretical and methodological foundation for this study.

Chapter 3 presented the research approach, design, and methodology. It described the selection of population and sample from the U.S. General Social Survey (GSS, 2012). It outlined the two-step structural equation modeling (SEM) method that used five-stage process per Crockett (2012). The chapter defined acceptance criteria for assumption tests, model goodness-of-fits (i.e., standardized root mean square residual (SRMR) $< .08$, comparative fit index (CFI) $> .90$, root mean square error of approximation (RMSEA) $< .05$, goodness-of-fit index (GFI) or adjusted goodness-of-fit index (AGFI) $> .90$), and parsimony goodness of fit index (PGFI) $> .50$). In addition, the key definition was to determine the requirements of construct validity and reliability. For example, the convergent validity measurements include Composite Reliability (CR) and Average Variance Extracted (AVE); the acceptable levels of convergent validity are CR $> .7$, AVE $> .5$, and CR $>$ AVE (Gaskin, 2012; Hair et al., 2010). Discriminant validity measures the level of distinctness between constructs (Garson, 2012). The measures are AVE, Maximum Shared Variance (MSV), and Average Shared Variance (ASV). The acceptable discriminant validity requires AVE $>$ MSV and AVE $>$ ASV (Gaskin, 2012; Hair et al., 2010).

Chapter 4 reported the data analyses and research results of the study. Several key points were found during the data description and hypotheses analyses. From the data set of $N = 1466$ cases, several ratios were approximately the same for 2006 and 2010 groups when considered separately. These ratios were gender, age groups, and earners in the family. However, one of the differences found was with organization size, whereas small organizations, with 100 employees or less rose from 40% in 2006 to 47% in 2010. Another key point was that 53.5% of the sample was from the top five sectors (i.e., professional and related services with 16.8%, retail trade with

12.3%, public administration with 8.7%, business and repair services with 7.9%, and finance, insurance, and real estate with 7.8%). The rest of 23 sectors ranged from 0.5% to 5.6%.

In conclusion, the study offered several contributions to the body of knowledge on the topic of employee job satisfaction. First, the results of the study demonstrated that, at the industry level, there were relationships between EJS and two of 13 Herzberg's (1959) motivation-hygiene factors, while controlling for the number of earners in the family (*earnrsgp*), organization size (*numorggp*), and work types (*wrktypegp*). Two factors were recognition (*recogn*), and advancement (*advanc*). Both recognition and advancement were motivation factors. Moreover, the full path structural Model 3 showed another factor (i.e., policy and administration), which had no direct influence on EJS. This finding confirmed Herzberg's (1959) initial notion that hygiene factors had no relationship to satisfaction, as well as motivation factors had no relationship to dissatisfaction. In addition, the study's full path Model 3 suggested that there were interplays between factors, such as between policy and administrative, and to both recognition and advancement. Nevertheless, this contribution addressed three knowledge gaps (i.e., causes, results, measurement methods), identified by Saari and Judge (2004). Another contribution included the findings of economic impacts, especially the impacts of 2008 Great Recession.

Regarding the impacts of 2008 Great Recession, the study contributed insights to the economic impacts in the workplace that influenced employee job satisfaction. According to Latham and Braun (2011), recent 2008 Great Recession caused adversarial effects across cultural and socioeconomic environments that may change employee's attitudes. The study confirmed that, at the industry level, there was the difference between employee perceptions of EJS in the US during the economic expansion phase (2010) and the economic boom prior to the Great

Recession (2006). Specifically, there was a statistically significant shift in attitude from before the 2008 recession (i.e., 2006) to after the 2008 recession (i.e., 2010). In 2006, recognition was dominant, with higher loadings than advancement (.50 vs. .14) for recognition and advancement, respectively. However, in 2010, recognition loading decreased to .37 while advancement increased to .30. This shift suggested that at the positive economic recovery phase, employees preferred tangible advancements (e.g., the opportunity to develop, promotion), over a comfortable environment (e.g., respect, trust, etc.). In contrast, during the established economic boom, such as in 2006, employees tended to be satisfied with intangible environment and less with promotion or opportunities for developments. However, these effects were related to work type and not with other socioeconomic influences, such as earners in the family and organization size.

The study found that work type effected EJS, while socioeconomic factors (i.e., earners in the family, organization size, and work types) had no or little effects. The study concluded that work type had slight influence on EJS (loading of .04, $p < .05$). There were no effects of family earners or organization size based on the full path structural Model 3 using GSS (2012) data. Investigation of the data distribution ratio found that the increase of small organizations with less than 100 employees was approximately seven percent; it rose from 40% in 2006 to 47% in 2010. This change attributed no influence of organization size. Finally, the study rejected both null hypotheses and accepted both alternate hypotheses. Several limitations were identifiable from the study; these limitations do not support generalization of the findings due to lopsided distribution of the industry sector data, single-indicator latent variable utilization, and the aggregated data set. Several implications were identified in theoretical, scientific, and practical areas. Three recommendations for future research include (a) scaling down the number of factors for better

modeling, (b) scaling the sample to the top five industries to search for clarity about the differences among these sectors, and (c) investigating causes of the increased percentage in small organization prior and post-recession. In general, the study demonstrated and concluded that workplace environment influences employee job satisfaction.

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APPENDIX A

Bivariate Correlations of 2006 and 2010 combined

Item	1	2	3	4	5	6	7	8
1 satjob1_mean	1							
2 prodctivgd_mean	.410**	1						
3 wkpraisegd_mean	.324**	.247**	1					
4 workfastgd_r_mean	.085**	.023	.021	1				
5 overworkgd_r_mean	.115**	.111**	.055*	.233**	1			
6 toofewwkgd_r_mean	.161**	.181**	.152**	.150**	.291**	1		
7 workdiffgd_mean	.240**	.183**	.165**	-.166**	-.067*	-.052*	1	
8 knowwhatgd_mean	.218**	.375**	.144**	-.051*	.187**	.110**	.140**	1
9 wkdecidegd_mean	.236**	.184**	.201**	-.087**	-.019	-.087**	.243**	.042
10 hlpequipgd_mean	.297**	.335**	.268**	.099**	.269**	.321**	.040	.190**
11 haveinfogd_mean	.253**	.291**	.232**	.063*	.189**	.225**	.070**	.255**
12 wkfreedmgd_mean	.310**	.261**	.271**	.090**	.081**	.095**	.176**	.118**
13 condemndgd_mean	.273**	.304**	.231**	.133**	.195**	.219**	.009	.212**
14 wrktimegd_mean	.216**	.240**	.173**	.215**	.397**	.351**	-.054*	.211**
15 promteokgd_mean	.282**	.186**	.265**	-.054*	.015	.062*	.178**	.051
16 promtefrgd_mean	.382**	.285**	.353**	.033	.059*	.185**	.180**	.102**
17 learnnewgd_mean	.191**	.143**	.128**	-.215**	-.127**	-.099**	.455**	.036
18 myskillsgd_mean	.445**	.437**	.203**	-.065*	.031	.079**	.353**	.352**
19 opdevelgd_mean	.435**	.358**	.299**	-.024	-.004	.126**	.338**	.104**
20 fairearngd_r_mean	.379**	.295**	.369**	.045	.111**	.114**	.146**	.131**
21 fringeokgd_mean	.350**	.281**	.402**	.037	.126**	.148**	.126**	.160**
22 teamsafegd_mean	.323**	.409**	.264**	-.007	.058*	.151**	.221**	.241**
23 safefrstgd_mean	.444**	.558**	.303**	.069**	.174**	.323**	.127**	.327**
24 safetywkgd_mean	.437**	.410**	.359**	.015	.117**	.157**	.236**	.362**
25 manvsempgd_mean	.448**	.489**	.391**	.041	.125**	.273**	.195**	.308**
26 cowrkhlpd_mean	.344**	.286**	.358**	-.003	.047	.162**	.198**	.155**
27 cowrkintgd_mean	.317**	.252**	.268**	.084**	.107**	.182**	.139**	.137**
28 trustmangd_mean	.438**	.402**	.398**	.065*	.101**	.266**	.119**	.210**
29 respectgd_mean	.314**	.141**	.183**	.045	-.028	.008	.162**	.020
30 suphelpgd_mean	-.022	-.026	.050	-.003	.067**	.069**	-.045	.022
31 supcaresgd_mean	.332**	.399**	.258**	.003	.086**	.066*	.208**	.248**
32 wksmoothgd_mean	.280**	.398**	.204**	.000	.076**	.098**	.210**	.282**
33 safehlthgd_mean	.335**	.457**	.278**	.016	.080**	.123**	.226**	.269**
34 famvswkgd_r_mean	.187**	.137**	.144**	.167**	.219**	.144**	.044	.078**
35 wkvsfamgd_r_mean	.104**	.124**	.049	.242**	.278**	.202**	-.080**	.064*
36 famwkoffgd_mean	.059*	.041	.018	.147**	.138**	.121**	-.078**	.017
37 jobsecokgd_mean	.358**	.185**	.226**	.059*	.029	.071**	.079**	.122**

Bivariate Correlations of 2006 and 2010 combined (continued)

Item	9	10	11	12	13	14	15	16
9 wkdecidegd_mean	1							
10 hlpequipgd_mean	.118**	1						
11 haveinfo5d_mean	.105**	.474**	1					
12 wkfreedmgd_mean	.204**	.269**	.290**	1				
13 condemndgd_mean	.067*	.323**	.288**	.326**	1			
14 wrktimegd_mean	-.033	.437**	.329**	.188**	.378**	1		
15 promteokgd_mean	.174**	.199**	.120**	.157**	.136**	.107**	1	
16 promtefrgd_mean	.194**	.372**	.271**	.273**	.296**	.240**	.438**	1
17 learnnewgd_mean	.287**	.063*	-.020	.163**	-.056*	-.138**	.217**	.170**
18 myskillsgd_mean	.245**	.184**	.165**	.309**	.148**	.090**	.177**	.220**
19 opdevelgd_mean	.286**	.306**	.212**	.419**	.237**	.108**	.395**	.408**
20 fairearngd_r_mean	.227**	.333**	.253**	.290**	.289**	.223**	.238**	.459**
21 fringeokgd_mean	.212**	.367**	.305**	.212**	.273**	.271**	.267**	.420**
22 teamsafegd_mean	.182**	.297**	.191**	.206**	.168**	.161**	.205**	.350**
23 safe1stgd_mean	.141**	.457**	.357**	.303**	.335**	.328**	.239**	.428**
24 safetywkgd_mean	.237**	.330**	.247**	.336**	.267**	.172**	.219**	.356**
25 manvsempgd_mean	.182**	.396**	.329**	.317**	.331**	.238**	.223**	.459**
26 cowrkhlpgd_mean	.254**	.292**	.259**	.310**	.283**	.218**	.227**	.444**
27 cowrkintgd_mean	.158**	.311**	.212**	.195**	.268**	.295**	.186**	.342**
28 trustmangd_mean	.153**	.428**	.314**	.329**	.324**	.288**	.242**	.487**
29 respectgd_mean	.201**	.157**	.114**	.163**	.180**	.039	.328**	.345**
30 suphelpgd_mean	-.035	.013	-.017	-.037	.022	.050	.002	.002
31 supcaresgd_mean	.201**	.292**	.175**	.223**	.168**	.165**	.225**	.343**
32 wksmoothgd_mean	.180**	.259**	.210**	.188**	.183**	.157**	.174**	.281**
33 safehlthgd_mean	.207**	.347**	.206**	.213**	.191**	.199**	.255**	.398**
34 famvswkgd_r_mean	.085**	.134**	.090**	.235**	.194**	.192**	.116**	.156**
35 wkvsfamgd_r_mean	-.134**	.118**	.137**	.016	.152**	.271**	.019	.053*
36 famwkoffgd_mean	-.130**	.051	.074**	-.008	.052*	.135**	.044	-.005
37 jobsecokgd_mean	.154**	.218**	.218**	.252**	.245**	.169**	.235**	.377**

Bivariate Correlations of 2006 and 2010 combined (continued)

Item	17	18	19	20	21	22	23	24	25
17 learnnewgd_mean	1								
18 myskillsgd_mean	.367**	1							
19 opdevelgd_mean	.363**	.425**	1						
20 fairearngd_r_mean	.150**	.240**	.283**	1					
21 fringeokgd_mean	.112**	.226**	.277**	.572**	1				
22 teamsafegd_mean	.201**	.323**	.300**	.359**	.296**	1			
23 safevrstgd_mean	.111**	.352**	.363**	.376**	.350**	.461**	1		
24 safetywkgd_mean	.253**	.437**	.386**	.365**	.342**	.457**	.495**	1	
25 manvsempgd_mean	.178**	.390**	.393**	.469**	.433**	.454**	.643**	.581**	1
26 cowrkhlpgd_mean	.246**	.273**	.368**	.436**	.372**	.310**	.325**	.347**	.384**
27 cowrkintgd_mean	.160**	.220**	.216**	.374**	.368**	.279**	.303**	.301**	.310**
28 trustmangd_mean	.106**	.279**	.363**	.449**	.436**	.393**	.561**	.480**	.611**
29 respectgd_mean	.198**	.177**	.260**	.282**	.250**	.197**	.189**	.166**	.183**
30 suphelpgd_mean	-.027	-.021	-.063*	.058*	.032	.027	.004	-.042	-.011
31 supcaresgd_mean	.217**	.320**	.332**	.333**	.320**	.637**	.421**	.404**	.463**
32 wksmoothgd_mean	.185**	.311**	.283**	.281**	.244**	.617**	.404**	.387**	.433**
33 safehlthgd_mean	.247**	.333**	.346**	.343**	.335**	.710**	.482**	.454**	.491**
34 famvswkgd_r_mean	.012	.117**	.136**	.209**	.194**	.142**	.150**	.193**	.156**
35 wkvsfamgd_r_mean	-.176**	.007	-.037	.027	.058*	.040	.116**	.042	.087**
36 famwkoffgd_mean	-.142**	-.027	-.080**	-.015	-.018	.001	.036	.020	-.005
37 jobsecokgd_mean	.064*	.165**	.234**	.337**	.349**	.213**	.254**	.270**	.304**

Bivariate Correlations of 2006 and 2010 combined (continued)

Item	26	27	28	29	30	31	32
26 cowrkhlpgd_mean	1						
27 cowrkintgd_mean	.396**	1					
28 trustmangd_mean	.371**	.337**	1				
29 respectgd_mean	.185**	.214**	.151**	1			
30 suphelpgd_mean	.020	.058*	.015	-.019	1		
31 supcaresgd_mean	.256**	.220**	.378**	.233**	-.025	1	
32 wksmoothgd_mean	.220**	.203**	.345**	.186**	.011	.669**	1
33 safehlthgd_mean	.311**	.281**	.438**	.217**	-.019	.707**	.695**
34 famvswkgd_r_mean	.147**	.148**	.198**	.158**	-.008	.135**	.110**
35 wkvsfamgd_r_mean	.014	.086**	.102**	-.041	.045	.019	.036
36 famwkoffgd_mean	-.039	.045	.045	-.026	.048	-.022	.002
37 jobsecokgd_mean	.296**	.289**	.313**	.326**	-.029	.220**	.161**

Bivariate Correlations of 2006 and 2010 combined (continued)

Item	33	34	35	36	37
33 safehlthgd_mean	1				
34 famvswkgd_r_mean	.118**	1			
35 wkvsfamgd_r_mean	.032	.329**	1		
36 famwkoffgd_mean	-.003	.105**	.485**	1	
37 jobsecokgd_mean	.215**	.132**	.036	.032	1

Note. N = 1466

* $p < .05$, ** $p < .01$