

Multi-Level Cultures and Public Employee Work Motivation: Focusing on Executive Agency Policy in South Korea

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ABSTRACT

In contrast to the decline of New Public Management (NPM) in many countries, reports on executive agency policy in Korea point to its success. To explore why it has been successful, this study investigates the relationship between multi-level culture and work motivation (i.e., job satisfaction and organizational commitment). This study develops a multi-level framework and examines direct, moderating, and varying contextual effects in the relationships among organizational cultures (clan, adhocracy, market, and hierarchy), individual perceptions of organizational culture, and work motivation, using survey data from 1,535 public employees in 46 executive agencies in Korea and hierarchical linear modeling (HLM). Key findings include, first, clan, adhocracy, market, and hierarchy organizational cultures all have positive associations with organizational commitment; however, individual perceptions of organizational market and hierarchy cultures are negatively related to organizational commitment and job satisfaction. Second, market and hierarchy cultures have positive varying contextual effects in relationships with organizational commitment. Third, organizational culture has more explanatory power than individual perceptions of organizational culture. Finally, efforts to develop and sustain balanced organizational culture evidently led to the success of the executive agency system in Korea. The findings support the argument that NPM reforms need to be examined through the lens of a multi-level culture and balanced culture perspective.

DEDICATION

To my father, mother, younger brother, and late grandmother

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CHAPTER 1 Introduction

The broad diffusion of New Public Management (NPM) reforms and accumulating evidence of their impact have shifted scholars' attention from probing specific NPM initiatives to evaluating them more comprehensively (e.g., Dunleavy, Margetts, Bastow, & Tinkler, 2006; Moynihan et al., 2011).¹ Dunleavy et al. (2006) claim that except for some reform strategies such as performance measurement and performance incentives, key parts of NPM ideas stalled and even reversed course in the United States, United Kingdom, Canada, Australia, New Zealand, and the Netherlands. The scholars point to the rollback of the executive agency system as evidence announcing the demise of NPM reforms (Elston, 2013). An executive agency system is a main part of NPM reforms, and it might be the most common reform worldwide (Moynihan, 2006).

In contrast to the picture that Dunleavy et al. (2006) paint, Korean government reports indicate that its executive agency system has led to improvements in the quality of public service and customer satisfaction (MOSPA, 2008, 2009). In addition, the government continuously develops the system through an executive agency activation plan (MOSPA, 2014). The Korean government launched an executive agency system based on the British model by enacting the Executive Agency Law (#5711) on January

¹ NPM reforms were based on the belief that private sector managerial strategies would make public organizations more efficient, effective, and accountable in the delivery of public services (Gore, 1993; Osborne & Gaebler, 1992). Based on principles such as 'structural disaggregation', 'performance contracting', and 'incentivitization', NPM initiatives promote substantial changes in organizational structures and managerial practices (e.g., abolishing merit systems and contracting out public services) (Dunleavy et al., 2006).

19th, 1999, after the International Monetary Fund (IMF) recommended government reforms to overcome the monetary crisis in 1997. The executive agency system began with 10 agencies, including the National Medical Center, the Driver's License Agency, and the National Theater. By 2008, 46 agencies, organizations legally separated from the central ministries, provided public services independently.²

This unexpectedly successful organizational change implies that it is necessary to focus on organizational culture for two reasons. First, according to Van Wart (1995), is that a quick and aggressive adoption of NPM reform should have resulted in overall policy failures because of potential cultural mismatches with public organizations. NPM reform with its emphasis on managerial entrepreneurship and competition can conflict with agencies' traditional reliance on bureaucratic centralization and formalization.

Second, the macro culture approach, which emphasizes the dominant influence of societal level culture, suggests that NPM reforms based on individualistic characteristics (Fox & Miller, 1995; Maesschalck, 2004) would encounter difficulties in achieving positive results owing to the collectivist nature of Korean society (Hofstede, 1983).³ Yet, Seligson (2002) warns that reliance on such explanations may fail to successfully predict the outcome of reforms because of the possibility of committing an ecological fallacy. That is, without considering the distinctive and significant roles of organizational activity, generalizing cultural effects from the macro level of society to lower level

² Further description appears below.

³ According to the cultural typology of Hofstede (1983), Korean has a culture of collectivism. Korean society stresses the virtues of interdependence, cohesive groups, and collective interests rooted in Confucianism.

effects can lead to erroneous conclusions about the failure or success of organizational initiatives.

To capture the nuances associated with organizational impacts on reform efforts, it is necessary to focus on the “meso” level of the organization rather than take a macro cultural approach (House, Rousseau, & Thomas-Hunt, 1995). Since organizational culture (the meso level) reflects the identity of organizations and employees, several studies point to managing organizational culture as key for positive organizational change (Cameron & Quinn, 2011; Schein, 2010). Leveraging these insights is essential to explaining the success of the implementation of the executive agency system in Korea. Studies exploring the role of organizational culture in NPM reforms have recognized that reforms advocating institutional (e.g., system and program) change cannot guarantee the success of reforms or improvements in the quality of public service (Dull, 2009; Khademian, 2002; Yang & Kassekert, 2010). The Barnard-Simon tradition of organizational theory, emphasizing *zone of acceptance*, suggests that unless subordinates accept the NPM reforms as being within the zone, the reforms will fail (Dull, 2009). The extent of acceptance depends on organizations and their members’ perceptions of how a given organizational changes pertains to their identity and motivation (Rousseau & Tijoriwala, 1999). Thus, without considering how the reforms are perceived by organizational members or managed by organizations through the lenses of culture and motivation, it is hard for policy makers and public administrators to understand the impact of those changes.

Previous studies have not fully considered a multi-level approach. Such an approach emphasizes that both organizational and individual factors should be considered to more completely comprehend the dynamic relationships between organizational characteristics and individual attitudes and behavior in complex organizational settings (Hofstede, Bond, & Luk, 1993; Kozlowski & Klein, 2000; Marsh et al., 2012; Rousseau, 1985). A single level approach tends to overlook that individuals are embedded in organizations, and thus it cannot consider either cross-level interactions between different levels of culture or cross-level cultural effects on employees (Kozlowski & Klein, 2000; Rousseau, 2011).⁴ Adopting a multi-level culture approach, this study investigates the relationships among organizational culture, individual perceptions of organizational culture, and work motivation (i.e., job satisfaction and organizational commitment) in the Korean executive agency system.

1.1. PURPOSE OF THE STUDY

The main purpose of this study is to better understand why the executive agency system in Korea has been successful, at least according to Korean government reports. The study examines direct, moderating, and contextual effects in the relationships among

⁴ More broadly, a single-level approach cannot address the macro/micro theory dilemma (Rousseau, 2011). This dilemma refers to the tendencies of sociologists and policy/management scientists to overlook dynamics in individual interactions, while psychologists generally have paid limited attention to the role of social contexts related to individual activity.

organizational culture,⁵ individual perceptions of organizational culture, and work motivation.

The study differs from previous work in three ways. First, it seeks to contribute to organizational culture and motivation scholarship by emphasizing the need for consideration of *level issues*.⁶ Level issues indicate that different level culture constructs must be aligned with appropriate interpretations of data structure and multi-level methods (Kozlowski & Klein, 2000; Rousseau, 1985, 2011). Understanding level issues can provide several benefits. It contributes to a more exact comprehension of complex organizational phenomena by examining different levels of culture simultaneously, exploring dynamic cross-level interactions, and avoiding a number of fallacious interpretations (Kozlowski & Klein, 2000; Rousseau, 1985, 2011). Several studies emphasize the need to juxtapose organizational culture and individual perceptions of organizational culture in the same research framework to explore the possibility of

⁵ I use the term “organizational culture” to refer generically to organizational culture aggregated from individual perceptions of organizational culture. I consider the aggregation to tap “actual” organizational culture. An aggregation strategy is widely used to measure organizational culture from individual perceptions of organizational culture in diverse disciplines such as sociology, public policy, and education (Kozlowski & Klein, 2000; Marsh et al., 2012). In addition, this study uses diverse statistical ways to measure actual organizational culture within and between organizations. Specific information appears below.

⁶ Level issues include theory, measurement, and analysis (Rousseau, 1985): (1) the level of theory refers to the level (e.g., individual, sub-unit, organization) at which a construct or process is expected to operate or exist, (2) the level of measurement represents the level at “which data are directly attached (e.g., self-report data are generally individual level and aggregated self-report data are organizational level)” (Rousseau, 1985, p. 4), (3) the level of analysis refers to “the treatment of the data during statistical procedures” (Klein, Dansereau, & Hall, 1994, p. 198).

distinguishing the effects of the two on work motivation (Chao, 2000; Hofstede et al., 1993; Rousseau, 1985).⁷

Another benefit is that since organizational culture is one of the strong contextual factors coupling employees to organizations, it can either strengthen or weaken ties between individual level variables. It can have both moderating and contextual effects on the relationship between individual perceptions of organizational culture and work motivation (Kozlowski, Brown, Weissbein, Cannon-Bowers, & Salas, 2000; Rousseau, 1985; Weick, 1995). The final benefit is that public organization and management studies generally have treated individual perceptions of organizational culture as organizational culture itself; that is, they have measured organizational culture at the individual level to determine culture's impact on work motivation (e.g., Moynihan & Pandey, 2007b; Yang & Kassekert, 2010). Results reported in such studies may not have avoided *cross-level*, *contextual*, or *misspecification fallacies* (Rousseau, 1985).⁸

Second, this study contributes to the assessment of NPM reforms by confining organizational culture and individual perceptions of organizational culture to individuals' perceptions (i.e., what they see as actual). Rather than examining culture rooted in their

⁷ For example, Marsh et al. (2012) report "a well-documented finding in self-concept research is the big-fish-little-pond effect whereby individual student (L1) achievement has a *positive* effect on academic self-concept (the brighter I am, the better my academic self-concept), but classroom-average (L2) achievement has a *negative* effect on academic self-concept (the brighter my classmates are, the lower my academic self-concept) after controlling for individual achievement" (p.108).

⁸ The cross-level fallacy refers to a false generalization from individual level findings to the organization level or vice versa and includes both the ecological fallacy and the atomistic fallacy (Rousseau, 1985). The contextual fallacy is a "failure to specify the effects that social or physical settings have on the relationship between variables" (Rousseau, 1985, p. 9) and occurs when research does not consider cross level interactions. Finally, the misspecification fallacy happens "when we attribute an observed relationship to a level other than the actual behavioral or responsive unit" (Rousseau, 1985, p. 5).

preferred culture (i.e., what they desire), focusing on an individual's perceived culture is important when evaluating the effects of NPM reforms on culture in organizations. Preferred culture is widely used to test how well individuals fit organizations and to diagnose organizational management problems (Cameron & Quinn, 2011; Kristof, 1996)⁹; however, an individual's preferred culture tends to be systematically biased, because individual affection or predisposition strongly influences their preferred culture (Markus & Kitayama, 1991). Thus, studying an individual's perceived culture and organizational culture aggregated by individual perceptions of organizational culture makes it possible to consider the effects of executive agencies on culture more objectively than using preferred culture.

Third, this study contributes to public organization and management scholarship by investigating diverse types of culture and work motivation in the context of NPM reforms. As scholars have recognized, NPM reforms can dramatically change public organizations' culture (Van Wart, 1995). Many studies have suggested the potential importance of a balanced culture rather than a strong culture perspective¹⁰ in studying the relationships among several types of culture and organizational innovation (e.g., Cameron & Quinn, 2011; Quinn, 1988; Yilmaz & Ergun, 2008; Zhang, Li, & Wei,

⁹ In organizational and management studies, fit theory assumes that employee motivation, attitudes, and other individual level outcomes result from the relationships between the person and the organization (S. Kim, 2012; O'Reilly, Chatman, & Caldwell, 1991). For example, when individual personal values or cultures are similar to organization values or cultures, individuals tend to perform better.

¹⁰ In contrast to a balanced culture perspective that emphasizes cultural diversity and organizational learning, proponents of the importance of a single strong culture as key to performance (e.g., Denison, 1984) take a different view of the role of culture. They claim that a unitary strong culture increase organizational performance by aligning employees' goals with management goals.

2008).¹¹ Moreover, looking at balances among cultures emphasizes examining the relationship between culture and work motivation as a way of refining policy and management strategies, aligning competing values, and producing better performance (Park & Rainey, 2008; Perry & Hondeghem, 2008; Rainey, 2009). Although some studies have partially investigated such relationships (e.g., Moynihan & Pandey, 2007a, 2007b), little attention has been paid to *how* diverse types of culture at the organizational and individual levels are related to work motivation in public service delivery agencies.

Fourth, this study contributes methodologically to a multi-level approach by examining complex organizational phenomena (e.g., nested structure of organizations, employee embeddedness in organizations) using hierarchical linear models (HLM). It is widely acknowledged that organizational culture and individual perceptions of organizational culture operate at different levels of theory and of measurement (Hofstede et al., 1993; Kozlowski & Klein, 2000; Schneider, Ehrhart, & Macey, 2013). They interact with each other in diverse ways, in part because policy makers and organizational leaders often use wide-ranging practices to address organizational problems. Employees also respond to practices with sense-making. HLM models reflect the complex relationships stemming from interdependence between different levels (Rousseau, 2011; Shin & Raudenbush, 2010). This study models work motivation as a function of both organizational and individual perceptions of organizational culture, and allows

¹¹ In the business sector, total quality management (TQM) or downsizing was adopted as the main strategy to improve organizational effectiveness. Extensive evidence suggests that neither TQM nor downsizing produced successful results when culture changes did not accompany organizational innovations (Cameron & Quinn, 2011). In the culture change process, creating harmony among different types of culture is a significant organizational change strategy.

organizational culture to moderate and have contextual effects on the relationship between individual perceptions of organizational culture and work motivation.

This study empirically tests direct, moderating, and contextual effects in the relationships among four types of organizational culture (clan, adhocracy, market, and hierarchy), individual perceptions of organizational culture, and work motivation tapped by job satisfaction and organizational commitment, using survey data from 1,535 public employees in 46 Korean executive agencies. The data were collected in 2008. Hierarchical linear modeling was used to analyze these data, reflecting a nested structure of organizational culture and individual perceptions of organizational culture within and between executive agencies.

1.2. CASE SELECTION AND JUSTIFICATION

1.2.1. Case selection

This study focuses on the executive agency system in Korea. As mentioned at the outset, adoption and implementation of the executive agency system and its general positive results have differed from other countries.

In general, administrative reforms are innovations mainly driven by domestic political actors to manage inconsistencies between present conditions and preferred goals based on the actors' political decision-making. However, in this case, reforms were coercively and rapidly put in place following International Monetary Fund (IMF) guidelines because of the Korean financial crisis in 1997 (K. Kim, 2008; N. Kim & Cho,

2015). The financial crisis happened due to a severe foreign exchange shortage in South Korea. The executive agency system is based on three principles: (1) structural disaggregation (e.g., separating policy development and execution), (2) performance contracting (e.g., achievement/resource contracts, performance reporting), and (3) deregulation (e.g., unit accountability and managerial autonomy). The underlying assumptions are that increasing managerial autonomy and competition with performance contracts will produce better agency performance.

The Executive Agency Law was enacted in 1999. At the beginning, the Korean government decided that the system should be run under a strong administrative authority. Since the business-oriented strategies did not fit easily with the existing hierarchical government system or the hierarchical and collectivist government culture, the initial government expectation was that the implanted system would not work well. In this context, the executive agency system was created following a “hiving-in”¹² rather than a “hiving-off” strategy (N. Kim & Cho, 2015, p. 220).

Yet, the centralization legacy of agencification evidently works in Korea. For instance, agencies have three masters: the Ministry of Public Administration and Security, the Ministry of Strategic Planning and Finance, and central ministries for each agency. Both the central agency and the Ministry of Public Administration and Security evaluate performance (K. Kim, 2008).

¹² In contrast to “hiving-out”, a “hiving-in” strategy means that executive agencies have to be controlled by the central government with strong regulations, and employees legally remain public officers.

After the law passed, however, critical arguments have focused on how to improve autonomy in the system. Increasing autonomy is one of the key theoretical pillars undergirding the NPM reforms. As scholars argue (Moynihan, 2010; Moynihan & Pandey, 2010; Park & Rainey, 2008), autonomy can have critical leverage for the improvement of organization members' intrinsic motivation and performance. Several scholars questioned whether the system could be a success, when agency heads or employees did not have sufficient delegated autonomy or discretion over decision-making and implementation.

The Executive Agency Law of 1999 was revised more than six times and administrative rules changed 50 times in 10 years. One of the major points of such changes was to increase managerial autonomy in executive agencies by giving greater discretion to agency heads and managers (e.g., in budget allocations, performance rewards, and personnel management; K. Kim, 2008; N. Kim & Cho, 2015). In addition, strategies for performance measurement explicitly included morale and autonomy (making up around 20% of overall evaluation scores),¹³ which are considered important to run public agencies effectively and to improve organizational performance (Cho & Ringquist, 2011; Moynihan, 2010; Park & Rainey, 2008). In 2014 (MOSPA, 2014), executive agencies provided differing types of public service (e.g., statistics, protection of intellectual property, research, education and training, culture, and facility maintenance) in diverse regions.

¹³ Evaluations are based on five standards: a. proper goal setting (25%), b. organization self-evaluation (10%), c. organization and human resource management (20%), d. finance, accounting, and budget soundness (around 10%), e. administration efficiency and customer service improvement (around 25%).

1.2.1. Justification for case selection

I selected the Korean executive agency case for two main reasons. First, it seemed quite possible to investigate from an organization culture perspective. The quick and aggressive adoption and implementation of NPM reforms in Korea could have led to dysfunctional results due to cultural resistance (Van Wart, 1995); however, the evaluations were mostly positive (N. Kim & Cho, 2015; MOSPA, 2008, 2009, 2014). Several scholars emphasize that the success of new initiatives depends not on societal level cultural differences but on organizational activities (House et al., 1995; Van Wart, 1995). In particular, managing culture and worker motivation are key for effective organizational performance in public organizations (Goodsell, 2010; Quinn, 1988). Thus, exploring the case through the lenses of culture and the relationship between culture and work motivation may reveal why the Korean case has differed from other countries' experiences and why it was inconsistent with expectations.

Second, the case is appropriate for applying a multi-level approach theoretically and methodologically. The policy and organization settings (e.g., executive agencies have different tasks and operate in diverse geographic regions, and employees develop individual perceptions of organizational culture through sense-making within and between agencies) permit cultural variations within and between executive agencies at the organizational and individual levels. The central government annually evaluates the effectiveness and performance of executive agencies and reports the results to the public (N. Kim & Cho, 2015; MOSPA, 2009). The central government uses the results to

develop policy strategies and to regulate executive agencies. It regularly selects and publicizes good practices. In this context, each agency diagnoses and analyzes its strengths, weaknesses, opportunities, and threats, yielding diverse ways for responding to central government directions and cultivating organizational cultures. Moreover, leaders and managers interact with each other through diverse mechanisms such as sharing know-how and attending regular workshops (MOSPA, 2011). In this situation, employees are embedded in the executive agency system, and their reported job satisfaction and organizational commitment may well reflect their perceptions of organizational culture and general organizational culture within and between executive agencies. Thus, I expected that data from the executive agencies would be suitable for examining direct, moderating, and contextual effects in the relationships between organizational culture, individual perceptions of organizational culture, and work motivation, while controlling for several individual, organizational, and environmental factors.

1.3. CHAPTER SUMMARY

This chapter introduced NPM, patterns in its adoption and implementation, and the executive agency system in Korea. It also addressed the benefits of adopting a multi-level culture approach in exploring why agencification has succeeded in Korea. The chapter clarified the study's purpose and, by discussing level issues, the importance of focusing on individuals' perceived culture and the need to examine diverse types of

culture using HLM analysis. In addition, it introduced the reasons for focusing on Korea and briefly described the case.

Chapter 2 overviews relevant scholarship and introduces the conceptual framework the study employed. In particular, it focuses on the concepts of the interdependent self, the individual within group perspective, and moderating and contextual effects. In addition, the chapter introduces several independent, dependent, and control variables.

Chapter 3 introduces the study's hypotheses about direct, moderating, and varying contextual effects on job satisfaction and organizational commitment. In addition, it suggests hypotheses about the possible effects of tasks and regional context on variation in cultural strength.

Chapter 4 details the research design for examining the relationships among culture and worker motivation in Korean executive agencies. It introduces the survey the study relied on. It discusses the items to tap key variables, describes how the data were analyzed and examines the assumptions of HLM analysis. The chapter concludes by discussing the study's limitations.

Chapter 5 reports the findings of testing the hypotheses using HLM analysis and t-tests.

Chapter 6 presents conclusions and examines several theoretical, methodological, and practical implications of the study for public organization and management theory and for NPM reforms. It also explores directions for future study.

CHAPTER 2 Literature Review and Conceptual Framework

This chapter contains a primer on conceptual and theoretical issues and the conceptual framework. Based on scholarship on the foundational concepts and issues of the multi-level approach, I introduce a conceptual framework integrating direct, moderating, and contextual effects of culture. I also discuss several control factors in relationships between culture and work motivation.

2.1. A PRIMER ON CONCEPTUAL AND THEORETICAL ISSUES

This study integrates insights from extant research to build a conceptual framework of multi-level cultural interaction that envisions an individual as being an *interdependent self*. Organizations are understood to operate according to an *individuals within groups* perspective, members of organizations have heterogeneous individual perceptions of organizational culture and organizational culture also varies across organizations.

First, it is important to clarify the character of individual perceptions of organizational culture by differentiating between two concepts, the interdependent self and the independent self (Kitayama, 2002; Markus & Kitayama, 1991; 2010; see Table 1). The interdependent self focuses on individual sociality, and it emphasizes how individuals as employees change their perceptions of a shared organizational culture depending on cultures at higher levels of analysis. Organization and management studies

in this line assume that individuals are cognitively complex, and they develop their cognitive abilities through interacting and learning in organizations (Ancona, 2012; Goodsell, 1989; Morgan, 2006).¹⁴ These studies tend to use surveys, which allow employees to refer to several organizational activities and evaluate competing culture types (e.g., Cameron & Quinn, 2011; Quinn, 1988).

Table 1 Differences between the Independent Self and the Interdependent Self

Construal of Self	Independent	Interdependent
Definition	Separate from social context	Connected with social context
Structure	Stable, unitary	Flexible, variable
Tasks	Be unique Express self Realize internal attributes Promote own goals Realize inner self	Belong Occupy one's proper place Engage in appropriate action Promote others' goals Read other's minds
Self-esteem	Express self, validate internal attributes	Adjust, restrain self, maintain harmony with social context
Reference point in analysis	Reference point: "I"	Reference shifts from "I" to "Other people" or "Group" ¹⁵

Note: Adapted from Markus and Kitayama (1991, 2010)

¹⁴ Cognitive complexity refers to the ability to understand and address complex organizational problems from multiple perspectives (Ancona, 2012; Morgan, 2006; Streufert & Swezey, 1986). Streufert and his colleagues carried out several empirical studies to examine the effects of cognitive complexity. They found that cognitive complexity has positive effects on "more moderated attitudes, openness to disconfirming information and adjustment in thinking, more effective discernment of the intents and strategies of others, better interrelationship of decisions, more appropriate strategy development, and more flexibility in consideration of distant goals" (Quinn, 1988, p. 5).

¹⁵ This type of analyses is rooted in Mead's (1934) work : "It is in the form of the generalized other ... that the community exercises control over the conduct of its individual members" (p. 155).

In contrast, the independent self concentrates on an individual's unique characteristics separated from general social contexts. Related studies investigate how one specific type of culture held by individuals responds to stimuli such as policies or program enforcement and tend to employ experimental designs (e.g., Lima & Castro, 2005; Lockhart, 2011; Marris, Langford, & O'Riordan, 1998).

Second, the relationship between individual perceptions of organizational culture and organizational culture within organizations can be understood using two perspectives: the *group as whole* or *individuals within groups* (Klein et al., 1994). In the first approach, the organization is the basic unit of analysis. It assumes that group members are guided by organizational level factors (e.g., task, leadership, and organizational culture). Isomorphic power can dominate organizational phenomena within organizations. Thus, organizational culture reflects individual perceptions of organizational culture, and studies need not test for consensus or agreement among individual perceptions of organizational culture to reveal organizational culture using aggregation (Klein, Conn, Smith, & Sorra, 2001). In contrast, the "individuals within groups" approach regards organizational culture and individual perceptions of organizational culture as distinct levels of theory, measurement, and analysis (Klein et al., 1994). Consistent with the idea of an "interdependent self", individuals may perceive the same organizational culture differently, because employees develop individual perceptions of organization culture through their own evaluations (Kwantes & Boglarsky, 2007; Weick, 1995). The variations of individual perceptions of organizational culture

can be expressed by *relative position* (i.e., $\text{relative position} = \bar{X} - X_i$: individual perceptions of organizational culture) (Hofmann & Gavin, 1998; Rousseau, 1985).¹⁶ For aggregation purposes, this approach posits that identifying levels of agreement among employees' individual perceptions of organizational culture is a prerequisite to measuring organizational culture (Klein et al., 2001).

Third, from the “individuals within groups” perspective, employees in organizations are usually interdependent (Weick, 1995; Weick, Sutcliffe, & Obstfeld, 2005). What influences one employee also may affect other employees, either directly or indirectly (Rousseau, 1985). Firebaugh (1980) has named two different functions describing direct and indirect effects, *comparative* and *normative*. Comparative refers to moderating effects: “the direct effects of group or unit level characteristics on individual level relationships” (Rousseau, 1985, p. 9). The logic is that organizational level variables affect individual level independent variables and change the extent of the association between independent variables and dependent variables (Hofmann & Gavin, 1998). On the other hand, normative is concerned with contextual effects: “individual responses which involve the relationship of individual to a reference group” (Rousseau, 1985, p. 9). Studies based on contextual effects consider both individual and organizational level variables and focus on impacts of organizational level variables over and above individual level variables (Rousseau, 1985). Moderating effects reflect the view that organizational culture equally affects each individual's perceptions of that culture,

¹⁶ *i* refers to an individual within an organization.

because organizational culture strongly influences individual perceptions (O'Reilly & Chatman, 1996; Rousseau, 1985); however, contextual effects approach postulates that organizational culture has indirect additive effect on each individual's perceptions of organizational culture, because each individual formulates his or her perceptions of organizational culture depending on their evaluation of it (Rousseau, 1985; Weick, 1995).

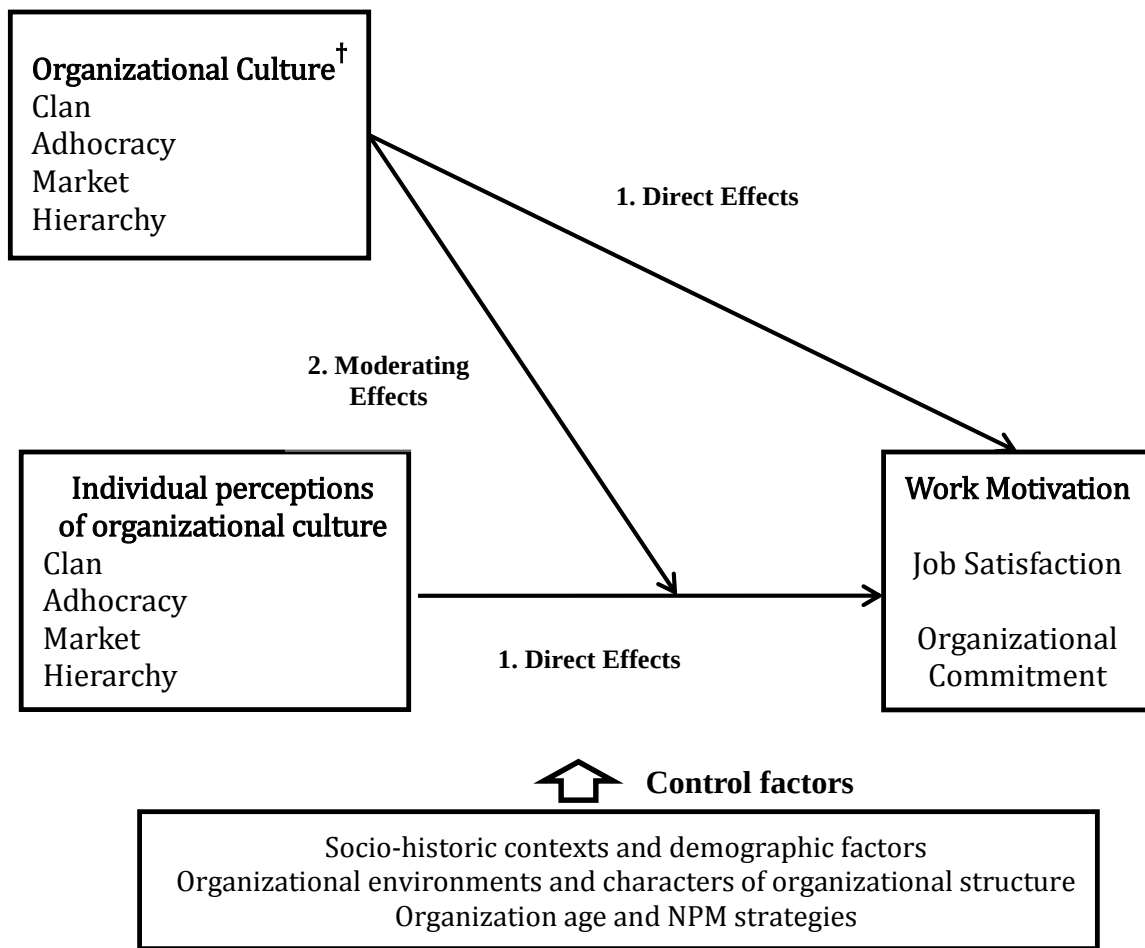
Fourth, individual perceptions of organizational culture can vary within and between organizations. By merging the “interdependent self” and “individual within group” approaches, one understands that employees hold different individual perceptions of organizational culture. In addition, in order to survive, organizations continuously adapt to dynamic external environment factors by modifying their organizational cultures (Cameron & Quinn, 2011; Martin, 2002; Schein, 2010).

Although several research strategies can be chosen based on the combinations of these four issues, this study uses “interdependent self,” “individuals within groups,” and the possibility of heterogeneous individual perceptions of organizational culture and organizational culture within and between organizations to examine direct, moderating, and contextual effects in a unified research framework.

2.2. CONCEPTUAL FRAMEWORK

Next, I introduce the study's definitions of organizational culture, individual perceptions of organizational culture, and work motivation and the expected relationships among them. Figure 1 shows the overall conceptual framework.

Figure 1 Conceptual Framework: Multi-level Cultures and Work Motivation



Note: [†] Aggregation of individual perceptions of organizational culture. The statistical model also will include **contextual effects** (Contextual effects = Direct effects of organizational culture on work motivation – Direct effects of individual perceptions of organizational culture on work motivation).

2.2.1. Organizational culture

In this study, organizational culture refers to “the shared basic assumptions, values, and beliefs that characterize a setting and are taught to newcomers as the proper way to think and feel, communicated by the myths and stories people tell about how the organization came to be the way it is as it solved problems associated with external adaptation and internal integration” (Schneider et al., 2013, p. 362). Although a variety of conceptual foundations exists in organizational culture studies, comparing two perspectives, “something an organization has” and “something an organization is” (Smircich, 1983), is useful in clarifying the concept of organizational culture. According to Cameron and Quinn (2011), a sociological perspective (i.e., an organization has culture) considers culture as a character retained by organizations and uses an outsider approach; an anthropological perspective (i.e., an organization is culture) regards culture as an image for describing organizations and reveals the meaning of culture from an insider’s point of view. The former posits that researchers can identify cultural differences among organizations and measure cultures. It holds that leaders or managers can cultivate culture with their commitment to produce better performance (Khademian, 2002). An anthropological perspective holds that “nothing exists in organizations except culture, and one encounters culture any time one rubs up against any organization” (Cameron & Quinn, 2011, p. 169).

Organizational culture can be further clarified by comparing it with organizational climate (Cameron & Quinn, 2011; Denison, 1996). Organizational climate is rooted in more temporary attitudes so that it can be changed more quickly in response to environmental changes and adoption of new knowledge; however, organizational culture is deeply rooted in core values and agreements about how things are, so that it cannot be changed as easily (Schneider et al., 2013).

In exploring organizational culture, the study employed a sociological-functional approach based on the following premises: (1) organizations have cultures, (2) culture is an objective factor, (3) the focus point is collective behavior, and (4) culture predicts other outcomes (Cameron & Quinn, 2011, p. 168). Using this approach I examined the direct, moderating, and contextual effects of organizational culture on work motivation.¹⁷

2.2.2. Individual perceptions of organizational culture¹⁸

Individual perceptions of organizational culture tap an “individual-level manifestation [that] reflects how individuals within a given culture try to make sense of how the organization operates” (Kwantes & Boglarsky, 2007, p. 205). Individual

¹⁷ In contrast to a sociological-functional approach, an anthropological functional approach has the following characteristics: a. it assumes that organizations are cultures; b. it focuses on collective assumptions; c. observations are subjective factors; d. it treats culture as a dependent variable.

¹⁸ This study focused on perceived (not preferred) culture, consistent with previous studies in public organization and management studies (e.g., Moynihan & Pandey, 2007a; Moynihan, Pandey, & Wright, 2012). Yet a number of scholars point out that individual perceptions of organizational culture are developed by the interplay between the individual experience and preference (B. D. Jones, 2001, 2003; O'Reilly & Chatman, 1996). In this sense, the study may suffer from omitted variable bias.

perceptions of organizational culture serve as a mental map¹⁹ (Harris, 1994; Weick, 1995); sense making, “structuring the unknown by placing stimuli into some kind of framework” (Ancona, 2012, p. 4), is central to an employee’s capacity to develop individual perceptions of organizational culture.

In dealing with the relationship between organizational culture and individual perceptions of organizational culture, several studies claim that the two are different level constructs with distinct characteristics (Harris, 1994; Hartnell, Ou, & Kinicki, 2011; Kozlowski & Klein, 2000). For instance, Firebaugh (1978) points out that organizational level variables created by aggregating individual level data cannot be utilized to infer individual level relations. Hofstede et al. (1993) demonstrate the potential construct differences between organizational culture and individual perceptions of organizational culture

Data from a survey study of organizational cultures in 20 organizational units in Denmark and the Netherlands were re-analyzed at the individual level, after elimination of between-unit variance. A factor analysis showed individuals’ values to be composed of six dimensions, and individuals’ perceptions of their organization’s practices of another six dimensions, entirely different from the dimensions found earlier to apply at the organizational level (p. 483)

Taken together, individual perceptions of organizational culture are shaped, developed, or diminished by individuals’ interpretations and evaluations (i.e., sense-

¹⁹ This approach points out that individual perceptions of organizational culture form “a patterned system of organization-specific schema held by organizational members” (Harris, 1994, p. 310).

making) about existing organizational culture within the context of organizations (Harris, 1994; Weick, 1995). Meanwhile, Weick et al. (2005) point out that “individual perceptions of situations, and the concomitant sense-making that individuals engage in are central to both individual identity and individual choice of action” (Kwantes & Boglarsky, 2007, p. 205). This study took a sociological semiotic approach at the individual level to test the effects of individual perceptions of organizational culture on work motivation.²⁰ Such an approach assumes that culture makes sense of reality; it focuses on individual cognitions, views observation as objective factors, treats as a variable that predicts other outcomes (Cameron & Quinn, 2011, p. 168).

2.2.3. Competing values framework (CVF)

In order to probe varying cultures more concretely, this study employed the competing values framework (CVF) and its typology of organizational culture (clan, adhocracy, market, and hierarchy cultures), for several reasons. First, Cameron and Ettington (1988) note that the CVF can work at both the individual and organizational levels and across organizations.²¹ Second, the taxonomy has been useful in studying the

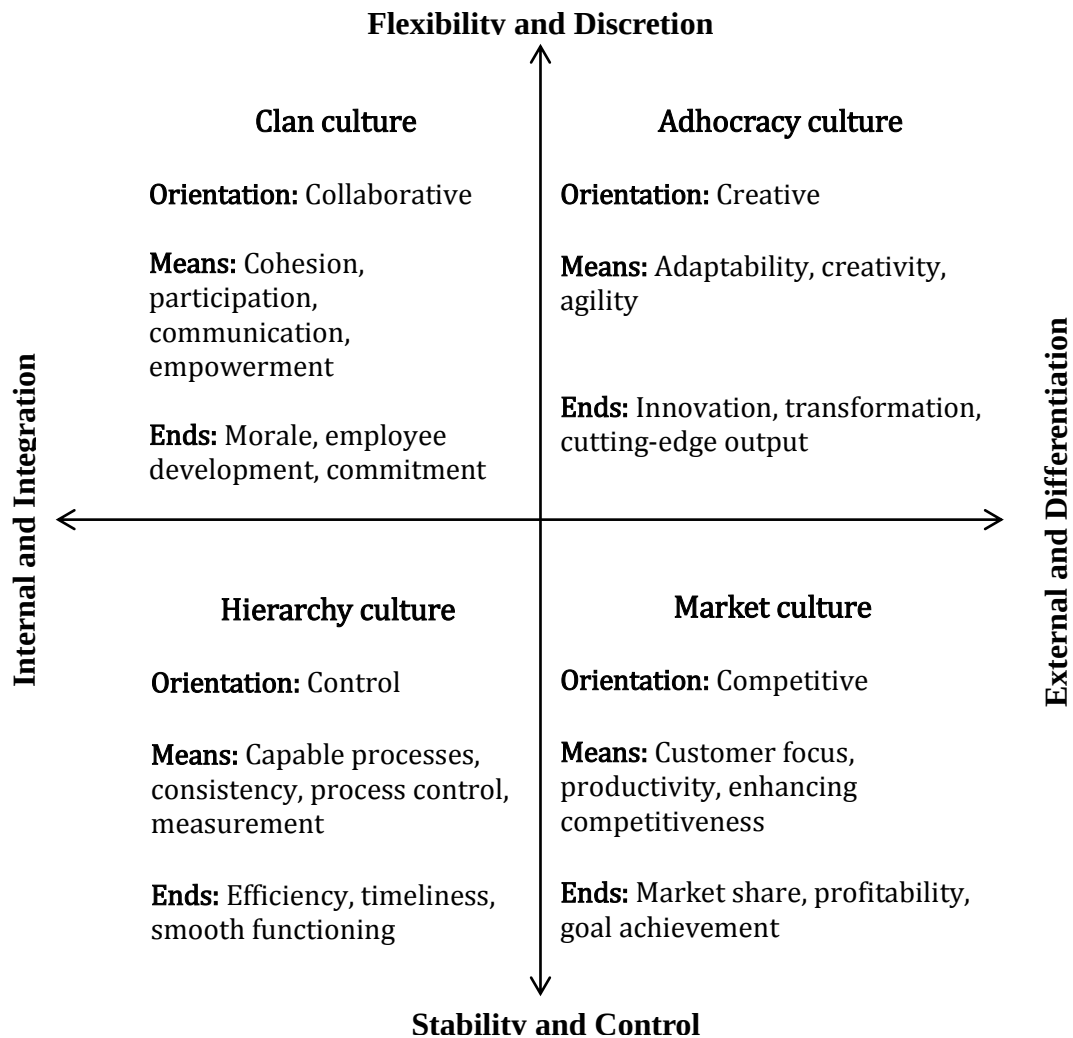
²⁰ Compared to a sociological-semiotic approach, an anthropological semiotic approach has following characters: a. assumption: culture is reality; b. focus: individual assumptions; c. observation: participant immersion; d. variable: culture is treated as dependent variable (understand culture by itself).

²¹ The CVF was developed based on the idea of “axes of bias” (W. T. Jones, 1961) and “psychological archetypes” (C. G. Jung, 1972). The CVF as archetypes (or schemas) of individuals (i.e., every individual has similar cognitive archetypes) can be used to represent individual perceptions of organizational culture and organizational culture simultaneously. Therefore, it can work to define both organizational culture and individual perceptions of organizational culture across boundaries such as groups, organizations, and countries.

role of culture in the public sector (e.g., Jørgensen & Bozeman, 2007; Moynihan & Pandey, 2007a; Moynihan & Pandey, 2007b; Moynihan et al., 2012). Third, the reliability and content validity of the CVF have been supported using multidimensional scaling, structural equation modeling, and meta-analysis (Hartnell et al., 2011). Finally, the CVF includes a survey, the Organizational Culture Assessment Instrument (OCAI), for measuring the four types of culture.²²

²² The OCAI was created to measure organizational cultures in conjunction with the CVF (Cameron & Quinn, 2011). A detailed description appears below.

Figure 2 Competing Values Framework



Note: Adapted from Cameron and Quinn (2011) and Quinn (1988)

The CVF stresses the underlying competing core values that indicate how four types of culture can be related to organizational effectiveness (Cameron & Quinn, 2011). It is a multidimensional model (see Figure 2) including four distinct cultural types. *Clan*, *Adhocracy*, *Market*, and *Hierarchy* vary along two major dimensions, *integration/differentiation* and *flexibility/stability*.

A clan culture, which is guided by human relations values, puts less focus on formal structure and control, and has greater concern for cohesion and morale. Its orientation is collaboration. It emphasizes cohesion, participation, communication, and empowerment. These values are expected to improve morale, employee development, and commitment.

An adhocracy culture, which is directed by external adaptation, has more independence and flexibility than a clan culture. Adhocracy plays an important role in a rapidly changing environment. The orientation of this culture is creative. It focuses on adaptability, creativity, and agility. Those kinds of values are predicted to result in innovation, transformation, and “cutting-edge” output.

A market culture, which is supported by strategic goal setting, highlights competition. This culture emphasizes customer focus, productivity, and enhanced competitiveness. These values are hypothesized to produce greater market share, profitability, and goal achievement.

A hierarchy culture, which is controlled by internal process mechanisms, takes a more traditional approach toward controlling an organization with a strict chain of command. This culture stresses capable processes, consistency, uniformity, process control, and measurement. Those kinds of values are predicted to improve efficiency, timeliness, and smooth functioning.

2.2.4. A balanced culture perspective and organizational effectiveness

The CVF contains two basic theoretical propositions concerning the association between culture type and organizational effectiveness. First, in general, each type of culture can have a positive relationship with organizational effectiveness at the organizational and individual levels (Cameron & Quinn, 2011; Quinn, 1988).

Second, the four types of culture decrease effectiveness when one culture has too much strength (Quinn, 1988), an expectation consistent with a balanced culture perspective. Emphasis on one type of culture makes organizations and employees overvalue the positive roles of that culture and overlook the benefits of other types of culture. A dominant culture tips the balance between cultures and weakens the development of other types of culture. In this situation, organizations and employees cannot learn new perspectives and ideas or balance multiple social actors' contradictory demands, and they lose their ability to adapt to environmental changes (Goodsell, 1989). Furthermore, dominant cultures can cause exhaustion among employees, increase turnover, and hinder rather than boost organizational effectiveness (Rainey, 2009). Quinn (1988) distinguishes between positive and negative zones (see Table 2). As one moves toward the extremes on each of the two dimensions (i.e., *integration/differentiation* → *indifference/hostility*, *flexibility/stability* → *chaos/rigidity*), cultures begin to lose their positive impact on organizational effectiveness. Each type of culture in the negative zone can reduce organizational effectiveness.

Table 2 Culture Type and Positive and Negative Zones

Culture type	Positive zone	Negative zone	
	Values	Character	Values
Clan	Cohesion, participation, communication, empowerment	Irresponsible country club	Extreme permissiveness, uncontrolled individualism, inappropriate participation, unproductive discussion
Adhocracy	Adaptability, creativity, agility	Tumultuous anarchy	Premature responsiveness, disastrous experimentation, political expediency, unprincipled opportunism
Market	Customer focus, productivity, competitiveness	Oppressive sweat shop	Perpetual exertion, human exhaustion, undiscerning regulation, blind dogma
Hierarchy	Capable processes, consistency, uniformity, process control	Frozen bureaucracy	Procedural sterility, trivial rigor, habitual perpetuation, ironbound tradition

Note: Adapted from Quinn (1988)

2.2.5. Work motivation

This study's primary dependent variable is work motivation. Higher levels of motivation may suggest that the NPM reforms are well aligned with employees' perceptions of their needs. Work motivation also can be considered as an important proxy for organizational performance.

Work motivation is "a set of energetic forces that originate both within as well as beyond an individual's being, to initiate work-related behavior and to determine its form,

direction, intensity, and duration” (Latham & Pinder, 2005, p. 486). It is a broad concept that embraces several work-related attitudes including job satisfaction, organizational commitment, and job involvement (Moynihan & Pandey, 2007a; Rainey, 2009); Work motivation formed by the interplay between the individual and organization and cultures and values work as significant antecedents (Locke & Latham, 2004; Moynihan & Pandey, 2007a). Several studies find that work motivation is significantly related to different types of organizational outcomes (e.g., cooperative behaviors, use of performance information, and work-unit performance) (e.g., Boyne, Meier, O'Toole, & Waler, 2006; Cho & Ringquist, 2011; S. Kim, 2005; Moynihan & Pandey, 2010).

In this study, work motivation includes both job satisfaction and organizational commitment consistent with the argument that “when attempting to understand patterns of work behavior from attitudes such as job satisfaction and organizational commitment, researchers should conceptualize the criterion at a high level of abstraction” (Harrison, Newman, & Roth, 2006, p. 316). This helps capture the dynamics between organizational and individual level factors (Locke & Latham, 2004). A narrower view of work motivation would have limitations not only for understanding types of culture working at both organizational and individual levels but also for capturing distinguishable characteristics of types of work motivation in relationship with different kinds and levels of culture.

Job satisfaction is associated with immediate reactions to changes in the work environment, since it operates based on individual emotional reactions to the changes. However, organizational commitment is more stable and enduring because it is rooted in

strong attachment to organizations, especially organizational culture or cultural values (Moynihan & Pandey, 2007a; Yang & Pandey, 2009). Thus, considering two different dimensions of work motivation and their links to organizational and individual level cultures may help in better understanding what varying cultures foster work motivation in executive agencies and the relative degree of culture effects.

2.2.5.1. Job satisfaction

Job satisfaction refers to a “pleasurable or positive emotional state resulting from appraisal of one’s job or job experience” (Locke, 1976, p. 1300). Relevant scholarship mainly takes one of two perspectives: humanitarian and utilitarian (Spector, 1997). A utilitarian perspective views job satisfaction as a tool for positive organizational functioning and performance. When organizations or leaders satisfy the needs of employees by providing extrinsic rewards, job satisfaction is improved. By this logic, many studies have tried to find an association between job-related variables and organizational outcomes (e.g., extrinsic rewards, efficiency, effectiveness, and quality of public services) (Cho & Ringquist, 2011; Rainey, 2009). A humanitarian perspective focuses on job satisfaction as a significant factor in employees’ mental health and overall well-being. A legitimate goal in organizations is satisfying employees by treating them well (Spector, 1997; Yang & Kassekert, 2010). Studies in this perspective have investigated job satisfaction’s implications for intrinsic motivation, organizational commitment, quality of life, and mental health (Rainey, 2009; Spector, 1997).

There have been mixed results in studies of the relationships between job satisfaction and objective performance or outcomes. Yet, its direct effects on extrinsic and intrinsic motivations, turnover intention, diverse work attitudes, and subjective outcomes are well established (e.g., Cho & Ringquist, 2011; Harrison et al., 2006; Park & Rainey, 2007, 2008). Job satisfaction can improve individual and organizational performance “by increasing work motivation and organizational citizenship behavior and by reducing costs associated with negative organizational behaviors such as turnover, burnout, apathy, and absenteeism” (Yang & Kassekert, 2010, p. 414).

2.2.5.2. Organizational commitment

Organizational commitment is “the strength of an individual’s identification with and involvement in a particular organization ... characterized by (1) a strong belief in and acceptance of an organizations’ goals and values; (2) a willingness to exert considerable effort on the organization; (3) a definite desire to maintain organizational membership” (Porter, Steers, Mowday, & Boulian, 1974, p. 604). These three components have been characterized as normative, affective, and continuance commitment (Meyer & Allen, 1997).

Organizational commitment concentrates on “a sense of psychological attachment based on employees sharing important organizational values” (Romzek, 1990, p. 375). In addition, degree of commitment is influenced by “employees’ reactions to their agencies’ culture, values, and socialization processes and to their work experiences” (Romzek,

1990, p. 381). Based on the theoretically close relationships between organizational cultures or cultural values and commitment (e.g., Moon, 2000; Moynihan & Pandey, 2007a), studies have found that organizational commitment is influenced by individual and organizational characteristics simultaneously (Meyer, Stanley, Herscovitch, & Topolnytsky, 2002; Moynihan & Pandey, 2007a). In addition, organizational commitment has been identified as the most important variable associated with work motivation, which has a consistent relationship to individual and organizational performance (Meyer & Allen, 1997; Yang & Pandey, 2009).

Meyer and Allen (1997) claim that both affective and normative commitment will have close relationships with performance, whereas continuance commitment will be unrelated. Liou and Nyhan (1994) demonstrate that public organization employees' commitment is based more on affective commitment than on continuance commitment. Although meta-analysis has found that affective commitment is more important to performance than the other types of commitment (Meyer et al., 2002), public organization and management studies have found normative commitment to be especially important (Yang & Pandey, 2009). Kwon (2002) reports that organizational activities (e.g., human resource-oriented practices) have close relationships with affective and normative commitment in Korean government. Finally, affective and normative commitment are distinctive ways that employees can tie themselves to their organizations; however, previous studies have consistently found that affective and

normative commitment do not show clear discriminant validity (Bergman, 2006).²³ As a result, this study taps organizational commitment by combining the two.

2.2.6. Moderating and varying contextual effects

A key point in a multi-level approach is appropriate specification of the interactions between organizational and individual level constructs (Kozlowski & Klein, 2000; Rousseau, 1985). Rousseau (1985) suggests that failure to specify dynamic interactions between organizational culture and individual perceptions of organizational culture as moderating and contextual effects can lead to a contextual fallacy. In public organization and management studies, addressing dynamic interactions is necessary to improve understanding of the connections between employees and the organizations in which they provide public services (Perry & Hondeghem, 2008; Yang & Kassekert, 2010).

As noted earlier, the distinction between moderating and contextual effects is that the former reflects how organizational culture can change the magnitude of the association between individual perceptions of organizational culture and work motivation (Rousseau, 1985), whereas the latter taps the effects of organizational culture over and above the relationship between individual perceptions of organizational culture and work

²³ Bergman (2006, p. 647) reports that “although confirmatory factor analyses typically show that affective commitment and normative commitment items load on different factors (Chen & Francesco, 2003; Dunham, Grube, & Castaneda, 1994; J.-W. Ko, Price, & Mueller, 1997; Meyer, Allen, & Smith, 1993), the latent factors and scale scores tend to be moderately to highly correlated (Allen & Meyer, 1990; Chen & Francesco, 2003; Dunham et al., 1994; J.-W. Ko et al., 1997; Meyer et al., 1993; Meyer et al., 2002)”.

motivation within and between organizations (Hofmann & Gavin, 1998; Rousseau, 1985).

Although a number of challenges emerge in conceptualizing and measuring contextual effects, there have been three predominant approaches. First, the *situational constraints* approach assumes that situational factors such as organizational climate and job information directly influence work motivation (Kozlowski et al., 2000). Second, “perceptions of organizational features, events, and process” indirectly affect work motivation (Kozlowski et al., 2000, p. 165). In other words, the effects of situational factors on work motivation are mediated by individual perceptions of those factors. Third, situational factors have additive effects over and above the relationship between individual perceptions and other variables (Rousseau, 1985). This study adopts the third approach, drawing a clear conceptual distinction between direct, moderating, and contextual effects.²⁴

Table 3 Moderating and Varying Contextual Effects

	Moderating effects	Varying contextual effects
Employee	Passive human being	Active human being
Cognitive function	Comparative	Normative

²⁴ The first approach is the same as this study’s focus on the direct effects of organizational culture on work motivation. The second approach has a similar logic as the direct effects of individual perceptions of organizational culture on work motivation.

Effects of higher level constructs on lower level constructs	Top-down intervention with strong isomorphic power	Higher level variables differently influence lower level variables
Relationship with outcome (i.e., work motivation)	Organization level constructs can increase or decrease the relationships between individual level constructs	Organization level constructs have additive varying effects over and above the relationships between individual level constructs
Measurement in HLM analysis	Adding organizational level constructs in level 2 equations of t HLM: Individual level constructs (Level 1) × Organizational level constructs (Level 2)	Adding error terms to level 2 equations of HLM. Varying contextual effects ²⁵ = the effects of organizational culture on work motivation – the effects of varying individual perceptions of organizational culture on work motivation

Note: Based on Rousseau (1985), Hofmann and Gavin (1998), and Shin and Raudenbush (2010).

Examining varying contextual effects is a more advanced approach to looking at contextual effects (see Table 3). The main purpose of examining contextual effects is to capture systematic variation of individual perceptions of organizational culture based on the expectation that organizational influences are strong (Raudenbush, 2004). However, a varying contextual effects approach tries to capture random variation in individual

²⁵ The varying patterns of individual perceptions of organizational culture within and between organizations related to work motivation can be identified by checking *p*-values in the random effects part of HLM results.

perceptions of organizational culture within and between organizations and their overall effects on outcomes (Raudenbush, 2004; Raudenbush & Willms, 1995). The basic foundation of a varying contextual effects approach is that individual perceptions of organizational culture are likely to be different than the actual organizational culture, because employees are active human beings who use sense-making to form perceptions of organizational culture in response to organizational activities (Harris, 1994; Kwantes & Boglarsky, 2007; Weick, 1995).

To measure varying contextual effects, it is necessary first to understand the logic of contextual effects. Since contextual effects try to capture the overall effects of organizational culture on the relationship between individual perceptions of organizational culture and work motivation, contextual effects do not add error terms to the level 2 equations. In contrast, varying contextual effects considers one more condition: individual perceptions of organizational culture vary within and between organizations. By adding error terms to the level 2 equations in the contextual effect model in HLM, it is possible to measure the varying patterns of individual perceptions of organizational culture and their association with outcomes. (Raudenbush & Bryk, 2002; Shin & Raudenbush, 2010).²⁶

²⁶ The HLM analysis below reports average varying contextual effects.

2.2.7. Control factors

This study also takes into account control factors that can affect culture and work motivation. These are divided into three clusters: (1) socio-historical contexts and demographic factors, (2) organizational environments and the character of organizational structure, and (3) NPM strategies and agency age.

2.2.7.1. Socio-historic contexts and demographic elements

Individual characteristics including socio-historical contexts and demographic factors have been studied as important antecedent influences on work motivation. Employees' education, age, sex, length of service, and rank show significant impacts on job satisfaction and organizational commitment (e.g., Choi, 2012; Moynihan & Pandey, 2007a; Vandenabeele, 2009). Educational level is expected to have a negative relationship with job satisfaction and organizational commitment, because employees with greater knowledge may have higher expectations about extrinsic rewards such as pay (Klein & Maher, 1996). Length of service and rank can have negative effects on work motivation (Moynihan & Pandey, 2007a); people working in public organizations for a long time and may believe that they do not receive appropriate pay when compared to private sector, and thus employees may not have motivation to seek promotion to higher ranks (Rainey, 2009). In Korea, the salary of public employees at similar ranks and the disparity between public and private salaries grow when public employees move up in the hierarchy. The proportion of males is greater than females, and males have

better chances of receiving promotions. Thus, male employees are likely to have higher job satisfaction and organizational commitment than female employees.

In addition, Hofstede et al. (1993) point out that individual level factors such as age, sex, and education level need to be controlled to tap the net effects of individual perceptions of organizational culture on other variables. These factors can generate systematic patterns in the formation of individual perceptions of organizational culture because they influence individual preference, emotion, and information selection processes.

2.2.7.2. Organizational environments and characters of organizational structure

Khademian (2002) argues that the environment in which public organizations operate and the nature of organizational tasks are closely connected with culture in public organizations.²⁷ This study uses five related factors in two categories: (1) environmental effects: a. presence of private companies offering comparable services, b. effects from diverse agencies on task process, c. effects from dynamic environments on tasks, (2) character of organizational structure: a. emphasis on formal relationships, b. emphasis on hierarchical interactions.

When a citizen can buy a service from private or public agencies, public employees need to compare their service quality with that of private firms. The presence

²⁷ She suggests three elements in *a cultural roots framework* for analysis of public organizations: public organization tasks, resources, and environments (Khademian, 2002). Each or all can influence culture in public organizations.

of private companies offering comparable services in focal regions can have a significant influence on work motivation. Both job satisfaction and organizational commitment could be negative in the presence of private companies, because pressure coming from performance evaluation may hinder work motivation (Gagné & Deci, 2005; Park & Rainey, 2008).

Noordegraaf and Abma (2003) claim that opinions coming from diverse experts and stakeholders may increase complexity. In doing their work, public agencies improve knowledge sharing, so that they can cultivate their task capacity and appropriately use discretion (Lipsky, 1980). Thus, the existence of diverse social actors may improve job satisfaction and organizational commitment. On the other hand, varied opinions may hinder job satisfaction and organizational commitment. Complex environmental effects on tasks and tasks processes can increase goal ambiguity (Pandey & Wright, 2006). Recent studies suggest that goal ambiguity is negatively related to job satisfaction and organizational commitment (e.g., C. S. Jung, 2013; C. S. Jung & Ritz, 2014).

Emphasis on formal relationships can improve work motivation. According to social exchange theory (SET),²⁸ such relationships involving procedural justice as an important factor forge a sound relationships between leaders and employees. For instance, procedural justice plays an important role for employees evaluating resource distribution and eventually improves their work motivation (J. Ko & Hur, 2014). On the other hand, emphasis on hierarchical interactions also may give negative effects on work

²⁸ SET refers to “positive, beneficial actions directed at employees by the organization and/or its representatives contribute to the establishment of high quality exchange relationships that create obligations for employees to reciprocate in positive, beneficial ways” (Settoon, Bennett, & Liden, 1996).

motivation, because hierarchical interactions may reduce creative ideas and employees' affection for the organization (Gagné & Deci, 2005).

2.2.7.3. Organization age and NPM strategies

Time can perform an important role in building culture and motivation (Kozlowski & Klein, 2000). In Korea, each executive agency was created at a different time. Thus, organization age is included to control for the varying power of socialization in each agency.

I also considered the effects of NPM strategies as an important control variable, for two reasons. First, such strategies can influence work motivation because an employee develops or changes their commitment and satisfaction as they appraise their organizational activities and their job experience. Previous studies demonstrate that NPM strategies, such as managing for results, performance management, and performance contracting, significantly influence job satisfaction and organizational commitment (Moon, 2000; Yang & Kassekert, 2010). Second, public organization tasks can have significant effects on organizational culture (Khademian, 2002). For instance, leaders cultivate culture in organizations in response to the demands imposed on organizations by newly adopted NPM reforms (Dull, 2010; Khademian, 2002).

Summary

Several cultural studies explicitly or implicitly point out that organizational culture and individual perceptions of organizational culture are distinct constructs, and their dynamic interplay needs to be explored using a multi-level approach. Motivation theories also imply that work motivation is influenced by individual and organization cultures simultaneously, and such studies find that cultures have varying relationships with job satisfaction and organizational commitment. In addition, control variables can affect culture and work motivation.

Rather little quantitative research has sought to align theory, measurement, and analysis to explore direct, moderating, and varying contextual effects in relationships between organizational culture, individual perceptions of organizational culture, and work motivation. As a result, the results of the previous studies may have erroneous conclusions because of a number of fallacious interpretations. In sum, it is useful to examine diverse effects by adopting a multi-level approach and HLM modeling. The next chapter will introduce several research hypotheses.

CHAPTER 3 Research Hypotheses

This chapter introduces several hypotheses about direct, moderating, and varying contextual effects in relationships between organizational culture, individual perceptions of organizational culture, and work motivation based on the theoretical relationship between culture and work motivation. It also introduces hypotheses associated with effects of tasks and regional context on variation in cultural strength.

3.1. CULTURE AND WORK MOTIVATION

The organizational literature on culture and motivation suggests that employee motivation is significantly driven by culture. Organizational culture, as a social (or informal) control mechanism, guides knowledge sharing and social relationships in organizations and works as a standard for employee's decision making and behavior (O'Reilly & Chatman, 1996; Schein, 2010). The relationships between organizational culture and employees embedded in the organization gives rise to individual perceptions of organizational culture as a mental map. Mental maps in turn shapes the ideas and attitudes of employees (Kwantes & Boglarsky, 2007). At the same time, Moynihan and Pandey (2007a, p. 804) specify the relationship between work motivation and a shared organizational culture using Locke and Latham's (2004) work motivation theory: "work motivation is a multidimensional concept linked to how employees interact with, and view, their organizations and is reflected in the degree to which employees feel a sense of

connection, obligation, and reward in working for the organization.” In sum, culture at the organizational and individual levels can have diverse effects on work motivation by shaping organization members’ commitment and feelings.

3.2. DIRECT EFFECTS

This study considers two different indicators of work motivation: job satisfaction and organizational commitment. As noted earlier, these can have different relationships with each type of culture at the organizational and individual levels. Job satisfaction, reflecting emotion about an individual’s organizational experience, is sensitive to organizational environment; organizational commitment, however, is rooted in a sense of strong attachment to organizations and tends to be more stable than job satisfaction (Moynihan & Pandey, 2007a; Rainey, 2009). Organizational commitment is more closely related to employees’ perceptions about organizational culture or cultural values (Romzek, 1990; Yang & Pandey, 2009). Thus, I expected:

H1: organizational commitment will be more strongly related to culture than will job satisfaction, when considered at both the organizational and individual levels.

Specific cultures also can be related to work motivation. For example, clan culture emphasizes trust, commitment, and human development for improving participation, openness, and discussion (Cameron & Quinn, 2011; Quinn, 1988). Traditionally, clan culture has not been emphasized in public organizations dominated by bureaucratic

systems. However, cultivating clan cultural values such as trust and empowerment matters for more effective democratic government and organizational performance in NPM reforms (Cho & Perry, 2011; Cho & Ringquist, 2011; Park & Rainey, 2008). Korea government documents also emphasize strengthening clan culture in running executive agencies (MOSPA, 2008, 2009).

Scholarship that focuses on the positive roles of trust, commitment, and empowerment claims that clan cultural values arouse positive cognitions and emotions that help improve physical and psychological well-being, as well as employee satisfaction (Luthans & Youssef, 2007). In a meta-analysis of 880 articles, Hartnell et al. (2011) find that clan culture has a positive relationship with job satisfaction. Moynihan and Pandey (2007a) find statistically significant, positive relationships between clan culture and job satisfaction and between clan culture and organizational commitment. In addition, Park and Rainey (2007) report that empowerment has a positive and statistically significant effect on organizational commitment.

H2: In executive agencies, organizational clan culture will be positively related to job satisfaction.

H3: In executive agencies, individual perceptions of clan culture will be positively related to job satisfaction.

H4: In executive agencies, organizational clan culture will be positively related to organizational commitment.

H5: In executive agencies, individual perceptions of clan culture will be positively related to organizational commitment.

Adhocracy culture promotes a strategic thrust of creating new services and resource acquisition by emphasizing autonomy, innovation, and adaptability; it encourages employees and leaders to take on challenges and adapt to new directions and organizational environmental changes (Cameron & Quinn, 2011; Quinn, 1988). As NPM reforms have been adopted in public organizations, diverse management strategies (e.g., team-based work and adopting at-will employment systems) have increased perceptions of adhocracy culture (Dunleavy et al., 2006). Increasing the discretion of middle managers in particular has been an important strategy in NPM reforms (Van Wart, 2003). In a similar vein, scholars emphasize that increasing employees' autonomy results in better performance as well as reducing some of the negative effects of NPM reforms (Moynihan, 2010; Park & Rainey, 2008). In Korea, government reforms have sought to increase employees' autonomy and discretion (MOSPA, 2008, 2009). N. Kim and Cho (2015) report that the growth of autonomy in executive agencies is positively related to organizational performance.

Autonomy-supportive environments encourage employees to acknowledge the importance of their tasks and roles in their organizations (Deci, Connell, & Ryan, 1989). In addition, individuals who work in such settings enjoy their tasks and perform well by internalizing organizational cultures and values into their individual value systems (Deci et al., 1989; Deci & Ryan, 2000). A meta-analysis found that adhocracy culture has a positive relationship with job satisfaction (Hartnell et al., 2011). In the public sector, Yang and Kassekert (2010) report that an innovative culture improves job satisfaction,

and Moon (2000) finds that job autonomy has positive effects on organizational commitment in both the private and public sectors.

H6: In executive agencies, organizational adhocracy culture will be positively related to job satisfaction.

H7: In executive agencies, individual perceptions of adhocracy culture will be positively related to job satisfaction.

H8: In executive agencies, organizational adhocracy culture will be positively related to organizational commitment.

H9: In executive agencies, individual perceptions of adhocracy culture will be positively related to organizational commitment.

A market culture stresses competition, direction, and goal clarity that facilitate productivity and accomplishment (Cameron & Quinn, 2011; Quinn, 1988). Proponents of NPM emphasize that market culture will improve employee morale and satisfaction by reducing red tape and rule-ridden bureaucracy (Gore, 1993; Osborne & Gaebler, 1992). Following this logic, public organizations have increased competition in organizational process and management systems seeking to produce better products and services. In particular, development of work measurement standards related to organizational performance has been expanded and specified in public organizations (Moynihan et al., 2011).

Whereas increasing market culture satisfied employees' needs for extrinsic rewards (e.g., salary and promotion) (Gore, 1993; Osborne & Gaebler, 1992),²⁹ competition-oriented reforms can diminish information sharing, creativity, trust, and employees' intrinsic motivation (Moynihan et al., 2012; Park & Rainey, 2008; Rainey, 2009).³⁰ In the private sector (the American Marketing Association), Lund (2003) finds that market culture has a negative relationship with job satisfaction. Using data from Malaysian companies, Rashid, Sambasivan, and Johari (2003) also show that market culture has negative effects on organizational commitment.

H10: In executive agencies, organizational market culture will be negatively related to job satisfaction.

H11: In executive agencies, individual perceptions of market culture will be negatively related to job satisfaction.

H12: In executive agencies, organizational market culture will be negatively related to organizational commitment.

H13: In executive agencies, individual perceptions of market culture will be negatively related to organizational commitment.

²⁹ Dunleavy et al. (2006) also point out that despite the decline of NPM reforms, performance measurement is still spreading in several countries.

³⁰ In public organization and management studies, several scholars have expressed concern over the harmful indirect or direct effects of market culture on public employees' morale and motivation, since it can damage traditional civil service cultures undergirded by public or constitutional values (e.g., loyalty, due process, and transparency) (Moynihan & Pandey, 2010; Rosenbloom, 2007). They point out that although those values are not explicitly incorporated in agencies' mission and performance measurement in NPM reforms, they are important standards in public officers' decision-making and behavior.

Hierarchy culture includes a strategic thrust toward documentation, standardized rules, and procedures through stability, control, and continuity (Cameron & Quinn, 2011; Quinn, 1988). Several scholars have regarded hierarchy culture as one of the primary characteristics of public organizations (Cameron & Quinn, 2011; Osborne & Gaebler, 1992; Stazyk & Goerdel, 2011). Cameron and Quinn (2011) report that hierarchy culture holds a dominant position in public organizations among the cultural types by comparing various industry groups (see Appendix E).³¹ Parker and Bradley (2000) find that although NPM reforms were expected to change the culture in public organizations, hierarchy culture still is stronger than other cultures in six public organizations in Queensland. Moreover, the Korean Government report (MOSPA, 2009) observes that a rigid and inflexible culture stemming from public organization structures should be reduced to run executive agencies more successfully.

While hierarchy culture can positively address complex problems in public organizations, extreme levels typically produce diverse dysfunctions: inefficiency, resistance to management reforms, red-tape, and impersonality (Rainey, 2009). Downs (1967) also argued that hierarchical systems facilitate coordination, cooperation, resource allocation, and communication within and between bureaus; however, as the number of hierarchical levels increases, it can distort information flows and communication. Lund (2003) and Zazzali, Alexander, Shortell, and Burns (2007) find that hierarchy culture has a negative relationship with job satisfaction in the private sector. Similarly, Goodman,

³¹ To compare average culture profiles among diverse organizations, they distributed the OCAI to more than 100,000 managers in nearly 10,000 organizations.

Zammuto, and Gifford (2001) find that hierarchy culture has negative effects on organizational commitment.

H14: In executive agencies, organizational hierarchy culture will be negatively related to job satisfaction.

H15: In executive agencies, individual perceptions of hierarchy culture will be negatively related to job satisfaction.

H16: In executive agencies, organizational hierarchy culture will be negatively related to organizational commitment.

H17: In executive agencies, individual perceptions of hierarchy culture will be negatively related to organizational commitment.

3.3. MODERATING EFFECTS

Organizational culture as a social mechanism has strong influences on employee motivation and behavior (O'Reilly & Chatman, 1996; Perry & Hondeghem, 2008). It can moderate the relationship between individual perceptions of organizational culture and work motivation regardless of the strength of the link between individual perceptions of organizational culture and work motivation. Schneider et al. (2013) claim that the moderating roles of organizational culture are one of the important themes in recent organizational culture literature, and they introduce several examples. For instance, Erdogan, Liden, and Kraimer (2006) find that an organizational culture with higher respect for people strengthens the relationship between organizational justice and leader-

member exchange, whereas more aggressive organization cultures weaken the relationship.

However, moderating effects can be specified depending on how employees perceive the extent of effects of organizational culture or cultural values. For instance, J. Ko and Hur (2014) examine the impacts of procedural justice on the relationship between employee benefits and job satisfaction. They find that when employees perceive a high level of procedural justice, this has strong moderating effects regardless of their level of satisfaction with employee benefits. In a similar vein, organizational culture can have more nuanced moderating effects depending on how employees perceive the extent of organizational cultural effects. For instance, when employees perceive that the influence of organizational culture is strong, culture has significant moderating effects on the relationship between individual perceptions of organizational culture and work motivation. On the other hand, when employees perceive that the influence of organizational culture is weak, organizational culture does not have a significant moderating effect.

The Ministry of Security and Public Administration in Korea reports (MOSPA, 2008) that employees working at executive agencies found that market and hierarchy cultures are stronger than clan and adhocracy cultures (present clan culture: 23.23, adhocracy culture: 20.61, market culture: 29.14, hierarchy culture: 27.02). Clan and adhocracy culture, then, would not be expected to work as moderating variables, whereas market and hierarchy culture might well have moderating effects.

H18: In executive agencies, organizational clan culture will not moderate the relationship between individual perceptions of organizational clan culture and job satisfaction.

H19: In executive agencies, organizational clan culture will not moderate the relationship between individual perceptions of organizational clan culture and organizational commitment.

H20: In executive agencies, organizational adhocracy culture will not moderate the relationship between individual perceptions of organizational adhocracy culture and job satisfaction.

H21: In executive agencies, organizational adhocracy culture will not moderate the relationship between individual perceptions of organizational adhocracy culture and organizational commitment.

H22: In executive agencies, organizational market culture will negatively moderate the relationship between individual perceptions of organizational market culture and job satisfaction.

H23: In executive agencies, organizational market culture will negatively moderate the relationship between individual perceptions of organizational market culture and organizational commitment.

H24: In executive agencies, organizational hierarchy culture will negatively moderate the relationship between individual perceptions of organizational hierarchy culture and job satisfaction.

H25: In executive agencies, organizational hierarchy culture will negatively moderate the relationship between individual perceptions of organizational hierarchy culture and organizational commitment.

3.4. VARYING CONTEXTUAL EFFECTS

In this study, varying contextual effects refer to the additive effects of organizational culture on the association between individual perceptions of organizational culture and work motivation across executive agencies (i.e., varying contextual effects = the effects of organizational culture on work motivation – the effects of varying individual perceptions of organizational culture on work motivation).

This section examines varying contextual effects in two stages. First, possible varying contextual effects in executive agencies will be discussed by considering theoretical arguments and empirical evidence about varying individual perceptions of organizational culture between organizations. Second, to specify why varying contextual effects of organizational culture happen, the role of organizational tasks and environmental factors will be explored by focusing on their effects on cultural variance.

The potential variability of individual perceptions of organizational culture within and between organizations is a key to the notion of varying contextual effects (Harris, 1994; Rousseau, 1985; Weick, 1995). Different individual perceptions of organizational culture within and between organizations occur because employees develop distinguishable perceptions via sense-making. Moreover, Hofstede et al. (1993) indicate that individual perceptions of organizational culture vary with several demographic factors.³²

³² They point out that the varying individual perceptions of organizational culture between organizations are partially associated with demographic characteristics of employees such as age, gender, and education level. In this study, demographic factors are controlled to test the net effects of individual perceptions of organizational culture on work motivation.

Given this discussion, I propose several additional hypotheses by combining the following logics. First, organizational culture working as a contextual factor is a more powerful influence on work motivation than individual perceptions of organizational culture. Second, individual perceptions of organizational culture are context-specific constructs in the relationship with organizational culture because individuals develop perceptions of organizational culture responding to organizational culture. Third, each type of organizational culture is expected to a different relationship with work motivation: clan and adhocracy culture will be positively related, whereas market and hierarchy culture will be negatively related at the organizational and individual levels. Fourth, individuals may perceive the same organizational culture differently within and between organizations. Thus, I expected:

H26: In executive agencies, there will be a positive varying contextual effect among organizational clan culture, individual perceptions of clan culture, and job satisfaction.

H27: In executive agencies, there will be a positive varying contextual effect among organizational clan culture, individual perceptions of clan culture, and organizational commitment.

H28: In executive agencies, there will be a positive varying contextual effect among organizational adhocracy culture, individual perceptions of adhocracy culture, and job satisfaction.

H29: In executive agencies, there will be a positive varying contextual effect among organizational adhocracy culture, individual perceptions of adhocracy culture, and organizational commitment.

H30: In executive agencies, there will be a negative varying contextual effect among organizational market culture, individual perceptions of market culture, and job satisfaction.

H31: In executive agencies, there will be a negative varying contextual effect among organizational market culture, individual perceptions of market culture, and organizational commitment.

H32: In executive agencies, there will be a negative varying contextual effect among organizational hierarchy culture, individual perceptions of hierarchy culture, and job satisfaction.

H33: In executive agencies, there will be a negative varying contextual effect among organizational hierarchy culture, individual perceptions of hierarchy culture, and organizational commitment.

In addition, different organizational tasks and other environmental factors (e.g., advanced technology, customer requirements, competitive environment, and social expectations) can produce variations in cultural strength within and between organizations (Chatman & Jehn, 1994; Gordon, 1991; Hofstede et al., 1993; Hofstede, Neuijen, Ohayv, & Sanders, 1990). Executive agencies in Korea handle diverse public services including hospitals, museums, statistics, driver licensing, and coast guard maintenance in several different regions. Some executive agencies providing identical services (e.g., hospitals and statistical service agencies) are located in different regions.

Focusing on the effects of tasks and other environmental factors on variation in cultural strength, this study compared the strength of organizational cultures in hospitals and statistics agencies for several reasons. First, the two types of agency form a large

portion of the 46 executive agencies (10 hospital agencies and 12 statistics agencies). Second, clarifying regional differences between the executive agencies may reveal the relationship between other environmental factors and organizational cultural difference. Thus, by grouping hospital agencies according to their geographic location (Seoul and outside of Seoul), this study investigates the effects of environmental factors on the strength of each organizational culture.³³

To probe the relationship between organizational task and culture, several studies have focused on the role of organizational mission and daily work (Cameron & Quinn, 2011; Schein, 2010).³⁴ An organization's mission may define its task and guide employees' behavior. Employees' daily work also influences the formation of organizational culture. For instance, Pixar (the animation company) emphasizes creativity and flexibility in its mission statement as do other companies such as Walt Disney; however, Pixar performs better than other companies by improving collaboration and communication in daily work. Pixar then has a stronger clan culture but a weaker adhocracy culture than Walt Disney (Cameron & Quinn, 2011).

In a similar vein, hospitals commonly emphasize human well-being and commitment to patients in their mission statements (MOSPA, 2009). Those working in

³³ Seoul (four agencies: National Medical Center, National Rehabilitation Center, National Police Hospital, Seoul National Hospital) vs. outside of Seoul (six agencies: Mokpo National Hospital, Gongju National Hospital, Naju National Hospital, Bugok National Hospital, Chuncheon National Hospital, Masan National Hospital). The survey collection rate from hospitals was higher than from statistics agencies (see Appendix A).

³⁴ Cameron and Quinn (2011) demonstrate that the four types of culture have different strengths across different industry groups (see Appendix B).

health care value a more clan-like culture. However, their daily work is often oriented to hierarchy in order to do high-risk jobs such as surgery. Meanwhile, statistics agencies highlight scientific objectivity, reliability, and accuracy in their mission statements (MOSPA, 2009). They emphasize generating high-quality statistical data to satisfy diverse demands from private and public sector customers. Finally, hospital agencies would be expected to have stronger hierarchy cultures than statistics agencies because employees in the latter work more independently.

H34: Hospital agencies will have stronger clan cultures than statistics agencies.

H35: Hospital agencies will have stronger hierarchy cultures than statistics agencies.

H36: Statistics agencies will have stronger adhocracy cultures than hospital agencies.

H37: Statistics agencies will have stronger market cultures than hospital agencies.

Moreover, organizational culture can be related to other environmental characteristics (Chatman & Jehn, 1994; Gordon, 1991). Schein (2010) argues that organizational culture has two representative functions, external adaptation and internal integration.³⁵ External adaptation takes place when an organization changes its cultures to adapt to external environments to better achieve its mission and its long term survival. Chatman and Jehn (1994) find that new technologies increase organizational culture

³⁵ Internal integration refers to organizational culture influencing the behavior of organizational employees through addressing the development of a collective identity and finding ways of structuring organization characteristics, members, and communication.

variations between different industries, and organizational culture varies more between industries than within them. Hofstede et al. (1990) also report that IBM's subsidiaries located in 53 countries show significant organizational cultural variations; they claim that government budget and medical care significantly influence cultural variations.

Hospital agencies located in Seoul (National Medical Center, National Rehabilitation Center, National Police Hospital, and Seoul National Hospital) have faced more competitive markets than those outside of Seoul (Mokpo National Hospital, Gongju National Hospital, Naju National Hospital, Bugok National Hospital, Chuncheon National Hospital, and Masan National Hospital). For instance, around a fifth of the population resides in Seoul (2013 population of South Korea: 50.21 million; Seoul: 10.2 million). Approximately 38.6% of premium general hospitals and 30% of dentist hospitals are located in Seoul (HHID, 2013). In addition, about one in three patients who receive treatment in Seoul reside out of the Seoul region. To meet the needs of large numbers of customers, hospital agencies in Seoul have larger budgets, workforces, and departments (MOSPA, 2008). They also actively accept and learn new technologies from competing private hospitals by adding the newest medical appliances and employing better-trained workforces. Finally, hospital agencies located outside of Seoul collaborate with local residents and community actors to reflect their needs in running agencies. For instance, Chuncheon National Hospital operates medical and health classes five times each month and provides free follow-up care by running a call-in help desk. Bugok National Hospital expands social networks by collaborating with local hospitals and

universities to improve the quality of medical service. Gongju National Hospital runs various seminars and workshops to get diverse opinions from local residents.

H38: Hospital agencies located in Seoul will have weaker clan cultures than hospital agencies located outside of Seoul.

H39: Hospital agencies located in Seoul will have stronger adhocracy cultures than hospital agencies located outside of Seoul.

H40: Hospital agencies located in Seoul will have stronger market cultures than hospital agencies located outside of Seoul.

H41: Hospital agencies located in Seoul will have stronger hierarchy cultures than hospital agencies located outside of Seoul.

3.6. SUMMARY

I argue that organizational culture and individual perceptions of organizational culture have distinguishable effects on job satisfaction and organizational commitment. Based on discussions of the relationships between organizational culture, individual perceptions of organizational culture and work motivation, several hypotheses suggest direct, moderate, and contextual effects (see Table 14). The next chapter introduces the research design and data analysis strategies used to test these hypotheses.

Table 4 Hypotheses

	Direction	Level	Relationships
Direct effects			
H1		Level 1 Level 2	Significant relationships at overall levels: Organizational commitment > Job satisfaction
H2	+	Level 2 (L2) ^a	Clan → JS ^c
H3	+	Level 1(L1) ^b	Clan → JS
H4	+	L2	Clan → OC ^d
H5	+	L1	Clan → OC
H6	+	L2	Adhocracy → JS
H7	+	L1	Adhocracy → JS
H8	+	L2	Adhocracy → OC
H9	+	L1	Adhocracy → OC
H10	-	L2	Market → JS
H11	-	L1	Market → JS
H12	-	L2	Market → OC
H13	-	L1	Market → OC
H14	-	L2	Hierarchy → JS
H15	-	L1	Hierarchy → JS
H16	-	L2	Hierarchy → OC
H17	-	L1	Hierarchy → OC
Moderating effects			
H18	No ^e	Clan (L2) × Clan (L1) → JS	
H19	No	Clan (L2) × Clan (L1) → OC	
H20	+	Adhocracy (L2) × Adhocracy (L1) → JS	
H21	+	Adhocracy (L2) × Adhocracy (L1) → OC	
H22	-	Market (L2) × Market (L1) → JS	
H23	-	Market (L2) × Market (L1) → OC	
H24	-	Hierarchy (L2) × Hierarchy (L1) → JS	
H25	-	Hierarchy (L2) × Hierarchy (L1) → OC	

Table 4 (Continued)

Varying contextual effects		
H26	+	Clan (L2) effect on JS → Clan (L1) effect on JS
H27	+	Clan (L2) effect on OC → Clan (L1) effect on OC
H28	+	Adhocracy (L2) effect on JS → Adhocracy (L1) effect on JS
H29	+	Adhocracy (L2) effect on OC → Adhocracy (L1) effect on OC
H30	-	Market (L2) effect on JS → Market (L1) effect on JS
H31	-	Market (L2) effect on OC → Market (L1) effect on OC
H32	-	Hierarchy (L2) effect on JS → Hierarchy (L1) effect on JS
H33	-	Hierarchy (L2) effect on OC → Hierarchy (L1) effect on OC
- Comparison: Tasks and Regional location		
H34	>	Clan: Hospital task vs. Statistics task
H35	<	Adhocracy: Hospital task vs. Statistics task
H36	<	Market: Hospital task vs. Statistics task
H37	>	Hierarchy: Hospital task vs. Statistics task
H38	<	Clan: Hospitals in Seoul vs. Hospitals outside of Seoul
H39	>	Adhocracy: Hospitals in Seoul vs. Hospitals outside of Seoul
H40	>	Market: Hospitals in Seoul vs. Hospitals outside of Seoul
H41	>	Hierarchy: Hospitals in Seoul vs. Hospitals outside of Seoul

Note: a. L 2: Organizational culture. b. L 1: Individual perceptions of organizational culture. c. JS: Job satisfaction. d. OC: Organizational commitment. e. No: Non-existence of moderating effect

CHAPTER 4 Research Design and Data Analysis

One of the foundations of multi-level thinking is that different theories, interpretations of data structure, and analysis of data need to be aligned in view of level issues (Klein et al., 1994; Rousseau, 2011). In particular, the relationships between organizational culture and individual perceptions of organizational culture have to be clarified when using an aggregation strategy, because aggregation includes specific logics concerning how and why individual perceptions of organizational culture coalesce to create or shape organizational culture that is separate from individual perceptions of organizational culture (Bliese, Chan, & Ployhart, 2007; Kozlowski & Klein, 2000).

This chapter examines the methodological aspects of a multi-level approach, data structure interpretations and statistical data analysis. Specifically, the chapter addresses measuring the independent, dependent, and control variables; data analysis techniques; and limitations.

4.1. DATA AND MEASUREMENT

The Korean government launched an executive agency system in 1999. After ten years a survey, “Performance Analysis and the Development of Executive Agencies in Korea,” was conducted to evaluate the overall performance of the system.³⁶ Before distributing the survey to employees who work in executive agencies, two pilot tests were conducted. The survey was sent to managers in charge of running 17 of the 46 executive agencies. After the pilots, a total of 1,535 surveys were distributed to officials in all 46 executive agencies from October 9th, 2008 to October 28th, 2008. Individual respondents were sampled using data in the Act of the Establishment and Operation of Responsible Administrative Agencies.³⁷ Over 89% of the surveys (1370) were completed (see Appendix A).

4.1.1. Independent variables

To measure the four types of perceived culture at the organizational and individual levels, the survey used the organizational culture assessment instrument (OCAI). The OCAI was developed to tap the four types of culture in the CVF (Cameron & Quinn, 2011). The instrument has six categories (dominant characteristics, organizational leadership, management of employees, organization glue, strategic

³⁶ To gain access to the survey data, I contacted Dae-Geon Kim (Associate Professor, Kangwon University in Korea. E-mail: daegeonkim@kangwon.ac.kr). I received permission to use the survey data for this study on June 2012.

³⁷ The law prescribes the outline for executive agencies and their functions. Article 16, section 3 (structure and quotas) provides information on the distribution of public officials among agencies.

emphases, and criteria of success; see Table 5). Each category contains four questions related to clan, adhocracy, market, and hierarchy cultures. The survey asks the respondent to allocate 100 points across four items based on the extent to which each item fits a respondent's organization. At the same time, the OCAI provides another type of question to measure a respondent's preferred culture (i.e., what a respondent would like it to be or desire it could be). As noted earlier, this study focuses on the perceived culture to reflect the effects of executive agency and to explore diverse relationship between culture and work motivation.³⁸

Table 5 Measurement Items for Independent Variables

³⁸ Data limitations, theoretical, and methodological arguments about tapping preferred culture at organizational and individual levels appear below.

1. Dominant Characteristics		Now	Preferred
A	The organization is a very personal place. It is like an extended family. People seem to share a lot of themselves.		
B	The organization is a very dynamic entrepreneurial place. People are willing to stick their necks out and take risks.		
C	The organization is very results oriented. A major concern is with getting the job done. People are very competitive and achievement oriented.		
D	The organization is a very controlled and structured place. Formal procedures generally govern what people do.		
Total		100	100
2. Organizational Leadership			
A	The leadership in the organization is generally considered to exemplify mentoring, facilitating, or nurturing.		
B	The leadership in the organization is generally considered to exemplify entrepreneurship, innovating, or risk taking.		
C	The leadership in the organization is generally considered to exemplify a no-nonsense, aggressive, results-oriented focus.		
D	The leadership in the organization is generally considered to exemplify coordinating, organizing, or smooth-running efficiency.		
Total		100	100
3. Management of Employees			
A	The management style in the organization is characterized by teamwork, consensus, and participation.		
B	The management style in the organization is characterized by individual risk-taking, innovation, freedom, and uniqueness.		
C	The management style in the organization is characterized by hard-driving competitiveness, high demands, and achievement.		
D	The management style in the organization is characterized by security of employment, conformity, predictability, and stability in relationships.		
Total		100	100

Table 5 (Continued)

4. Organization Glue		Now	Preferred
A	The glue that holds the organization together is loyalty and mutual trust. Commitment to this organization runs high.		
B	The glue that holds the organization together is commitment to innovation and development. There is an emphasis on being on the cutting edge.		
C	The glue that holds the organization together is the emphasis on achievement and goal accomplishment. Aggressiveness and winning are common themes.		
D	The glue that holds the organization together is formal rules and policies. Maintaining a smooth-running organization is important.		
Total		100	100
5. Strategic Emphases			
A	The organization emphasizes human development. High trust, openness, and participation persist.		
B	The organization emphasizes acquiring new resources and creating new challenges. Trying new things and prospecting for opportunities are valued.		
C	The organization emphasizes competitive actions and achievement. Hitting stretch targets and winning in the marketplace are dominant.		
D	The organization emphasizes permanence and stability. Efficiency, control and smooth operations are important.		
Total		100	100
6. Criteria of Success			
A	The organization defines success on the basis of the development of human resources, teamwork, employee commitment, and concern for people.		
B	The organization defines success on the basis of having the most unique or newest products. It is a product leader and innovator.		
C	The organization defines success on the basis of winning in the marketplace and outpacing the competition. Competitive market leadership is key.		
D	The organization defines success on the basis of efficiency. Dependable delivery, smooth scheduling and low-cost production are critical.		
Total		100	100

Note: from Cameron and Quinn (2011)

4.1.2. Dependent variables

This study looked at two dimensions of work motivation: job satisfaction and organizational commitment. Table 6 contains the items for job satisfaction and organizational commitment. Each question employed five-point Likert-style scales, ranging from “disagree” to “agree”.

Table 6 Items for Dependent Variables

Dependent Variables
1. Job satisfaction^a
- I am satisfied with my job.
- I am satisfied with the supervision.
- I am satisfied with my pay.
- I am satisfied with my co-workers.
- I am satisfied with promotion opportunities.
2. Organizational commitment^b
- I would accept almost any type of job assignment in order to keep working for this organization.
- I find that my values and the organization's values are very similar.
- I am proud to tell others that I am part of this organization.

Note: a. from Wright and Cropanzano (1998), b. from Mowday, Steers, and Porter (1979)

First, in line with the research of Wright and Cropanzano (1998), job satisfaction was tapped by five items. Second, organizational commitment was tapped by three items. Vandenberg (2009) used the following items to measure affective and normative commitment, employing survey questions from Mowday et al. (1979): (1) affective commitment: I am willing to put in a great deal of effort beyond that what is normally expected in order to help this organization to be successful; (2) normative commitment: a.

I am proud to tell others that I am part of this organization, b. I find that my values and the organization's values are very similar. Here, I used the same measures of normative commitment. For affective commitment, I employed a different item, "I would accept almost any type of job assignment in order to keep working for this organization".³⁹ This has been also widely used to measure affective commitment (e.g., Angle & Perry, 1981; Mowday et al., 1979; Tseng, 2011; Vigoda, 2000).

4.1.3. Control variables

This study included 12 control variables to tap various factors that may influence job satisfaction and organizational commitment (see Table 7). First, sex was coded 1 when the respondent was female and 0 for males. Length of service was measured in months. To measure employee age, the following item was used: "How old are you?", and respondents were placed in four categories. Respondents' education attainment was tapped by an indicator with five values. Rank was measured by the item: My rank is () (e.g., my rank is first class). In the analysis, first class is coded as 1.

³⁹ When the item used by Vandenberg's (2009) study tested using Cronbach's alpha, the test result was around 0.6. A threshold value for composite reliability is 0.7 (Hair, Black, Babin, & Anderson, 2010).

Table 7 Items for Control Variables

Control Variables
1. Socio-historic context and demographic factors
- Sex: Are you male or female? (male = 0)
- Length of services (months): How many years and months have you worked for this organization?
- Employee age (years): How old are you? (1) in twenties (2) in thirties (3) in forties (4) over fifty.
- Education level: (1) High school (2) Some college (3) Bachelor's degree (4) Master's degree (5) PhD
- Rank: My rank is ().
2. Organizational environments and character of organizational structure
a. Presence of private companies offering comparable services:
- People can buy similar services offered by private companies in the market
b. Effects from diverse agencies on task process
- Our organization's task processes are influenced by diverse other organizations
c. Effects from dynamic environments on task
- Our organization faces a dynamic environments which influences our tasks
d. Emphasis on formal relationships
- Our organization structure emphasizes formal relationships
e. Emphasis on hierarchical interactions
- Our organization structure emphasizes hierarchical interactions
3. Agency age and NPM strategies
a. Agency age (years)
b. NPM strategies
- After the adoption of the executive agency reform, have the following characteristics shown improvement in your organization?
- Public accountability
- Organizational identity and sense of purpose
- Sense of belonging to department
- Efforts to develop new public services
- Efforts to improve the quality of public service
- Creativity and innovation

Second, organizational environment and the character of organizational structure were measured by five items: “people can buy similar services offered by private companies in the market”, “our organization's task processes are influenced by diverse other organizations”, “our organization faces a dynamic environments which influences our tasks”, “our organization structure emphasizes formal relationships”, “our

organization structure emphasizes hierarchical interactions”. These items also used five-point Likert-style scales, ranging from disagree (1) to agree (5).

Third, the final group of control variables included items related to agency age and NPM strategies. Agency age was based on a review of Korean government reports and measured in years. Next, NPM strategies were tapped by six items, each item using five-point Likert-style scales. I selected responses to the questions -“After the adoption of the executive agency reform, which of the following characteristics have shown improvement in your organization?”- based on the argument that NPM strategies would improve accountability, morale, employee motivation (Gore, 1993; Osborne & Gaebler, 1992). The Korean government established diverse NPM strategies to change previous organizational structures, tasks, and management systems. Through the deregulation strategy, the government sought to improve unit accountability and creativity. In addition, the government emphasized flat structures such as team-based systems to develop employees’ identity and loyalty in the executive agencies. Finally, performance contracting has been used in order to develop new public services and to improve the quality of public service. In sum, six items (i.e., public accountability, organizational identity and sense of purpose, sense of belonging to department, efforts to develop new public services, efforts to improve the quality of public service, and creativity and innovation) were employed to control for possible effects on culture and work motivation.

4.1.4. Descriptive statistics

Table 8 includes descriptive statistics for the key variables included in the analysis. Missing values for particular variables ranged from 0 to 124. The results of skewness and kurtosis tests indicated that every variable had an overall univariate normal distribution.

Table 8 Descriptive Statistics

Variables	N	Mean	SD	Min	Max	Skew	Kurt
Independent variables							
Clan culture	1342	23.18	7.86	0	60	0.58	1.03
Adhocracy culture	1342	20.57	5.59	0	46.67	-0.49	1.02
Market culture	1342	27.04	7.80	0	80	1.04	3.67
Hierarchy culture	1342	29.32	9.30	6.67	100	1.39	4.83
Dependent variables							
Job satisfaction	1364	3.14	0.69	1	5	-0.07	0.22
Organizational commitment	1363	3.25	0.77	1	5	-0.14	0.14
Control variables							
Agency age	1370	4.87	2.74	1	9	0.61	-1.48
Sex (male = 0)	1355			0	1	0.48	-1.81
Length of service (months)	1330	176.40	104.50	2	435	0.16	-0.93
Employee Age (age group)	1352	2.72	0.79	1	5	-0.01	-0.55
Education level	1336	3.06	1.24	1	5	-0.05	-0.75
Rank	1246	6.56	1.40	2	10	-0.05	-0.35
Presence of private companies offering comparable services	1361	2.66	1.21	1	5	0.23	-0.88
Effect from other agencies on organizational task processes	1360	3.17	0.89	1	5	-0.02	-0.08
Effect from a dynamic environment on organizational tasks	1350	3.12	0.91	1	5	-0.22	-0.07
Formal relationships	1350	3.10	0.86	1	5	-0.21	0.18
Hierarchical interactions	1348	3.44	0.91	1	5	-0.25	-0.40
NPM strategies	1363	3.14	0.75	1	5	-0.50	0.55

Note: The cut-off values for skewness and kurtosis are the absolute values of 3 and 10, respectively (Kline, 2010).

Table 9 provides the questionnaire items, relevant references, reliability and construct validity coefficients as well as the results of variance inflation factors (VIF) for the independent, dependent, and control variables.

Table 9 Reliability, Validity, and Variance Inflation Factors (VIF)

-Independent Variables^a-			Factor score
<i>Clan Culture</i>	VIF = 4.36 ^b /4.36 ^c	$\alpha^d = 0.8$	
The organization is a very personal place. It is like an extended family. People seem to share a lot of themselves.			0.61
The leadership in the organization is generally considered to exemplify mentoring, facilitating, or nurturing			0.68
The management style in the organization is characterized by teamwork, consensus, and participation.			0.74
The glue that holds the organization together is loyalty and mutual trust. Commitment to this organization runs high.			0.75
The organization emphasizes human development. High trust, openness, and participation persist.			0.63
The management style in the organization is characterized by teamwork, consensus, and participation.			0.65
<i>Adhocracy Culture</i>	VIF = 2.46/2.46	$\alpha = 0.7$	
The organization is a very dynamic entrepreneurial place. People are willing to stick their necks out and take risks.			0.60
The leadership in the organization is generally considered to exemplify entrepreneurship, innovation, or risk taking.			0.62
The management style in the organization is characterized by individual risk-taking, innovation, freedom, and uniqueness.			0.70
The glue that holds the organization together is the emphasis on achievement and goal accomplishment. Aggressiveness and winning are common themes.			0.65
The organization emphasizes acquiring new resources and creating new challenges. Trying new things and prospecting for opportunities are valued.			0.71
The organization defines success on the basis of having the most unique or newest products. It is a product leader and innovator.			0.49

Table 9 (Continued)

Market Culture	VIF = 3.87/3.86	$\alpha = 0.7$	
The organization is very results oriented. A major concern is with getting the job done. People are very competitive and achievement oriented.			0.64
The leadership in the organization is generally considered to exemplify a no-nonsense, aggressive, results-oriented focus.			0.66
The management style in the organization is characterized by hard driving competitiveness, high demands, and achievement.			0.65
The glue that holds the organization together is the emphasis on achievement and goal accomplishment. Aggressiveness and winning are common themes.			0.65
The organization emphasizes competitive actions and achievement.			0.75
Hitting stretch targets and winning in the marketplace are dominant.			0.60
The organization defines success on the basis of winning in the marketplace and outpacing the competition. Competitive market leadership is key.			
Hierarchy Culture	VIF = 5.09/5.09	$\alpha = 0.7$	
The organization is a very controlled and structured place. Formal procedures generally govern what people do.			0.72
The leadership in the organization is generally considered to exemplify coordinating, organizing, or smooth-running efficiency.			0.47
The management style in the organization is characterized by security of employment, conformity, predictability, and stability in relationships.			0.75
The glue that holds the organization together is formal rules and policies. Maintaining a smooth-running organization is important.			0.75
The organization emphasizes permanence and stability. Efficiency, control and smooth operations are important.			0.70
The organization defines success on the basis of efficiency. Dependable delivery, smooth scheduling and low-cost production are critical.			0.52
-Dependent Variables^e-			Factor Score
Job satisfaction (come from Wright and Cropanzano 1998)	$\alpha = 0.8$		
I am satisfied with my job			0.71
I am satisfied with the supervision.			0.77
I am satisfied with my pay.			0.60
I am satisfied with my co-workers			0.68
I am satisfied with promotion opportunities			0.77
Organizational commitment (come from Mowday and Richard 1979) ^f	$\alpha = 0.8$		
I would accept almost any type of job assignment in order to keep working for this organization.			0.76
I find that my values and the organization's values are very similar.			0.86
I am proud to tell others that I am part of this organization.			0.84

Table 9 (Continued)

-Control Variables-		
Sex	VIF = 1.19/1.19	
Are you male or female? (male = 0)		
Working months	VIF = 3.09/3.09	
How many years and months have you worked for this organization?		
Employee Age	VIF = 3.13/3.13	
How old are you? (1) in twenties (2) in thirties (3) in forties (4) over fifty		
Education level	VIF = 1.79/1.79	
(1) High school (2) Some college (3) Bachelor's degree (4) Master's degree (5) PhD		
Hierarchical status	VIF = 2.05/2.05	
My rank is ().		
Presence of private companies offering comparable services^g	VIF = 1.13/1.13	
People can buy similar services offered by private companies in the market		
General environmental effects on organization tasks^g	VIF = 1.11/1.11	
Our organization faces a dynamic environment which influences our tasks		
Other agencies effects on our organization's task processes^g	VIF = 1.36/1.36	
Our organization's task processes are influenced by a diversity of other organizations		
Organizational internal structure^g		
Our organization structure emphasizes formal relationship	VIF = 1.03/1.03	
Our organization structure emphasizes hierarchical interaction	VIF = 1.12/1.12	
NPM strategies^g (created based on Park and Rainy 2007, 2008)		
Please evaluate following items by considering the influence of running executive agency policy:	VIF = 1.31/1.30 $\alpha = 0.9$	Factor score
Enhancement of public accountability		0.79
Reinforcement of organization identity and sense of purpose		0.84
Sense of belonging to departments		0.72
Employees' creativity and innovation		0.80
Efforts to development new public service		0.79
Efforts to improve the quality of public service		0.80

Note: a. Scales: 0 ~ 100. b. VIF results for job satisfaction. c. VIF results for normative commitment. d. Reliability (Cronbach's α). e. Scales: disagree (1) ~ agree (5). f. The survey questions were selected based on Vandenabeele's (2009) study. g. Scales: disagree (1) ~ agree (5).

4.2. DATA ANALYSIS

4.2.1. Individual level data analysis

To prepare individual level data for HLM analysis, missing values were removed using the list-wise function; the total number of missing values for individual level data was 250 (17.4%). To test the influence of missing values on the individual level data, independent sample t-tests were used. The results indicated no statistically significant differences between the original and the new data.⁴⁰

Skewness and kurtosis tests report that the data had a univariate normal distribution (see table 10). The overall results of VIF (see table 9) and bivariate correlations (see table 11) indicate that the individual level variables had no multicollinearity problems, since no high correlations (greater than 0.8) or VIFs (greater than 10.0) existed (Hair et al., 2010; Kline, 2010).

⁴⁰ Independent variables (clan: $p = 0.70$, adhocracy: $p = 0.99$, market: $p = 0.71$, hierarchy: $p = 0.90$), Dependent variables (job satisfaction: $p = 0.73$, organizational commitment: $p = 0.98$), Control variables (sex: $p = 0.94$, working month: $p = 0.94$, employee age: $p = 0.94$, education level: $p = 0.71$, rank: $p = 0.78$, presence of private companies offering comparable services: $p = 0.69$), effect from other agencies on organizational task process: $p = 0.89$, effect from environment on organizational tasks: $p = 0.98$, formal relationships $p = 0.61$, hierarchical interactions: $p = 0.78$, NPM strategy: $p = 0.79$).

Table 10 Individual Level Variables: Descriptive Statistics

Variables	N	Mean	SD	Min	Max	Skew	Kurt
Independent variables							
Clan culture	1145	23.40	7.66	4.17	60	0.67	0.99
Adhocracy culture	1145	20.71	5.34	3.33	46.67	0.13	0.75
Market culture	1145	26.92	7.49	6.67	66.67	1.02	2.84
Hierarchy culture	1145	29.02	8.80	10	78.33	1.09	2.78
Dependent variables							
Job satisfaction	1145	3.14	0.66	1	5	-0.07	0.13
Organizational commitment	1145	3.19	0.78	1	5	-0.14	0.07
Control variables							
Sex (male = 0)	1145			0	1	0.44	-1.81
Length of service (months)	1145	177.31	105.23	3	435	0.17	-0.93
Employee Age	1145	2.72	0.80	1	5	-0.00	-0.56
Education level	1145	3.03	1.24	1	5	-0.03	-0.73
Rank	1145	6.55	1.42	2	10	-0.04	-0.34
Presence of private companies offering comparable services	1145	2.63	1.21	1	5	0.21	-0.91
Effect from other agencies on organizational task processes	1145	3.16	0.88	1	5	0.00	-0.56
Effect from a dynamic environment on organizational tasks	1145	3.12	0.90	1	5	-0.24	-0.07
Formal relationships	1145	3.13	0.84	1	5	-0.24	0.24
Hierarchical interactions	1145	3.43	3.00	1	5	-0.24	-0.65
NPM strategies	1145	3.16	0.73	1	5	-0.46	0.54

Note: The cut-off values for skewness and kurtosis are the absolute values of 3 and 10, respectively (Kline, 2010).

Table 11 Individual Level Variables: Bivariate Correlations

	1	2	3	4	5	6	7	8	9
1. Job satisfaction									
2. Organizational commitment	0.62***								
3. Clan culture	0.31***	0.24**							
4. Adhocracy culture	0.20***	0.19***	0.16***						
5. Market culture	-0.18***	-0.14***	-0.56***	-0.05**					
6. Hierarchy culture	-0.25***	-0.22***	-0.44***	-0.60***	-0.23***				
7. Sex (female=0)	0.00	-0.08***	0.04	-0.04	0.01	-0.02			
8. Working month	0.08***	0.14***	0.06	0.12**	-0.04	-0.10***	0.01		
9. Employee Age	0.07**	0.15***	0.06**	0.08***	-0.07**	-0.05	-0.17***	0.77***	
10. Education level	-0.01	0.06	-0.06**	-0.10**	0.06**	0.06**	-0.17***	-0.27***	-0.03

(continued)

	1	2	3	4	5	6	7	8	9
11. Rank	-0.05	-0.11***	0.00	0.02	0.03	-0.04	0.30***	-0.28***	-0.48***
12. Similar public service supply	0.00	-0.06**	0.03	-0.05	-0.15***	0.12***	0.18***	-0.06**	-0.05
13. Effect from other agencies	0.03	0.03	-0.06**	0.02	0.01	0.01	-0.02	-0.03	-0.02
14. Effect from environment	0.32***	0.25***	0.11***	0.08***	-0.08***	-0.08***	0.03	-0.04	0.04
15. Formal relationships	0.23***	0.15***	0.04	0.11***	-0.00	-0.09***	-0.05	0.04	0.03
16. Vertical interactions	-0.19***	-0.16***	-0.21***	-0.18***	0.10***	0.20***	0.02	-0.0	-0.02
17. NPM strategies	0.49***	0.42***	0.17***	0.17***	-0.06	-0.20***	-0.03	0.01	0.01

(continued)

	10	11	12	13	14	15	16	17
11. Rank	-0.49***							
12. Similar public service supply	-0.18***	0.14***						
13. Effect from other agencies	0.03	0.00	0.05					
14. Effect from environment	0.08***	-0.01	0.09***	0.26***				
15. Formal relationship	-0.03	-0.02	-0.02	0.03	0.01***			
16. Hierarchical interaction	0.00	0.08**	0.03	0.15***	-0.00	0.04		
17. NPM strategies	0.02	-0.01	-0.02	0.08***	0.44***	0.11***		

Note: *** $p < 0.001$; ** $p < 0.05$; *** $p < 0.1$

4.2.2. Organizational level data analysis

To ready data for HLM analysis, I used median values and different data, with fewer missing values related to individual perceptions of organizational culture, for two reasons.⁴¹ First, median values of individual perceptions of organizational culture are less influenced by outliers and non-normal distributions (see Appendix C).⁴² Second, these data came close to the cluster size of 30 that is recommended for HLM analysis.⁴³ The cluster size for each organizational culture was 28.5.⁴⁴ There were 55 missing values (4%).

⁴¹ This study intentionally built two different data sets, for individual level data and for organizational level data, to produce more exact results on the relationship between organizational culture and work motivation, even though the individual level data (N = 1145) did not show statistical problems (see appendix E). Analysis of the individual level data produced similar results to analysis of the organizational level data. Two cases show non-normality: (1) adhocracy culture: Korea Seed & Variety Service, and (2) market culture: National Forest Research Institute.

⁴² The data on each culture in each agency have overall univariate normal distributions. Two cases show non-normality: (1) adhocracy culture: Korea Seed & Variety Service, and (2) market culture: National Forest Research Institute.

⁴³ Although previous studies adhered to samples of 30, recent studies report that the smaller samples at the individual and organizational levels can produce sound statistical results (Bell, Ferron, & Kromrey, 2008; Bell, Morgan, Kromrey, & Ferron, 2010). Specifically, Bell et al. (2008, p. 1123) report that “Maas and Hox (2004, 2005), who examined conditions in which the number of level-2 units ranged from 30 to 100 and the number of level-1 units per level-2 unit ranged from 5 to 50, found less bias in the variance estimates, but still reported substantial difficulty in making inferences about the variance components when the number of level-2 units was only 30.”

⁴⁴ Cluster size was calculated using the new organizational level data (N = 1315) divided by the number of executive agencies (N = 46).

Table 12 Organizational Level Variables: Descriptive Statistics

Variables	N	Mean	SD	Min	Max	Skew	Kurt
Agency age	46	4.76	2.74	1	9	0.04	-1.20
Clan (median)	46	23.23	2.53	19.36	30.48	0.75	0.37
Adhocracy (median)	46	20.79	1.54	17.21	24.46	0.10	0.28
Market (median)	46	27.00	2.95	21.74	32.41	0.09	-0.99
Hierarchy (median)	46	28.96	2.55	23.45	35.99	0.64	1.51

Note: Mean values represent mean values of each culture's median values at organizational level.

The data have a univariate normal distribution (see Table 12). In addition, there are not high correlations (greater than 0.8) or VIFs (greater than 10.0) (see Table 13). Thus, the data had no multi-collinearity problems.

Table 13 Bivariate Correlation Matrix and Results of VIF Tests

	VIF	1	2	3	4
1. Agency Age	1.38 ^a /1.02 ^b				
2. Clan (median)	3.42/3.04	-0.00			
3. Adhocracy (median)	1.73/1.73	0.02	-0.11		
4. Market (median)	3.43/3.39	-0.05	-0.73***	0.25	
5. Hierarchy (median)	2.75/2.46	0.10	-0.05	-0.62***	-0.36*

Note: *** $p < 0.001$; ** $p < 0.05$; *** $p < 0.1$ a. VIF results for job satisfaction. b. VIF results for organizational commitment

4.2.3. Logic in aggregation and agreement indexes

4.2.3.1. Logic in aggregation

An aggregation strategy for reflecting and measuring organizational culture generates critical epistemological and methodological arguments. Hofstede et al. (1993) argue that individuals, given “the partial nature of human knowledge about social reality” (p. 483), cannot fully recognize socially constructed reality. That is, every individual possesses a biased perception of reality. However, since aggregation reduces variation in individual perceptions of reality, it can reveal “actual” organizational culture. Thus, aggregation of individual perceptions of organizational culture using mean or median values no longer represents variation in individual perceptions of organizational culture. It is an organizational level construct.

Although the logic and the results of Hofstede et al. (1993) are persuasive,⁴⁵ several studies suggest the possibility of a misspecification fallacy. This fallacy happens when researchers neglect how individual level variables emerge to form organizational level variables without examining the construct validity of the aggregated variable (Klein et al., 2001; Klein & Kozlowski, 2000). Bandura (2001, p. 4) also argues that “emergent properties differ qualitatively from their constitutive elements and therefore are not reducible to them”. For instance, aggregated psychological constructs have a distinctive character, much as water differs from its components, oxygen and hydrogen.

⁴⁵ I introduced the results and logic earlier.

Several scholars claim that agreement or consensus has to be identified before using aggregation (Klein et al., 2001; Klein & Kozlowski, 2000; Schneider et al., 2013). If agreement is not apparent before moving to analyze the effects of organization culture on other variables, the results can be misleading, because the face and construct validity of organizational culture may be questioned. For instance, when half of the employees of an organization answer that only low levels of market culture are present, organizational market culture appears low; even though the remaining employees report greater evidence of organizational market culture, representative values (mean, median, and mode) of organizational market culture do not represent or tap all employees' opinions. By this logic, Klein et al. (2001, p. 4) point out that "within-group agreement is a prerequisite for the aggregation of the individual-level data to the group-level" and "within group agreement is more than a statistical hurdle. It is an integral element in the definition of the group level construct."

4.2.3.2. Agreement indexes

Bliese (2000) introduces diverse ways to identify such consensus: the within-group agreement index (R_{wg}), intra-class correlation coefficients (ICC) 1 and 2, and eta-squared (η^2). I examined these indexes to help justify aggregation from individual level to organizational level data. R_{wg} refers to "the degree to which ratings from individuals are interchangeable" (Bliese, 2000, p. 351). It is the most common measure of inter-rater agreement and reliability within the same organization (James, Demaree, & Wolf,

1984).⁴⁶ According to Klein et al. (2000), the acceptable cut-off is 0.7. Examining R_{wg} helps evaluate the validity of employees' responses within the same organization.

The reliability of employees' responses across organizations can be measured by ICC (1) and ICC (2). ICC (1) and ICC (2) were calculated based on median values. Interrater reliability reflects the degree to which the rank ordering of the ratings are consistent across employees within organizations. Specifically, ICC (1) indicates scoring consistency among members of the same organization, while ICC (2) reflects whether there is variation in variables between organizations (Bliese, 2000; Klein et al., 2000).⁴⁷

As the final step, eta-squared (η^2) is used to measure agreement, reliability, and non-independence simultaneously (Bliese, 2000). Non-independence refers to "the degree to which responses from individuals in the same group are influenced by, depend on, or cluster by group" (Bliese, 2000, p. 359). Eta-squared (η^2) is typically calculated from a one-way ANOVA.⁴⁸ A statistically significant eta-squared (η^2) indicates that the between group variance of a measure is significantly larger than the within group variance. Significant eta-squared results indicate that aggregated organizational culture has interrater validity and reliability within and between executive agencies.

⁴⁶ $R_{wg} = 1 - (S_x^2 / \sigma^2)$. S_x^2 is the variance of ratings for the single stimulus (here, perception of organizational culture). σ^2 is the variance of some "null-distribution" corresponding to no agreement.

⁴⁷ $ICC(1) = \tau_{00} / (\tau_{00} + \sigma^2)$. τ_{00} represents between group variance. σ^2 refers to within group variance. $ICC(2) = k(ICC(1)) / 1 + (k-1)ICC(1)$, where K represents group size.

⁴⁸ $\text{Eta-squared } (\eta^2) = \text{SSB (the sum of squares between groups)} / \text{SSW (the sum of squares within groups)} + \text{SSB [SST]}$

The results of applying these diverse agreement indexes to the data here suggest that aggregating individual perceptions of organizational culture was not statistically problematic. Specifically, the findings for R_{wg} were acceptable ($R_{wg} > 0.9$). ICC (1) was statistically significant ($p < 0.001$). For ICC (2), the results for clan, adhocracy, market, and hierarchy cultures were above 0.5. Finally, the results of eta-squared (η^2) were statistically significant ($p < 0.001$). More specific results are included in Appendix D.

These statistics imply that individual perceptions of organizational culture can be aggregated to tap organizational culture. The aggregated culture variable was employed in the HLM models at level 2.

4.3. MODEL DEVELOPMENT

Hierarchical linear modeling (HLM) was used since employees are nested within different contexts in each executive agency. HLM can simultaneously estimate the effects of organizational and individual level factors and cross-level interactions between them on individual level dependent variables, while avoiding potential biases related to estimates of standard errors stemming from using ordinary least squares (OLS) regression.⁴⁹ In this study, different levels of culture, cultural differences within and between agencies, and examination of diverse effects (i.e., direct, moderating, contextual effects) were critical in choosing a statistical model.

⁴⁹ One important assumption in OLS is independence of observations. However, possible strong correlations among employees nested within organizations (non-independence or strong intra-class correlation) can violate this assumption and lead to inaccurate statistical results.

This section presents three models along with brief descriptions and justifications. A centering strategy in HLM models considers bond strength attached to each organizational boundary and avoids diverse fallacies in the analysis. In the centering strategy, mean values were used in the one-way ANCOVA and non-uniform contextual effects models.

4.3.1. One-way ANOVA

The HLM analysis began with one-way ANOVA (i.e., the baseline model). The goal of one-way ANOVA is to obtain estimated intra-class correlations (ICC) and confirm the necessity of multi-level analysis for these data. In the HLM model, ICC indicates correlation of work motivation scores in the same agency and the extent of variance of work motivation between agencies. The results of ICC in job satisfaction and organizational commitment were 0.106 and 0.055, respectively. That is, 10.6% and 5.5% of the variance of job satisfaction and organizational commitment exists between executive agencies.

The equations estimated for the one-way ANOVA are:

Level 1:

$$Y_{ij} = \beta_{0j} + \beta_{1j} r_{ij} \sim N(0, \sigma^2)$$

Y_{ij} is the work motivation of employee i in executive agency j

Level 2:

$$\beta_{0j} = \gamma_{00} + u_{0j}, u_{ij} \sim N(0, \sigma^2)$$

4.3.2. One-way ANCOVA

The purpose of the one-way ANCOVA model is to show how much individual perceptions of organizational culture affect work motivation across all executive agencies. At the individual level, a grand-mean centering⁵⁰ was applied to individual perceptions of organizational culture. These individual perceptions were fixed at the organizational level.

The results of this model can change in the non-uniform contextual effects model, because one-way ANCOVA implicitly assumes that individual level (level 1) and organizational level (level 2) relationships are the same (i.e., there are no compositional/contextual effects).⁵¹ In other words, it does not clearly distinguish between agency boundaries. The changing results in the non-uniform contextual effects model imply that simple OLS methods have limitations in producing exact statistical results, because such methods cannot reflect the boundaries between organizations and the possible distinct effects of organizational culture. Put simply, these methods may lead to a contextual fallacy.

⁵⁰ This refers to centering around the means of several agencies (i.e., $X_{ij} - \bar{X}_{..}$ where $\bar{X}_{..}$ is the grand mean of X_{ij}) (Hofmann & Gavin, 1998). Grand mean centering produces an intercept that can be interpreted as an adjusted mean for overall executive agencies.

⁵¹ The variance of organizational culture equals the variance of individual perceptions of organizational culture.

The equations estimated for the one-way ANCOVA model are:

Level 1:

$$Y_{ij} = \beta_{0j} + \beta_{1j} (Clan_{ij} - \overline{Clan.j}) + \beta_{2j} (Adhocracy_{ij} - \overline{Adhocracy.j}) + \beta_{3j} (Market_{ij} - \overline{Market.j}) + \beta_{4j} (Hierarchy_{ij} - \overline{Hierarchy.j}) + \beta_{5j} + \text{several control variables}_{ij} + r_{ij}, \quad r_{ij} \sim N(0, \sigma^2)$$

Y_{ij} is the work motivation of employee i in executive agency j

Level 2:

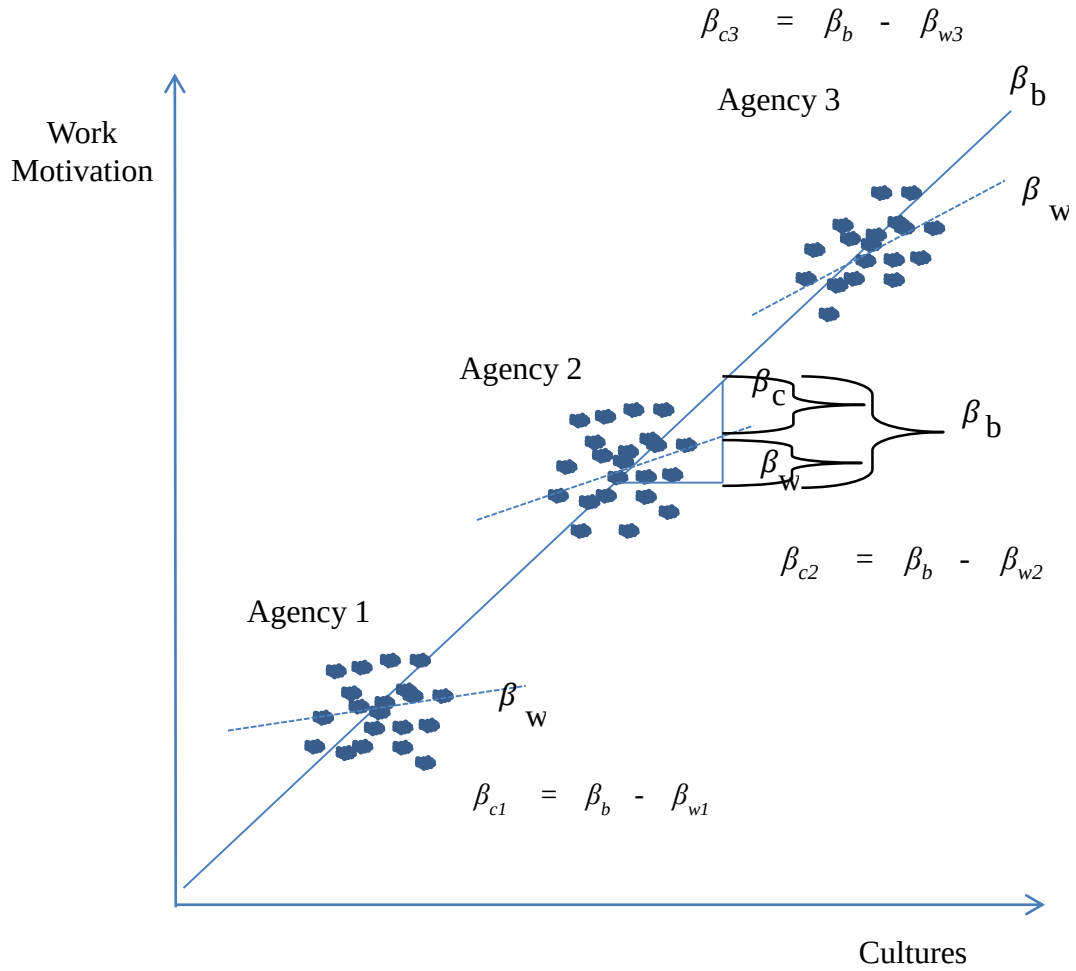
$$\beta_{0j} = \gamma_{00} + u_{0j}, u_{ij} \sim N(0, \sigma^2)$$

4.3.3. Non-uniform contextual effects

The fundamental idea of a non-uniform contextual effects model is to test contextual effects by considering possible randomly varying patterns of individual level variables within and between organizations (Raudenbush & Bryk, 2002).

Raudenbush (2004) describes this as a value added model. It can be used to explore the effects of contextual factors (e.g., organization and policy) and individual factors (e.g., individual IQ and capacity) on individual level outcomes. Organizational cultures can work as value added factors on individual perceptions of organizational cultures. Figure 3 introduces non-uniform contextual effects (see Shin and Raudenbush 2010).

Figure 3 Non-Uniform Contextual Effects Model



$$\beta_{cj} \text{ (contextual effect)} = \beta_b - \beta_{wj}$$

Note: _w indicates the relationship between individual perceptions of culture and work motivation within an agency. _b represents the relationship between organizational culture and work motivation between agencies.

This model can avoid a cross-level fallacy (including ecological and atomistic fallacies) by separating organizational culture and individual perceptions of organizational culture in the research analysis. In the model, at the organizational level

(level 2), the grand mean centering of each culture produces γ_{00} (i.e., intercept) representing overall work motivation across all executive agencies. The grand-mean centering of each culture can explain how much organizational culture influences work motivation. At the individual level, group-mean centering was employed to create clear hypothetical boundaries between organizations in the model. In addition, using centering can reflect the possibility of meaning change when organizational culture is tapped by aggregation of individual perceptions of organizational culture. Finally, by adding organizational culture variables at level 2, it is possible to measure moderating effects. Grand-mean centering was used to test moderating effects at level 2.

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The equations estimated for the non-uniform contextual effect model are:

Level 1:

$$Y_{ij} = \beta_{0j} + \beta_{1j}(\text{Clan}_{ij} - \overline{\text{Clan}}_j)^{52} + \beta_{2j}(\text{Adhocracy}_{ij} - \overline{\text{Adhocracy}}_j) + \beta_{3j}(\text{Market}_{ij} - \overline{\text{Market}}_j) + \beta_{4j}(\text{Hierarchy}_{ij} - \overline{\text{Hierarchy}}_j) + \sum_q \beta_{qi} \text{Control}_{ij} + r_{ij}, \quad r_{ij} \sim N(0, \sigma^2)$$

Y_{ij} is the work motivation of employee i in executive agency j

Level 2:

$$\beta_{0j} = \gamma_{00} + \gamma_{01}(\overline{\text{Clan}}_j - \overline{\text{Clan}}_{..})^{53} + \gamma_{02}(\overline{\text{Adhocracy}}_j - \overline{\text{Adhocracy}}_{..}) + \gamma_{03}(\overline{\text{Market}}_j - \overline{\text{Market}}_{..}) + \gamma_{04}(\overline{\text{Hierarchy}}_j - \overline{\text{Hierarchy}}_{..}) + \text{several control variables}_{ij} + u_{0j}$$

$$\beta_{1j} = \gamma_{10} + \gamma_{11}(\overline{\text{Clan}}_j - \overline{\text{Clan}}_{..}) + u_{1j},$$

$$\beta_{2j} = \gamma_{20} + \gamma_{12}(\overline{\text{Adhocracy}}_j - \overline{\text{Adhocracy}}_{..}) + u_{2j},$$

$$\beta_{3j} = \gamma_{20} + \gamma_{13}(\overline{\text{Market}}_j - \overline{\text{Market}}_{..}) + u_{3j},$$

$$\beta_{4j} = \gamma_{40} + \gamma_{14}(\overline{\text{Hierarchy}}_j - \overline{\text{Hierarchy}}_{..}) + u_{4j},$$

·
·
·

$$\beta_{qj} = \gamma_{i0} + u_{ij}^{54}, \quad u_j = \begin{pmatrix} \mu_{0j} \\ \mu_{1j} \\ \mu_{2j} \\ \cdot \\ \cdot \\ \mu_{ki} \end{pmatrix}$$

⁵² Group-mean centering involves subtracting the group mean from cases that are in that group (i.e., $X_{ij} - X_j$ where X_j represents the mean for group j) (Hofmann & Gavin, 1998). The zero point for the predictor varies for each group. Group-mean centering is appropriate when the meaning of culture attached to each organization is the focus of research.

⁵³ Grand-mean centering produces an intercept that can be interpreted as an overall average value of the dependent variable.

⁵⁴ Adding error terms make β_{1j} , β_{2j} , β_{3j} , β_{4j} , and β_{qj} randomly vary for each cultural slope. As a result, the contextual effects also randomly vary. However, the average contextual effects are still γ_{01} - γ_{10} , γ_{02} - γ_{21} , γ_{03} - γ_{32} , and γ_{04} - γ_{43} . In addition, $(\text{Cultures}_{ij} - \overline{\text{Cultures}}_j = \text{group mean})$ and $(\overline{\text{Cultures}}_j - \overline{\text{Cultures}}_{..} = \text{grand mean})$ are orthogonal; that is, there is no multi-collinearity problem in the group-mean centered culture in the randomly varying contextual effects model. Finally, adding the grand-mean of each culture at β_{ij} permits investigating the moderating effects of organizational culture on individual culture in the association with work motivation.

4.4. TESTS OF HLM ASSUMPTIONS

To conduct the HLM model analysis, culture residuals were inspected to test normality⁵⁵ and homogeneity⁵⁶ assumptions using EB (empirical Bayes) residuals. The overall results met normality and homogeneity assumptions (see Figures 4 and 5, Tables 12 and 13).⁵⁷

First, the normality of the level 1 residual and the homogeneity assumption of level 1 variance were examined by creating a histogram. The null hypothesis in the homogeneity test is that the level 1 culture residuals have equal variance across agencies. Values were not statistically significantly different at $p = 0.1$, and the null-hypothesis was not rejected (see Table 14).

Second, a Q-Q plot test was conducted to examine the normality assumption of level 2 residuals. The results satisfied the assumption (see Figure 5). In addition, a Doornik-Hansen test (using Stata 6.0) was employed to examine multivariate normality between residual estimates for each culture (see Table 15). Since the p -values were not significant, the null hypothesis (the distribution is normal) was not rejected.

In sum, the overall results indicated that using HLM models was appropriate to test direct, moderating, and contextual effects in the relationships among organizational culture, individual perceptions of organizational culture, and work motivation.

⁵⁵ Level 1 and level 2 error terms should be normally distributed (Raudenbush & Bryk, 2002).

⁵⁶ Level 1 error terms should show equal variance across level 2 units (Raudenbush & Bryk, 2002).

⁵⁷ The multi-collinearity assumption was examined in the previous section. No multi-collinearity problems were present in level 1 and level 2 variables.

Figure 4 Normality Tests for Level 1 Variable Residuals

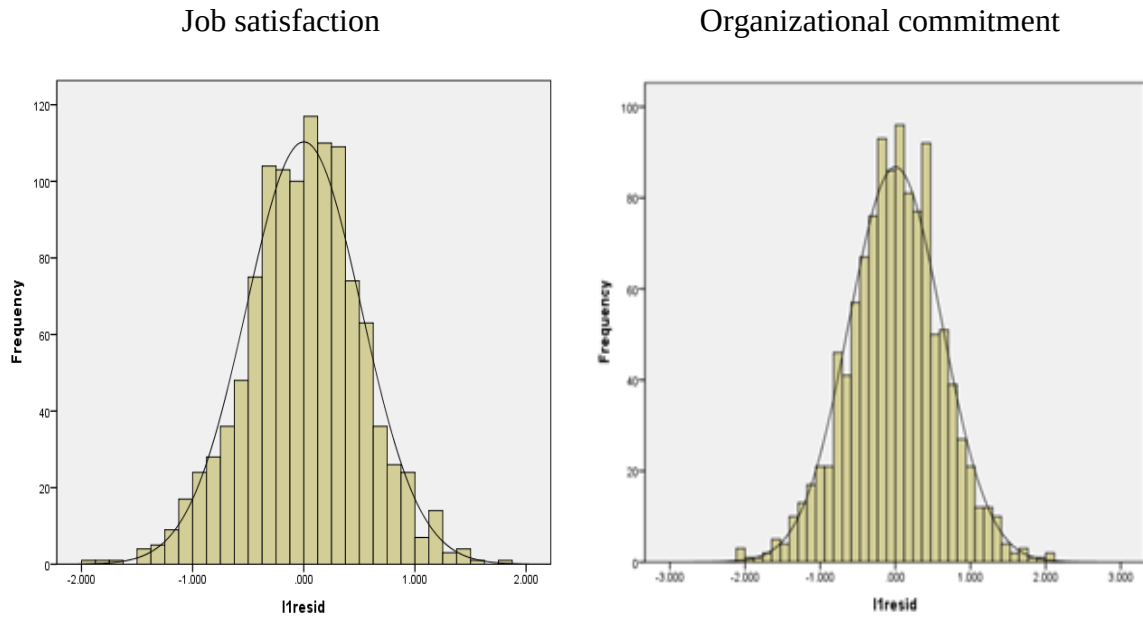


Table 14 Homogeneity Tests for Level 1 Variance

	Job satisfaction	Organizational Commitment
Chi-square (χ^2) statistic	28.939	53.750
Degrees of freedom	42	42
Significance	$P > 0.500$	$P > 0.106$

Figure 5 Normality Test for Level 2 Variable Residuals

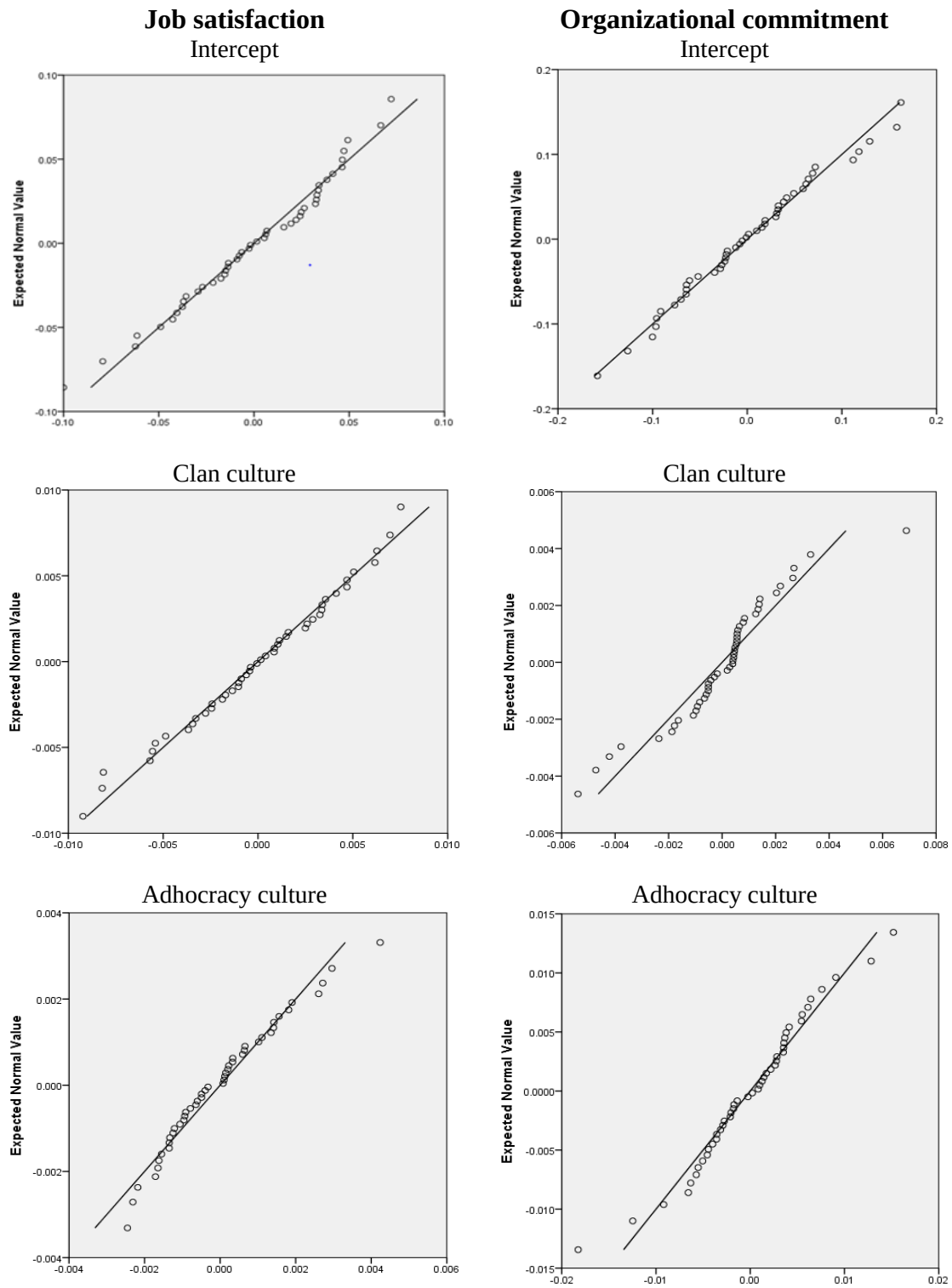


Figure 5 (continued)

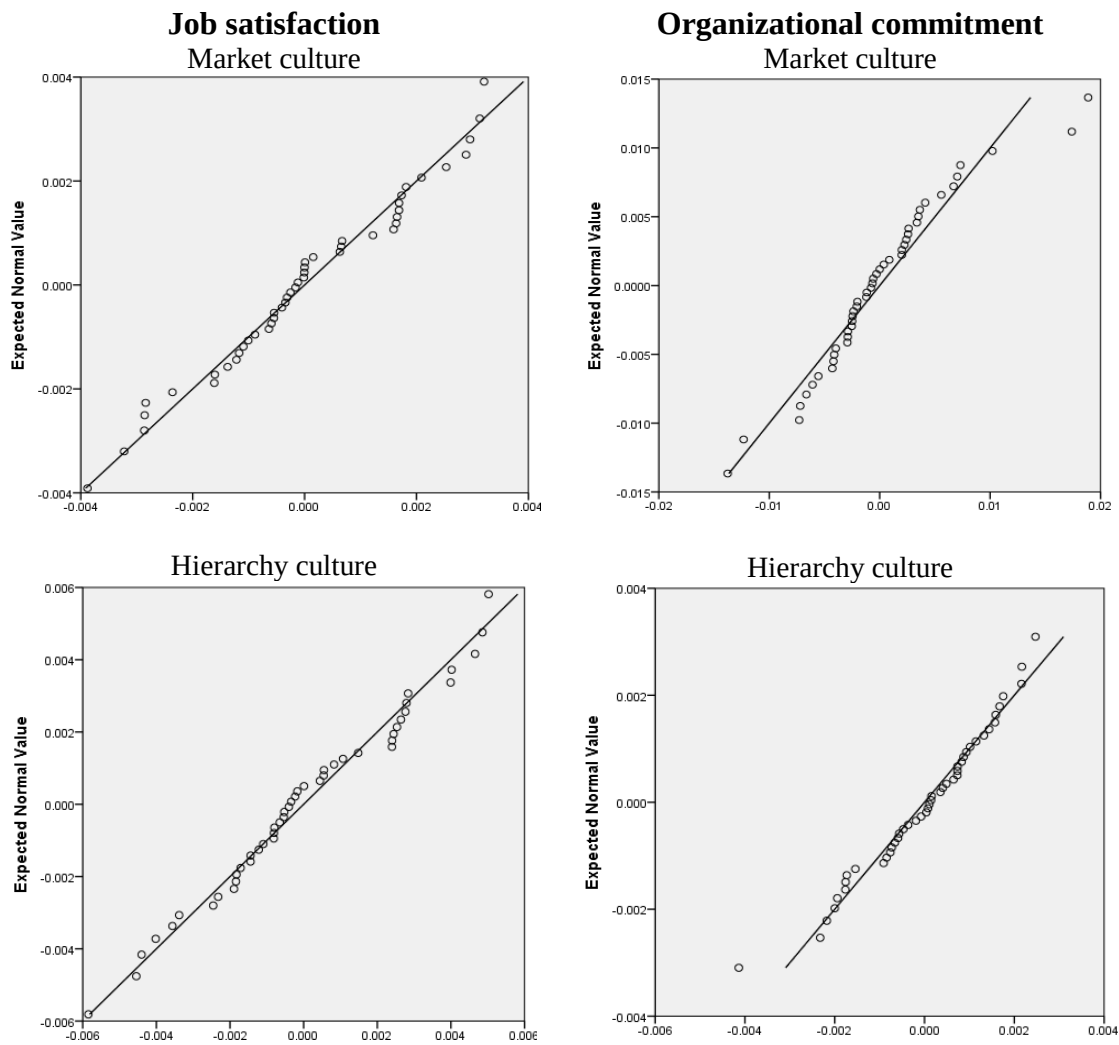


Table 15 Multivariate Normality Tests for Level 2 Variables

	Job satisfaction	Organizational Commitment
Chi-square (χ^2) statistic	13.317	11.586
Significance	$P > \chi^2 = 0.1014$	$P > \chi^2 = 0.1706$

4.5. COMMON METHODS BIAS

In this study, conclusions about the relationships among work motivation, individual level, and organizational level variables cannot be free from the criticism of common methods bias. All of the evidence is based on self-reported responses to the survey, “Performance Analysis and the Development of Executive Agency of Korea”. Using data in which every variable came from a single survey can lead to serious problems in testing the relationships between variables, because it can inflate the relationships (Podsakoff & Organ, 1986).

To help address this issue, Harman’s single factor analysis was conducted: “In an unrotated factor analysis, the items were not tied to a single factor and any common factor did not explain a substantial amount of the variance” (C. S. Jung, 2013, p. 967). Factor analysis indicated that among seven extracted factors, the largest factor explained around 16.8% of the variance (the cut-off value: 50%). Hence, I concluded that common method bias was not a serious statistical problem in this study.

4.6. LIMITATIONS

This study has several additional limitations. First are data limitations. I created different data sets for organizational variables and individual variables to meet the general standard of HLM analysis (cluster size: 30) and to measure organizational level cultures using median values. Although t-tests identified no statistical differences between the two data sets, it is possible that there are nuanced changes in the individual

level data. Moreover, to partially address limitations of cross-sectional data, agency age was included as a control variable. However, diverse factors such as leaders' commitment and individual attitudes could be important in the process of cultural socialization within and between executive agencies. In addition, cross-sectional data are problematic when examining relationships between independent and dependent variables, since time ordering is a key element of causal arguments. Even though this study conducted Harman's single-factor test to address common methods bias, the test may not guarantee sound statistical results, because using the same survey data can inflate relationships among variables (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003).

Second, the Korean case was selected purposively, because the executive agency system in Korea has shown distinctive success. Whether the results can be generalized to other types of NPM reforms or to other countries is problematic. Even so, Yin (2009) argues in distinguishing between "analytic" generalization and "statistical" generalization⁵⁸, the findings may contribute to the development of multi-level culture and motivation theories.

Finally, this study did not include preferred culture as a control variable due in part to missing data problems. Preferred culture had 51% more missing values than did perceived culture. In addition, there are theoretical and methodological concerns with a preferred culture variable. When researchers tap by measuring individual preferred culture and individual predisposition (the reference point is I), an aggregation strategy

⁵⁸ The goal of analytic generalization is to generalize theories, whereas statistical generalization seeks to generalize empirical findings.

may not need to consider agreement or consensus in creating an organizational culture variable because preferred culture is not interchangeable with the culture that others prefer (see Marsh et al., 2012 and Kozlowski & Klein, 2000). Nonetheless, at the individual level, perceived and preferred culture can work together and comprise the concept of culture as an individual belief system (B. D. Jones, 2003). Thus, omitting preferred culture as a control variable is a limitation.

Summary

This chapter discussed the study design and methods to explore the hypotheses presented in Chapter Three. The independent, dependent, and control variables were described. Moreover, contradictory perspectives on aggregation and diverse agreement indexes were inspected to clarify conceptual differences between organizational culture and individual perceptions of organizational culture. Finally, I tested HLM assumptions and suggested several limitations of the study. The next chapter turns to the results.

CHAPTER 5 Results

This chapter presents the findings of testing the hypotheses that chapter 4 introduced. First, I examine findings on direct, moderating, and varying contextual effects, looking at proportions of variance (pseudo R^2) that suggest the explanatory power of organizational culture and individual perceptions of organizational culture on work motivation. Second, I compare the effects of organizational culture and individual perceptions of organizational culture on job satisfaction and organizational commitment. Finally, the effects of tasks and regional locations on organizational culture are explored. Some but by no means all of the hypotheses were supported.

5.1. DIRECT, MODERATING, AND CONTEXTUAL EFFECTS

The HLM analysis included three steps. First, a one-way ANOVA model provides a baseline, with no determinants of job satisfaction or organizational commitment. Second, the one-way ANCOVA model adds individual level variables including perceptions of the four types of culture (clan, adhocracy, market, and hierarchy) and several control variables. Finally, the non-uniform contextual effects model employs all variables at the individual and organizational levels.

5.1.1. Job satisfaction

Table 16 presents findings on job satisfaction. In the one-way ANCOVA model, individual perceptions of clan culture have a statistically significant and positive relationship with job satisfaction, whereas individual perceptions of market and hierarchy cultures have significant but negative associations with job satisfaction.

In the non-uniform contextual effects model (model 3), organizational clan culture is significantly and positively related to job satisfaction. The other types of culture are not significantly associated with job satisfaction. Yet, at level 1, individual perceptions of market and hierarchy cultures show statistically significant, negative relationships with job satisfaction. Hence, H2, H11, and H15 are supported.

Second, none of the moderating effects is significantly related to job satisfaction. Thus, H17 and 18 are accepted, but H19 and H20 are rejected.

Third, varying contextual effects do not show any statistically significant results. Yet, individual level cultures have significant variation within and between agencies in the relationship with job satisfaction.

Turning to the control variables, the effect of a dynamic environment on tasks and formal relationships have statistically significant and positive relationships with job satisfaction. However, emphasis on hierarchical relationships is significantly and negatively associated with job satisfaction. Furthermore, NPM strategies are positively and significantly related to job satisfaction. However, other factors (sex, age, education level, rank) are not significantly associated with degree of job satisfaction.

Finally, in the varying contextual effects model, the proportion of variance explained by level 2 factors is 93.6%. To see the effects of organizational culture on job satisfaction, I calculated the effects, yielding 31.4% after excluding agency age, In addition, the proportion of variance explained by level 1 factors is 31.6%. To examine the impact of individual level culture on job satisfaction, I excluded other individual control variables; 12.4% of the variation in job satisfaction is accounted for by individual level culture. Total variation in job satisfaction that can be related to culture at the organizational and individual levels is 43.8%.

Table 16 Influences on Job Satisfaction

	Model 1: One-Way ANOVA model	Model 2: One-Way ANCOVA model	Model 3: Non-uniform Contextual effects model
Fixed effects	Coef.(SE)	Coef.(SE)	Coef.(SE)
Organizational level (Level 2) factors			
Intercept	3.127***(0.038)	1.618***(0.224)	1.733***(0.224)
Direct effects			
Clan(L 2)			0.050***(0.014)
Adhocracy (L 2)			-0.003(0.016)
Market (L 2)			0.016(0.013)
Hierarchy (level 2)			0.004(0.013)
Control variable: agency age			-0.007(0.007)
Moderating effects			
Clan (L 2) × Clan (L 1)			$0.2 \times 10^{-3}(0.001)$
Adhocracy (L 2) × Adhocracy(L 1)			$0.1 \times 10^{-3}(0.001)$
Market (L 2) × Market (L 1)			$0.5 \times 10^{-3}(0.001)$
Hierarchy (L 2) × Hierarchy (L 1)			$0.6 \times 10^{-3}(0.001)$
Individual level (L 1) factors			
Direct effects			
Clan (L 1)		0.008*(0.004)	0.008(0.005)
Adhocracy (L 1)		0.001(0.005)	0.002(0.005)
Market (L 1)		-0.010**(0.004)	-0.010*(0.005)
Hierarchy (L 1)		-0.008**(0.004)	-0.009*(0.005)

Table 16 (Continued)

Control variables			
Sex (Dummy: male = 0)		0.025(0.036)	0.022(0.036)
Length of service (months)		$0.2 \times 10^{-3}(0.3 \times 10^{-3})$	$0.2 \times 10^{-3}(0.3 \times 10^{-3})$
Employee Age		0.020(0.035)	0.006(0.035)
Education level		0.002(0.018)	0.001(0.017)
Hierarchical status		-0.007(0.017)	-0.015(0.017)
Presence of private companies offering comparable services		$0.1 \times 10^{-3}(0.014)$	-0.001(0.014)
Effect from other agencies on organizational task processes		-0.003(0.019)	$-0.6 \times 10^{-3} (0.019)$
Effect from a dynamic environment on organizational tasks		0.090*** (0.021)	0.096*** (0.021)
Formal relationships		0.131*** (0.019)	0.128*** (0.019)
Hierarchical interactions		-0.067*** (0.019)	-0.067*** (0.019)
NPM strategies		0.319*** (0.025)	0.317*** (0.025)
Random effects			
Intercept variance (SD)	0.047*** (0.216)	0.008*** (0.087)	0.003* (0.062)
Clan slope variance (SD)			$0.1 \times 10^{-3} ** (0.010)$
Adhocracy slope variance (SD)			$0.1 \times 10^{-4} ** (0.003)$
Market slope variance (SD)			$0.1 \times 10^{-4} ** (0.004)$
Hierarchy slope variance (SD)			$0.4 \times 10^{-4} ** (0.007)$
Residual variance (SD)	0.396(0.629)	0.275(0.524)	0.271(0.521)
The proportion of variance in Organizational level factors (r_{ij}) (%)			93..6%
The proportion of variance in cultures (level 2) (%)			31.4%
The proportion of variance in Individual level factors (u_{oj}) (%)		30.6%	31.6%
The proportion of variance in cultures (level 1) (%)			12.4%

Note: *** $p < 0.001$, ** $p < 0.05$, * $p < 0.1$.

Table 17 summarizes the hypothesis tests for job satisfaction. H2, H11, H15, H18, and H20 were supported.

Table 17 Summary of Hypothesis Tests for Job Satisfaction

	Direction	Level	Relationships	Result
Direct effects				
H2	+	Level 2 (L 2) ^a	Clan → JS ^c	O
H3	+	Level 1 (L 1) ^b	Clan → JS	X
H6	+	L 2	Adhocracy → JS	X
H7	+	L 1	Adhocracy → JS	X
H10	-	L 2	Market → JS	X
H11	-	L 1	Market → JS	O
H14	-	L 2	Hierarchy → JS	X
H15	-	L 1	Hierarchy → JS	O
Moderating effects				
H18	No ^d	Clan (L 2) × Clan (L 1) → JS		O
H20	No	Adhocracy (L 2) × Adhocracy (L 1) → JS		O
H22	-	Market (L 2) × Market (L 1) → JS		X
H24	-	Hierarchy (L 2) × Hierarchy (L 1) → JS		X
Varying contextual effects				
H26	+	Clan (L 2) effect on JS → Clan (L 1) effect on JS		X
H28	+	Adhocracy (L 2) effect on JS → Adhocracy (L 1) effect on JS		X
H30	-	Market (L 2) effect on JS → Market (L 1) effect on JS		X
H32	-	Hierarchy (L 2) effect on JS → Hierarchy (L 1) effect on JS		X

Note: O: hypothesis was supported. X: hypothesis was not supported. a. L 2: Organizational culture. b. L 1: Individual perceptions of organizational culture. c. JS: Job satisfaction. d. No: Non-existence of moderating effect

First, the results imply that executive agencies with clan cultures have more satisfied employee. Although previous studies (e.g., Moynihan & Pandey, 2007a) report that

employees who perceive a strong clan culture have higher levels of job satisfaction, the positive relationship between organizational clan culture and job satisfaction has not been fully identified in public organization and management studies. The findings here suggest that job satisfaction of employees in executive agencies might be cultivated by strengthening organizational clan culture.

Second, as expected, individual perceptions of organizational market and hierarchy cultures are negatively associated with job satisfaction. The findings indicate that job satisfaction may not be nurtured by either control-oriented and competition-oriented mechanisms or organizational settings.

Third, O'Reilly and Chatman (1996) claim that organizational culture typically changes relationships between individual level variables; however, moderating effects depend on how employees perceive cultural strength. The findings here may indicate that in executive agencies every culture does not have enough power to change the relationship between individual perceptions of organizational culture and job satisfaction.

5.1.2. Organizational commitment

Table 18 presents the results of associations between culture and organizational commitment. In the one-way ANCOVA model, individual perceptions of market and of hierarchy cultures have statistically significant, negative associations with organizational commitment. In the non-uniform contextual effects model, clan, adhocracy, market, and hierarchy organizational cultures have significant and positive relationships with organizational commitment. Thus, H4, H8, H13, and H17 are accepted.

Second, none of the moderating effects is significantly related to organizational commitment. Hence, H19 and 21 are supported, but H23 and H25 are rejected.

Third, no hypothesis related to varying contextual effects is supported. However, as already noted, market and hierarchy organizational cultures have statistically significant, positive relationships with organizational commitment. Moreover, individual perceptions of market and of hierarchy cultures are significantly and negatively associated with organizational culture. The average varying contextual effects of market and of hierarchy cultures are 0.043⁵⁹ and 0.043⁶⁰, respectively.

Turning to the control factors, some demographic variables (sex, employee age, and educational level) have statistically significant associations with organizational commitment. In addition, the effect from a dynamic environment on organizational tasks has a statistically significant, positive relationship with organizational commitment.

⁵⁹ Market (0.043) = Market organizational culture (0.030) – Individual perceptions of market culture (-0.013)

⁶⁰ Hierarchy (0.043) = Hierarchy organizational culture (0.031) – Individual perceptions of hierarchy culture (-0.012)

Emphasis on formal relationships is statistically significant and negatively related to organizational commitment, whereas emphasis on hierarchical interactions has a statistically significant, positive association with organizational commitment. Finally, consistent with results in job satisfaction, NPM strategies are positively and significantly related to organizational commitment.

Finally, in the varying contextual effects model, the proportion of variance explained by level 2 factors is 73.5%. After eliminating the agency age variable, I compute the effects of organizational culture on organizational commitment, yielding 11.8%. In addition, the proportion of variance explained by level 1 factors is 31.7%. To analyze the effect of individual level culture on organizational commitment, I excluded other individual control variables; 7.2% variation in organizational commitment is accounted for by individual level culture. Thus, organizational culture has more explanatory power than individual culture in accounting variation in organizational commitment. Together, the two levels, organizational culture and individual perceptions of organizational culture, explain almost 19% in organizational commitment.

Table 18 Influences on Organizational Commitment

	Model 1: One-Way ANOVA model	Model 2: One-Way ANCOVA model	Model 3: Non-uniform Contextual effects model
Fixed effects	Coef.(SE)	Coef.(SE)	Coef.(SE)
Organizational level (Level 2) factors			
Intercept	3.127***(0.038)	1.747***(0.274)	1.704***(0.277)
Direct effects			
Clan(L 2)			0.038**(0.019)
Adhocracy (L 2)			0.036*(0.021)
Market (L 2)			0.030*(0.017)
Hierarchy (level 2)			0.031*(0.016)
Control variable: agency age			-0.008(0.009)
Moderating effects			
Clan (L 2) × Clan (L 1)			-0.001(0.001)
Adhocracy (L 2) × Adhocracy(L 1)			-0.002(0.003)
Market (L 2) × Market (L 1)			0.001(0.001)
Hierarchy (L 2) × Hierarchy (L 1)			0.1×10 ⁻³ (0.001)
Individual level (L 1) factors			
Direct effects			
Clan (L 1)		0.003(0.005)	0.001(0.005)
Adhocracy (L 1)		0.002(0.006)	0.001(0.006)
Market (L 1)		-0.011**(0.006)	-0.013**(0.006)
Hierarchy (L 1)		-0.010**(0.005)	-0.012**(0.005)

Table 18 (Continued)

Control variables			
Sex (Dummy: male = 0)		-0.074*(0.044)	-0.075*(0.044)
Length of service (months)		0.001*(0.3×10^{-3})	0.5×10^{-3} (0.3×10^{-3})
Employee Age		0.052(0.043)	0.057(0.043)
Education level		0.031(0.022)	0.037*(0.021)
Hierarchical status		-0.006(0.021)	-0.004(0.020)
Presence of private companies offering comparable services		-0.021(0.017)	-0.022(0.017)
Effect from other agencies on organizational task processes		-0.024(0.023)	-0.022(0.023)
Effect from a dynamic environment on organizational tasks		0.079*** (0.025)	0.088*** (0.025)
Formal relationships		0.081*** (0.023)	0.077*** (0.025)
Hierarchical interactions		-0.055** (0.027)	-0.056** (0.023)
NPM strategies		0.336*** (0.031)	0.343*** (0.031)
Random effects			
Intercept variance (SD)	0.034*** (0.184)	0.014*** (0.120)	0.012*** (0.109)
Clan slope variance (SD)			0.3×10^{-4} *(0.005)
Adhocracy slope variance (SD)			0.8×10^{-3} ** (0.009)
Market slope variance (SD)			0.2×10^3 ** (0.014)
Hierarchy slope variance (SD)			0.1×10^{-4} ** (0.004)
Residual variance (SD)	0.581(0.762)	0.407(0.638)	0.395(0.629)
The proportion of variance in Organizational level factors (r_{ij}) (%)			73.5%
The proportion of variance in cultures (level 2) (%)			11.8%
The proportion of variance in Individual level factors (u_{0j}) (%)		29.9%	31.7%
The proportion of variance in cultures (level 1) (%)			7.2%

Note: *** $p < 0.001$, ** $p < 0.05$, * $p < 0.1$.

Table 19 summarizes the performance of the hypotheses about organizational commitment. Six of the 16 hypotheses are accepted: H4, H8, H13, H17, H19, and H21.

Table 19 Summary of Hypothesis Tests for Organizational Commitment

	Direction	Level	Relationships	Result
Direct effects				
H4	+	Level 2 (L 2) ^a	Clan → OC ^c	O
H5	+	Level 1 (L 1) ^b	Clan → OC	X
H8	+	L 2	Adhocracy → OC	O
H9	+	L 1	Adhocracy → OC	X
H12	-	L 2	Market → OC	X
H13	-	L 1	Market → OC	O
H16	-	L 2	Hierarchy → OC	X
H17	-	L 1	Hierarchy → OC	O
Moderating effects				
H19	No ^d	Clan (L 2) × Clan (L 1) → OC		O
H21	No	Adhocracy (L 2) × Adhocracy (L 1) → OC		O
H23	-	Market (L 2) × Market (L 1) → OC		X
H25	-	Hierarchy (L 2) × Hierarchy (L 1) → OC		X
Varying contextual effects				
H27	+	Clan (L 2) effect on OC → Clan (L 1) effect on OC		X
H29	+	Adhocracy (L 2) effect on OC → Adhocracy (L 1) effect on OC		X
H31	-	Market (L 2) effect on OC → Market (L 1) effect on OC		X
H33	-	Hierarchy (L 2) effect on OC → Hierarchy (L 1) effect on OC		X

Note: O indicates hypothesis supported. X indicates hypothesis was not accepted. a. L 2: Organizational culture. b. L 1: Individual perceptions of organizational culture. c. OC: Organizational commitment. d. “No” means that moderating effects did not exist.

First, as expected, organizational clan and adhocracy cultures have significant, positive relationships with organizational commitment. The findings suggest that clan culture, which has not been emphasized in public organizations (Cho & Ringquist, 2011), is

linked to greater organizational commitment in executive agencies. In addition, at the organizational level, market and hierarchy cultures are positively related to organizational commitment. All positive relationships between organizational level cultures and organizational commitment imply that organizational cultures are balanced, and thus they work positively on organizational commitment.

Second, at the individual level, employee perceptions of market and hierarchy cultures are negatively associated with organizational commitment. Such cultures might hinder the development of employees' attachment to their agencies and decrease organizational performance. The results are also consistent with the findings of previous private sector studies (e.g., Goodman et al., 2001; Rashid et al., 2003).

Third, like the results of job satisfaction, moderating effects are not significantly related to organizational commitment. This implies that organizational culture may not possess enough isomorphic power to change relationship between individual perceptions of organizational culture and organizational commitment.

Finally, the positive varying contextual effects in market (0.043) and hierarchy (0.043) cultures indicate that these cultures have positive additive effects over and above the relationships between individual perceptions of market and of hierarchy cultures and organizational commitment. For example, if an employee works in an agency with one unit higher market and hierarchy culture than other agencies, he/she would be expected to have 0.043 higher organizational commitment on average.⁶¹

⁶¹ Although the effects seem small, coefficient values were not reported using standardized coefficients. When scales of variables are dissimilar, standardized coefficient values are used. In this study, the scales

5.1.3. Comparisons of cultural influences on work motivation

In the analysis of direct effects, clan, adhocracy, market, and hierarchy organizational cultures show more statistically significant relationships with organizational commitment than with job satisfaction (see Table 20). Individual perceptions of market and hierarchy culture are significantly related to organizational commitment. However, job satisfaction is significantly related only to organizational clan culture and to individual perceptions of market and of hierarchy culture at the individual level. In addition, both the proportions of variance (pseudo R^2) and coefficients of organizational cultures are higher than individual perceptions of organizational cultures. Therefore, H1 is accepted.

Among the control variables, sex and education level are significantly and positively related to organizational commitment, while they are not significant predictors of job satisfaction. Females report more positive levels of organizational commitment than do males. Employees with more education also are more committed to their work. This is inconsistent with Moynihan and Pandey (2007a); whose study reported negative effects of education level on organizational commitment. This may imply that at least in Korea public employees with more education consider congruence between an agency culture and their cultural values more important than extrinsic rewards.

between culture and work motivation are different. Thus, it is hard to definitively arrive at a conclusion that the effects are small.

Table 20 Influences on Work Motivation

		Job satisfaction	Organizational commitment
Variance			
Organizational level		31.4%	11.8%
Individual level		12.4%	7.2%
Total variance		43.8%	19.0%
Coefficient			
Organizational level	Clan	0.050***	0.038**
	Adhocracy	-0.003	0.036*
	Market	0.016	0.030*
	Hierarchy	0.004	0.031*
Individual level	Clan	0.008	0.001
	Adhocracy	0.002	0.001
	Market	-0.010*	-0.013**
	Hierarchy	-0.009*	-0.012**
Controls			
Sex (male = 0)		0.022	0.079*
Education level		0.001	0.037*
Effects from a dynamic environment on organizational tasks		0.096***	0.088***
Formal relationships		0.128***	0.077***
Hierarchical interactions		-0.067***	-0.056**
NPM strategies		0.317***	0.343***

Note: *** $p < 0.001$, ** $p < 0.05$, * $p < 0.1$

Furthermore, the effects from a dynamic environment on organizational tasks were positively associated with work motivation. It seems that executive agencies and employees use diverse information from a complex environment to develop their task

capacity and decision-making, as Lipsky (1980) argues. Moreover, formal relationships and hierarchical interactions revealed positive and negative association with work motivation, respectively. Although the two seem to be similar mechanisms in agencies, employees evidently distinguish between managing explicit processes fairly and control-oriented directions. Finally, consistent with previous studies (e.g., Gore, 1993; Osborne & Gaebler, 1992), NPM strategies are positively related to work motivation in executive agencies.

5.2. ORGANIZATIONAL TASKS AND REGIONAL LOCATIONS

To examine the effects of tasks and regional context on variation in cultural strength, I compared organizational cultures in hospitals and statistics agencies.

Table 21 Organizational Task by Strength of Culture

	Agency	N	Mean	T	DF	Sig(1-tailed)
Clan	Hospitals	306	25.21	0.42	581.98	0.000
	Statistics	279	22.21			
Adhocracy	Hospitals	306	19.86	0.32	571.65	0.041
	Statistics	279	20.61			
Market	Hospitals	306	23.73	0.46	540.29	0.000
	Statistics	279	28.89			
Hierarchy	Hospitals	306	31.13	0.46	564.39	0.000
	Statistics	279	28.14			

T-tests show that there are statistically significant differences between hospital and statistics agencies (see Table 21). Aggregated organizational culture varies between the two types of agency. Compared to hospitals, statistics agencies have stronger adhocracy and market cultures but weaker clan and hierarchical cultures. Thus, H34, H35, H36, and H36 are supported.

Table 22 includes t-tests results about differences in hospital agency culture in specific regions. Comparisons of cultures in hospitals in Seoul and those outside of Seoul produce statistically significant differences in each culture type. Hospitals outside of Seoul have stronger clan and adhocracy cultures, while those located in Seoul have stronger market and hierarchy cultures. Therefore, H38, H40, and H41 are accepted.

Table 22 Differences in Hospital Cultures by Region

	Group	N	Mean	T	DF	Sig(1-tailed)
Clan	Hospitals in Seoul	184	24.05	-3.13	249.46	.000
	Hospitals outside of Seoul	122	26.96			
Adhocracy	Hospitals in Seoul	184	19.62	-9.75	258.83	.026
	Hospitals outside of Seoul	122	20.21			
Market	Hospitals in Seoul	184	24.03	1.02	266.23	.054
	Hospitals outside of Seoul	122	23.28			
Hierarchy	Hospitals in Seoul	184	32.16	2.22	271.45	.000
	Hospitals outside of Seoul	122	29.58			

Table 23 summarizes tests of hypotheses for organizational tasks, regional location, and geographic region. With only one exception, all were supported. The

findings that different organizational cultural profiles depend on organizational task and on regional location imply that organizational culture is not a static but a dynamic factor (Cameron & Quinn, 2011; Khademian, 2002; Schein, 2010). Specifically, organizational task and daily work simultaneously influence perceived organizational culture. In addition, organizational culture appears to be influenced by regional environmental factors such as medical needs and budget support from the central government. The results underscore that executive agencies under similar policy constraints confront the challenge of deciding how distinct their cultures can actually be and what types of culture should be cultivated for competitive advantage. The next chapter discusses more specific implications of the findings for theory, methods, and practice.

Table 23 Summary of Hypotheses for Organizational Tasks and Regional Locations

	Strength	Contents	Results
H34	>	Clan: Hospital task vs. Statistics task	O
H35	<	Adhocracy: Hospital task vs. Statistics task	O
H36	<	Market: Hospital task vs. Statistics task	O
H37	>	Hierarchy: Hospital task vs. Statistics task	O
H38	<	Clan: Hospitals in Seoul vs. Hospitals outside of Seoul	O
H39	>	Adhocracy: Hospitals in Seoul vs. Hospitals outside of Seoul	X
H40	>	Market: Hospitals in Seoul vs. Hospitals outside of Seoul	O
H41	>	Hierarchy: Hospitals in Seoul vs. Hospitals outside of Seoul	O

Note: O: hypothesis supported. X: hypothesis is rejected.

CHAPTER 6 Conclusion

Initially, this study sought to explore why executive agencies in Korea have been generally successful and what exactly makes the system stand out. Many discussions have been quite critical of the effects of NPM reforms on public organizations and employees. Some scholars claim that “NPM is dead” (Dunleavy et al., 2006). Most of these judgments, however, were based on the results of United States, United Kingdom, Canada, Australia, New Zealand, and the Netherlands. They also did not address the role of culture in organizational change, despite expectations that any success of NPM initiatives depended on altering the culture of organizations (Dull, 2009; Khademian, 2002) and managing work motivation (Park, 2012; Yang & Kassekert, 2010). More to the point, little attention has been paid to the dynamic relationships among organizational culture, individual perceptions of organizational culture, and work motivation in public policy and administration studies.

To explore why executive agencies have been successful in Korea, this study applied a multi-level approach to culture and its relationship with work motivation by: (1) separating organizational culture and individual perceptions of organizational culture; (2) integrating them, focusing on direct, moderating, and contextual effects in a unified framework; and (3) analyzing the effects using HLM analysis. This concluding chapter discusses the theoretical, methodological, and practical implications of the study’s key findings. The chapter ends with suggestions for future research.

6.1. SUMMARY OF KEY FINDINGS

The study was driven by several objectives: to (1) conceptualize and measure the construct of organizational culture and individual perceptions of organizational culture; (2) specify multi-level connections between culture and work motivation (at the organizational and individual levels) and the character of job satisfaction and organizational commitment (emotional reaction vs. cultural attachment); (3) investigate cross-level interactions based on individual cognitive functions (moderating effects: comparative vs. contextual effects: normative); (4) add diverse control factors to clarify direct, moderating, and contextual effects in the relationship between culture and work motivation; and (5) examine connections among task, regional context, and organizational culture (variation in cultural strength and external adaptation).

This study found that job satisfaction has statistically significant relationships with three types of culture (at the organizational level: clan; at the individual level: market and hierarchy); however, organizational commitment was significantly related to six cultural variables (at the organizational level: clan, adhocracy, market, and hierarchy; at the individual level: market and hierarchy). Moreover, for organizational commitment, organizational level culture had more explanatory power than individual level culture (11.8 % vs. 7.2%). The results suggest that organizational commitment, which is based largely on employee cultural attachment to organizations, is more strongly related to organizational culture than job satisfaction.

Second, at the organizational level, only clan culture was significantly and positively associated with job satisfaction. For organizational commitment, all

organizational level cultures (clan, adhocracy, market, and hierarchy) had significant and positive relationships. In contrast, at the individual level, market and hierarchy cultures were significantly, but negatively associated with both job satisfaction and organizational commitment. The results demonstrated that aggregated organizational culture is distinctive from individual perceptions of organizational culture.

Third, no significant moderating effects of culture on work motivation were identified. The basic assumption of moderating effects is that employees change their perceptions when organizational culture has strong power. The results indicate that organizational culture typically did not have strong intervening effects.

Fourth, market and hierarchy cultures showed positive varying contextual effects on organizational commitment. Varying contextual effects posit that employees through sense-making develop differing perceptions of organizational culture. The results indicate that employees have significantly different individual perceptions of organizational culture when working in agencies with organizational market and hierarchy cultures.⁶²

Fifth, several control variables had statistically significant relationships with job satisfaction and organizational commitment. Among three environmental factors, the effects from a dynamic environment on organizational tasks were positively related to work motivation. Emphasis on formal relationships within organizations was positively related to work motivation, whereas emphasis on hierarchical interactions was negatively associated with work motivation. In addition, work motivation was positively related to

⁶² A statistically significant difference was identified by examining the p value related to each culture's slope variance

NPM strategies. Such strategies were based on three principles: (1) structural disaggregation (public accountability, creativity and innovation) (2) performance contracting (efforts to develop new public services, efforts to improve the quality of public service), and (3) deregulation (organizational identity and sense of purpose, sense of belonging to a department).

Finally, examining agency tasks and regional location indicated that hospitals and statistics agencies in the executive agency system did not have similar cultural profiles. With distinct missions and daily activities, each type of agency had varying kinds of organizational culture. Furthermore, hospitals located in and outside of Seoul point to efforts to adapt to regional contexts, including varying budgets, customer needs, and collaboration with regional actors.

Overall, the findings suggest the importance of combining a multi-level cultural approach, a balanced culture perspective, and different types of work motivation in the same framework to reveal how cultures in executive agencies work in response to internal and environmental factors and to understand complex organization phenomena more comprehensively. Table 24 summarizes the study's key findings.

Table 24 Key Findings

Level of Analysis	Factors	Findings (final model)	
		Job satisfaction	Organizational commitment
Organizational Level	Clan	O: Positive	O: Positive
	Adhocracy	X	O: Positive
	Market	X	O: Positive
	Hierarchy	X	O: Positive
Individual Level	Clan	X	X
	Adhocracy	X	X
	Market	O: Negative	O: Negative
	Hierarchy	O: Negative	O: Negative
Varying contextual effects	Market	X	O: Positive
	Hierarchy	X	O: Positive
Control	Dynamic environment effects on tasks	O: Positive	O: Positive
	Formal relationships	O: Positive	O: Positive
	Hierarchical relationships	O: Negative	O: Negative
	NPM strategies	O: Positive	O: Positive
Task and regional context	Factors	Findings	
	Tasks	Mission values (e.g., clan values and adhocracy values): O, Daily working (e.g., surgery and research): O	
	Regional contexts	Competition (customer population,): O, Interactions with regional actors and environment: O	

Note: O: statistically significant influence. X: no statistically significant influence

6.2. THEORETICAL IMPLICATIONS

The findings have several important theoretical implications. First, the opposing effects of market and hierarchy cultures on organizational commitment at the organizational and individual levels strongly suggest that a multi-level culture approach is better at capturing the role of culture. Despite several scholars' efforts to address the conceptual distinction between organizational culture (aggregated employee perceptions of organizational culture) and individual perceptions of organizational culture (e.g., Hofstede et al., 1993; Klein et al., 2001; Rousseau, 1985), few public organization and management studies have considered the clear difference between them or used them in the same framework. Overlooking level issues may accumulate biased images that market and hierarchy cultures are generally harmful for work motivation. A multi-level culture approach including both actual organizational culture and individual perceptions of organizational culture in the unified framework can contribute to accumulating more exact evidence about the role of organizational culture and further develop organizational culture theory.

Second, clan, adhocracy, market, and hierarchy organizational cultures were positively related to organizational commitment. The CVF argues that when no one culture is dominant, the four types of culture together can have a positive impact on organizational effectiveness (Quinn, 1988). In Korea, the executive agency system pushed public organizations to improve organizational performance in response to the monetary crisis of 1997. However, when executive agencies' leaders did not manage organizational cultures in responding to the program and system changes, the executive

agency system showed the same negative pattern seen in other countries. With respect to the results of the Korean case, culture studies claim that successful organizational changes usually occur through an overall organizational effort to sustain an appropriate degree of culture as well as a commitment to developing balanced culture in organizations (Cameron & Quinn, 2011; Quinn, 1988). In sum, it is necessary for researchers to apply a balanced culture perspective to discover how and why some successful organizational innovations can be achieved.

Third, the contradictory effects of market and hierarchy cultures on organizational commitment at the organizational and individual levels imply that the CVF proposition that the effects of culture depend on cultural strength needs to be developed by producing more specified theories. In this study, individual perceptions of organizational culture were seen as “organization-specific schema held by organizational members” (Harris, 1994, p. 310), developed by individuals’ sense making responding to organizational culture (Kwantes & Boglarsky, 2007; Weick et al., 2005). In terms of sense-making, the results indicate that employees evaluate market and hierarchy cultures as being stronger than other types of culture. This in turn shaped their mental schema related to market and hierarchy cultures, producing negative relationships with job satisfaction and organizational commitment at the individual level.

Fourth, the study found that organizational culture varied across agency tasks and regions. The different strengths in organizational culture profiles are consistent with Schein’s (2010) external adaptation expectation. The results support the view that organizational mission and daily work as well as diverse regional environmental factors

simultaneously influence organizational culture (e.g., Cameron & Quinn, 2011; Chatman & Jehn, 1994). Thus, when researchers study the role of culture, they need to take such diverse influences into account in hypothesis formulation and analysis. The findings also suggest that several types of culture should be considered. Using only one type of culture cannot capture the influence of organizational tasks and dynamic environments (Cameron & Quinn, 2011; Quinn, 1988).

Fifth, the effects of each culture on organizational commitment and job satisfaction differed. For instance, job satisfaction was significantly and positively related to clan culture, while organizational commitment was significantly and positively related to every type of culture at the organizational level. The results confirm that organizational commitment is theoretically closer to culture than job satisfaction: commitment depends on the “employee’s reactions to their agencies’ culture, values, and socialization processes and to their work experiences” (Romzek, 1990, p. 381). Organizational commitment may be a more important dependent variable than job satisfaction in capturing the role of culture in organizations. In addition, “organizational commitment, of all the work-related dispositional variables, has the most significant effect on individual and organizational performance” (Yang & Pandey, 2009, p. 340). Thus, the results suggest that it is important to consider the relationships between organizational cultures and organizational commitment to find out why other NPM reforms have succeeded or failed in Korea and other countries.

6.3. METHODOLOGICAL IMPLICATIONS

According to Simon (1973), individuals are strongly linked with organizations, and produce different individual behavior patterns differ across organizations. When researchers do not employ bond strength (non-independence or intra-class correlation) attached to each organizational boundary in selecting research methods, studies can distort complex organizational phenomena and produce biased results. For example, the non-uniform contextual effects model demonstrated that the statistical significance of coefficients and their magnitudes (see table 25) can change depending on whether OLS or a general structure equation model (SEM) is used.

Table 25 Comparison of One-Way ANCOVA and Non-Uniform Contextual Effects

Individual level	Job satisfaction		Organizational commitment	
	One-Way ANCOVA	Non-uniform Contextual effects	One-Way ANCOVA	Non-uniform Contextual effects
Clan culture	0.008*	0.008	0.003	0.001
Adhocracy culture	0.001	0.002	0.002	0.001
Market culture	-0.010**	-0.010*	-0.011**	-0.013**
Hierarchy culture	-0.008**	-0.009*	-0.010**	-0.012**

Note: *** $p < 0.001$, ** $p < 0.05$, * $p < 0.1$.

Moreover, using appropriate centering strategies is an integral part of developing HLM models and analyzing the data. Specifically, grand-mean centering can tap

variables across all executive agencies in measuring organizational culture (Hofmann & Gavin, 1998). Group-mean centering can create hypothetically clear boundaries between organizations in HLM models (Garson, 2013). It also can reflect the meaning change in aggregation and relative position of organizational culture and of individual perceptions culture at each executive agency.

In sum, it is important to closely connect actual organizational phenomena (e.g., the nested structure of organizations, bond strength related to organizational boundaries, varying organizational culture between organizations, and varying individual perceptions within and between organizations), the study framework, theories, and statistical methods to avoid committing fallacies in multi-level culture studies.

6.4. PRACTICAL IMPLICATIONS

The findings also point to several practical implications. First, clan, adhocracy, market, and hierarchy organizational cultures all have positive effects on organizational commitment. As noted earlier, the Korean central government annually evaluates executive agency policy and allocates 20% of the total points in evaluations to organization and human resource management. In addition, the central government encourages improvements through performance-related pay (special or extra pay) rather than rigorous-pay-for-performance strategies.

Organization and management are important in two ways. First, emphasizing autonomy and employee morale can strengthen both clan and adhocracy cultures (Cho &

Perry, 2011; Cho & Ringquist, 2011; Park & Rainey, 2008), which NPM reforms consider significant for more effective democratic government. Second, increasing autonomy and morale can reduce the negative effects of NPM reforms. For instance, Moynihan (2010) claims that emphasizing “performance pay provides the incentive for moral hazard” (p. 25) and “has crowding out effects” on public employees’ intrinsic motivation.⁶³ He suggests that cultivating autonomy and morale can directly and indirectly reduce these negative effects. In sum, the Korean government evidently has tried to run the executive agencies system in ways that reduce the possible negative effects of NPM reforms and that pursue more balanced culture.

Second, discovery of opposing effects on organizational commitment from market and hierarchy cultures at the organizational and individual levels provide valuable insights for researchers and public managers who think that culture matters for organizational change and performance. Managing individual perceptions of organizational market and hierarchy cultures is critical for the success of organizational reforms and improved performance. Several organization and social psychology scholars have pointed out that competition and control-oriented cultures or values are hard to integrate or internalize into individual cognitive or value systems, while autonomy and clan-oriented environments help develop sound employee identity and can produce

⁶³ Recent public organization and management scholars point out that emphasizing pay-for-performance systems for satisfying employees’ self-interest or extrinsic motivation can have harmful effects on traditional civil service values and public employee morale and identity (e.g., Cho & Perry, 2011; Moynihan, 2010; Park & Rainey, 2008; Perry, Engbers, & Jun, 2009). They support their arguments using historical negative effects of extrinsic rewards on public employee motivation (Bertelli, 2006) and Deci, Koestner, and Ryan’s (1999) meta-analysis of experimental data (rewards for satisfying extrinsic motivation reduce individual’s intrinsic motivation).

excellent performance (e.g., Deci & Ryan, 2000; Gagné & Deci, 2005; Luthans, Avolio, Avey, & Norman, 2007; Peterson & Seligman, 2003). For successful organizational change and improved performance, managers may need to cultivate clan and adhocracy cultures as well as sustain a balanced culture in public organizations.

Third, findings of positive varying contextual effects of market and hierarchy cultures imply that those cultures have overall influence on the relationship between individual perceptions of organizational market and hierarchy cultures and organizational commitment. The market and hierarchy cultures may create a normative environment among employees and improve work motivation. In more concrete terms, if an employee goes to an agency with one unit higher market and hierarchy, he/she would be expected to show 0.043 higher organizational commitment on average.⁶⁴

Fourth, to sustain good performance, the apparent negative effects of individual perceptions of organizational cultures on job satisfaction and organizational commitment at the individual level have to be managed. As noted earlier, market and hierarchy cultures usually work negatively, because employees find it difficult to internalize them into their own belief systems. To address such concerns, first, managing the formal relationships appropriately in the organization is important for reducing negative effects. Rubin (2009) contends that “people can experience dissatisfaction with a situation despite the receipt of favorable outcomes, due to the use of a process they view as inappropriate. Conversely, the use of a process viewed as fair and just can make negative outcomes

⁶⁴ The different approaches for the results are described as “Type A effects” and “Type B effects”. In this study, the results are interpreted following “Type A effects” (see Raudenbush & Willms, 1995).

more palatable.” (p. 126). Second, to counter the negative effects of these cultures and to ease the process of integrating or internalizing them, it may be useful to also cultivate clan and adhocracy cultures to realize possible moderating effects.

Fifth, the positive relationship between NPM strategies and work motivation implies that previous studies may be limited in diagnosing the effects of NPM reforms and in testing the relationship between the reforms and work motivation. For instance, Dunleavy et al. (2006) and Yang and Kassekert (2010) classify overall NPM reforms into separate parts such as contracting out (outsourcing) and performance management, and they evaluate the reforms initiative by initiative. They do not consider, however, that the whole may be greater than the sum of the parts. That is, it is possible that although some NPM strategies have negative effects, other or multiple strategies may reduce or even improve work motivation or performance. For instance, managing for results has positive effects on work motivation (Yang & Pandey, 2009) and several NPM strategies⁶⁵ evidently continue to diffuse (Dunleavy et al., 2006; Moynihan et al., 2011). More to the point, the change effects do not happen in a vacuum (Dull, 2006). The direct effects of reforms on motivation and outcomes depend on several intervening factors such as culture and leadership (Dull, 2009; Khademian, 2002). Interaction effects come from trust between leaders and members; leader and employee autonomy may change possible negative effects on motivation and performance (Park & Rainey, 2008; Yang & Kassekert, 2010). In sum, conclusions about the success or failure of NPM reforms

⁶⁵ Among the illustrations that Dunleavy et al. (2006, p. 471) report, following strategies are still diffused: performance measurement, rankings of agency performance, user controls, examination of unified rates of return and discounting, valuing public sector equity, and mandatory efficiency dividends.

cannot be made by looking only at NPM principles or at specific NPM strategies. Moreover, leaders' efforts also may be important in NPM reforms yielding positive effects. They might do this by taking a more holistic view of the reforms and work to actively manage culture and work motivation. That 20% of annual evaluation scores based on organization and human resource management may further stimulate leaders to improve morale and encourage autonomy-oriented cultures.

Finally, hospitals outside of Seoul have stronger clan and adhocracy cultures than those in Seoul. It may be that hospitals outside of Seoul facing similar policy constraints developed clan and adhocracy cultures by linking with local actors and focusing on the needs of local residents rather than on budget and labor deficiencies. The central government's efforts to increase the discretion and autonomy of agency heads and managers should continue to help all agencies decide on the types of culture that best fit to local assets.

6.5. LIMITATIONS AND SUGGESTIONS FOR FUTURE RESEARCH

Like all studies, this one has several limitations. Those in turn point to suggestions for future research. First, this study did not deal comprehensively with the role of culture. Although the CVF conceptually distinguishes between perceived culture and preferred culture and uses different questions to measure each of them, preferred culture is important in the relationship with individual attitude and behavior (Cameron & Quinn, 2011; Chao, 2000; Markus & Kitayama, 1991; Zou et al., 2009). A number of

studies point out that individual perceptions of organizational culture are developed or changed by the interplay between individual experience and preference (B. D. Jones, 2001, 2003; O'Reilly & Chatman, 1996). Individual preferences in particular are an important part of the cultural cognition process that is key in individual decision-making and behavior (B. D. Jones, 2001; Kashima, Siegal, Tanaka, & Kashima, 1992). Future studies should consider the role of preferred culture in the relationship with work motivation. In addition, to complement analyses of aggregated individual perceptions of culture as measures of organizational culture, future work might analyze organizational documents and conduct interviews with organization leaders and members to tap organizational culture.

Second, this study employed the CVF's culture typology to explore the role of culture and values in public organizations. Although the typology includes diverse values, it may be limited in capturing the role of culture in public organizations: public organizations and employees possess distinctive identities stemming from historical context, public tasks, and legal frameworks (Rainey, 1993, 2009). According to Bozeman (2007), public values are "the content specific preferences of individuals concerning, on the one hand, the rights, obligations, and benefits to which citizens are entitled and, on the other hand, the obligations expected of citizens and their designated representatives" (p.14). Public values play a significant role for public administrator decision making, forming relationships with other agencies, and improving performance (Andersen, Jørgensen, Kjeldsen, Pedersen, & Vrangbæk, 2013; Bozeman, 2007; Goodsell, 1989).

Thus, future studies might develop a culture typology based on public values to examine the relationships among culture, work motivation, and performance.

Third, although this study considered randomly varying employee perceptions of organizational culture in examining organizational culture based on employee sense-making (Ancona, 2012; Weick, 1995), it did not fully explore how sense-making works with complex and nuanced cognitive activity. I only captured the results of sense-making with quantitative data, skipping examination of the underlying dynamic process. In the future, studies including interviews or in-depth case analysis should be performed to tap this process and reveal **how** perceptions form. In addition, M. D. Jones, McBeth, and Shanahan (2014) note that narrative is a core part of sense-making in policy process and analysis. They point out that narrative can be a critical stimulus in changing individual belief systems (worldviews); they demonstrate the benefits of incorporating “scientific methods” (i.e., more “objective” epistemology) in narrative in order to measure its effects on cultural change. Thus, future studies might extend their perspective on the effects of policy on organizational changes and on how leaders manage employee motivation and performance through narrative in public organizations.

Finally, this study was based on the view that a “balanced culture” in organizations can enhance organizational effectiveness. It should be noted, however, that some question this relationship between culture and effectiveness, arguing that single strong cultures are critical to performance (Denison, 1984; Kilmann, Saxton, & Serpa, 1985; O'Reilly & Chatman, 1996). Organizations driven by strong cultures demonstrate success because a single strong culture removes inconsistencies among organizational

mission, values, and individual beliefs. For instance, some organizations that rely greatly on innovation (e.g., software design) perform better when their cultures underscore autonomy and creativity, while, other organizations (e.g. manufacturers), may exhibit better performance with cultures that highlight routine, efficiency, and effectiveness. Thus, future studies might compare which perspective is more appropriate for executive agencies. The balanced culture and strong culture expectations might be examined in two ways, for example. First, one could compare objective performance scores in agencies with more balanced and with more unified, stronger cultures. Second, the culture “profiles” of agencies could be compared using hierarchical or K-means cluster analysis; the effects of different cultural positions could be tested using one-way ANOVA with Duncan’s post-hoc test.

Methodological concerns also are important. Several scholars emphasize that progress for multi-level theory must be accompanied by the development of appropriate methods (e.g., Bliese et al., 2007; Rousseau, 2011). First, this study did not include more “objective” performance data; it examined the relationships between organizational culture, individual perceptions of organizational culture, and work motivation based on the expectation that culture and work motivation are significant antecedents to performance. However, it is necessary to examine those links to indicators of more objective organizational level performance (e.g., organization evaluation scores). A latent variable multi-level model might help in examining such relationships (see Croon & van

Veldhoven, 2007).⁶⁶ A latent variable multi-level model is developed to test the relationship between group level independent variable created by lower level variables and group level outcomes.

Second, this study connects organizational and individual level cultures using a non-uniform contextual effects model. However, the connection needs to be developed in the future using a doubly latent multi-level structure equation model (ML-SEM). ML-SEM employs “the integration of CFA (confirmatory factor analysis) to evaluate the factor structure of constructs based on multiple indicators of constructs at L1 (individual level) and L2 (organizational level); this provides a control of measurement error at both level of analysis” (Marsh et al., 2012, p. 112). Future studies need to consider ML-SEM in the analysis to produce more exact results for varying contextual effects.

Finally, in the CVF, each type of culture has a close relationship with the others, and the relationships change via interactions among the four types of culture. However, this study did not consider such dynamic interactions because of the limitations associated with cross-sectional data. Future research is needed to explore the dynamics using longitudinal data to test for the effects of dynamic interactions on other variables with, for example, dynamic parallel process modeling.

⁶⁶ A latent variable multi-level model is developed to test the relationship between group level independent variable created by lower level variables and group level outcomes.

6.6. CONCLUDING WORDS

Since the late 1980s, critical arguments have been advanced about NPM reforms, ranging from broad normative discussions to specific empirical studies. Much attention has been devoted to the reforms' harmful effects on public organization identities by focusing on efficiency and effectiveness in the context of public sector managerialism. At the same time, other studies began with hypotheses about connections among NPM reforms, culture, leadership, work motivation, and performance based on the idea that efficiency and effectiveness are important values, focused on improving the quality of public service delivery as well as citizen satisfaction.

Little attention has been paid, however, to the role of culture by incorporating a multi-level approach and diverse culture types and focusing on instances of success. This study finds that the success of the executive agency in Korea may be the product of policy strategies and managerial efforts. The findings suggest that before pronouncing the demise of NPM reforms and discussing new approaches to running public organizations more effectively, public administrators and policy makers need to focus on the important role of culture and how to manage cultures and invent policies to achieve balance in public organizations.

No one should expect that an optimal approach to studying administrative reforms and describing the meaning of public administration will emerge. Instead, we should expect an ongoing academic and practical debate. However, researchers investigating social phenomena as merely "passive followers" of previous theories and methods are unlikely to find a way forward. Instead, scholars should adopt the position of

“independent thinkers” and take their place as leaders in the discussion to develop more appropriate and sophisticated approaches to the description of the meaning of public administration and the study of administrative reforms. This study concluded by renewing my opinion that culture, reflecting dynamic adaptation of social actors to organizational contexts with a multi-level and balanced perspective, might help find how and why some administrative and policy initiatives can be accomplished or fail.

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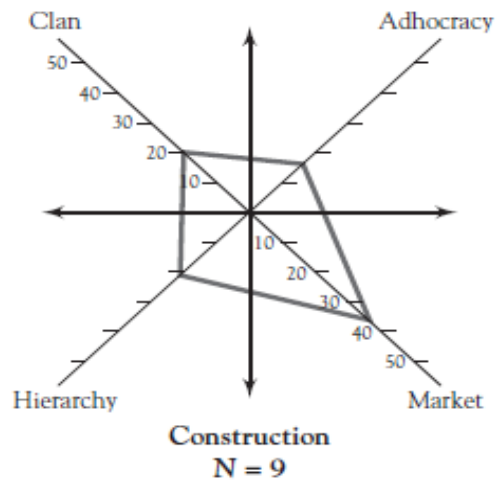
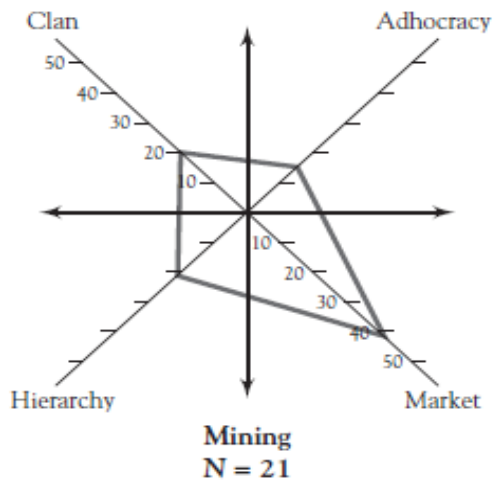
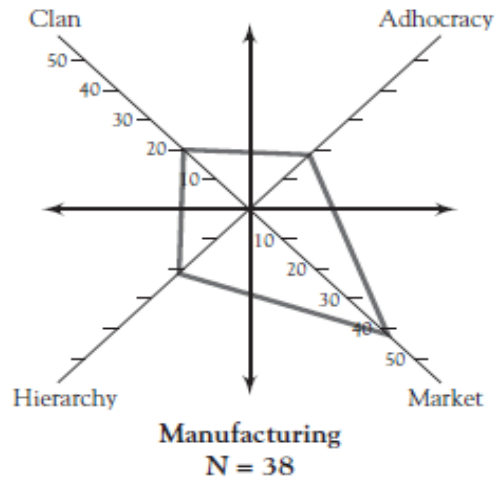
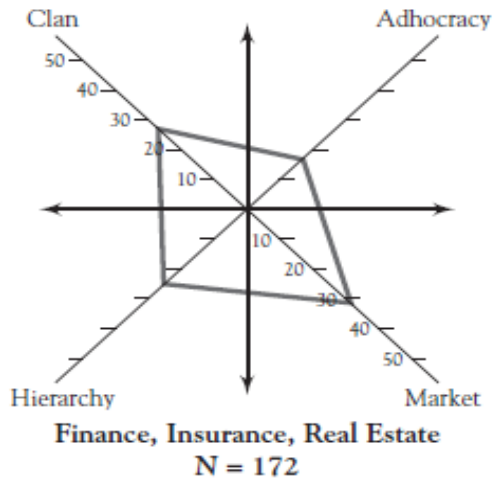
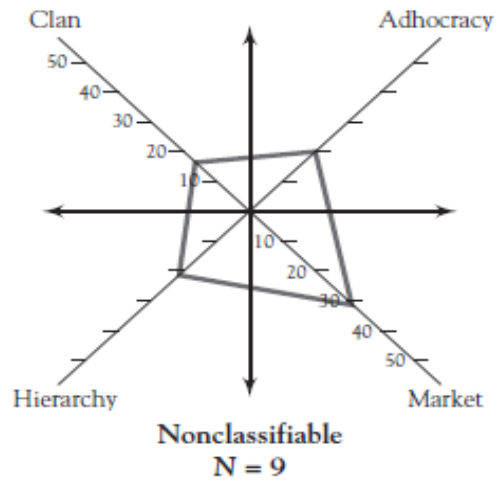
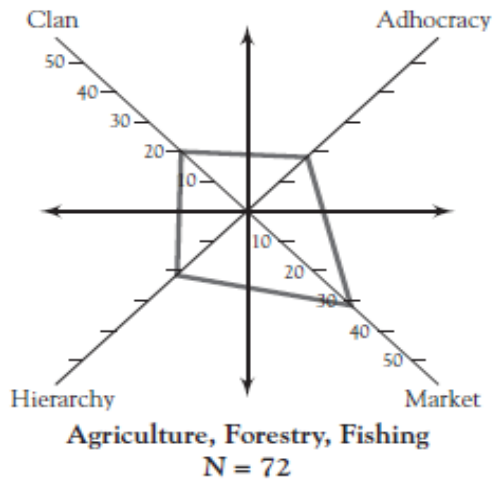
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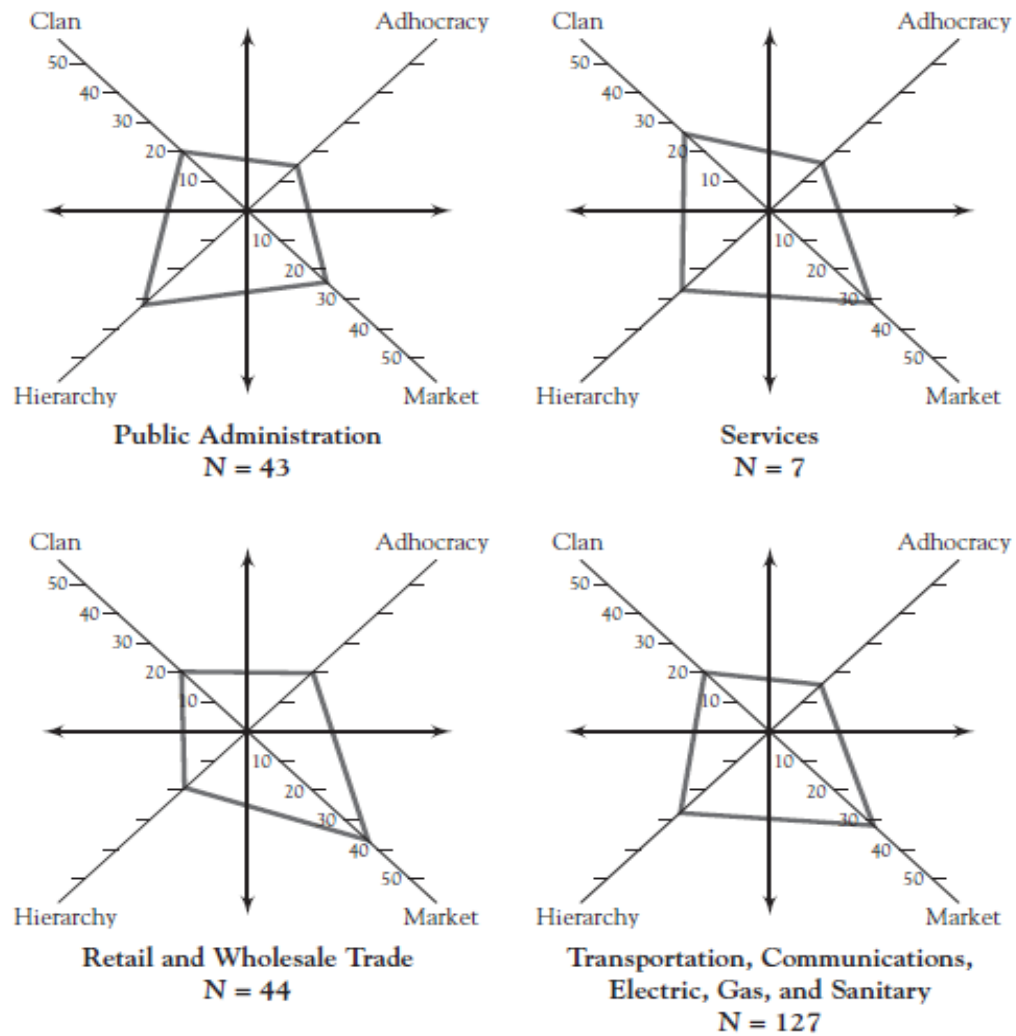
Appendix A Questionnaire Allotment and Collection

Agency Name	Total population	Allotment (%)	Collection (%)
1. National Medical Center	710	80(11.3)	63(78.8)
2. National Rehabilitation Center	249	30(12.0)	28(93.3)
3. Mokpo National Hospital	70	20(28.6)	18(90.0)
4. Seoul National Hospital	308	40(13.0)	36(90.0)
5. Gongju National Hospital	131	20(15.3)	20(100.0)
6. Naju National Hospital	185	20(10.8)	17(85.0)
7. Bugok National Hospital	182	30(16.5)	30(100.0)
8. Chuncheon National Hospital	118	20(16.9)	20(100.0)
9. Masan National Hospital	97	20(20.6)	20(100.0)
10. National Police Hospital	586	70(11.9)	68(97.1)
11. National Institute For International Education	74	20(27.0)	19(95.0)
12. National Science Museum	71	20(28.2)	19(95.0)
13. Defense Media Agency	162	25(15.4)	25(100.0)
14. National Theater of Korea	89	20(22.5)	18(90.0)
15. Daesan Regional Marine Affairs & Port Office	70	20(28.6)	19(95.0)
16. Road Traffic Authority Driver's License Estimation Office	924	105(11.4)	86(81.9)
17. National Natural Recreation Forest Office	76	20(26.3)	17(85.0)
18. Seoul Regional Statistics Office	116	20(17.2)	20(100.0)
19. Busan-Ulsan Regional Statistics Office	111	20(18.0)	20(100.0)
20. Kyoungki Regional Statistics Office	211	30(14.2)	29(96.7)
21. Daegu-Kyungbuk Regional Statistics Office	238	35(14.7)	34(97.1)
22. Kwangju-Chunnam Regional Statistics Office	230	30(13.0)	30(100.0)
23. Daejeon-Chungnam Regional Statistics Office	182	25(13.7)	25(100.0)
24. Kangwon Regional Statistics Office	124	20(16.1)	20(100.0)
25. Kyungnam Regional Statistics Office	164	25(15.2)	23(92.0)
26. Incheon Regional Statistics Office	75	20(26.7)	20(100.0)
27. Chungbuk Regional Statistics Office	105	20(19.0)	20(100.0)
28. Chonbuk Regional Statistics Office	131	20(15.3)	20(100.0)
29. Jeju Regional Statistics Office	50	20(40.0)	20(100.0)
30. National Fisheries Research and Development Institute	944	110(11.7)	95(86.4)
31. National Institute of Animal Science	346	40(11.6)	37(92.5)
32. National Academy of Agriculture Science	138	20(14.5)	17(85.0)
33. National Institute of Horticulture & Herbal Science	245	30(12.2)	30(100.0)
34. National Forest Research Institute	284	30(10.6)	25(83.3)
35. National Research Institute of Cultural Heritage	162	25(15.4)	23(92.0)
36. Statistical Research Institute	40	20(50.0)	19(95.0)
37. Korea National College of Agriculture	97	20(20.6)	12(60.0)
38. National Forensic Service	284	40(14.1)	38(95.0)
39. Korea Seed & Variety Service	168	25(14.9)	22(88.0)
40. National Museum of Contemporary Art	100	20(20.0)	14(70.0)
41. National Geographic Information Institute	103	20(19.4)	18(90.0)
42. Korea Television Company	112	20(17.9)	20(100.0)
43. Korea Aviation Meteorological Agency	122	30(24.6)	30(100.0)
44. Korea Coast Guard Maintenance	214	30(14.0)	30(100.0)
45. Ulsan Regional Maritime Affairs & Port Office	89	20(22.5)	20(100.0)
46. Korean Intellectual Property Office	1305	150(11.5)	116(77.3)
Total 46	10,709	1,535(14.3)	1,370(89.3)

Appendix B Average Culture Profiles for Various Industry Groups



Appendix B (Continued)



Note: adapted from Cameron and Quinn (2011, pp. 90-91).

Appendix C Organizational Level Data: Descriptive Statistics

	Culture									
	Clan					Adhocracy				
	Mean	Median	Skew	Kurto	SD	Mean	Median	Skew	Kurto	SD
1	25.39	25.00	1.31	4.16	8.52	20.07	20.00	0.87	1.23	4.83
2	21.12	20.83	0.82	1.70	5.90	21.15	21.67	-0.60	0.48	3.79
3	29.12	29.17	-0.02	-0.94	9.22	20.42	20.00	1.28	1.77	5.50
4	25.44	24.17	0.25	-0.22	7.14	20.83	20.00	0.29	0.05	5.25
5	30.48	28.33	0.53	-0.16	9.24	21.10	21.67	0.06	-1.41	4.34
6	22.76	21.67	0.17	-0.33	7.38	22.34	23.33	-1.36	1.50	4.49
7	26.19	26.67	0.01	1.72	6.74	20.63	20.00	0.08	-0.76	5.15
8	27.92	28.33	0.88	3.00	6.42	19.67	20.00	0.56	0.72	3.61
9	25.13	25.00	0.63	-0.14	8.86	17.21	16.67	1.00	0.78	6.29
10	23.17	22.50	0.43	0.71	7.52	17.88	18.75	-0.36	-0.87	5.35
11	21.36	21.67	-0.05	-0.16	5.85	19.17	21.67	-0.13	-0.77	7.05
12	25.23	24.17	0.02	0.34	9.93	20.69	22.50	0.05	-0.78	6.34
13	20.62	21.67	0.04	-0.90	6.00	19.89	17.50	0.40	-0.92	5.56
14	23.33	20.00	0.42	-0.45	8.41	19.61	20.00	-1.01	2.49	6.03
15	20.74	23.33	0.07	0.11	7.99	23.29	23.33	-0.42	-0.11	3.99
16	23.93	23.33	0.18	0.36	8.48	20.44	21.67	-0.48	0.49	4.09
17	19.36	20.00	-0.46	-1.12	4.22	20.78	20.00	0.01	-0.50	6.27
18	21.38	21.25	-0.09	0.07	7.77	18.63	20.00	-1.03	0.75	5.01
19	20.21	22.50	-0.25	-1.04	6.49	24.46	25.00	-0.16	0.33	5.51
20	21.01	20.83	0.30	-0.19	6.37	19.37	20.00	-1.08	1.36	4.29
21	24.17	23.33	0.64	0.56	8.41	19.57	20.00	0.97	2.35	5.15
22	23.20	24.17	0.46	0.36	8.09	21.02	21.67	-0.56	-0.18	5.15
23	21.13	19.17	0.43	-1.20	6.43	20.33	20.00	0.38	-0.45	4.96
24	23.54	23.33	-0.13	-0.16	5.90	21.46	21.67	-0.12	0.03	5.77
25	20.80	20.00	1.35	2.52	7.24	23.83	25.00	0.59	2.23	5.08
26	26.17	25.00	1.42	4.26	7.64	18.46	18.33	-0.10	-0.50	4.61
27	23.25	23.33	0.31	-0.05	3.92	21.04	21.67	0.35	0.67	4.47
28	19.67	22.08	-0.08	-1.29	6.57	18.96	17.50	-0.62	1.15	6.57
29	21.21	21.25	-0.28	-0.49	5.04	21.04	21.67	-0.31	0.25	5.39
30	23.87	24.17	0.36	0.87	7.02	20.92	20.83	-0.18	0.08	4.92
31	21.55	21.67	0.52	0.67	6.64	21.04	21.67	-0.14	-0.25	5.76
32	20.78	19.17	2.66	9.07	7.92	19.94	20.00	-0.44	0.28	5.38
33	20.18	20.00	0.72	0.77	4.99	20.30	20.42	-0.39	0.32	5.35
34	22.07	21.67	0.69	1.95	7.92	21.83	21.67	-0.14	2.61	6.28
35	23.84	23.33	0.74	0.25	7.51	18.33	19.17	0.01	0.06	5.04
36	21.09	20.00	0.60	0.35	7.58	21.88	20.83	-0.11	-0.58	5.86
37	26.14	23.33	0.96	-0.10	11.68	20.99	21.67	-0.96	0.66	5.15
38	25.25	23.75	0.52	-0.50	8.76	21.76	22.08	-0.05	-0.63	4.52
39	26.25	25.00	0.52	-0.27	6.19	23.56	22.92	2.82	10.63	6.01
40	22.11	23.33	-0.16	-0.64	5.47	23.46	23.33	0.39	-0.47	5.11
41	24.12	23.33	-0.01	-1.19	5.25	21.53	20.42	1.17	1.06	4.54
42	25.19	23.33	1.53	3.04	9.31	20.42	20.83	-0.51	-0.34	5.16
43	23.56	22.50	0.32	-0.32	7.20	21.78	22.08	1.05	4.12	6.25
44	20.24	21.67	0.11	0.13	5.40	21.90	21.67	0.39	-0.04	4.09
45	23.20	18.33	1.53	2.11	9.70	21.80	21.67	0.17	1.27	4.20
46	22.31	21.67	0.80	0.68	8.13	21.64	21.67	0.36	0.57	6.34

Appendix C (Continued)

	Culture									
	Market					Hierarchy				
	Mean	Median	Skew	Kurto	SD	Mean	Median	Skew	Kurto	SD
1	23.80	23.33	0.30	-0.35	5.47	30.47	31.25	0.40	0.67	9.33
2	28.27	26.67	0.67	0.80	6.68	29.39	29.58	0.04	0.86	4.91
3	22.73	20.83	0.38	-1.09	6.25	28.19	25.00	0.89	-0.70	8.38
4	23.14	23.33	0.62	1.02	5.60	30.34	30.00	1.17	4.98	8.46
5	22.99	21.67	0.32	-0.14	6.74	25.70	25.00	-0.04	-0.65	6.67
6	25.99	26.67	0.37	1.06	4.80	28.70	26.25	1.08	1.26	8.55
7	24.25	25.00	-0.12	-0.27	4.62	28.78	29.17	0.25	-0.19	8.22
8	21.92	20.00	0.06	-0.68	5.10	30.50	29.17	1.89	3.37	7.48
9	21.74	21.67	1.09	2.65	8.87	35.83	31.67	0.59	-0.23	14.90
10	22.96	23.33	0.78	3.93	6.97	35.99	33.33	1.28	1.80	12.69
11	25.39	25.83	-0.17	-1.24	4.70	33.64	30.00	0.54	-0.52	10.07
12	23.24	21.67	1.47	1.13	6.63	30.65	31.67	0.34	-0.17	11.62
13	25.22	25.00	0.27	0.47	6.28	33.84	33.33	0.65	-0.25	8.05
14	26.32	28.33	0.35	-0.72	5.71	30.83	29.17	2.62	8.65	11.56
15	29.40	28.33	0.52	0.34	7.16	26.57	25.83	0.53	-0.53	5.74
16	27.13	26.67	0.97	1.34	6.59	28.93	26.67	0.79	0.38	7.90
17	30.15	28.33	1.22	1.96	9.18	29.80	28.33	2.56	8.93	9.60
18	29.50	26.67	1.34	2.20	8.60	30.25	31.67	-0.30	-0.44	7.01
19	31.67	30.00	0.97	0.38	8.50	23.67	25.00	-0.26	0.04	5.17
20	29.63	29.17	0.50	0.15	7.12	30.17	28.33	0.61	-0.19	7.21
21	26.62	26.67	0.61	1.60	7.42	29.65	28.33	0.33	-0.43	8.75
22	28.82	26.92	2.13	6.41	9.61	26.96	25.00	1.43	2.99	7.97
23	29.60	30.00	-0.02	-0.21	6.20	27.60	28.33	-0.07	-0.24	6.14
24	26.83	25.83	0.62	2.05	8.03	28.25	25.83	0.83	-0.24	7.66
25	31.70	32.50	-0.16	0.49	6.51	23.45	23.33	-0.02	0.87	5.20
26	26.29	25.00	-0.35	-0.71	7.06	29.33	27.92	1.08	1.18	9.61
27	27.92	26.25	0.25	0.92	5.86	27.63	27.08	0.17	0.26	6.24
28	32.08	30.00	0.58	-0.37	8.79	29.04	27.92	1.56	3.49	9.62
29	26.67	26.25	0.76	1.99	4.95	30.92	29.58	0.58	-0.03	6.73
30	26.14	26.67	0.98	3.66	7.09	29.06	28.33	0.35	-0.23	8.58
31	29.84	29.17	0.75	0.71	7.30	27.64	25.00	1.57	2.94	9.73
32	30.17	28.33	1.13	4.04	6.96	28.89	28.33	0.37	-0.06	6.38
33	32.41	32.50	0.65	1.40	6.67	26.93	26.67	-0.43	0.00	5.25
34	28.83	26.67	3.29	13.68	8.97	27.47	26.67	-0.01	-0.68	8.22
35	24.82	26.67	0.10	0.40	6.02	31.12	30.00	-0.17	-0.59	8.20
36	30.73	30.00	0.73	0.04	6.58	26.09	28.33	0.33	-0.42	8.66
37	23.92	23.33	-0.81	0.38	9.30	28.11	30.00	-0.84	-1.08	5.48
38	26.00	24.58	0.48	0.02	6.71	26.94	26.67	1.17	4.55	7.54
39	25.00	25.00	1.22	2.69	5.55	25.72	25.00	0.00	0.58	6.63
40	26.60	25.00	0.73	2.74	6.20	28.46	26.67	0.82	0.47	5.95
41	25.56	25.00	0.61	0.16	5.83	28.43	27.92	0.11	-0.55	6.67
42	24.95	25.00	0.25	2.01	6.56	29.44	26.67	0.21	0.25	8.40
43	31.22	29.17	1.36	2.74	8.83	26.83	25.00	2.04	7.16	8.50
44	27.74	27.92	-0.18	-0.64	4.21	30.06	30.00	0.31	2.14	8.54
45	25.83	25.00	0.47	0.29	5.95	30.00	26.67	0.38	1.30	9.92
46	30.17	28.33	1.01	1.41	9.52	27.05	25.00	0.94	2.04	8.37

Note: Bold font means non-normality of data

Appendix D Median R_{wg} , ICC(1), ICC(2), and Eta-square (η^2) by Agency

Agency Name	Within group agreement index (R_{wg})			
	Clan	Adhocracy	Market	Hierarchy
1. National Medical Center	0.97	0.95	0.95	0.96
2. National Rehabilitation Center	0.95	0.94	0.96	0.97
3. Mokpo National Hospital	0.94	0.95	0.94	0.95
4. Seoul National Hospital	0.95	0.94	0.96	0.97
5. Gongju National Hospital	0.96	0.94	0.94	0.94
6. Naju National Hospital	0.93	0.92	0.96	0.96
7. Bugok National Hospital	0.96	0.93	0.95	0.95
8. Chuncheon National Hospital	0.96	0.95	0.93	0.96
9. Masan National Hospital	0.94	0.93	0.95	0.96
10. National Police Hospital	0.96	0.92	0.97	0.98
11. National Institute For International Education	0.94	0.91	0.94	0.96
12. National Science Museum	0.95	0.93	0.95	0.96
13. Defense Media Agency	0.94	0.93	0.95	0.96
14. National Theater of Korea	0.94	0.92	0.95	0.97
15. Daesan Regional Marine Affairs & Port Office	0.93	0.95	0.96	0.95
16. Road Traffic Authority Driver's License Estimation Office	0.95	0.93	0.96	0.96
17. National Natural Recreation Forest Office	0.92	0.92	0.96	0.97
18. Seoul Regional Statistics Office	0.92	0.90	0.96	0.96
19. Busan-Ulsan Regional Statistics Office	0.92	0.95	0.96	0.94
20. Kyoungki Regional Statistics Office	0.94	0.93	0.96	0.96
21. Daegu-Kyungbuk Regional Statistics Office	0.95	0.95	0.96	0.96
22. Kwangju-Chunnam Regional Statistics Office	0.95	0.92	0.97	0.97
23. Daejeon-Chungnam Regional Statistics Office	0.93	0.93	0.96	0.95
24. Kangwon Regional Statistics Office	0.94	0.94	0.96	0.95
25. Kyungnam Regional Statistics Office	0.95	0.96	0.96	0.95
26. Incheon Regional Statistics Office	0.96	0.92	0.94	0.96
27. Chungbuk Regional Statistics Office	0.95	0.95	0.96	0.96
28. Chunbuk Regional Statistics Office	0.92	0.91	0.96	0.97
29. Jeju Regional Statistics Office	0.93	0.94	0.96	0.96
30. National Fisheries Research and Development Institute	0.96	0.94	0.97	0.96
31. National Institute of Animal Science	0.95	0.94	0.96	0.97
32. National Academy of Agriculture Science	0.96	0.92	0.97	0.96
33. National Institute of Horticulture & Herbal Science	0.95	0.93	0.97	0.95
34. National Forest Research Institute	0.95	0.95	0.98	0.95
35. National Research Institute of Cultural Heritage	0.94	0.93	0.95	0.95
36. Statistical Research Institute	0.93	0.93	0.96	0.94
37. Korea National College of Agriculture	0.94	0.91	0.91	0.94
38. National Forensic Service	0.95	0.94	0.96	0.97
39. Korea Seed & Variety Service	0.95	0.97	0.96	0.95
40. National Museum of Contemporary Art	0.93	0.94	0.96	0.96
41. National Geographic Information Institute	0.94	0.95	0.95	0.95
42. Korea Television Company	0.96	0.92	0.95	0.95
43. Korea Aviation Meteorological Agency	0.94	0.96	0.97	0.97
44. Korea Coast Guard Maintenance	0.94	0.95	0.96	0.96
45. Ulsan Regional Maritime Affairs & Port Office	0.95	0.95	0.95	0.96
46. Korean Intellectual Property Office	0.96	0.96	0.97	0.97

Appendix D (Continued)

Job satisfaction	ICC(1)	0.13 P<0.001	0.05 P<0.001	0.03 P<0.001	0.05 P<0.001
	ICC(2)	0.87	0.69	0.57	0.71
	Eta-square (η^2)	0.09 F=7.80 P<0.001	0.04 F=3.23 P<0.001	0.14 F=2.34 P<0.001	0.06 F=3.44 P<0.001
Organizational commitment	ICC(1)	0.07 P<0.001	0.05 P<0.001	0.03 P<0.001	0.03 P<0.001
	ICC(2)	0.79	0.69	0.62	0.61
	Eta-square (η^2)	0.06 F=4.69 P<0.001	0.04 F=2.61 P<0.001	0.04 F=2.61 P<0.001	0.04 F=2.55 P<0.001

Appendix E Individual Level Data: Descriptive Statistics

	Culture									
	Clan					Adhocracy				
	Mean	Median	Skew	Kurto	SD	Mean	Median	Skew	Kurto	SD
1	25.96	25.42	1.41	4.89	8.42	19.99	20.00	0.77	1.71	4.60
2	21.15	20.84	0.83	1.72	6.03	20.97	21.67	-0.95	0.66	3.61
3	28.61	28.33	0.09	-1.13	9.82	20.72	20.00	1.20	1.25	5.87
4	25.59	24.17	0.18	-0.66	7.81	20.89	20.42	0.23	-0.33	5.70
5	29.23	28.33	0.91	0.99	9.52	20.06	20.00	0.07	-1.67	3.82
6	22.32	21.67	0.17	0.08	7.25	22.44	23.33	-1.40	1.32	4.77
7	26.19	26.67	0.01	1.72	6.74	20.63	20.00	0.08	-0.76	5.15
8	27.92	28.33	0.88	3.00	6.42	19.67	20.00	0.56	0.72	3.61
9	24.21	23.34	0.70	0.47	8.14	17.15	15.84	1.02	0.65	6.47
10	23.50	22.50	0.51	0.92	7.62	17.89	18.33	-0.41	-0.61	5.29
11	19.79	20.00	-0.25	0.51	5.59	20.42	21.67	-0.65	-0.47	8.76
12	25.23	24.17	0.02	0.35	9.93	20.69	22.50	0.05	-0.78	6.33
13	21.42	25.00	-0.15	-0.91	6.32	18.33	16.67	0.61	-0.95	4.94
14	23.33	20.00	0.42	-0.45	8.41	19.61	20.00	-1.01	2.50	6.03
15	20.74	23.33	0.07	0.11	7.99	23.29	23.33	-0.42	-0.11	3.99
16	25.26	25.00	0.19	-0.27	8.68	20.39	21.67	-0.15	-0.13	4.81
17	19.46	20.00	-0.35	-1.08	4.14	21.07	20.42	-0.10	-0.25	6.44
18	20.66	20.83	-0.19	0.35	7.27	18.38	20.00	-0.98	0.68	5.02
19	20.79	23.33	-0.27	-0.93	6.12	24.04	25.00	-0.14	0.70	5.32
20	21.38	21.67	0.16	-0.35	6.60	19.20	20.00	-0.98	1.02	4.46
21	24.11	23.33	0.65	0.44	8.64	19.81	20.00	1.05	2.49	5.11
22	22.94	23.33	0.56	0.18	8.66	20.99	21.67	-0.34	-0.28	4.99
23	21.82	20.00	0.23	-1.36	6.52	20.30	20.00	0.19	-0.26	4.65
24	23.73	23.33	-0.20	-0.43	6.33	21.62	21.67	-0.18	-0.15	6.13
25	21.21	20.00	1.40	2.48	7.31	23.50	24.59	0.79	2.47	5.22
26	26.67	25.00	1.49	4.68	7.51	18.38	18.33	-0.04	-0.62	4.72
27	22.73	23.33	0.47	0.63	3.71	20.93	21.67	0.42	0.46	4.69
28	20.00	22.50	-0.20	-1.08	6.54	19.85	18.33	0.40	-0.68	5.10
29	21.23	21.67	-0.29	-0.63	5.18	21.62	21.67	-0.13	0.50	4.86
30	24.23	24.17	0.54	0.68	7.05	21.03	20.83	0.09	-0.32	4.63
31	21.58	22.50	0.71	1.47	6.54	21.07	21.67	-0.21	-0.14	5.68
32	21.67	20.00	2.69	8.44	8.42	19.65	20.00	-0.49	0.31	5.62
33	18.90	19.17	-0.01	-1.47	3.95	19.09	20.00	-0.42	0.37	5.11
34	21.81	21.67	0.79	2.15	7.98	21.63	21.67	-0.06	2.67	6.33
35	24.01	23.33	0.67	0.12	7.64	18.33	19.59	0.01	-0.08	5.16
36	21.25	20.00	0.52	-0.08	8.10	22.14	20.83	-0.21	-0.61	6.11
37	25.28	23.33	1.35	2.10	9.83	21.58	21.67	-1.35	2.07	5.31
38	26.53	25.84	0.32	-0.62	8.88	21.58	22.09	-0.17	-0.88	4.55
39	25.75	25.00	0.61	0.23	5.87	23.49	22.50	2.82	10.36	6.15
40	22.11	23.33	-0.16	-0.64	5.47	23.46	23.33	0.39	-0.47	5.11
41	24.33	23.33	-0.05	-1.11	4.90	21.89	20.83	1.06	0.68	4.77
42	24.17	23.33	1.33	5.14	7.16	20.89	21.67	-0.77	0.06	5.27
43	23.56	22.50	0.32	-0.32	7.19	21.78	22.09	1.05	4.12	6.25
44	20.19	21.67	0.14	0.04	5.49	21.98	21.67	0.34	-0.13	4.15
45	23.48	18.33	1.39	1.50	10.24	21.57	21.67	0.32	1.22	4.37
46	22.28	21.67	0.79	0.77	7.98	21.47	21.67	0.07	-0.22	6.04

Appendix E (Continued)

	Culture									
	Market					Hierarchy				
	Mean	Median	Skew	Kurto	SD	Mean	Median	Skew	Kurto	SD
1	23.58	23.33	0.41	0.03	5.33	30.39	31.67	0.38	0.85	9.05
2	27.92	26.67	0.79	1.12	6.73	29.90	30.00	0.38	0.76	4.54
3	22.33	20.00	0.51	-1.06	6.54	28.89	25.00	0.66	-1.24	8.99
4	23.07	23.33	0.68	0.91	5.95	30.27	30.00	1.11	3.84	9.31
5	23.45	22.50	0.24	-0.29	7.32	27.38	26.67	0.33	-1.34	5.86
6	26.49	26.67	0.23	1.27	4.85	28.27	26.25	1.29	2.36	8.49
7	24.25	25.00	-0.12	-0.27	4.62	28.78	29.17	0.25	-0.19	8.22
8	21.92	20.00	0.06	-0.68	5.10	30.50	29.17	1.89	3.37	7.48
9	22.02	21.67	1.01	2.44	9.04	36.53	31.67	0.49	-0.28	15.01
10	22.99	23.33	0.76	4.12	7.33	35.68	31.67	1.38	1.93	13.41
11	24.90	25.42	0.01	0.89	3.95	34.48	36.67	-0.06	-1.51	10.79
12	23.24	21.67	1.47	1.13	6.63	30.65	31.67	0.34	-0.17	11.62
13	23.23	23.33	0.04	-0.58	5.46	35.54	35.00	0.47	-0.64	8.27
14	26.32	28.33	0.35	-0.72	5.71	30.83	29.17	2.62	8.65	11.56
15	29.40	28.33	0.52	0.34	7.16	26.57	25.84	0.53	-0.53	5.74
16	25.80	25.00	0.57	1.21	5.25	28.79	26.67	0.71	0.12	8.51
17	29.52	29.17	1.34	3.75	8.79	30.06	28.33	2.39	7.61	10.51
18	30.00	26.67	1.34	2.26	8.53	30.70	31.67	-0.44	-0.09	6.90
19	31.49	30.00	1.03	0.37	8.70	23.68	25.00	-0.27	-0.11	5.31
20	29.78	29.17	0.42	-0.19	7.51	29.78	27.92	0.74	-0.05	7.42
21	26.18	26.67	0.75	2.06	7.40	29.89	30.00	0.26	-0.54	8.95
22	29.45	27.17	1.92	5.11	10.34	26.62	25.00	0.58	0.05	6.47
23	29.24	29.17	0.14	-0.40	6.54	27.12	27.50	-0.02	0.08	6.05
24	26.86	25.00	0.58	1.51	8.67	27.79	25.00	0.99	-0.06	8.03
25	31.63	32.50	-0.21	1.02	6.39	23.42	23.33	-0.01	0.77	5.39
26	25.92	25.00	-0.26	-0.68	7.05	29.30	26.67	1.07	0.99	9.88
27	28.43	27.92	0.07	1.08	5.94	27.83	28.34	0.06	-0.03	6.57
28	31.77	30.00	0.47	-0.17	8.43	28.19	28.33	0.32	-0.04	6.96
29	26.49	25.83	0.87	2.16	5.02	30.48	29.17	0.74	0.47	6.62
30	26.06	26.67	0.90	3.72	6.38	28.81	27.09	0.44	0.00	8.53
31	28.36	27.92	0.06	0.12	5.61	29.08	26.67	1.46	2.37	10.28
32	29.93	28.33	1.24	4.28	7.52	28.75	28.33	0.26	0.46	6.40
33	33.30	32.50	0.73	1.47	6.76	28.48	28.33	0.14	-1.02	4.09
34	29.06	26.67	3.25	13.28	9.09	27.71	27.50	-0.09	-0.67	8.31
35	25.19	26.67	0.05	0.71	5.89	30.49	30.00	-0.23	-0.54	7.81
36	31.43	30.00	0.72	-0.17	6.57	24.94	28.33	0.10	-0.87	7.89
37	25.28	23.33	-0.26	0.11	7.45	27.50	30.00	-0.64	-1.76	5.80
38	25.14	23.33	0.82	0.44	6.97	26.64	25.84	1.35	5.08	7.86
39	25.32	25.00	1.24	2.89	5.47	25.99	25.00	-0.10	0.70	6.67
40	26.60	25.00	0.73	2.74	6.20	28.46	26.67	0.82	0.47	5.95
41	25.00	24.17	0.89	0.33	6.24	28.45	27.50	0.12	-0.46	6.91
42	24.95	25.00	0.96	2.75	4.33	30.00	26.67	0.05	0.17	8.69
43	31.22	29.17	1.36	2.74	8.83	26.83	25.00	2.04	7.15	8.50
44	27.65	27.50	-0.13	-0.69	4.26	30.12	30.00	0.28	1.98	8.69
45	25.93	25.00	0.41	-0.03	6.28	28.82	26.67	0.42	1.05	10.42
46	29.95	28.33	1.09	1.69	9.50	26.90	25.00	1.00	2.16	8.44

Note: Bold font means non-normality of data