THE CLIMATE FOR INNOVATION IN PUBLIC AND NONPROFIT ORGANIZATIONS: AN ANALYSIS OF PERCEPTIONS ON MOTIVATION, FLEXIBILITY, AND WORK ENVIRONMENT

by

JOHN CHRISTOPHER RONQUILLO

(Under the Direction of Hal G. Rainey)

ABSTRACT

The main contribution of this study is the introduction of the concept of innovation climate as it applies to public and nonprofit organizations. An innovation climate is defined as an atmosphere within an organization that fosters and propagates innovation and has in place various traits among organization members that are conducive to producing creative and novel ideas that may lead to improved organizational performance and efficiency. This study compares public (state government) and nonprofit organizations on their perceived innovativeness and analyzes the environmental factors and organizational practices that are presumably related to the innovation climate. This dissertation uses survey data from the National Administrative Studies Project III (NASP-III) that surveyed managers in state government agencies and nonprofit organizations in Georgia and Illinois over a three-wave, ten-month span, on a variety of organizational topics. Using principal component analysis the author develops a concept of innovation climate based on various elements that include innovation as an organizational value, willingness to take risks, high levels of trust from managers, low levels of red tape, a sense of pride in working for an organization, high quality of work, performance

incentives, and high ethical standards. Findings from a series of OLS regression models suggest that job flexibility, the quality and reputation of the organization, and those who view work as the most important aspect of their lives are positively related to both public and nonprofit innovation climates. Personnel inflexibility negatively affects the innovation climate in both the public and nonprofit sectors, and other variables, including advancement motivation, vary by sector. The study concludes with suggestions for further research and the context in which research on innovation climate should be conducted.

INDEX WORDS: organizational innovation, public management, nonprofit management, organizational culture, organizational climate

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DEDICATION

This work is dedicated to my wife Holli and my son Rhys for their endless support and enduring patience, and to my parents John A. Ronquillo and Christie J. Ronquillo for their guidance and countless sacrifices to help me get where I am today.

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CHAPTER 1

CREATING A CLIMATE OF INNOVATION

Over the past several decades, the role of innovation as it relates to organizational efficiencies, effectiveness and outcomes has gained wider attention. Innovation has been examined on the national stage in business, government, nonprofit organizations and in research in several ways, including: ad hoc committees such as the Advisory Committee on Measuring Innovation in the 21st Century Economy (2008); legislation such as the Edward M. Kennedy Serve America Act; and the establishment of the White House Office of Social Innovation and Civic Participation (Corporation for National and Community Service, 2009a; 2009b). Though collaboration between government and nonprofit organizations is common (Smith & Lipsky, 1995; Light, 1998; Milward & Provan, 2000, 2003), national initiatives such as the Kennedy Serve America Act are bringing renewed attention to the need for innovation.

One element of the Kennedy Act is its emphasis on social innovation, specifically in the nonprofit sector. In May 2009, President Obama solicited the help of Congress in procuring $50 million (later increased to $60 million) for a new Social Innovation Fund in FY2010, designed to support successful and innovative nonprofits. These funds are intended as "growth capital" to support the replication of high-impact, results-oriented U.S. nonprofits striving to solve some of the nation's most pressing problems (Wilhelm, 2009). These developments suggest that the convergence between the public and nonprofit sectors will advance even further in the future. Government already relies on nonprofits to address critical social issues, and is likely to increase that reliance.

Because of initiatives such as the Kennedy Act, managers in the public and nonprofit sectors will face challenges regarding the implementation of new projects and programs that come as a result of new collaborations between government and nonprofit organizations. Before addressing those issues, however, it is valuable to examine innovation in the public and nonprofit sectors. While much of the emphasis of this renewed focus on innovation has been placed on service delivery, the organizational capacity to innovate and various constraints on innovation must first be analyzed. The social innovations that are sought undoubtedly have an intricate relationship with organizational innovation. In some cases, management innovation precedes social innovation, and in other cases, quite the opposite is true. That is, social innovation may force organizations to innovate in order to remain "competitive" with other organizations that have already enhanced their management practices with novel techniques.

Questions on the topic of innovation have yielded a substantial volume of literature across several disciplines. The importance of innovation as it relates to the vitality of organizations has been studied mostly in the context of for-profit businesses, although studies illuminating the usefulness and importance of innovation in government and nonprofit organizations have also come to the fore, detailing innovative practices and their antecedents as well as the diffusion of these innovations. Much of the extant research emphasizes innovation's role in organizational performance and government reforms, improvements in management processes, resource dependency and times of financial crisis, and other contexts in which innovation plays a significant role.

Very few empirical studies have been conducted with regard to managerial perceptions of innovation at the establishment level, especially as it is compared and contrasted between public (*i.e.*, government) and nonprofit organizations, and with regard to environmental and

organizational attributes that are presumed to cultivate a climate of innovation within organizations. This dissertation will take the first steps toward filling that gap.

Damanpour and Schneider (2009) posited that innovation characteristics or attributes of innovation can be represented by two constructs. The first is a macro construct that reflects the characteristics that facilitate or inhibit the adoption of innovation by organizations within a population, which is what Damanpour and Schneider (2009) use in their study. The second construct is a micro construct that reflects the characteristics perceived by organizational members as either facilitating or inhibiting the use of innovation. The latter is the construct that this dissertation will use.

This dissertation addresses the following questions:

1) Do specific environmental factors influence managerial perceptions of innovation within their respective organizations*?*
2) Do levels of perceived innovation vary between the public sector as compared to the nonprofit sector and, if so, to what extent?

The analysis that will be presented in Chapters Four and Five are based on survey results of public and nonprofit managers in Georgia and Illinois (n = 1,220). It analyzes their responses to various survey items that address innovation in their organizations and the variables that can influence innovation. The results indicate that nonprofit managers are more apt than public managers to perceive their organizations to value innovation (see Figure 1.1). Then, results show that the variables or environmental attributes that may be linked to innovation vary by sector, that is, some factors that contribute to innovative organizations may be more significant in the public sector versus the nonprofit sector, and vice versa.

Defining Innovation in the Organizational Context

Over forty years ago, Victor A. Thompson's (1965, 1969) research on organizational innovation posited that within organizations –

> we have an excess of means (*i.e.*, knowledge) over ends. We have far more information than we know what to do with. Thus, we are seriously in need of creative thinking with regard to values and goals; we need to find new and worthwhile uses for our knowledge.

He then posed the following question: "How well adapted are modern administrative institutions to these innovative needs?" (Thompson, 1969: 2).

Though the administrative institutions about which Thompson wrote have changed exponentially over the past four decades, innovation is and will remain an essential component of all organizations (Drucker, 1985; Frumkin, 2002; Birkinshaw, et al., 2008). Though some organizations differ in terms of motives or reasons to innovate (or not to innovate), scholars have discussed and analyzed this topic because of its importance to the vitality of organizations (*e.g.* Mohr, 1969; Downs & Mohr, 1976, 1979; Daft, 1978; Damanpour, 1991; Bolton, 1993; Wolfe, 1994; Rainey, 1999, 2003).

Despite the large body of research on various types of innovation, many questions about the organizational aspects of innovation need further examination and analysis. Such questions concern the nature of innovation in public and nonprofit organizations, whether those two sectors differ in innovativeness, the environmental factors that affect organizational innovation, or the various components that comprise a climate in which innovations can be produced (Damanpour & Evan, 1984: Tropman, 1989; Kimberly, et. al, 1990; Linden, 1990; Borins, 1999; Light, 1998; Jaskyte, 2004, 2005; McDonald, 2007; Walker, 2008; Birkinshaw, et al., 2008). Are there

specific factors or antecedents that promote or inhibit innovation? Are there aspects of innovation that are enhanced or carried out to a greater degree in the public sector as compared to the private sector, and vice versa? This dissertation investigates and seeks answers to such questions.

Two articles are helpful in framing a general concept of innovation in this context and its components. Birkinshaw, Hamel and Mol (2008) center their work on management innovation, which involves the introduction of a novelty in an established organization, and represents a particular form of organizational change. They also define management innovation as the creation of a difference over time in the form, quality or state of the management activities in an organization, where the change is a novel or unprecedented departure from the past (Birkinshaw, et al., 2008). These authors identified four key perspectives in the literature they review:

1. An *institutional perspective* that focuses on the socio-economic conditions in which new management and ideas take shape (*e.g.*, What institutional conditions give rise to the emergence and diffusion of management innovations?)
2. A *fashion* (or interaction) *perspective* that focuses on the dynamic interplay between users and providers of management ideas (*e.g.*, How do aspects of supply and demand for new ideas affect their propagation?)
3. A *cultural perspective* that focuses on how an organization reacts to the introduction of a new management practice (*e.g.*, How do management innovations shape, and get shaped by, cultural conditions inside an organization?)

4. A *rational perspective* that focuses on how management innovations—and the individuals who drive them—deliver improvements in organizational effectiveness (*e.g*., What is the role of managers in inventing and implementing new management practices?) (Adapted from Birkinshaw, et al., 2008: 827).

Walker (2008) defines innovation as a process through which new ideas, objects, and practices are created, developed or reinvented, and which are new for the unit of adoption. Walker notes that public organizations sometimes innovate in search of legitimacy and may not fully adopt an innovation. An actual innovation must be more than an idea; implementation has to occur (Walker, 2008). This is just as easily assumed to be the case for many nonprofit organizations that also seek to innovate for legitimization purposes.

Though this dissertation concerns itself less with quantifying specific items of innovations adopted and implemented, and more with discovering what environmental factors influence innovation, Walker's (2008) research provides insightful perspective on the topic. Additionally, Walker (2008) defines specific types of innovation. They are:

Service Innovation: defined as new services offered by public organizations to meet an external user or market need—they are concerned with *what* is produced.

Organization Innovation: innovations in structure, strategy and administrative processes. They include improvements in an organization's practices and the introduction of new organizational structures. This is most similar to Birkinshaw et al.'s (2008) definition of management innovation.

Marketization Innovation: involves modifying the organization's operating processes and systems to increase the efficiency or effectiveness of producing and delivering services to users.

Ancillary Innovation: identified by Damanpour (1987) and differentiated from other innovations because they are concerned with working across boundaries with other service providers, users or other public agencies. Ancillary innovation is, for example, most identifiable with cross-sector collaboration or collaborative governance.

Innovation in Organizations

The body of research on innovation is vast and varied, and delves into subject matter that ranges from the scientific and technical to the organizational and social (Thompson, 1965, 1969; Damanpour, 1987, 1996; Damanpour, Szabat & Evan, 1989; Perry et al., 1993; Damanpour & Gopalakrishnan, 1998; Rainey, 2003; Birkenshaw, Hamel & Mol, 2008; Walker, 2008). This dissertation is concerned with the latter, *i.e.*, the organizational aspects of innovation.

The literature on organizational innovation in public and nonprofit management includes studies that are widely varied and difficult to summarize. Nevertheless, authors have advanced useful observations and conclusions.

Linden (1990), for example, concluded that innovative managers share seven characteristics: strategic action, holding on and letting go, creating a felt need for change, starting with concrete change, using structural changes, dealing with risk, and using political skills. He also concluded that innovation requires rational and intuitive thinking and occurs where leaders provide time, freedom, flexibility and access to resources.

Borins (1998) concluded that successful innovations occur where there is systematic thinking and planning for change, and also where programs apply new technology, undertake process improvements, and utilize the private sector, voluntarism and internal competition. He stipulated that successful innovation takes place via three main paths: politicians responding to

crises; newly appointed agency heads restructuring organizations; and midlevel and frontline workers responding to internal problems and taking advantage of opportunities. He found that about half the persons initiating award-winning innovations were career civil servants below the agency head level (Borins, 1998). This indicates that employees are willing to take on responsibilities or work that might not be required of them, and, perhaps more importantly, that they may engage in risk taking on their own behalf.

Light (1998) used a case analysis and a survey to assess innovation in nonprofit organizations. He cited four factors that influence innovativeness: the external environment, the internal structure, leadership, and internal management systems (Light, 1998). Many of these characteristics serve as the basis for the independent variables that will be used in this analysis.

One of the biggest challenges that scholars face concerns the translation of theory to practice, since academics might be losing ground to industry or consultants in terms of the ability to influence innovative practices (Birkinshaw, et al., 2008). Nonetheless, programs such as the Innovations in American Government Awards sponsored by the Ash Institute for Democratic Governance and Innovation at the Harvard Kennedy School have provided opportunities for research that seem to have narrowed the theory-practice divide (Borins, 2008)[1].

Conceptual Framework

The study of innovation in organizations has been examined through a variety of lenses, but there are relatively few attempts to draw comparisons or contrasts across sectors. This is, perhaps, due to the difficulty of segregating organizations into distinguishable categories for purposes of comparison. Third-sector organizations are often grouped into a general "nonprofit"

[1] See Behn (1988, 1991), Bardach (1998), Borins (1998, 2008), Donahue (1999) and Barzelay (2002).

category whose components vary widely among themselves (*e.g.*, charities, private family foundations, community foundations, cooperative agencies, and the like). A purely charitable giving organization and a tax-exempt business association (*e.g.*, a local chamber of commerce) may both be considered nonprofit organizations, even though their missions differ in scope and their size and capital resources may be quite different.

Management practices within the organizations are also assumed to differ depending on these conditions. Brody (2003) wrote on this "classification conundrum" that –

> [t]here has been no clear demarcation between the public, business, and nonprofit sectors through history, and variously changing mixed-sector industries are common (see, generally, Brody, 1997)… [c]onfoundingly, for taxonomists, once we add factors such as resource dependence, the pattern of firms looks more like a marble cake than a matrix. It no longer makes sense to ask a binary question like: Does a nonprofit corporation that receives all of its funding from government contracts belong in the nonprofit sector or the public sector? (Brody, 2003: 240).

Regardless of the difficulties in categorizing organizations, nonprofits, business organizations and public agencies can be distinguished clearly enough for the exploration of the differences in innovation across sectors, or in the case of this study, between the nonprofit and public sectors.

Comparing Innovation in Public and Nonprofit Organizations

Throughout history, the sectors generally identified as concerned with the provision of "public" services have been those of the public and nonprofit sectors. Though one may point to

instances of private business organizations that—through, for example, a corporate philanthropy—assist in meeting social welfare needs, this dissertation will retain a focus on the public and nonprofit sectors. The majority of scholarly studies have examined innovation primarily in the private sector, creating a need for additional studies of public and nonprofit organizations.

Table 1.1 shows six responses related to job perceptions from the National Administrative Studies Project III survey, to which respondents from both the public and nonprofit sectors could choose which one of the following was more creative and innovative: 1) public organizations, 2) business organizations, or 3) no difference between the sectors in terms of innovativeness. The first five items demonstrate similar responses from respondents in both the public and nonprofit sectors. Most nonprofit sector respondents believe that work is more personally gratifying in the public sector, or that there is no difference between the public and business sectors. Public sector respondents answered the question similarly. Most respondents from both sectors believe that managers have more work autonomy in the business sector, and that there is no difference in terms of whether persons doing similar jobs are more talented in one sector or another. Most respondents from both public and nonprofit sectors also believe that women and minorities have more opportunities afforded to them in the public sector.

Respondents do, however, differ regarding the statement, "Employees are more creative and innovative." Of the public sector respondents, just about six percent claimed that their own sector had more creative and innovative employees, while over sixty-five percent said that business sector employees were more innovative, and slightly more than twenty-eight percent said there was no difference. Nonprofit sector respondents were more likely (just over thirteen percent) to say that their public sector counterparts were more innovative. And, of the nonprofit

respondents, about forty-four percent said employees in the business sector were more creative and innovative, while just over forty-two percent said there was no difference. These large variations in the perceptions of innovation indicate the need for more analysis of the public and nonprofit sectors at the organizational level.

These differences in perception are important because innovativeness depends on the ability to attract individuals with the skills needed in various aspects of organizational operations. Employees will have a set of preferences and expectations when choosing to work for a public or nonprofit organization. Regardless of sector, employees seek specific attributes in their work environment (Blank, 1985; Light, 2003; Buelens & Van den Broeck, 2007). They may seek a job that is secure, and seek employment in organizations that have good reputations or those that try to retain employees through adequate salaries and other work-based incentives (Light, 2003). Those who have a desire to serve the public or the public interest could choose organizations in any sector—including public and nonprofit—but will be more likely to choose the organization that best suits their personal needs (Buelens & Van den Broeck, 2007). These needs may also include reasonable workloads and time commitments, clarification of responsibilities and tasks, flexible practices in the workplace, and opportunities for advancement or promotion (Goodstein, 1994; Hohl, 1996; Gonyea, 1999). Employees of public and nonprofit organizations typically seek to find meaning in the work they do and therefore may be more committed to work and have a greater sense of organizational pride (Boxx & Odom, 1991; Leete, 2000; Fernandez & Rainey, 2006). Additionally, the nonprofit sector continues to draw a growing share of the U.S. labor market. In the two years spanning 2002 to 2004, the number of employees in the nonprofit sector[2] grew by slightly more than five percent, while total

[2] Not including volunteers.

employees across all sectors in the U.S. workforce decreased slightly, by two-tenths of one percent (Salamon & Sokolowski, 2006).

These patterns of variation in the sectors provide theoretical and practical reasons to analyze the differences in innovation in the public and nonprofit sectors. From the theoretical perspective, public agencies are owned and funded by government, and are often subject to more legal and institutional constraints that may lower innovation. Nonprofits have more independence from government control, and often from government funding, which may enhance their ability to innovate. Most government agencies receive revenues from the tax base; nonprofits usually do not (except via government grants or contracts), such that nonprofits must rely on multiple sources of revenue (*e.g.*, donations, corporate and foundation grants, and similar gifts-in-kind). Nonprofit funding is typically more cyclical and changing, whereas the permanence of the tax flow to the government gives that funding stream more stability, and in some cases, this might lead to bureaucratic inertia. As a result, nonprofit organizations face a much more uncertain resource environment than their public sector counterparts. Therefore, nonprofits might stay innovative in response to turbulent conditions in their respective resource environment (Pfeffer & Salancik, 1978).

Frumkin (2002) highlighted three important differences between nonprofit organizations and their public and private counterparts: "1) they do not coerce participation; 2) they operate without distributing profits to stakeholders; and 3) they exist without simple and clear lines of ownership and accountability…these structural features give these entities a set of unique advantages that position them to perform important societal functions neither government nor the market is able to match" (p. 3). In practical terms, if nonprofits are more innovative, the public

sector perhaps should rely more on nonprofits to innovate in various policy or social program areas.

Additionally, it is likely that there are implications for public service and those choosing it as a career. Surveys and other evidence indicate that service-oriented younger people regard nonprofit organizations as serving the public in a more direct manner than do public organizations, and as more effective vehicles for social change (Light, 2003). In short, people often seek employment in nonprofits for reasons related to the nonprofits' innovative capacity.

While it is important to avoid oversimplifying the distinctions among sectors (Bozeman, 1987; Rainey, 2003), there is evidence of significant differences among public, private, and nonprofit organizations (Rainey, 1983; Perry & Rainey, 1988; Coursey & Bozeman, 1990; Lan & Rainey, 1992; Knott, 1993; Brilliant, 2001; Boyne, 2002; Rainey, 2003).

Plan of the Dissertation

This chapter has served as an introduction to various general concepts of organizational innovation, its relevance and traction in past scholarly work and its continued importance in public and nonprofit management research. Chapter Two will serve as a review of the literature, lending support to the theoretical and conceptual arguments made in this dissertation, and will establish the hypotheses tested for analysis. Chapter Three will comprise of a review of the National Administrative Studies Project III data used in the analysis, and the methodology and respective models used for the analysis. Chapter Four will cover preliminary results obtained from exploratory models, leading to Chapter Five, which will present the final analysis and results obtained with more parsimonious models. Chapter Six, the concluding chapter, will

present a summary of results, address any methodological concerns and issues, and put forth general suggestions for future research.

Figure 1.1 Perceived Innovation Value by Sector and State

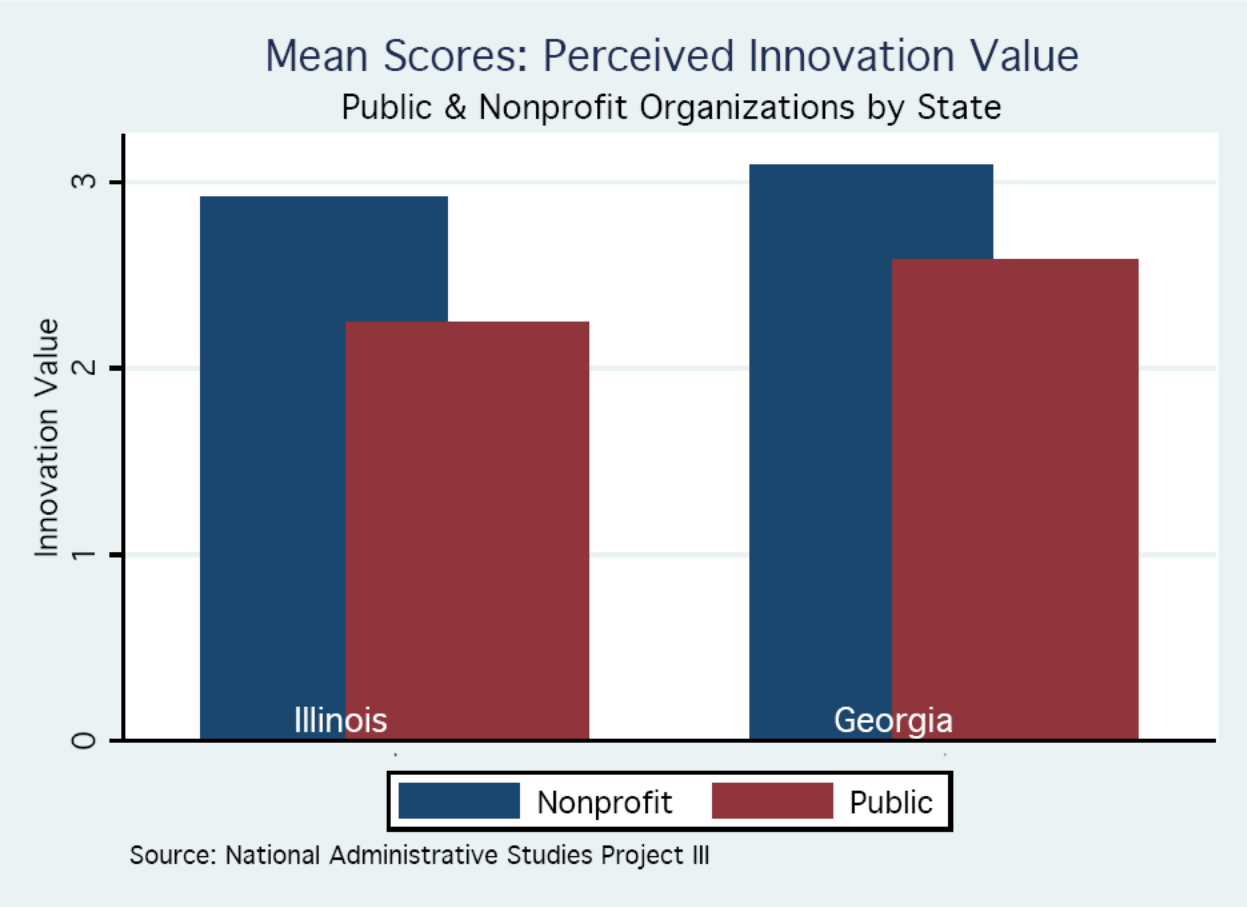

Table 1.1 Perceptions of Job Attributes by Sector

Public Sector Respondents				*Nonprofit Sector Respondents*		
Public Sector	Business Sector	No difference		Public Sector	Business Sector	No difference
37.87% (n=295)	21.82% (n=170)	**40.31% (n=314)**	Work is more personally gratifying	**43.10% (n=181)**	18.57% (n=78)	**38.33% (n=161)**
15.57% (n=121)	**60.88% (n=473)**	23.55% (n=183)	Managers have more work autonomy	21.62% (n=91)	**45.61% (n=192)**	32.78% (n=138)
9.03% (n=70)	35.87% (n=278)	**55.10% (n=427)**	Persons doing similar jobs are more talented	6.95% (n=29)	38.13% (n=159)	**54.92% (n=229)**
49.68% (n=386)	14.80% (n=115)	35.52% (n=276)	Women have more opportunities	**53.81% (n=226)**	11.67% (n=49)	34.52% (n=145)
62.55% (n=486)	7.85% (n=61)	29.60% (n=230)	Minorities have more opportunities	**51.54% (n=217)**	9.50% (n=40)	38.95% (n=164)
6.16% (n=48)	**65.08% (n=507)**	28.75% (n=224)	Employees are more creative and innovative	12.86% (n=54)	**44.76% (n=188)**	**42.38% (n=178)**

Source: National Administrative Studies Project III

CHAPTER 2

ESTABLISHING DETERMINANTS OF INNOVATIVE BEHAVIOR AND CONCEPTUALIZING INNOVATION CLIMATE: A REVIEW OF THE LITERATURE

In the introductory chapter, I outlined some of the literature on innovation and various aspects of how it pertains to public and nonprofit organizations. This chapter will provide additional coverage of the literature on organizational innovation, the relative determinants of innovative behavior, the various components of innovation climate, and will set forth hypotheses to be empirically tested in subsequent chapters.

Why Innovation is Important

David Albury (2005), a former principal adviser in former UK Prime Minister Tony Blair's Strategy Unit wrote that a steady flow of innovations is fundamental to sustaining improvement in the delivery of public services. He wrote:

> These perennial pressures for efficiency and improved performance…are now underpinned by a deeper challenge—to develop universal 'personalized' public services…which are responsive to the needs and aspirations of individuals and communities, which treat users with respect and dignity, and which enable greater individual and collective engagement (and greater self-organization) in the achievement of desirable social outcomes…To meet this challenge requires all public service organizations to be innovative, for public service managers and professionals to have the skills, opportunity and motivation to innovate effectively

> and successfully. Hence innovation is not an optional luxury for public services and the public sector: it is core and needs to be institutionalized as a deep value (Albury, 2005: 51).

The capacity to innovate is a valuable component of organizational effectiveness, efficiency, and productivity. Whether organizations act as incubators of innovation or not, few managers in any realm are likely to claim that innovation has no importance or bearing on their respective organizations. Previous research has argued and shown that innovation is critical to all organizations, and most managers, whether in the public, private, or nonprofit sectors, would probably like to believe that their organizations are innovative in some manner. Most assuredly, these managers are likely to agree with Altshuler and Zegan's (1990) assertion that "[m]anaging so as to nurture innovation has come to be perceived as perhaps the single greatest challenge of business leadership" (p. 16). Thus, with innovation come a number of obstacles and challenges to affront. As scholars have addressed the topic of innovation throughout the years, research on innovation has become exceptionally substantial. Much of this research has been focused on technological innovation and has been centered in the private business sector. Over the years, other topics on innovation have emerged, such as the focus on process innovation, service innovation, and strategic innovation (Birkinshaw et al., 2008). Scholars have also taken umbrage with some of the research, noting that despite the proliferation of research on innovation, there are many critical components that are not well understood, or perhaps misunderstood. As it has become more important to public and nonprofit organizations alike, it has also become "increasingly embedded in the language of governments and public service organizations" and is often used as a label without a distinct definition of what innovation means (Hartley, 2008: p. 197).

The vastness of the literature on topics related to innovation renders any one succinct summary of the topic nearly impossible. The diversity of perspectives that exists in relation to organizational innovation, managerial innovation, innovation climate, or innovation behavior, however, is more manageable, and truthfully, relatively sparse compared to diffusion-rate and adoption studies. Perhaps the most pressing of issues among innovation scholars is that the conceptual definition of innovation differs among the various interdisciplinary groups of scholars that research the topic. Put simply, despite this profusion of literature on the topic, most scholars are still trying to define what innovation is exactly. While differing definitions exist, Hartley (2008) offers that part of the confusion about the nature of innovation is that it is both a process and outcome, or, as she states, "It is a process of creating discontinuities in the organization of service (innovating) and it is also the fruits of those discontinuities (innovation)" (p. 200).

Though concepts of innovation and components of organizational innovation may vary, what is discernable to the researcher who reviews and engages in such work is that innovation is a novel, unprecedented, or improved change in an existing structure that alters the organizational status quo (Mueller, 1971). It is also worth distinguishing innovation from invention. Though these two elements have a relatively symbiotic relationship, invention is the conception of an idea, whereas innovation connotes the use of an idea. Mueller (1971) notes that both invention and innovation make up the "total process by which new ideas are conceived, nurtured, developed, and finally introduced 1) into the economy as new products and processes, 2) into an organization to change its internal and external relationships, or 3) into a society to provide for its social needs and to adapt it to the world" (p. 5). A component to that process that is central to this study, however, is the climate in which innovations are conceived, and the behaviors of the individuals and perceptions of organizations that foster or hinder that innovation climate

(Ahmed, 1998). The literature that has been reviewed for this study reflects that, and is drawn from perspectives that stem from organization studies in business, industry, and psychology. The imperative of this study is to make the climate for innovation relative to public and nonprofit organizations.

How innovation relates to or works within organizations has been examined for several decades. In Chapter One, I briefly noted work by Victor Thompson (1965, 1969) who examined the relationship between the bureaucratic structure and innovative behavior. His 1965 paper in *Administrative Science Quarterly* is a seminal work that served as the basis for a subsequent book (1969) that found relevance in contemporary studies in organizational and managerial innovation. Thompson believed that businesses with large bureaucratic structures and government organizations needed to increase their capacity to innovate because of the "obvious fact of the increased rate of change, especially technological change, but also from a rejection of the older process of innovation through the birth of new organizations an the death or failure of old ones" (p. 1). Thompson asserted that the bureaucratic orientation is conservative, and that using "novel solutions" in new and creative ways appear threatening to organization members at times, thus providing a resistance to change, and subsequently the innovation process.

Ahmed (1998) wrote that culture is the primary determinant of innovation. This is reflected in the concept of organizational innovation and innovation climate that will be presented in this chapter. Since creating a felt need for change is often a managerial duty, candid perceptions of managers and other team members become an integral part of assessing innovation in organizations. In this manner, the perception of organizational members is a significant component in understanding other cultural elements of an organization that may affect the innovation climate.

The Concept of Innovation Climate

Because this study is not concerned with specific or finite innovations, or with the adoption or diffusion of innovations (see, for example, J. Walker, 1969; Damanpour, 1988; Leonard-Barton, 1988; Rogers, 1995; Valente, 1996; Greenhalgh et al., 2004), but rather with behavioral and attitudinal aspects of innovation, it is necessary to define what exactly is being measured. An innovation climate, as defined in this study, is *an atmosphere within an organization that fosters and propagates innovation and has in place various traits among organization members that are conducive to producing creative and novel ideas that may lead to improved organizational performance and efficiency*. In effect, the concept of innovation climate relies on the assumption that many components affect an organization's capacity to innovate. This study is designed under the additional assumption that no singular personal or organizational attribute can predicate the success or failure of innovation within organizations, and thus, it is necessary to collectively assess several attributes relative to the organizational climate as a whole. Kanter (1988) wrote that "innovation-rate" studies are "suspect without information about the organizational context that produces the definition of that rate" and that "the organizational context itself should be the object of analysis, not individual innovation projects" (p. 511). She further noted that the best way to learn how the organizational context affects innovation is to first understand the process of innovation. In this section, I will review literature that contains studies related to factors that influence organizational innovation and the innovation climate.

Generally speaking, there are a number of attributes of the innovation climate that can be considered to be of relative importance to innovation itself. Risk is intricately tied to innovation,

and thus, employees and managers who are more willing to take risks increase the likelihood of innovative behavior (Ekvall, 1996; Ahmed, 1998; Locke & Baum, 2007). Other attributes may also include the level of trust exhibited between managers and subordinates, few organizational barriers and a low number burdensome or rigid rules and procedures (*e.g.* red tape), or even whether an organization promotes ethical practices in the workplace (Ruppel & Harrington, 2000). This study is influenced, in large part, by Ekvall's (1983, 1996) conceptualization of the innovative organizational climate, where "climate is regarded as an attribute of the organization, a conglomerate of attitudes, feelings and behaviors which characterizes life in the organization" (Ekvall, 1996: p. 105). Ekvall's (1996) study used "climate" as part of an intervening variable affected by organizational resources such as human capital, buildings, knowledge, funds, and ideas, and having effects on organizational quality, productivity, job satisfaction, well-being, profit, and, of course, innovation. The effects on these organizational factors, in turn, are cyclical in nature and can have effects on the organizational resources and the organizational climate itself. This study deviates somewhat from Ekvall's model in that aside from conceptualizing an innovation climate, linear and nonlinear regression models will also be employed to see how a set of variables affect the innovation climate. The data and methodology will be described in the following chapter, with results from the analysis forthcoming in Chapters Four and Five, respectively.

Ekvall's (1996) instrument for measuring organizational structure and the climate for creativity and innovation was based on the *Creative Climate Questionnaire* (CCQ) that was developed from a research program in Sweden in the 1980s concerning conditions within organizations that promote or hinder creativity and innovation. The 50-item questionnaire

covered ten different dimensions that resulted from several large-factor analytic studies. They are:[3]

1) *Challenge*. This factor involves the emotional involvement of organization members in operations and goals. The high-challenge climate is one where people experience joy and meaningfulness in their job. Low-challenge climates involve alienation, indifference, apathy, and lack of interest.
2) *Freedom* entails the independent behavior among members of the organization. People who display high levels of freedom are likely to share information, discuss problems and alternatives and engage in decision making. People who are passive and rule-bound exhibit lower levels of freedom.
3) *Idea Support* is the way new ideas are received. A supportive organizational climate will receive ideas in an attentive and supportive manner, and opportunities to try out new ideas are realized. Low idea support entails immediate opposition and refutation. These organization members are more inclined to provide obstacles to realizing any new ideas.
4) *Trust/Openness*. When levels of trust are high in organizations, people are more willing to communicate and share their ideas in an open and straightforward manner. When trust is low or absent, people are instead suspicious of each other and fear exploitation.
5) *Dynamism/Liveliness*. Ekvall (1996) describes this as the "eventfulness of life in the organization." (p. 107). A dynamic environment will have new things that happen on a constant basis. Ekvall further describes a "kind of psychological

[3] Summarized from Ekvall (1996), pages 107-108.

turbulence…described by people in those organizations as 'full speed,' 'go,' 'breakneck…' and the like" (p. 107). The opposite of this would be a slow environment where little changes and there are no surprises.

6) *Playfulness/Humor*. This describes the organization that has a relaxed and jovial atmosphere at a high level, and rigidity and seriousness in lower levels, where humor in the form of jokes and laughter are typically regarded as improper.
7) *Debates.* The high level will demonstrate confrontation and clashes among viewpoints, ideas, and knowledge. Organizations that utilize debates often have many people who are not afraid to have their voices heard. On the contrary, low levels of debate in an organization are marked by people who "follow authoritarian patterns without questioning" (Ekvall, 1996: p. 108).
8) *Conflict* leads to personal and emotional tensions between organization members. When conflict is high in the organization, individuals and groups are often pitted against each other, and gossip, slander, and malicious intentions become commonplace. When conflict is low, people within the organization reign in their emotions, act maturely, and control impulses.
9) *Risk Taking*. Ekvall (1996) defines risk taking as the "tolerance of uncertainty in the organization" and that "concrete experimentation is preferred to detailed investigation and analysis" (p.108). When risk taking is high in an organization, decisions and actions are quick, and formalities or procedures that would otherwise be included in work processes may be sidestepped. Planning and tasks are not rigid in structure, but rather fluid. Risk avoidance, on the other hand, encompasses inflexible and

formalized work structures that rarely deviate from the norm and follow pre-set routines.

10) *Idea Time* is the amount of time organization members have at their disposal for generating and crafting new ideas. Generous amounts of idea time allow for alternative possibilities or methods of carrying out various task assignments that are not planned in organizational objectives. Less idea time reduces the ability to generate a larger palette of ideas, and, like risk avoidance, follow routines without much deviation.

From these factors, Ekvall specified two kinds of organizations: innovative organizations and stagnated organizations. These characteristics are summarized in Table. 2.2. Based on mean scores in the ten CCQ dimensions, Ekvall (1996) presumed that the organizational climate exerts influences on processes that promote or deter innovative outcomes.

Like Ekvall (1996), Saleh and Wang (1993) also carried out a study to determine the characteristics and factors that differentiate innovative organizations from less innovative organizations. They studied 34 Canadian organizations (14 of them winners of The Canada Awards for Business Excellence) and focused on the differences in managerial strategy, organizational structure, and organizational climate. The authors set out to establish that the entrepreneurial approach of managing organizations is related to innovation. They hypothesized that from an entrepreneurial strategy standpoint that risk taking, proactive approaches to work, and a commitment to one's work contributed to innovation in organizations. In terms of the organizational structure and group functioning aspect, a flexible work structure, synthesis of other units and organization members, and a collective orientation also contributed to innovation in organizations. And finally, with regard to the organizational climate factor, the authors

hypothesized that an open and promotive climate, collegiality, and the use of a reward system further contributed to innovation in organizations. Their results indicated that innovative organizations have more calculated risk taking among organizational members and that management commitment to entrepreneurial activities and innovation was high. Furthermore, more innovative organizations were likely to better integrate talent into teams and task forces, have a better collective orientation among groups, and a reward system that promotes and reinforces entrepreneurial behavior.

Amabile & Gryskiewicz's (1989) development of the *Creative Environment Scales: Work Environment Inventory* has also been instrumental in the assessment of organizational innovativeness. Their study, rather than constructing a comprehensive description of the work environment, is designed to elicit factors in the work environment most likely to facilitate creativity within organizations. The *Creative Environment Scales: Work Environment Inventory* (WEI) is a 135-item survey designed to assess "stimulants" and "obstacles" to creativity in work environments. It proposes that individual creativity within an organization depends on three components of the organization. They are: 1) skills in innovation management occurring primarily at the level of the local supervisor; 2) motivation to innovate at the organizational level; and 3) availability of resources, including materials, human capital and time. Additionally, the individual's skills and motivations within the workplace serve as an additional influence to these components.

Amabile & Gryskiewicz (1989) outlined eight scales that used between four and eleven items to describe "Environmental Stimulants to Creativity" (p. 236). They are[4]:

[4] Summarized from Amabile & Gryskiewicz (1989), pages 236-237.

1) *Freedom*: freedom in deciding what to do in one's work or how to do it, or to have a sense of control over one's work.
2) *Challenge*: a sense of having to work hard on challenging tasks and important projects.
3) *Resources*: access to appropriate resources, including people, materials, and information.
4) *Supervisor*: a supervisor who sets goals appropriately, supports the work group within the organization, values individual contributions, and serves as an intelligent, enthusiastic work model.
5) *Coworkers*: a diversely skilled work group in which people communicate well, are open to new ideas, constructively challenge each other's work, trust and help each other, and feel committed to the work they are doing.
6) *Recognition*: fair, constructive feedback on work, leading to appropriate recognition and reward of good efforts; an atmosphere where employees' interests as well as their skills are recognized.
7) *Unity and cooperation*: a cooperative, collaborative organizational atmosphere in which there is a lively flow of ideas around a shared vision.
8) *Creativity Supports*: an organizational atmosphere in which creativity is encouraged and mechanisms exist to foster the expression and development of creative ideas.

In addition to these eight scales, the authors also crafted four scales that described "Environmental Obstacles to Creativity" along with two assessment scales (*Creativity* and *Productivity*) for validation purposes, and to assess the overall creativity of the organizations. These scales contained between four and nine items each.

1) *Time Pressure*: too much work to do in the time allotted.
2) *Evaluation*: threatening evaluation procedures; an atmosphere of excessive negative criticism of work.
3) *Status Quo*: an emphasis in the organization on avoiding risks and doing things the way they have always been done.
4) *Political Problems*: areas of the organization serving as hindrances to each other's work, through destructive competition, excessive concern about protecting territory, and other political problems.
5) *Creativity*: a creative, innovative organization or area of an organization, where a great deal of creativity is called for and where people believe they are actually producing creative work.
6) *Productivity*: an efficient, effective, and productive organization or area of an organization.

The WEI was administered to 645 respondents from five different groups that represented professional levels within organizations. They consisted of a federal government research and development organization concerned with materials manufacturing processes (n = 68), the chemicals research and development (R&D) arm of a major oil company (n = 254), a nonprofit educational institution that carried out research and training on management and leadership (n = 127), the marketing, manufacturing and R&D divisions of a *Fortune 100* textile manufacturing company that specialized in man-made fibers (n = 100), and a sample of business leaders from various professions and organizations in a Midwestern state. In each of these instances, all individuals sampled were asked to give their impressions of their respective organizational

climate[5]. Amabile & Gryskiewicz's (1989) preliminary validity analyses concluded that the WEI does discriminate between the different work environments, and that some of the scales are significantly related to creativity within the organization. The study provides some insights relative to this study in terms of comparisons between different types of organizations, such as the government lab and nonprofit educational institution. In terms of the environmental stimulants to creativity, the government lab ranked higher in only one area over the nonprofit educational institution, that being freedom. In terms of challenge, resources, supervisor, coworkers, recognition, unity and supports, the nonprofit educational institution ranked slightly higher. Regarding the four environmental obstacles to creativity, the nonprofit education institution ranked higher in terms of time pressure and evaluation, whereas the government lab ranked slightly higher in status quo and politics. And finally, on the assessment scales of creativity and productivity, the government lab ranked just above the nonprofit education institution in terms of creativity, while the nonprofit education institution ranked higher in terms of productivity. These results indicate that there are institutional differences between the types of organizations relative to their innovation climate and lend support to the analyses that will be undertaken in this study.

Hypotheses: Determinants of Innovative Behavior

The personal and institutional determinants of innovative behavior as outlined in previous research are relatively large in number, but for the purpose of this study, I will focus mostly on a select few, specifically items that involve different aspects of motivation, personnel and job

[5] Amabile and Gryskiewicz (1989) note that most questions on the WEI refer implicitly or explicitly to the organization and that very few refer to a specific department, area or team within the organization. They note that the Midwest sample is a special case since those respondents were each from a different organization, and as such should be considered a "baseline" group (p. 244).

flexibility, and a small number of perceptions of workplace attributes. This section will also contain hypotheses that will be used for testing in subsequent chapters. The hypotheses are all stated in the affirmative, though in drawing support from the literature I anticipate that some will not be confirmed. The hypotheses are also summarized at the end of this chapter in Table 2.1.

Mohr's (1969) study on the determinants of innovation in organizations was an earlier example of innovations within public agencies (specifically departments of public health) and the degree to which they adopt and emphasize programs that are a traditional departure from organizational norms. His working definition of innovation is perhaps one that is more unique and offers support for this study, stating: "Innovation is suggested to be the function of an interaction among the motivation to innovate, the strength of obstacles against innovation, and the availability of resources for overcoming such obstacles" (p. 111). At the center of many studies on innovation and innovative behavior is the motivation to innovate, so the idea that innovation is, in part, structurally tied to motivation is an element that is explored in this study.

The Motivation to Innovate

Motivation is a necessary component of understanding innovative behavior in the workplace, and has been the subject of multiple studies pertaining to public and nonprofit organizations. Of particular importance are theories on public service motivation (see for example Perry & Wise, 1990; Perry, 1996, 1997, 2000; Perry & Hondeghem, 2008) and pro-social motivation (see for example Baston, 1987; Grant, 2008; Grant & Berg, 2010), which have received significant treatment in the literature. A central component to both theories is the belief that people choose (and, in part, are intrinsically motivated) to work in a manner that is

beneficial to other people in public serving, mission-based organizations in order to serve the public or the public interest.

Grant (2008) proposed that pro-social motivation most likely enhances "persistence, performance, and productivity" when it is accompanied by intrinsic motivation. He contends, however, that pro-social motivation is not completely "pure" intrinsic motivation, but rather a "state of introjected or identified regulations" (p.49). He further notes that pro-social and intrinsic motivations involve different levels of autonomy and self-regulation, that first, when employees are *intrinsically* motivated, they are thus naturally drawn toward completing their work based on personal enjoyment and self-determination. Secondly, when employees are *pro-socially* motivated they are likely to force themselves toward work completion based on conscious self-regulation and self-control in order to achieve a goal (see also Gagné & Deci, 2005). The simple definition of pro-social motivation, as put forth by Baston (1987) is the desire to expend effort to benefit other people, and as such, it must be assumed that there is, though perhaps not completely observed, intrinsic motivation embedded in the desire to benefit other people. Therefore, this study assumes that pro-social motivation is, in part, an intrinsic motivation.

Motivation, however, is not only based on intrinsic factors, but extrinsic motivators as well, such as compensation, merit-based rewards, opportunities for advancement within the organization, and the desire for sustainable job security. The motivation to innovate is a likely combination of both intrinsic and extrinsic motivation, though certain facets of these types of motivation are also likely to suppress innovation, as well (Thompson, 1965). Recent research by Georgellis et al. (2010) has examined whether or not crowding out of intrinsic motivation in the public sector occurs at the expense of introducing extrinsic motivators. Using longitudinal public

sector data from the United Kingdom, the authors find that individuals are attracted to the public sector by intrinsic, rather than extrinsic rewards. Additionally, they find support for the crowding out hypothesis—higher extrinsic rewards reduce the propensity of intrinsically motivated individuals to accept public sector employment. This begs the question, then, as to whether or not various types of motivation affect the innovation climate within the organization, and how. Based on the study by Georgellis et al. (2010), it is presumed that due to the crowd out effect, pro-social motivation is not likely to positively or adversely affect the innovation climate.

In addition to the pro-social or intrinsic motivators, extrinsic motivators will also be tested in relation to the innovation climate. Advancement within an organization is based on many attributes of the employee, and creativity and ingenuity, which are antecedent to innovation, are two components that often distinguish a dynamic employee from a static employee, and therefore, I predict that the motivation to advance within a public or nonprofit organization hierarchy is a significant component of the innovation climate. There are instances, however, where employees seek security over advancement or any other motivation. They want a job that is secure and sustainable, and thus may not engage in innovative behaviors because of the potential risk it poses to their job (Janssen, 2003; Krause, 2004). Deference to security is likely to have little, if any, effect on the innovation climate. And finally, financial motivation, or how much of a factor the salary is relative to whether or not one accepts a job, is also examined. Pay structures in the private sector are more likely to be higher than those of the public or nonprofit sectors, though there are instances of ample compensation in those sectors. If it is a matter of preference of working in the public or nonprofit sector over the private sector, then financial motivation will most likely have no effect on the innovation climate. Linkages between advancement, security, and financial motivation and organizational innovation have received

little, if any, treatment in the literature, and therefore, this study bridges a very important gap in the research.

H1a Advancement motivation is significantly associated with the innovation climate.

H1b Security motivation is significantly associated with the innovation climate.

H1c Financial motivation is significantly associated with the innovation climate.

H1d Pro-social motivation (the motivation to take employment based ability to serve the public or public interest) is significantly associated with the innovation climate.

Personnel Flexibility and Job Flexibility

Flexibility also plays a role in the innovation climate at both the organizational level and the personal level (Hannah, 1995; Ahmed, 1998; Lonti & Verma, 2003). In order for organizations to hire talented individuals with skills specific to organizational needs and to terminate those who fail to perform their duties, it is necessary to have some flexibility in terms of hiring and firing personnel, as well as rewarding employees who go above and beyond their standard expectations (Galende & de la Fuente, 2003). This is an issue with great significance in both the public and nonprofit sectors. From the nonprofit side, scant resources often make any sort of merit pay or merit-based reward difficult. Cultural dimensions within the organization may also lessen the desire to reward employees who are assumed to be dedicated to the mission of the organization, which may be sufficient in and of itself as a reward in terms of helping people or working toward a cause. There is research, however, that claims the opposite effect, that a nonprofit organization's mission can *facilitate* innovation (McDonald, 2007). McDonald

(2007) conducted two studies among nonprofit hospitals in the U.S. to investigate the organizational mission's role in the innovation process. He concluded that clear, motivating organizational missions help organizations focus their attention on innovations that will most likely support the accomplishment of the said mission, concomitantly creating a climate in which innovations are more likely to succeed. There is, however, no coverage of personnel issues or flexibility in McDonald's (2007) study, and therefore it may be assumed that employees who underperform or are not motivated to achieve organizational missions will not bolster the innovation climate.

There is a significant amount of literature on merit-based pay in the public sector by both proponents and opponents of the practice (Kellough & Lu, 1993; Kellough & Nigro, 2002; Milkovich & Wigdor, 1991; Ingraham, 1993; Battaglio, 2010). Of particular note is the study by Kellough and Nigro (2002) in which they investigate part of the State of Georgia's personnel system reform, GeorgiaGain. Part of GeorgiaGain's efforts included a competitive compensation plan, which the authors cited as a poor way to motivate state employees, and beyond that criticism, employees were rather critical of the reform as a whole and claimed that it was not effective in producing intended outcomes. This leads to an assumption that personnel flexibility, or *inflexibility*, rather, may act as a hindrance to the innovation climate. Though substantive research on the linkage between personnel inflexibility[6] and organizational innovation is largely absent, based in part on Galende and de la Fuente's (2003) hypothesis that "the possession of superior human resources increases the accumulative nature of the innovative activity" (p. 722), I predict that personnel inflexibility is significantly related to the innovation climate. Galende and de la Fuente (2003) did not find support for this hypothesis in their study, which may lead one to

[6] Feeney and Rainey (2010) first used an index of personnel flexibility as a dependent variable. Replication of those results is covered in Chapter Three. This study uses the same additive index as an independent variable, but will use the term "personnel inflexibility" throughout the remainder of this study to reflect the variable more accurately.

believe that personnel inflexibility could potentially be insignificant or negatively related to the innovation climate, however, the variation on this theme renders a similar hypothesis worth testing.

H2a Personnel inflexibility is significantly associated with the innovation climate.

The autonomy that an individual has over his job is assumed to contribute to the innovative climate in the workplace. Organizations that give a significant amount of leeway to employees in terms of carrying out tasks assigned to them often promote the development of creative ways of problem solving and idea generation (de Jong & Den Hartog, 2007; Jaskyte et al. 2010). In this vein, there has been much research devoted to bureaucratic discretion, as public sector bureaucrats often find themselves with inborn power to make decisions according to their own judgment (Lipsky, 1980; Scott, 1997). There has also been coverage in the literature given to empowerment of employees. Recent research by Fernandez and Moldogaziev (2011) illustrates both a managerial and a psychological theoretical perspective with regard to empowerment. From the managerial perspective, the authors claim that employee empowerment is a relational construct that describes how those with power (managers) share power and authority with those who lack it (employees). The psychological perspective positions employee empowerment as a motivational construct defined as "an internal cognitive state characterized by increased intrinsic task motivation and enhanced feelings of self-efficacy" (Fernandez & Moldogaziev, 2011; see also Thomas & Velthouse, 1990; Conger & Kanungo, 1988; Gumusluoglu & Ilsev, 2009). Organizations that promote individual creativity as a means to achieving organizational innovation are often successful because it is an integral component of

the organizational culture (Oldham & Cummings, 1996; Martins & Terblanche, 2003; Jaskyte et al. 2010; Jaskyte & Dressler, 2005; Patterson et al. 2005) and individuals with intuitive and systematic problem-solving styles are furthermore likely to contribute to the innovation climate (Scott & Bruce, 1994).

H2b Job flexibility is significantly associated with the innovation climate.

Quality and Reputation of the Organization

While the image of an organization, as perceived by clients, customers, or citizens, is important, so too is the perception of those who work in the organizations (Baldridge & Burnham, 1975; Martins & Terblanche, 2003). Managers are often tasked with creating a positive environment and reinforcing employees' morale with a "can-do" attitude toward organizational objectives (Grady, 1992; de Jong & Den Hartog, 2007). This suggests that positive impressions of the organization may have a positive effect on innovative behaviors in the workplace and the innovation climate. Few studies test this linkage; therefore this study presents an optimal occasion to test the hypothesis that positive organizational perceptions are positively related to the innovation climate.

H3 Positive perceptions on the quality and reputation of organizations are significantly related to the innovation climate.

Desire for Less Conflict in the Workplace

Thompson (1965) posited that suppressing conflict within organizations depresses creativity. Conflict, he argued, generates problems to be solved and supplements uncertainty, therefore forcing individuals to seek creative and innovative ways to solving those problems. In short, he believed that conflict encourages innovation, and that the less structured or "bureaucratized" an organization is, that more conflict and uncertainty will arise, thus promoting more innovative behavior. Thompson also proclaimed that extrinsic rewards provided to subordinates by managers is more likely to stimulate conformity rather than innovation. Janssen (2003) claimed that a worker's innovative behavior interacts with her job involvement in producing conflict, and thus relationships with co-workers who are more resistant to change become strained. In order to maintain good working relationships, some employees may conform to the status quo and are thus less likely to engage in innovative behavior.

H4 The desire for a low-conflict work environment is significantly related to the innovation climate.

The Importance of Work

Thompson (1965) also believed that creativity is promoted more by the internal commitment of an individual and by intrinsic rewards. Employees who are often faced with stressful job demands are often faced with the task of performing a significant amount of work in little time (Janssen, 2000; Fox, Dwyer, & Ganster, 1993; West, 2002). Those who are intricately devoted to their work and view it as one of the most important aspects of their lives are more than likely drawn to the challenges it presents and the opportunities afforded to creatively

address and solve problems or conceive of new ideas (Scott & Bruce, 1994; Oldham & Cummings, 1996). In effect, those who place a significant priority on their work are likely to engage in innovative behavior and positively affect the innovation climate.

H5 Those who are more likely to believe work is the most important element in their life are significantly related to the innovation climate.

Summary and Conclusion

This chapter has provided continued coverage of the innovation literature as it relates to the determinants of innovative behavior, as well as conceptual dimensions of the innovative climate. The multiple components that comprise these facets of innovation demonstrate organizational phenomena that are sometimes difficult to summarize, let alone quantify, due to varying dimensions and scopes of existing studies. The literature reviewed herein, however, presents some common themes that contributed to the formation of hypotheses to be tested in subsequent chapters. The following chapter will present a review of the data used for this study–the National Administrative Studies Project-III—and will detail the variables used to construct the statistical models, the results of which will be presented in Chapters Four and Five, respectively.

Table 2.1 Hypotheses

H1a	Advancement motivation is significantly associated with the innovation climate.
H1b	Security motivation is significantly associated with the innovation climate.
H1c	Financial motivation is significantly associated with the innovation climate.
H1d	Pro-social motivation (the motivation to take employment based ability to serve the public or public interest) is significantly associated with the innovation climate.
H2a	Personnel inflexibility is significantly associated with the innovation climate.
H2b	Job flexibility is significantly associated with the innovation climate.
H3	Positive perceptions on the quality and reputation of organizations are significantly associated with the innovation climate.
H4	The desire for a low-conflict work environment is significantly associated with the innovation climate.
H5	Those who are more likely to believe work is the most important element in their life are significantly related to the innovation climate.

Table 2.2 Organizational Climate Models from Ekvall (1996)

INNOVATIVE Climate	STAGNATED Climate
More open and trusting relationships	Fewer open and trusting relationships
Fewer personal conflicts	Higher frequency of personal conflicts
Higher frequency of debates and discussions about ideas	Fewer debates and less discussion
More likely to take risks (*e.g.* introducing new procedures)	Less likely to take risks
More personal freedom in doing the job	Close and conspicuous supervision
More time to spend in idea generation/evaluation	Less time to spend in idea generation/evaluation
New ideas received favorably by senior management and encouraged	New ideas ignored or discouraged
Committed people highly involved in their work	Less commitment and involvement
More fun	Less fun
Workplace more exciting/dynamic	Workplace less exciting/dynamic

CHAPTER 3

DATA, MODELS, and METHODS

This chapter outlines the data and methodology that will be employed to empirically test hypotheses previously set forth in Chapter Two. I will first describe the data used in this analysis, follow with a description of the models and methodology, and conclude with a description of the variables used in the analysis.

Data

This dissertation employs survey data from the National Administrative Studies Project III (NASP-III). NASP-III and its predecessors have sought to expand and increase empirical knowledge of public management by focusing on similar themes such as organizational culture, rules and procedures, and engagement in public service. NASP-I was administered to a sample of public and private managers in New York, while NASP-II was expanded to a national level and focused exclusively on state health and human service agencies (thus, focusing solely on the public sector). NASP-III is a two-state sample, with respondents from the public and nonprofit sectors (Feeney, 2006). All variations of NASP data have similar themes, yet they have distinct qualities that contribute more to our understanding of organizational and environmental attributes of organizations and provide greater breadth and depth regarding the testing of empirical hypotheses. Though it does not have a national focus like that of NASP-II, NASP-III still provides perhaps the richest array of respondents at the institutional level since it does not focus on a single type of agency, but rather many organizations across sectors and states. Since

the descriptive statistics in Table 1.1 in Chapter One demonstrate that respondents answered many questions from NASP-III in a similar fashion, utilizing an assortment of statistical models provides the opportunity to see if there are truly any differences between the sectors in terms of their innovative capacities and what organizational or personal attributes contribute to a climate of innovation. Because this data surveys both public and nonprofit managers in two states, and because there are a number of items theorized to facilitate or inhibit innovation, NASP-III provides an optimal opportunity to empirically examine the climate of innovation as it relates to different work environments while eliminating as many threats to validity as possible.

Previous editions of NASP have yielded doctoral dissertations as well as several research articles (see Bozeman & Kingsley, 1998; Bozeman & Rainey, 1998; Moon, 1999, Moon, 2000; Moon & Bretschneider, 2002; Pandey & Scott, 2002; DeHart-Davis & Pandey, 2005; Moynihan & Pandey, 2005) and NASP-III appears to be following the same trend (see Feeney & Bozeman, 2009; Feeney & Rainey, 2010; Word & Park, 2009).

NASP-III surveyed managers in public and nonprofit[7] organizations in Georgia and Illinois over a three wave, 10-month span, on a variety of organizational topics including work motivations and environment, organizational rules and procedures, and various demographic characteristics (Feeney, 2006). At the completion of the survey, 1,220 persons responded yielding an overall response rate of 39%. Of the respondents, 790 (64.8%) were from the public sector. Of those public sector respondents, 432 were from Georgia (54.7%) and 358 (45.3%) were from Illinois. Also from the public sector respondents, 440 (55.7%) were male and 344 (43.5%) were female. The nonprofit portion of the sample yielded a total of 430 (35.2%)

[7] The majority of nonprofit organizations were either classified as 501(c)(3) public charities or 501(c)(6) business leagues. Because of the different nature of these two types of organizations, separate regressions were run in a preliminary analysis for each type of nonprofit organization. In each case, results were nearly identical, and therefore all nonprofit observations will be left in one, single sample for comparison with the public observations.

respondents with 107 (24.9%) from Georgia and 323 (75.1%) from Illinois. From the nonprofit respondents, 204 (47.4%) were male and 221 (51.4%) were female.

Models

Two statistical models (Figure 3.1 and 3.2) are employed in this dissertation to empirically test hypotheses related to perceived organizational innovation and the climate of innovation in an organization. The first model is based upon a single-item dependent variable measuring the perceived value an organization places on innovation. This model and its accompanying methodology are primarily used for exploratory and preliminary results due to methodological concerns that will be further addressed in Chapter Four. The second model is based on a factor score variable comprised of various measurements to an organization's innovation climate. The second model also incorporates newly created variables after employing principal component analysis in order to construct a more parsimonious model.

The proposed methodology for the dissertation merits some explanation. Since the variable that measures managers' perceptions of innovation within their organizations is rank-ordered on a four-point Likert scale, a preliminary model was tested using an ordered logistic regression. However, this method violated the proportional odds assumption (or Brant test) in each instance. It may be possible to smooth the distribution by removing variables in the analysis, though this risks a loss of variation and therefore may produce results that are less significant. In this instance, it is appropriate to use multinomial logistic regression instead. This shows how ceteris paribus changes in the elements of the independent variables affect response probabilities. It is beneficial for interpreting to what degree respondents agreed or disagreed their

organizations were innovative in relation to the explanatory variables. In basic terms, it can be represented as such:

$$P_i\,(y = j \mid \mathbf{x})$$

Where P_i = Response probability
y = Explained variable
j = Ordered response (*i.e.* $j = 1, 2, 3, 4$)
$\mathbf{x}$ = Vector of explanatory variables

Though specific measures and scales of innovation have been constructed[8], the item in the survey for the first analysis (managerial perception of whether the organization values innovation) was based on a single statement, and therefore, it is assumed that the concept of innovation will differ from person to person. Because of this, the multinomial logistic regression would allow for an analysis that would demonstrate coefficients at each level of agreement in terms of respondents' answers to what degree their organizations value innovation. Of the respondents, 481 (nearly 40%) "agreed somewhat" that their organizations valued innovation. As such, "Agree Somewhat" will be used as the base outcome of the analysis to which the other responses are compared. The preliminary results of the multinomial logistic option yielded similar results to the ordered logistical model, though somewhat more robust. For example, the R-squared for the public sample increased slightly from .23 in the ordered logistic model to .25 in the multinomial logistic model, and even more so in the nonprofit sample, from .25 in the ordered logistic model to .30 in the multinomial logistic model.

This model, using a single-item dependent variable, is quite limited in terms of conceptualizing the climate of innovation. Asking whether or not the respondent believes their organization values innovation does not reveal other characteristics that accompany a climate of innovation, and thus principal component analysis was employed in order to create an index of

[8] See Borins (1998).

items that serve as the conceptual grouping of environmental or personal attributes that comprise the climate of innovation. Since the dependent variable of innovation climate is constructed with a factor score, it would be appropriate to employ the use of an ordinary least squares (OLS) model in this case. Using OLS after creating variables from the principal component analyses provides for a more parsimonious model and lessens the threat of social desirability or response bias[9], as well as that of common source or monomethod bias.

Variables

The first analysis that will be covered in Chapter Four will use a dependent variable based on the statement, "Innovation is one of the most important values in this organization." Independent variables will comprise information based on the respondents' responses to survey items asking about workplace perceptions, including risk and exposure within the organization, organization culture, the nature of work performed, and education and training.

Model 1: Perceived Value of Innovation in an Organization

The first variable used is a dummy variable to indicate whether or not the respondent works in a public or nonprofit organization (0 = public, 1 = nonprofit), labeled *nonprofit* as the default. The next variable is based on respondents ranking the importance of their *job security* as a motivation to take their current position (4 = very important, 3 = somewhat important, 2 = somewhat unimportant, and 1 = not important). The variables *employee risk aversion* and

[9] Brewer (2006) notes that survey researchers want respondents to have an internally consistent set of attitudes in order to discover orderly patterns and observable distinctions. Since the responses measure both independent and dependent variables, response bias is a legitimate threat. The data, however, provide an opportunity to lessen the threat by sampling from two very culturally and politically different states. For example, with regard to the public sector, Georgia has undergone numerous civil service reforms, whereas Illinois state government is heavily unionized. Notwithstanding this, I must repeat Brewer (2006): "…common source and related bias is very hard for survey researchers to identify and filter out" (p. 49). The variation in data and use of adequate statistical techniques, however, should, at minimum, reduce the response bias.

managerial risk aversion are based on the statements "Employees in this organization are afraid to take risks" and "Top management in this organization is afraid to take risks," respectively, and are both rank-ordered on a four-point scale (4 = strongly agree, 3 = agree somewhat, 2 = disagree somewhat, and 1 = strongly disagree).

Two variables directly related to tasks are also included. The first is *job flexibility,* which is based on the statement "My job offers a great deal of flexibility" and is rank-ordered on a four-point Likert scale. *Red tape,* defined in the NASP-III survey as "burdensome administrative rules and procedures that have negative effects on the organization's effectiveness," was measured on an eleven-point scale from zero to ten, zero being "almost no red tape" and ten being a "great deal of red tape." Respondents were asked to rate the *ability to serve the public interest* along with the overall *quality and reputation of the organization.* The variable *work most important* is based on the statement "The most important things that happen to me involve my work." The variable for *organization pride* is based on the statement "I feel a sense of pride working for this organization," and finally *top management trust* is based on the statement "Top management displays a high level of trust in this organization's employees." All of these variables are based on a four-point Likert scale.

Other variables delineate the nature of the work performed within the respective organizations. *Work hours* is a variable based on the number of hours worked during a typical work week as reported by the respondents. *Quality of work* is based on the statement "I would rate the overall quality of work being done in my organization as very good." A variable on *incentives* is also included, based on the statement "There are incentives for me to work hard in my job." And lastly, the statement "Because of the rules here, promotions are based mainly on

performance" comprises the variable *performance-based promotion. Quality of work, incentives,* and *performance-based promotion* are all rank-ordered variables on a four-point Likert scale.

Several control variables are also included in the analyses, including three education variables[10]: whether respondents have a *high school diploma* (yes = 1, no = 0), a *bachelor's degree* (yes = 1, no = 0) and whether or not they have a *graduate or professional degree* (yes = 1, no = 0). I control for the age of an organization by using a numeric variable for the year an organization was established, and also control for the number of full-time employees as a measure for organizational size. Dummy variables are also used as controls in terms of the state (*Georgia*), for sex (*female*), for the *age of the respondent*, and for race (*nonwhite*.)

Model 2: Innovation Climate

The second analysis, with results presented in Chapter Five, employs many of these variables. However, in order to provide a more parsimonious model and to correct for any methodological concerns that will be addressed in the following chapter, the use of principle component analysis has provided additional independent variables that measure different facets of motivation, an additional dimension of flexibility, and the dependent variable of innovation climate. As displayed in Table 3.1, nine items from the NASP-III survey comprise the factor score dependent variable for *innovation climate*, and are based on the following statements:

1) Innovation is one of the most important values in the organization

2) Employees in this organization are afraid to take risks. (reversed)

3) Top management in this organization is afraid to take risks. (reversed)

4) Top management displays a high level of trust in this organization's employees.

[10] These variables were recoded to allow as much mutual exclusion as possible, though "Graduate or Professional Degree" will be highly correlated with "Bachelor's Degree" (*i.e.* one must have a baccalaureate degree in order to obtain a graduate degree).

5) How would you assess the level of red tape in your organization? (reversed)

6) I feel a sense of pride working for this organization.

7) I would rate the overall quality of work done in my organization as very good.

8) There are incentives for me to work hard in my job.

9) This organization has high ethical standards.

Results from the principal component analysis reveal that NASP-III participants responded to each of these items in a similar manner with each factor loading falling between 0.653 and 0.793, an original eigenvalue of 4.725, and a Cronbach's alpha of 0.828. All of the variables were measured on a four-point Likert scale with the exception of the variable on red tape. As such, after the principal component analysis, a factor score was predicted in order to obtain the *innovation climate* variable.

Three measures of motivation are also included in the second analysis. *Financial motivation* is based on respondents ranking of the importance of salary relative to their current job (4 = very important, 3 = somewhat important, 2 = somewhat unimportant, and 1 = not important). Following Feeney and Rainey's (2010) study, I replicated the results they obtained when performing a principal components analysis of work motivation items. Table 3.2 details these results, which for the most part were similar to Feeney and Rainey's results. The variables that comprised this analysis were based on rankings on the importance (4 = very important, 3 = somewhat important, 2 = somewhat unimportant, and 1 = not important) of:

1) Opportunity for advancement within the organization's hierarchy.
2) Opportunity for training and career development.
3) Job security
4) The organization's pension or retirement plan.

5) Desire for increased responsibility
6) Medical and insurance benefits.
7) Few, if any, alternative job offers.

Each of these, with the exception of the item ranking the importance the opportunity for training and career development, were used in Feeney and Rainey's analysis. Like their analysis, this analysis resulted in two dimensions: *security motivation* and *advancement motivation*, representing 56.59% of common variance in the initial correlation matrix. Table 3.2 shows the factor loadings for each of the variables, which are similar to the Feeney and Rainey (2010) study.

In addition to *job flexibility* described above, and in order to maintain consistency with current research using NASP-III data, I again replicated results from another principal component analysis used by Feeney and Rainey (2010) on personnel inflexibility items. Feeney and Rainey's study uses these items as a dependent variable construct, whereas I use them as an independent variable construct. This analysis was based responses to indicating the level of agreement (4 = strongly agree, 3 = agree somewhat, 2 = disagree somewhat, and 1 = strongly disagree) on the following statements:

1) Because of the rules here, promotions are based mainly on performance *(Performance-based promotion)*.
2) Even if a manager is a poor performer, formal rules make it hard to remove him or her from the organization (*Performance-based removal)*.
3) The formal pay structures and the rules make it hard to reward a good employee with higher pay here *(Performance-based pay)*.

My analysis yielded an identical replication of the results contained in Feeney and Rainey's (2010) study and are detailed in Table 3.3. Feeney and Rainey (2010) point out that these items are similar to those used in research using previous editions of NASP data (*e.g.* DeHart-Davis & Pandey, 2005) as well as other research involving personnel inflexibility (*e.g.* Brewer & Walker, 2005; Pandey & Moynihan, 2006). Each of the items loaded onto a single factor with an initial eigenvalue of 1.795, and had a Cronbach's alpha of 0.657. Because the items are strongly correlated and measure a shared underlying concept, the items were converted to an additive index (Feeney & Rainey, 2010).

Additional variables that were added to the second analysis in lieu of variables that became part of factor or index variables include the desire for a *low-conflict work environment*, which was measured on a four-point Likert scale (4 = very important, 3 = somewhat important, 2 = somewhat unimportant, and 1 = not important). Again, following Feeney and Rainey's lead, mainly for consistency, I also included additional controls such as respondents' *total civic activity* which is an additive index of responses ranging from zero to eight of a series of dummy variables that lists groups or organizations to which the respondent might belong. This serves as an indicator of activity the respondents engage in outside of the workplace. Several variables related to a respondent's previous or current job were also included as controls. Whether or not a respondent's *previous job was in the private sector* is included (0 = public or nonprofit, 1 = private) as are four additional variables on the *current job*. These variables are included to control for aspects that may influence the climate for innovation. They include whether or not the current job was: 1) a *promotion* (yes = 1, no = 0), 2) whether the respondent is a *manager* (yes = 1, no = 0), 3) *tenure*, measuring the number of years a respondent has worked in the position, and

4) an interaction variable for *manager* and *tenure* at the current job. Feeney and Rainey (2010) cite that the *manager* and *tenure* variables are proxies for salary and seniority, respectively.

The following two chapters will detail the results from testing the first and second models, respectively. Chapter Four will outline the results of the first analysis using ordered and multinomial logit techniques, and cover the impact of organizational and environmental attributes on perceptions of innovation value within respondents' respective organizations. In Chapter Five, I will present the second analysis that demonstrates the impact of motivation, flexibility, and environmental variables on the climate of innovation in public and nonprofit organizations. In Chapter Six, I will summarize significant results and conclude the study.

Figure 3.1 Model Specification 1

Model 1: Perceived Value of Innovation in an Organization

$$\mathbf{P}_i\ (\mathbf{OI} = \boldsymbol{j} \mid \mathbf{R}_i + \mathbf{T}_i + \mathbf{C}_i + \mathbf{W}_i + \mathbf{K})$$

Where
- $\mathbf{P}_i$ = Response probability
- **OI** = Dependent variable, "Innovation is one of the most important values in this organization"
- $\boldsymbol{j}$ = Ordered response (j = strongly agree, agree somewhat, disagree somewhat, strongly disagree)
- $\mathbf{R}_i$ = Risk variables
  - –job security
  - –employee risk aversion
  - –managerial risk aversion
- $\mathbf{T}_i$ = Task variables
  - –job flexibility
  - –red tape
- $\mathbf{C}_i$ = Organizational culture variables
  - –ability to serve the public interest
  - –quality and reputation of the organization
  - –work most important
  - –organization pride
  - –top management trust
- $\mathbf{W}_i$ = Nature of work variables
  - –work hours
  - –quality of work
  - –incentives
  - –performance-based promotion
- **K** = Control variables
  - –number of full-time employees
  - –year organization established
  - –state
  - –sex
  - –age
  - –race
  - –graduate/professional degree
  - –bachelor's degree
  - –high school diploma

Figure 3.2 Model Specification 2

Model 2: Innovation Climate

$\mathbf{IC}_o = f(\mathbf{M}_i, \mathbf{F}_i, \mathbf{E}_o, \mathbf{K})$

Where **IC_o** = Dependent variable, Innovation climate of the organizations

M_i = Motivation variables
- –security motivation
- –advancement motivation
- –financial motivation
- –ability to serve the public and the public interest

F_i = Flexibility variables
- –personnel inflexibility
- –job flexibility

E_o = Environmental variables
- –quality and reputation of the organization
- –desire for a low-conflict work environment
- –work most important

K = Control variables
- –total civic activity
- –previous job: private sector
- –number of full-time employees
- –year organization established
- –age
- –state
- –sex
- –race
- –current job: promotion
- –current job: manager
- –current job: tenure
- –manager*tenure
- –graduate/professional degree
- –bachelor's degree
- –high school diploma

Table 3.1 Principal Component Analysis of Innovation Climate Items

	Factor Loadings	Uniqueness
1) Innovation is one of the most important values in this organization	0.762	0.420
2) Employees in this organization are afraid to take risks (reverse)	0.653	0.574
3) Top management in this organization is afraid to take risks (reverse)	0.657	0.569
4) Top management displays a high level of trust in this organization's employees	0.793	0.371
5) How would you assess the level of red tape in your organization? (reverse)^	0.711	0.494
6) I feel a sense of pride working for this organization	0.753	0.434
7) I would rate the overall quality of work done in my organization as very good	0.725	0.474
8) There are incentives for me to work hard in my job	0.677	0.542
9) This organization has high ethical standards	0.777	0.397

N = 1177
Original Eigenvalue = 4.725
Cumulative Percentage = 52.51
Cronbach's alpha = 0.828

^ = Respondents were asked to rate from 0-10, 0 being "Almost No Red Tape" and 10 being "Great Deal of Red Tape." This was based on the definition of red tape as "burdensome administrative rules and procedures that have negative effects on the organization.

Table 3.2 Principal Component Analysis of Work Motivation Items

	Security	Advancement
1) Opportunity for advancement within the organization's hierarchy	0.252	**0.759**
2) Opportunity for training and career development^	0.237	**0.756**
3) Job Security	**0.747**	0.164
4) The organization's pension or retirement plan	**0.809**	0.193
5) Desire for increased responsibility	-0.209	**0.727**
6) Benefits (medical, insurance)	**0.822**	0.190
7) Few, if any, alternative job offers	0.445	-0.162
N = 1176		
Variance	2.248	1.802
Cumulative %	32.12	57.86
Cronbach's alpha*	0.794	0.641

Note: Replication of results from Feeney and Rainey (2010). Rotation converged in three iterations (rotation method: orthogonal varimax with Kaiser normalization). The dimensions represent 56.59% of the variance in the initial correlation matrix. ^Not included in Feeney and Rainey (2010). *Calculated with significant variables only. *Figures in bold text indicate significant variables.*

Table 3.3 Principal Component Analysis for Personnel Inflexibility Items

	Factor Loadings	Uniqueness
1.) Performance-based promotion (reversed) *"Because of the rules here, promotions are based mainly on performance."*	0.642	0.588
2.) Performance-based removal *"Even if a manager is a poor performer, formal rules make it hard to remove him or her from the organization."*	0.831	0.309
3.) Performance-based pay *"The formal pay structures and rules make it hard to reward a good employee with higher pay here."*	0.832	0.308

N = 1191
Original Eigenvalue = 1.795
Cumulative Percentage = 59.84
Cronbach's alpha = 0.657

Note: Replication of results from Feeney and Rainey (2010).

CHAPTER 4

RESULTS: PERCEIVED VALUE OF INNOVATION AT THE ORGANIZATION LEVEL

This chapter reports the results obtained from the first model (Model 1) measuring the perceived value an organization places on innovation as reported by respondents of the NASP-III survey. Model 1 was tested using maximum likelihood estimation (MLE), first using an ordered logit model (OLM) and subsequently a multinomial logit model (MNL).

Ordered Logit Model

The dependent variable measuring the perceived innovation value was constructed from a questionnaire item asking respondents to rate whether or not their respective organizations value innovation on a four-point Likert scale (4 = Strongly Agree, 3 = Agree Somewhat, 2 = Disagree Somewhat, and 1 = Strongly Disagree). Since this variable is qualitative, polychotomous, and rank-ordered, estimation using ordered logit (OLM) is employed. The perceived value of innovation at the organization level is assumed to represent a continuous, unobserved measure of the innovation climate in general. Since the responses to the survey item are ranked, ordinary least squares (OLS) would not be an appropriate method[11] to employ at this time since the

[11] Kennedy (2008) also argues that the use of multinomial probit or logit would not be efficient because "no account would be taken of the extra information implicit in the ordinal nature of the dependent variable" (p. 245). Other studies, however, show that the use of MNL does not yield any meaningful differences as opposed to estimating the model with OLM–see, specifically, Fernandez and Moldogaziev (2011). Fernandez and Moldogaziev (2011) also recoded the response categories of their dependent variable of performance from a five-point Likert scale to a dichotomous variable where categories 1 (*very poor*), 2 (*poor*), and 3 (*fair*) are zero and categories 4 (*good*) and 5 (*very good*) are one. The authors claim that this recoding "allows one to essentially distinguish between perceptions of *good* and *less than good* performance" (p. 43). It is possible that recoding the innovation perception variable to a

difference between a 1 and a 2 cannot be treated as equivalent to the difference between a 2 and a 3 (Kennedy, 2008; McKelvey & Zavoina, 1975).

Three regressions were run for the OLM model: one comprising the full sample (n = 924), one for the public sample (n = 611), and one for the nonprofit sample (n = 313), all of which are summarized in Table 4.1. All three models reported statistically significant likelihood ratio chi-square tests ($p<.001$) and modest pseudo R-square coefficients: 0.26 (full), 0.23 (public), and 0.29 (nonprofit).

In the full model, the variable for sector, *nonprofit* as the default category yields a statistically significant ($p<.01$) and negative relationship to the single-item innovation value measure, which would appear to be inconsistent with descriptive statistics that report nonprofit respondents generally agreeing that their respective organizations value innovation more than their public respondent counterparts. This coefficient, in turn, raises a concern that this model may violate the proportional odds assumption[12]. Other variables in the models, however lend support to some previous assumptions about the effects of other independent variables on the innovation value measure. *Job security* did not achieve statistical significance in any of the three models, whereas both *employee risk aversion* and *manager risk aversion* are negatively related to innovation value and statistically significant at the $p<.001$ level in the full and nonprofit model, and at the $p<.01$ level in the public model. This finding is consistent with other innovation studies that demonstrate that risk avoidance lowers innovation.

Job flexibility is positively related to innovation value and statistically significant in the full model ($p<.01$) and public model ($p<.05$), but not in the nonprofit model. *Red tape* is

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dichotomous variable might have the same effect, though there is less variation for comparison with a base category. Therefore, the model will also be estimated using MNL, though results should not be considered conclusive.

[12] This assumes that the underlying intervals between the closest categories of the outcome variable are equal. A violation of this assumption can lead to erroneous results, after which, multinomial logit specification may need to be employed. See Long (1997), Long and Freese (2005), and Fernandez and Moldogaziev (2011).

negatively related to innovation value and statistically significant in the full model ($p<.01$) and nonprofit model ($p<.05$), but not in the public model. This result, again, seems contradictory to previous studies that specifically examine red tape in public sector organizations, again calling into question whether this model perhaps violates proportional odds assumptions. The *ability to serve the public or public interest* is positively related to innovation value and statistically significant at the $p<.01$ level for the full and nonprofit models, but no statistical significance is achieved in the public model. The *quality and reputation* of the organization is positive and statistically significant ($p<.01$) for the nonprofit model, but not for the full model, nor for the nonprofit model. Whether *work is the most important* element of one's life relative to innovation value, there is no statistical significance in any of the three models.

The next few independent variables show a similar pattern, where coefficients are positive and statistically significant relative to organizational innovation value in the full and public models, and where no statistical significance is established in the nonprofit model. In terms of *organization pride*, there is a positive and statistically significant relationship in the full and public models at the $p<.01$ level, though not in the nonprofit model. The *trust from top management* puts forth a similar precedent: positive and statistically significant for both the full and public models ($p<.001$), but not for the nonprofit model. The *quality of work* is also positive and statistically significant in the full and public models ($p<.05$), but not in the nonprofit model. Breaking away from this pattern, the last independent variables of interest show similar results across all three models. The use of *incentives* is positive and statistically significant ($p<.001$) across the full, public, and nonprofit models. *Performance-based promotion*, conversely, does not achieve statistical significance in any of the models.

The control variables that were used in the model, for the most part, were not statistically significant. These variables included the *year the organization was established* as a measure of organization age, the number of full-time equivalents (*FTE*), the *number of hours worked*, state (*Georgia* as the default response), sex (*female* as the default response), the *age of the respondent*, and race, with *nonwhite* as the default category. In terms of education, the results yield some interesting findings. Each of the education variables is based on whether or not the respondent either attended or graduated from *high school*, *college*, or *graduate school*[13]. If the respondent attended or graduated from *graduate school* there is a negative and statistically significant relation in the full model ($p<.05$) and the public model ($p<.01$), whereas statistical significance is not achieved in the nonprofit model. If the respondent attended or graduated from *college* there is only a negative and statistically significant ($p<.05$) relation in the public model, but not in the full or nonprofit model. Respondents who indicated they either attended or graduated from *high school* did not attain statistical significance in any of the three models. These variables imply that the level of education has a mixed but seemingly negative influence on innovation value, which indicates that people view innovation very differently depending on their level of education. In this case, these coefficients demonstrate that those with more education are less likely to perceive their organization as one that is innovative or values innovation. What is innovative to the lesser-educated individual may not be as much of a novelty to one with more education.

Following the model specifications, the Brant test of parallel regression assumption was employed as a post-test to see if the estimates violated the assumption. The test showed that all

[13] Multicollinearity may be a minor concern with *college* and *graduate school* as one must graduate from college to enroll in a graduate program, and therefore *college* is recaptured by *graduate school*. The two measures, however, differ enough to merit inclusion in the model. The results were computed using Stata, and when perfect multicollinearity occurs in that program, a variable that is a perfect linear combination of another is dropped to ensure an accurate estimate of coefficients. In this case, no variables were dropped.

of the variables (including controls) violated the assumption of parallel regression, and thus indicates that an MNL model may be more suitable for the interpretation of results.

Multinomial Logit Model

Table 4.2 displays results for a model for public sector respondents (n = 740) as well as a model for nonprofit sector respondents (n = 392). Both of these models demonstrate statistically significant chi-square tests ($p<.01$). Chapter Three notes that the perceived *value of organizational innovation* is rank-ordered on a four-point Likert scale, and since the OLM model violated the proportional odds assumption (or Brant test) with all independent and control variables, an MNL regression was substituted instead. This is beneficial for interpreting to what degree respondents agreed or disagreed that their organizations were innovative in relation to the explanatory variables. Though specific measures and scales of innovation have been constructed[14], the item in the survey was based on a single statement, and therefore, it is assumed that the concept of innovation may differ from person to person. Because of this, the multinomial logistic regression would allow for an analysis that would demonstrate coefficients at each level of agreement in terms of respondents' answers to how innovative they believed their organizations to be, or to what degree they believed that their organizations valued innovation.

Of the respondents, 481 (nearly 40%) "agreed somewhat" that their organizations valued innovation. As such, "Agree Somewhat" is the base outcome of the analysis to which the other responses are compared. The MNL option also yielded results similar to the ordered logistical model. For example, the R-squared for the public sample scarcely increased from 0.23 in the ordered logistic model to 0.25 in the multinomial logistic model, and from 0.29 in the ordered

[14] For example, see Borins (1998).

logistic model to 0.30 in the multinomial logistic model. Unfortunately, these statistics do not indicate a preference for one model over the other, and therefore, more statistical modeling will be employed in Chapter Five.

The regression models with log estimates, odds estimates, and the respective levels of significance show that various environmental characteristics do, in fact, vary by sector, as was also displayed in the OLM model. In some cases, what was of significance in the public model (*e.g.*, *quality and reputation*) was not so in the nonprofit model, and conversely, what was significant in the nonprofit model (*e.g.*, *work most important*) was not significant in the public model[15]. The coefficients in the models indicate the effects of the independent variables in relation to respondents' choice of *strongly disagree, disagree somewhat,* and *strongly agree* compared to *agree somewhat* (base category) in terms of the innovativeness of the organization. In addition to the raw coefficients, odds estimates are included for ease of reporting results. The odds coefficients with a value greater than 1.0 demonstrate that an increase in the independent variable increases the odds of being in the non-base category relative to the base category (agree somewhat). An odds coefficient with a value that is less than 1.0 decreases the odds of being in the non-base category.

Job security in the public sample decreases the odds of strongly agreeing that the organization values innovation, and was not significant in the nonprofit sample. The risk variables, however—both for employees and managers—achieved strong significance in both the public and nonprofit samples. *Employee risk aversion* and *managerial risk aversion* both

[5] Variables on salary as a motivation for taking the current job, the age of the organization, the size of the organization, gender, employee age, race, and a dummy variable for whether or not respondents had earned a high school diploma were included in an initial analysis. None of these variables were significant in either the public sample or the nonprofit sample, or in either the ordered logistical model or the multinomial logit model. These variables have been removed from the model to facilitate reporting results; however, descriptive statistics are included in the appendix.

increase the odds that a respondent will *strongly disagree* or *disagree somewhat* that the organization is innovative. In sum, it would seem that risk aversion has a strong negative effect on organizational innovation.

Job flexibility and *red tape* yield interesting findings as well. In the public sample, job flexibility decreases the odds of strongly disagreeing that an organization values innovation; most likely, this suggests that job flexibility could be positively related to innovation. In the nonprofit sample, job flexibility increases the odds of strongly agreeing that the organization values innovation. *Red tape*, though not as statistically significant ($p<.10$) as some of the other variables, increases the odds of strongly disagreeing or disagreeing somewhat in the public sample, and strongly disagreeing in the nonprofit sample.

The *ability to serve the public interest* decreases the odds of disagreeing somewhat in the public sample and strongly disagreeing in the nonprofit sector. Interestingly enough, the *quality and reputation of organization* does not achieve statistical significance in the nonprofit sample, though the odds are significantly decreased that respondents would *strongly disagree* or *disagree somewhat* in the public sample. *Work importance* is not statistically significant in the public sample, though in the nonprofit sample the odds are that a respondent to whom work is the most important component of her life would be more likely to *strongly agree* that her organization values innovation. *Organization pride* increases the odds of strongly agreeing in the public sample, though it does not achieve statistical significance in the nonprofit sample. *Managerial trust* decreased the odds that a respondent either strongly disagreed or disagreed somewhat in the public sample[16], which demonstrates that those who value innovation have a significant degree

[16] For a recent study on the role of public managers and organizational innovation, see Damanpour and Schneider (2009).

of trust from their respective upper management. Statistical significance is not achieved in the nonprofit sample in terms of managerial trust.

Work hours is not statistically significant in both samples, and for *quality of work*, no statistical significance is achieved on the part of the nonprofit sample. In the public sample, however, quality of work decreases the odds of either disagreeing category, and increases the odds of strongly agreeing that an organization values innovation. *Incentives* are also statistically significant in both the public and nonprofit samples. The more likely there are to be incentives, the more likely respondents agree that their organizations are innovative. And finally, in terms of *performance-based promotion*, this is the only variable in the sample where all three coefficients decrease the odds in all three comparison categories, thus indicating that respondents are likely to *agree somewhat* that their organization values innovation. However, statistical significance is not achieved in the nonprofit sample.

Lastly, in terms of education and training, having a *graduate or professional degree* or *bachelor's degree* increased the odds of disagreeing (either strongly or somewhat) that an organization values innovation. Those results for the nonprofit sample, however, are not statistically significant.

Summary and Conclusion

The results from the OLM and MNL models offer an interesting array of suggestions of how the independent variables are related to the perceived innovation value within public and nonprofit organizations. Neither the OLM nor the MNL models offers a best-case scenario for interpreting the results, and are subject to various threats to validity. Beyond this, the nature of multinomial logit makes for a very cumbersome interpretation of variables on an ordinal scale.

Since many of the variables from the NASP-III survey data are qualitative in nature, it is expected that these models will be estimated endogenously. The use of a single-item dependent variable in the case of perceived organizational innovation is also most likely inadequate, especially upon examination of the correlation matrix of variables used in these models (Table 4.3). Many of the variables are correlated enough to merit further statistical examination. In order to provide for a more parsimonious model, factor analysis will be used in the next chapter in an attempt to create a new composite variable that measures different aspects of organizational innovation. This new dependent variable will then be fitted to another statistical model (Model 2) and will use ordinary least squares (OLS) for estimation.

Table 4.1 Ordered Logit Estimates (Single-item Innovation Value Measure)

Independent Variables	Full Model			Public			Nonprofit		
	Unstandardized		Standardized	Unstandardized		Standardized	Unstandardized		Standardized
	B	SE	BStdXY	B	SE	BStdXY	B	SE	BStdXY
Nonprofit	**-0.576****	**(0.217)**	**-0.102**						
Job Security	-0.102	(0.090)	-0.031	-0.124	(0.120)	-0.036	0.061	(0.153)	0.020
Employee Risk Aversion	**-0.518*****	**(0.102)**	**-0.158**	**-0.352****	**(0.126)**	**-0.105**	**-0.813*****	**(0.186)**	**-0.248**
Manager Risk Aversion	**-0.393*****	**(0.092)**	**-0.135**	**-0.301****	**(0.114)**	**-0.102**	**-0.590*****	**(0.165)**	**-0.201**
Year Established	-0.000	(0.002)	-0.002	0.000	(0.003)	0.002	-0.001	(0.003)	-0.018
FTE	0.000	(0.000)	0.012	0.000	(0.000)	0.024	-0.000	(0.000)	-0.023
Job Flexibility	**0.254****	**(0.094)**	**0.077**	**0.256***	**(0.113)**	**0.083**	0.240	(0.178)	0.063
Red Tape	**-0.118****	**(0.036)**	**-0.117**	-0.087	(0.047)	-0.071	**-0.166***	**(0.065)**	**-0.154**
Ability to Serve the Public	**0.228****	**(0.081)**	**0.078**	0.136	(0.113)	0.043	**0.405****	**(0.125)**	**0.152**
Quality and Reputation	0.167	(0.092)	0.054	**0.318****	**(0.114)**	**0.108**	-0.156	(0.167)	-0.046
Work Most Important	0.163	(0.087)	0.061	0.108	(0.109)	0.036	0.236	(0.154)	0.071
Organization Pride	**0.378****	**(0.129)**	**0.107**	**0.391****	**(0.146)**	**0.125**	0.367	(0.303)	0.066
Top Management Trust	**0.368*****	**(0.100)**	**0.135**	**0.437*****	**(0.119)**	**0.167**	0.139	(0.207)	0.040
Work Hours	0.016	(0.010)	0.046	0.004	(0.014)	0.010	0.030	(0.016)	0.095
Quality of Work	**0.271***	**(0.119)**	**0.076**	**0.284***	**(0.138)**	**0.088**	0.375	(0.250)	0.078
Incentives	**0.450*****	**(0.088)**	**0.168**	**0.462*****	**(0.110)**	**0.168**	**0.482****	**(0.155)**	**0.152**
Performance-based Promotion	0.136	(0.082)	0.051	0.082	(0.106)	0.031	0.254	(0.142)	0.084
Georgia	-0.253	(0.159)	-0.047	-0.054	(0.197)	-0.010	-0.498	(0.316)	-0.072
Female	-0.034	(0.138)	-0.006	-0.100	(0.169)	-0.019	0.057	(0.255)	0.010
Age of the Respondent	0.006	(0.008)	0.020	0.006	(0.010)	0.021	0.013	(0.014)	0.044
Education: Graduate School	**-0.425***	**(0.174)**	**-0.079**	**-0.599****	**(0.217)**	**-0.117**	-0.163	(0.315)	-0.029
Education: College	-0.228	(0.189)	-0.039	**-0.573***	**(0.233)**	**-0.104**	0.435	(0.351)	0.070
Education: High School	0.339	(0.519)	0.018	-0.148	(0.595)	-0.009	1.510	(1.154)	0.053
Nonwhite	-0.186	(0.183)	-0.026	-0.256	(0.209)	-0.040	-0.008	(0.407)	-0.000
Constant									
cut1	0.599	(3.950)		1.543	(5.054)		-1.129	(7.063)	
cut2	3.318	(3.953)		4.221	(5.058)		1.810	(7.079)	
cut3	6.290	(3.955)		7.324	(5.062)		4.838	(7.077)	
Observations		924			611			313	
Pseudo R-squared		0.264			0.237			0.292	
LR Chi-squared		627.44***			362.22***			226.51***	

*** p<0.001, ** p<0.01, * p<0.05

Source: National Administrative Studies Project III

Table 4.2 Multinomial Logit Estimates (Single-item Innovation Value Measure)

Independent Variables	Contrast	Public			Nonprofit		
		Log	Odds	SE	Log	Odds	SE
Job Security	**SD** *vs* AS	-.06	.94	.21	.40	1.49	.58
	DS *vs* AS	.04	1.04	.14	-.13	.88	.20
	SA *vs* AS	**-.33***	**.72***	**.18**	-.17	.84	.16
Employee Risk Aversion	**SD** *vs* AS	**.74*****	**2.10*****	**.22**	**2.03*****	**7.61*****	**.65**
	DS *vs* AS	**.27***	**1.31***	**.15**	**1.30*****	**3.67*****	**.26**
	SA *vs* AS	-.14	.87	.21	.02	1.02	.21
Managerial Risk Aversion	**SD** *vs* AS	**.46****	**1.58****	**.20**	**1.35****	**3.86****	**.56**
	DS *vs* AS	.09	1.09	.14	**.41***	**1.51***	**.21**
	SA *vs* AS	-.16	.85	.20	**-.35***	**.71***	**.20**
Job Flexibility	**SD** *vs* AS	**-.50*****	**.61*****	**.18**	.30	1.35	.45
	DS *vs* AS	-.20	.82	.13	.02	1.02	.21
	SA *vs* AS	.06	1.06	.20	**.48****	**1.62****	**.22**
Red Tape	**SD** *vs* AS	**.18***	**1.20***	**.09**	**.41***	**1.51***	**.22**
	DS *vs* AS	**.10***	**1.11***	**.05**	-.05	.95	.08
	SA *vs* AS	-.01	.99	.07	-.09	.91	.07
Ability to Serve the Public	**SD** *vs* AS	-.24	.79	.19	**-1.03***	**.36***	**.41**
	DS *vs* AS	**-.33****	**.72****	**.14**	-.23	.80	.16
	SA *vs* AS	-.001	.99	.21	.14	1.15	.14
Quality and Reputation	**SD** *vs* AS	**-.70*****	**.50*****	**.19**	-.02	.98	.45
	DS *vs* AS	**-.34****	**.71****	**.13**	.34	1.41	.21
	SA *vs* AS	.06	1.06	.21	.04	1.04	.20
Work Most Important	**SD** *vs* AS	-.28	.76	.20	.16	1.17	.53
	DS *vs* AS	.07	1.07	.13	.13	1.14	.20
	SA *vs* AS	.12	1.13	.17	**.53*****	**1.70*****	**.18**
Organization Pride	**SD** *vs* AS	-.37	.69	.24	.13	1.14	.73
	DS *vs* AS	-.10	.91	.18	-.56	.57	.36
	SA *vs* AS	**.63***	**1.88***	**.32**	-.27	.76	.41
Trust from Top Management	**SD** *vs* AS	**-.55*****	**.58*****	**.20**	-.70	.50	.50
	DS *vs* AS	**-.41*****	**.66*****	**.14**	-.10	.91	.25
	SA *vs* AS	.03	1.03	.21	.13	1.14	.29
Work Hours	**SD** *vs* AS	-.04	.96	.02	.01	1.01	.05
	DS *vs* AS	-.02	.98	.02	-.03	.97	.02
	SA *vs* AS	.01	1.01	.02	.03	1.03	.02
Quality of Work	**SD** *vs* AS	**-.41***	**.66***	**.23**	-.85	.43	.60
	DS *vs* AS	**-.42****	**.66****	**.17**	-.42	.66	.32
	SA *vs* AS	**.52***	**1.68***	**.31**	.32	1.38	.38
Incentives	**SD** *vs* AS	**-1.12*****	**.33*****	**.23**	**-.96****	**.38****	**.46**
	DS *vs* AS	**-.36*****	**.70*****	**.12**	-.18	.84	.20
	SA *vs* AS	.13	1.14	.16	**.37***	**1.45***	**.19**
Performance-based Promotion	**SD** *vs* AS	**-.38****	**.68****	**.19**	-.03	.97	.44
	DS *vs* AS	**-.24****	**.79****	**.12**	-.23	.80	.20
	SA *vs* AS	**-.38****	**.68****	**.17**	.17	1.19	.19
Education: Graduate School	**SD** *vs* AS	**.82****	**2.27****	**.37**	1.61	5.00	1.04
	DS *vs* AS	**.76*****	**2.14*****	**.25**	.36	1.43	.42
	SA *vs* AS	-.45	.64	.34	-.39	.68	.34
Education: College	**SD** *vs* AS	**.82****	**2.27****	**.39**	1.13	3.10	1.06
	DS *vs* AS	**.66****	**1.94****	**.26**	.70	2.01	.46
	SA *vs* AS	-.43	.65	.35	.40	1.49	.39
Constant	**SD** *vs* AS	**6.71*****		**2.12**	-8.51		5.71
	DS *vs* AS	**5.16*****		**1.49**	.98		2.23
	SA *vs* AS	**-4.03***		**2.21**	**-6.10****		**2.38**

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

Source: National Administrative Studies Project III

Categories:

SD = Strongly Disagree
DS = Disagree Somewhat
AS = Agree Somewhat[a]
SA = Strongly Agree

Public	**Nonprofit**
N = 740	N = 392
χ^2 = 467.45***	χ^2 = 289.35***
Pseudo-R^2 = . 25	Pseudo-R^2 = .30

[a]Agree Somewhat is the base outcome of the analysis. As such, it is set as the comparison category and therefore is not shown.

Table 4.3 Basic Correlation Matrix of Variables Used in Model 1

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1. Org. Innovation Value	1																							
2. Job Security	-0.11	1																						
3. Emp. Risk Aversion	-0.47	0.11	1																					
4. Mgr. Risk Aversion	-0.46	0.10	0.47	1																				
5. Year Established	-0.05	0.03	0.02	0.05	1																			
6. FTE	-0.13	0.13	0.10	0.08	0.36	1																		
7. Job Flexibility	0.31	-0.05	-0.29	-0.24	-0.04	-0.16	1																	
8. Red Tape	-0.46	0.17	0.46	0.48	0.03	0.27	-0.34	1																
9. Abil. To Serve Public	0.11	-0.05	0.01	-0.01	0.01	0.12	0.01	0.06	1															
10. Qual./Reputation	0.33	0.14	-0.21	-0.23	-0.10	-0.15	0.12	-0.24	0.23	1														
11. Work Mst. Important	0.27	-0.05	-0.14	-0.20	0.02	-0.06	0.10	-0.16	0.09	0.17	1													
12. Org. Pride	0.49	-0.03	-0.34	-0.36	-0.12	-0.18	0.29	-0.43	0.15	0.38	0.35	1												
13. Trust fr. Top Mgmt.	0.53	-0.13	-0.45	-0.49	-0.08	-0.02	0.32	-0.56	0.00	0.30	0.27	0.55	1											
14. Work Hours	0.25	-0.23	-0.15	-0.25	-0.02	-0.05	0.06	-0.23	0.06	0.12	0.25	0.25	0.23	1										
15. Quality of Work	0.47	-0.05	-0.39	-0.36	-0.10	-0.16	0.22	-0.41	0.07	0.31	0.29	0.60	0.50	0.14	1									
16. Incentives	0.49	-0.08	-0.36	-0.36	-0.10	-0.13	0.33	-0.41	0.05	0.29	0.23	0.47	0.48	0.22	0.41	1								
17. Perf.-based Promo.	0.38	-0.10	-0.27	-0.33	-0.10	-0.15	0.22	-0.37	0.03	0.22	0.23	0.38	0.45	0.22	0.35	0.45	1							
18. Sector	0.28	-0.21	-0.29	-0.28	-0.09	-0.42	0.24	-0.53	-0.15	0.24	0.18	0.30	0.38	0.34	0.27	0.42	0.34	1						
19. Female	-0.02	-0.04	0.04	0.01	0.00	-0.06	0.02	-0.01	-0.08	-0.04	0.00	-0.02	0.05	0.09	-0.05	-0.02	0.05	-0.04	1					
20. Age	0.11	-0.11	-0.12	-0.11	0.05	0.05	0.02	-0.12	0.04	0.00	0.12	0.13	0.09	0.15	0.10	0.09	0.00	0.06	0.16	1				
21. Grad./Prof Sch.	-0.03	-0.18	0.01	-0.04	-0.01	0.03	0.05	-0.01	0.08	-0.06	0.03	0.00	0.01	0.11	-0.02	0.07	0.05	0.08	0.06	0.11	1			
22. College Degree	-0.03	0.12	0.01	0.06	0.01	0.01	-0.03	0.04	-0.04	0.03	-0.02	-0.02	-0.02	-0.11	0.02	-0.04	0.00	-0.05	0.00	-0.20	-0.58	1		
23. High Sch. Grad.	0.03	0.08	0.02	-0.01	-0.02	-0.01	-0.07	0.04	-0.05	0.04	-0.02	0.05	0.00	-0.08	0.02	0.00	-0.02	-0.08	-0.06	-0.01	-0.14	-0.10	1	
24. Nonwhite	-0.01	-0.04	0.00	0.01	-0.02	-0.13	-0.05	-0.05	-0.04	-0.01	0.02	0.01	0.05	0.02	0.00	0.02	0.02	0.13	0.07	0.02	-0.03	0.02	0.03	1

CHAPTER 5

RESULTS: PREDICTING THE CLIMATE FOR INNOVATION

This chapter reports the results obtained from the second model (Model 2) using *innovation climate* (IC) as a factor score dependent variable based on nine items from the NASP-III survey (See Table 3.1). Following the results of OLM and MNL models presented in Chapter Four, this chapter reports results from ordinary least squares (OLS) estimates which are likely more reliable than previous results based on a single-item variable measuring the value individuals perceive their respective organizations place on innovation.

Ordinary Least Squares Model

Addressed earlier in Chapter Three, the variable for *innovation climate* was based on a factor index score obtained following a principal component analysis. The nine items—measuring perceptions of innovation value, employee and top management risk aversion, trust from top management, red tape, sense of organizational pride, quality of work, incentives and ethical standards—all loaded onto a single factor with an eigenvalue of 4.725, and produced a cumulative percentage of 52.51 and Cronbach's alpha of 0.828.

Three regression models comprise the results of the OLS estimates and are detailed in Table 5.1, and are accompanied by a correlation matrix of the variables used (Table 5.2). The first is a full model, comprising all respondents[17] in the sample (n = 875), along with a model on public respondents only (n = 586), as well as a model with exclusively nonprofit respondents (n

[17] Accounting for omitted responses.

= 289). The full model obtained an R-square of 0.603, with an adjusted R-square of 0.591, while the public sample had an R-square of 0.520 and an adjusted R-square of 0.498. Finally, the nonprofit sample achieved an R-square of 0.551 and an adjusted R-square of 0.508. These R-squared coefficients are considerably higher than those obtained in the results presented in Chapter Four.

The results from the three models yield mixed and interesting results that reveal that public and nonprofit sectors may not be entirely too different in terms of the independent variables of interest that were tested. In the full model, the *nonprofit* variable did not achieve statistical significance, which differs from the OLM results obtained in Chapter Four. The violation of the Brant test in the ordered logit model may have affected the results, but the more interesting aspect is how the sector variable related to innovation climate in the OLS results. The fact that nonprofit respondents reported that they valued innovation at higher levels than their public sector counterparts would lead one to assume that nonprofit organizations are positively related to the innovation climate, when in fact, that was not the case[18]. A difference of means test was then run to determine whether or not the nonprofit sample was statistically different from the public sample relative to the innovation climate variable, and the corresponding *t*-score (-18.03) and level of statistical significance ($p<0.00$) indicated a significant difference between the two samples[19] which may also be a factor in the unusual results.

In terms of the items on motivation, the results were relatively similar for both the public and nonprofit samples. *Security motivation* found no traction in any of the models, indicating that those who place a high value on job security, pension plans, and other benefits are not likely to

[18] A preliminary regression was run without control variables and *nonprofit* was negatively related to the innovation climate and statistically significant as was the case with the OLS results in the expanded, core, and ancillary models in Chapter Five, which included control variables.

[19] I also computed t-tests with each of the nine items in the innovation climate variable independently, and in each case the result showed a significant difference in means between the public and nonprofit samples.

have a positive influence on the innovation climate, though the results were not statistically significant. *Advancement motivation*, on the other hand, was positive relative to innovation climate and statistically significant ($p<0.01$) in the full model and public model, though not in the nonprofit model. Respondents who indicated a strong desire to advance in the organization's hierarchy, to gain opportunities for training and career development, and desire for increased responsibility are more likely to contribute to the innovation climate. The lack of statistical significance in the nonprofit model should not necessarily be construed negatively. In terms of organizational capacity, it may be the case that a sizeable amount of sampled nonprofit organizations have small hierarchical structures, or that opportunities for training and development are not present. This, however, brings to light a limitation to this study that should be examined in future research in terms of comparing organizations across sectors, and will be addressed in the final chapter.

Financial motivation and the *ability to serve the public and public interest* did not achieve statistical significance in any of the three models. *Financial motivation* could be tied to elements of *personnel inflexibility*[20], which is statistically significant ($p<0.001$) and negatively related to the innovation climate in all three models. Personnel rules that do not allow for any sort of merit-based pay or promotion mechanisms, and have merit-protections negatively affect the innovation climate. Because of these personnel rules, one may assume that there is very little motive for innovation, especially in terms of financial motivation.

[20] *Personnel inflexibility* is used only in the OLS results presented in this chapter. The variable used in the ordered logit and multinomial logit results in Chapter Four is *Performance-based promotion*, a single item variable, as were all other variables employed in Model 1. Since a number of variables in Model 1 were removed to construct the innovation climate dependent variable in Model 2, and since Feeney and Rainey's (2010) paper was published during the writing of this study, I took liberty in altering the model with variables constructed by Feeney and Rainey–again, mainly for consistency in the research. Furthermore, since there are some validity issues with the results from the Model 1 ordered and multinomial logit results, it is likely that the inclusion of personnel inflexibility would have violated the Brant test along with the other independent variables in Model 1. Future analyses may benefit from the inclusion of the personnel inflexibility variable.

In terms of the specific tasks associated with one's job, *job flexibility* is statistically significant ($p<0.001$) and positively related to the innovation climate. This is consistent with previous studies that claim that the more personal freedom an individual has with her job, the more likely she is to produce innovative ideas within her workplace and likely influence other variables including organizational commitment and job satisfaction (Odom, Boxx, & Dunn, 1990; Boxx & Odom, 1991; Morris, Davis & Allen, 1994; Oldham & Cummings, 1996; Ekvall, 1996). Additionally, those who perceive their organization to be of high *quality and reputation* also positively influence the innovation climate and achieved statistical significance at the $p<0.001$ level, as did those who believe that *work is the most important* aspect of their lives. The desire for a *low-conflict environment* was negative in the full and public models, but did not achieve statistical significance in any of the three models.

Results are mixed among the control variables, as well. The scale measuring an individual's *total civic activity* achieves no statistical significance in any of the three models, demonstrating that individual external commitments likely do not deter from the innovation climate. Whether the respondent's *previous job was in the private sector* also did not achieve statistical significance in any of the models, though coefficients in the full and public models are positive, but negative in the nonprofit model. The number of full time equivalents (*FTE*) like the previous two variables was not statistically significant. The *year the organization was established* is negatively related to the innovation climate and statistically significant at the $p<.05$ level in the full model, and while the coefficients remain negative in the public and nonprofit models, no statistical significance is attained in the latter two models. The *age of the respondent* did not attain statistical significance in any of the three models, however, the *age squared*

variable is positively related to the innovation climate and statistically significant at the $p<.05$ level in the full and public models, but not the nonprofit model.

The control variable for *Georgia* is positively related and statistically significant at the $p<.05$ level in the full and public models. The nonprofit model, however, is not statistically significant, but the coefficient changes direction here to reflect a negative relation. *Females* are negatively related to the innovation climate and statistically significant at the $p<.05$ level in the full and public models, and no statistical significance is achieved in the nonprofit model. *Nonwhites* are negatively related to the innovation climate in the full and public models, and positively related in the nonprofit model, though no statistical significance exists across the three models.

The next group of control variables, based on roles of the respondent's current job, is not statistically significant. These variables include whether a respondent's current job is a *promotion*, if the current job is of a *managerial* nature, if the current job is one with a long *tenure*, and an interaction term of *manager and tenure*. Finally, three control variables regarding respective levels of education demonstrate mixed results. The variables for *graduate school* and *college* are negatively related to the innovation climate in all three models, but they only achieve statistical significance ($p<.05$) in the nonprofit model. The variable for *high school* is positively related to the innovation climate and is statistically significant ($p<.05$) in the full and nonprofit models, but not in the nonprofit model. The education control variables from this model are in stark contrast to the results obtained from the OLM and MNL models in Chapter Four, though they still underline the possibility that people view innovation differently depending on the level of education and in this case, demonstrate that more education is not necessarily prerequisite to

contributing to the innovative climate, but in the case of the OLS results in the nonprofit sample, more education displays a significant relation to the innovation climate.

Alternative OLS Results from a Rotated Principal Component Analysis

In Chapter Three, the principal component analysis of the innovation climate variable was carried out with nine variables that all loaded onto a single factor with an eigenvalue of 4.725 and a Cronbach's alpha of 0.828, indicating the reliability of this measure (see Table 3.1). Principal component analysis (PCA) was chosen for data reduction and an assessment to see if, in fact, the nine items were answered in a similar enough fashion to be able to predict a factor score that would serve as the dependent variable of innovation climate. Because the eigenvalue was well above 1.0, the PCA, in theory, is sufficient as is without varimax or other forms of rotation on the component (Coleman, 2010). In fact, some research claims that in this case the factor or component does not need to be rotated and will be further discussed in this chapter. In an attempt to further explore the variables, however, orthogonal varimax rotation with a Kaiser normalization was used to extract two factors. The first of these factors (Table 5.3) contained five variables that all loaded at 0.70 or higher with an eigenvalue of 2.936 and a Cronbach's alpha of 0.721. A correlation matrix of these variables is detailed in Table 5.4. The variables that were retained for this factor are based on the following statements:

1) Innovation is one of the most important values in this organization
2) Employees in this organization are afraid to take risks (reversed)
3) Top management in this organization is afraid to take risks (reversed)
4) How would you assess the level of red tape in your organization? (reversed)
5) Top management displays a high level of trust in this organization's employees

Because these five items have been given much treatment and found significance in several organizational innovation studies, the new dependent variable composed of these items (also a factor score) will be referred to as the primary or *core* innovation climate. The results from the OLS model in Table 5.1 will be referred to as the *expanded* innovation climate from this point forward.

The second factor (Table 5.5) also contained five variables that loaded onto the factor at 0.70 or higher with an eigenvalue of 3.121 and a Cronbach's alpha of 0.840. The correlation matrix for these variables can be found in Table 5.6. The variables retained for this factor are based on the following statements:

1) I feel a sense of pride working for this organization
2) I would rate the overall quality of work done in my organization as very good
3) There are incentives for me to work hard in my job
4) This organization has high ethical standards
5) Top management displays a high level of trust in this organization's employees[21]

The dependent variable composed of these items will be referred to as the secondary or *ancillary*[22] innovation climate in order to distinguish these results from those of the *expanded* and *core* IC models. Figure 5.1 provides a visual aid to distinguish these new dependent variable classifications.

The choice to rotate a PCA with a high eigenvalue has some associated risks worth acknowledging. Preacher and MacCallum (2003) chide those who employ "the fairly routine use of a variation of EFA [exploratory factor analysis] wherein the researcher uses principal

[21] This variable loaded onto both factors at 0.798 and 0.786, respectively, when the original *expanded* innovation climate PCA was rotated, and therefore the item is retained in both for this analysis.
[22] This should not be confused for the term *ancillary innovation* as used in Damanpour (1987, 1991) or Walker (2008).

components analysis (PCA), retains components with eigenvalues greater than 1.0 and uses varimax rotation, a bundle of procedures affectionately termed 'Little Jiffy' by some of its proponents and practitioners (Kaiser, 1970)" (p.14). The impetus of the Preacher and MacCallum (2003) piece was, in part, to respond to unanswered questions and potentially misleading suggestions given in a 1967 piece by J. Scott Armstrong in *The American Statistician* entitled "Derivation of Theory by Means of Factor Analysis or Tom Swift and His Electric Factor Analysis Machine." The authors cite several studies that caution scholars of the potential negative consequences of this approach, and subsequently acknowledge that little if any impact has been made as a multitude of studies have continued to be published using the "Little Jiffy." One caveat immediately worth mentioning, is that Armstrong (1967) and Preacher and MacCallum (2003) reference actual data in their pieces (*e.g.* width, length, volume, density, etc.) Since the survey data used in this study is subjective, reliant on individual perceptions, and therefore subject to various threats of validity, the choice of employing the "Little Jiffy" may not have been a bad one for several reasons. Again, PCA was used for the reduction of data and operates under the assumption that measured variables are linearly related to latent variables. Additionally, Preacher and MacCallum (2003) note that Armstrong (1967) claimed that there were no criteria by which to judge his results because the analysis was conducted without a prior theory. That is not quite the case for this study. It would be fair to say that the current study is a variation on a theme. There have been numerous studies conducted on organizational variables that are antecedent to innovation, and therefore, this study is not wholly reliant on *a priori* assumptions (see Rainey & Bozeman, 2000). The novelty here is the composite variable of *climate*, that is, that there are multiple components to the environment in which innovations are conceived and developed, along with the desire for the increased likelihood of an implemented

innovation to be "successful." I make this aside here to acknowledge the risks associated with PCA, but given the qualitative nature of the data and in order to provide a more parsimonious model, I believe the steps taken here are the best available.

Hypotheses: Results of Expanded, Core, and Ancillary Innovation Climate

As done with the original *expanded* IC variable, OLS regressions were run for the *core* (Table 5.7) and *ancillary* (Table 5.8) IC variables. For the most part, the majority of the results[23] are fairly consistent, though there are a few noteworthy dissimilarities. A summary of hypotheses is included in Table 5.9 showing the direction of the sign, whether or not the variables are statistically significant, and whether or not the hypothesis in question is supported. The results of all OLS regressions (nine total) are taken into consideration to determine support of the hypotheses. Where results are uniform across all models, that is, with the same direction and level of statistical significance or lack thereof, the associated hypothesis will be considered as supported. The following paragraphs describe these results, which are for the most part coterminous in direction and statistical significance with results presented earlier in this chapter. Implications for research and practice will be further discussed in the final chapter.

Advancement motivation is positive and statistically significant ($p<.05$) in the *core* IC public model, but not in the full or nonprofit models. It is positive and statistically significant in the *ancillary* IC full model ($p>0.01$), but not in the public or nonprofit models. Since the results are not the same across all models, the hypothesis on *advancement motivation* is only partially supported.

[23] I will omit discussion on control variables here in order to focus on the independent variables of interest related to hypotheses established in Chapter Two.

H1a Advancement motivation is significantly associated with the innovation climate.

Partially Supported

As with the *expanded* IC model, *security motivation* did not achieve statistical significance in any of the *ancillary* IC models, but was negatively related to the *core* IC full and nonprofit models. Since there was no statistical significance in either the *expanded* models or the *ancillary* models, the results from the *core* models alone cannot support the hypothesis on *security motivation*.

H1b Security Motivation is significantly associated with the innovation climate.

Not Supported

Neither *financial motivation* nor *the ability to serve the public* achieved statistical significance in any of the models across the three innovation climate categories, and therefore, the associated hypotheses are not supported.

H1c Financial motivation is significantly associated with the innovation climate.

Not Supported

H1d Pro-social motivation or the ability to serve the public or public interest is significantly associated with the innovation climate.

Not Supported

In terms of the flexibility variables, *personnel inflexibility* is negatively related to the innovation climate and statistically significant ($p<0.001$) in the full, public and nonprofit models across the *expanded*, *core*, and *ancillary* IC models, and thus lends support to its associated hypothesis. *Job flexibility* is positively related to the innovation climate and statistically significant at the $p<0.001$ level in each model of the *expanded*, *core*, and *ancillary* models. This hypothesis is also supported.

H2a Personnel inflexibility is significantly associated with the innovation climate.

Supported

H2b Job flexibility is significantly associated with the innovation climate.

Supported

With regard to the positive perceptions on *quality and reputation*, this association is positive relative to the innovation climate and statistically significant ($p<0.001$) in the full, public and nonprofit models of the *expanded*, *core*, and *ancillary* categories. Because of the unanimity of results, this associated hypothesis is supported.

H3 Positive perceptions on the quality and reputation of organizations are significantly associated with the innovation climate.

Supported

Much of the literature correlating the *desire for a low-conflict environment* to organizational innovation or the innovative process shows that the absence of conflict often provides for less innovation. The case here is also similar as this variable only found statistical significance in the full ($p<0.01$) and public ($p<0.05$) models in the *ancillary* category and was negatively related, and therefore the associated hypothesis is not supported.

H4 The desire for a low-conflict work environment is significantly related to the innovation climate.

Not supported

Employees who believe that *work is the most important element in their life* demonstrated a positive relation to the innovation climate and the coefficients produced are statistically significant ($p<0.001$) across all models in each of the three innovation climate categories, giving support to the associated hypothesis.

H5 Those who are more likely to believe work is the most important element in their life are significantly associated with the innovation climate.

Supported

Summary and Conclusion

The *expanded* IC models yielded results that reveal how diverse elements of motivation, flexibility, and other organizational attributes influence the innovation climate. With the addition of the *core* and *ancillary* IC models, we can see that the most significant of results are for the

most part the same across all models demonstrating that even with a factor rotation, results are consistent with the original *expanded* model, and that each item included in the factor score is an integral part of the innovation climate. The full slate of OLS results across all models supports four of the nine hypotheses in the three IC categories. One hypothesis is partially supported, while the other four are not supported. These findings will be further discussed in the concluding chapter with specific attention given to implications for research and practice. The final chapter will also address strengths and limitations of the study as well as suggestions for future research.

Table 5.1 Ordinary Least Squares Estimates Predicting Innovation Climate (*Expanded* Innovation Climate)

VARIABLES	Full Model			Public			Nonprofit		
	Unstandardized		Standardized	Unstandardized		Standardized	Unstandardized		Standardized
	B	SE	Beta	B	SE	Beta	B	SE	Beta
Nonprofit	0.032	(0.072)	0.016						
Security Motivation	-0.016	(0.011)	-0.037	-0.007	(0.016)	-0.016	-0.028	(0.017)	-0.086
Advancement Motivation	**0.033****	**(0.012)**	**0.074**	**0.042****	**(0.016)**	**0.098**	-0.001	(0.017)	-0.002
Financial Motivation	-0.022	(0.031)	-0.017	-0.010	(0.041)	-0.008	-0.047	(0.049)	-0.046
Ability to Serve the Public	-0.008	(0.025)	-0.007	-0.012	(0.037)	-0.011	0.002	(0.033)	0.002
Personnel Inflexibility	**-0.192*****	**(0.013)**	**-0.467**	**-0.201*****	**(0.018)**	**-0.365**	**-0.177*****	**(0.017)**	**-0.497**
Job Flexibility	**0.261*****	**(0.028)**	**0.220**	**0.271*****	**(0.034)**	**0.246**	**0.202*****	**(0.049)**	**0.187**
Quality and Reputation	**0.247*****	**(0.029)**	**0.222**	**0.243*****	**(0.038)**	**0.236**	**0.232*****	**(0.046)**	**0.228**
Low-Conflict Environment	-0.019	(0.013)	-0.036	-0.031	(0.017)	-0.062	0.015	(0.018)	0.040
Work Most Important	**0.165*****	**(0.026)**	**0.149**	**0.173*****	**(0.033)**	**0.165**	**0.158*****	**(0.042)**	**0.171**
Total Civic Activity	0.028	(0.015)	0.043	0.027	(0.019)	0.043	0.029	(0.025)	0.053
Previous Job: Private Sector	0.041	(0.062)	0.015	0.109	(0.093)	0.037	-0.074	(0.080)	-0.042
FTE	0.000	(0.000)	0.009	-0.000	(0.000)	-0.004	0.000	(0.000)	0.063
Year Established	**-0.001***	**(0.001)**	**-0.059**	-0.001	(0.001)	-0.040	-0.001	(0.001)	-0.049
Age of the Respondent	-0.035	(0.021)	-0.319	-0.053	(0.030)	-0.499	0.010	(0.030)	0.125
Age Squared	**0.000***	**(0.000)**	**0.385**	**0.001***	**(0.000)**	**0.570**	-0.000	(0.000)	-0.084
Georgia	**0.102***	**(0.051)**	**0.054**	**0.140***	**(0.065)**	**0.076**	-0.083	(0.087)	-0.045
Female	**-0.090***	**(0.043)**	**-0.047**	**-0.114***	**(0.056)**	**-0.062**	-0.071	(0.069)	-0.047
Nonwhite	-0.038	(0.059)	-0.014	-0.059	(0.070)	-0.026	0.166	(0.115)	0.061
Current Job: Promotion	0.031	(0.047)	0.016	-0.07	(0.061)	0.009	0.052	(0.074)	0.033
Current Job: Manager	-7.980	(15.339)	-3.722	-21.769	(18.125)	-11.439	29.977	(36.037)	13.321
Current Job: Tenure	-0.003	(0.007)	-0.023	-0.003	(0.008)	-0.024	-0.001	(0.017)	-0.007
Manager*Tenure	0.008	(0.015)	3.770	0.022	(0.018)	11.492	-0.030	(0.036)	-13.245
Education: Graduate School	-0.084	(0.054)	-0.044	-0.071	(0.070)	-0.039	**-0.198***	**(0.083)**	**-0.131**
Education: College	-0.061	(0.059)	-0.029	-0.022	(0.076)	-0.011	**-0.202***	**(0.094)**	**-0.117**
Education: High School	**0.390***	**(0.154)**	**0.058**	**0.455***	**(0.180)**	**0.080**	-0.216	(0.325)	-0.029
Constant	10.029	(13.873)		9.127	(15.965)		3.383	(33.806)	
Observations		875			586			289	
R-squared		0.603			0.520			0.551	
Adj. R-squared		0.591			0.498			0.508	
Standard Error		0.607			0.637			0.528	
F		49.55***			24.25***			12.91***	

*** p<0.001, ** p<0.01, * p<0.05

Source: National Administrative Studies Project III

Table 5.2 Basic Correlation Matrix of *Expanded* Innovation Climate Variables

	1	2	3	4	5	6	7	8	9
1) Innovation is one of the most important values in this organization	1								
2) Employees in this organization are afraid to take risks (reverse)	0.47	1							
3) Top management in this organization is afraid to take risks (reverse)	0.46	0.47	1						
4) Top management displays a high level of trust in this organization's employees	0.53	0.45	0.49	1					
5) How would you assess the level of red tape in your organization? (reverse)^	0.46	0.46	0.48	0.56	1				
6) I feel a sense of pride working for this organization	0.49	0.34	0.36	0.55	0.43	1			
7) I would rate the overall quality of work done in my organization as very good	0.47	0.39	0.36	0.50	0.41	0.60	1		
8) There are incentives for me to work hard in my job	0.49	0.36	0.36	0.48	0.40	0.47	0.41	1	
9) This organization has high ethical standards	0.54	0.39	0.38	0.57	0.45	0.63	0.59	0.47	1

Note: All correlation coefficients are statistically significant at the $p<0.001$ level.

Table 5.3 Principal Component Analysis of *Core* Innovation Climate Items

	Factor Loadings	Uniqueness
1) Innovation is one of the most important values in this organization	0.766	0.413
2) Employees in this organization are afraid to take risks (reverse)	0.737	0.457
3) Top management in this organization is afraid to take risks (reverse)	0.754	0.431
4) How would you assess the level of red tape in your organization? (reverse)^	0.775	0.400
5) Top management displays a high level of trust in this organization's employees	0.798	0.364

N = 1179
Original Eigenvalue = 2.936
Cumulative Percentage = 58.72
Cronbach's alpha = 0.721

^ = Respondents were asked to rate from 0-10, 0 being "Almost No Red Tape" and 10 being "Great Deal of Red Tape." This was based on the definition of red tape as "burdensome administrative rules and procedures that have negative effects on the organization.

Table 5.4 Basic Correlation Matrix of *Core* Innovation Climate Variables

	1	2	3	4	5
1) Innovation is one of the most important values in this organization	1				
2) Employees in this organization are afraid to take risks (reversed)	0.47	1			
3) Top management in this organization is afraid to take risks (reversed)	0.46	0.47	1		
4) How would you assess the level of red tape in your organization? (reversed)	0.46	0.46	0.48	1	
5) Top management displays a high level of trust in this organization's employees	0.53	0.45	0.49	0.56	1

Table 5.5 Principal Component Analysis of *Ancillary* Innovation Climate Items

	Factor Loadings	Uniqueness
1) I feel a sense of pride working for this organization	0.832	0.308
2) I would rate the overall quality of work done in my organization as very good	0.791	0.377
3) There are incentives for me to work hard in my job	0.701	0.508
4) This organization has high ethical standards	0.835	0.303
5) Top management displays a high level of trust in this organization's employees	0.786	0.383

N = 1198
Original Eigenvalue = 3.121
Cumulative Percentage = 62.42
Cronbach's alpha = 0.840

Table 5.6 Correlation Matrix of *Ancillary* Innovation Climate Variables

	1	2	3	4	5
1) I feel a sense of pride working for this organization	1				
2) I would rate the overall quality of work done in my organization as very good	0.60	1			
3) There are incentives for me to work hard in my job	0.47	0.41	1		
4) This organization has high ethical standards	0.63	0.59	0.47	1	
5) Top management displays a high level of trust in this organization's employees	0.55	0.50	0.48	0.57	1

Note: All correlation coefficients are statistically significant at the $p<0.001$ level.

Table 5.7 Ordinary Least Squares Estimates Predicting Innovation Climate (*Core* Innovation Climate)

VARIABLES	Full Model			Public			Nonprofit		
	Unstandardized		Standardized	Unstandardized		Standardized	Unstandardized		Standardized
	B	SE	Beta	B	SE	Beta	B	SE	Beta
Nonprofit	-0.009	(0.081)	-0.004						
Security Motivation	**-0.037****	**(0.013)**	**-0.082**	-0.023	(0.017)	-0.053	**-0.048***	**(0.022)**	**-0.118**
Advancement Motivation	0.021	(0.013)	0.044	**0.035***	**(0.017)**	**0.082**	-0.016	(0.023)	-0.036
Financial Motivation	-0.020	(0.035)	-0.014	0.001	(0.043)	0.001	-0.064	(0.065)	-0.049
Ability to Serve the Public	-0.040	(0.028)	-0.036	-0.030	(0.039)	-0.028	-0.043	(0.044)	-0.045
Personnel Inflexibility	**-0.221*****	**(0.014)**	**-0.506**	**-0.201*****	**(0.020)**	**-0.373**	**-0.234*****	**(0.023)**	**-0.516**
Job Flexibility	**0.251*****	**(0.031)**	**0.200**	**0.247*****	**(0.036)**	**0.230**	**0.234*****	**(0.065)**	**0.169**
Quality and Reputation	**0.212*****	**(0.032)**	**0.180**	**0.215*****	**(0.040)**	**0.214**	**0.218*****	**(0.061)**	**0.168**
Low-Conflict Environment	0.001	(0.014)	0.003	-0.027	(0.019)	-0.055	0.049*	(0.024)	0.098
Work Most Important	**0.113*****	**(0.029)**	**0.096**	**0.098****	**(0.035)**	**0.095**	**0.158****	**(0.055)**	**0.134**
Total Civic Activity	0.031	(0.017)	0.044	0.019	(0.020)	0.032	0.047	(0.033)	0.066
Previous Job: Private Sector	0.044	(0.070)	0.157	0.088	(0.099)	0.031	-0.039	(0.106)	-0.017
FTE	0.000	(0.000)	0.032	0.000	(0.000)	0.020	0.000	(0.000)	0.051
Year Established	-0.001	(0.001)	-0.027	-0.000	(0.001)	-0.018	-0.001	(0.001)	-0.027
Age of the Respondent	-0.039	(0.024)	-0.333	-0.057	(0.032)	-0.542	-0.008	(0.039)	-0.073
Age Squared	0.000	(0.000)	0.387	**0.001***	**(0.000)**	**0.615**	0.000	(0.000)	0.074
Georgia	0.082	(0.057)	0.040	0.122	(0.069)	0.068	-0.080	(0.115)	-0.034
Female	-0.076	(0.049)	-0.037	**-0.119***	**(0.059)**	**-0.067**	-0.056	(0.090)	-0.029
Nonwhite	-0.004	(0.066)	-0.001	-0.030	(0.074)	-0.013	0.197	(0.152)	0.057
Current Job: Promotion	0.044	(0.053)	0.023	0.053	(0.065)	0.030	0.057	(0.097)	0.028
Current Job: Manager	10.239	(17.290)	4.505	-7.609	(19.249)	-4.096	44.256	(47.598)	15.382
Current Job: Tenure	0.001	(0.008)	0.008	0.001	(0.008)	0.009	0.001	(0.022)	0.009
Manager*Tenure	-0.005	(0.009)	-4.466	0.004	(0.010)	4.144	-0.022	(0.024)	-15.341
Education: Graduate School	**-0.154***	**(0.061)**	**-0.077**	**-0.167***	**(0.075)**	**-0.094**	-0.178	(0.110)	-0.093
Education: College	**-0.147***	**(0.067)**	**-0.067**	-0.130	(0.081)	-0.069	-0.195	(0.124)	-0.089
Education: High School	0.260	(0.173)	0.037	0.320	(0.191)	0.058	-0.316	(0.429)	-0.033
Constant	0.057	(15.637)		-0.575	(16.955)		-0.559	(44.652)	
Observations		875			586			289	
R-squared		0.551			0.432			0.521	
Adj. R-squared		0.537			0.406			0.475	
Standard Error		0.685			0.677			0.698	
F		40.04***			17.02***			11.43***	

*** p<0.001, ** p<0.01, * p<0.05

Source: National Administrative Studies Project III

Table 5.8 Ordinary Least Squares Estimates Predicting Innovation Climate (*Ancillary* Innovation Climate)

VARIABLES	Full Model			Public			Nonprofit		
	Unstandardized		Standardized	Unstandardized		Standardized	Unstandardized		Standardized
	B	SE	Beta	B	SE	Beta	B	SE	Beta
Nonprofit	0.045	(0.082)	0.021						
Security Motivation	0.003	(0.013)	0.008	0.007	(0.018)	0.015	-0.006	(0.016)	-0.021
Advancement Motivation	**0.036****	**(0.013)**	**0.076**	0.036	(0.018)	0.073	0.011	(0.017)	0.035
Financial Motivation	-0.011	(0.035)	-0.008	0.001	(0.047)	0.001	-0.035	(0.048)	-0.038
Ability to Serve the Public	0.004	(0.028)	0.004	-0.014	(0.042)	-0.012	0.026	(0.032)	0.039
Personnel Inflexibility	**-0.174*****	**(0.014)**	**-0.398**	**-0.206*****	**(0.021)**	**-0.331**	**-0.133*****	**(0.017)**	**-0.410**
Job Flexibility	**0.255*****	**(0.031)**	**0.203**	**0.270*****	**(0.039)**	**0.218**	**0.170*****	**(0.048)**	**0.172**
Quality and Reputation	**0.277*****	**(0.032)**	**0.235**	**0.279*****	**(0.044)**	**0.239**	**0.234*****	**(0.046)**	**0.253**
Low-Conflict Environment	**-0.039****	**(0.014)**	**-0.071**	**-0.041***	**(0.020)**	**-0.073**	-0.016	(0.018)	-0.044
Work Most Important	**0.220*****	**(0.029)**	**0.187**	**0.259*****	**(0.037)**	**0.217**	**0.143*****	**(0.041)**	**0.170**
Total Civic Activity	0.031	(0.017)	0.044	0.037	(0.022)	0.053	0.019	(0.025)	0.039
Previous Job: Private Sector	0.062	(0.071)	0.022	0.154	(0.109)	0.046	-0.097	(0.079)	-0.061
FTE	-0.000	(0.000)	-0.004	-0.000	(0.000)	-0.015	0.000	(0.000)	0.069
Year Established	**-0.002****	**(0.001)**	**-0.084**	-0.002	(0.001)	-0.062	-0.001	(0.001)	-0.062
Age of the Respondent	-0.046	(0.024)	-0.393	-0.064	(0.035)	-0.528	0.015	(0.029)	0.195
Age Squared	**0.001***	**(0.000)**	**0.457**	**0.001***	**(0.000)**	**0.585**	-0.000	(0.000)	-0.121
Georgia	0.106	(0.057)	0.052	0.137	(0.076)	0.066	-0.098	(0.085)	-0.059
Female	-0.094	(0.049)	-0.046	-0.105	(0.065)	-0.051	-0.065	(0.067)	-0.047
Nonwhite	-0.049	(0.065)	-0.018	-0.075	(0.080)	-0.029	0.173	(0.111)	0.071
Current Job: Promotion	0.003	(0.053)	0.002	-0.023	(0.071)	-0.011	0.015	(0.072)	0.010
Current Job: Manager	-22.423	(17.310)	-9.868	-33.522	(20.975)	-15.548	25.056	(35.469)	12.201
Current Job: Tenure	-0.008	(0.008)	-0.049	-0.008	(0.009)	-0.047	-0.001	(0.017)	-0.010
Manager*Tenure	0.011	(0.009)	9.917	0.017	(0.010)	15.60	-0.012	(0.018)	-12.091
Education: Graduate School	-0.029	(0.061)	-0.014	0.018	(0.081)	0.009	**-0.235****	**(0.082)**	**-0.172**
Education: College	-0.002	(0.067)	-0.001	0.058	(0.088)	0.026	**-0.211***	**(0.092)**	**-0.135**
Education: High School	**0.468****	**(0.174)**	**0.066**	**0.538***	**(0.210)**	**0.083**	-0.136	(0.320)	-0.020
Constant	19.706	(15.691)		18.644	(18.562)		3.552	(33.297)	
Observations		889			597			292	
R-squared		0.545			0.491			0.471	
Adj. R-squared		0.531			0.468			0.423	
Standard Error		0.689			0.743			0.520	
F		39.73***			22.01***			9.48***	

*** p<0.001, ** p<0.01, * p<0.05

Source: National Administrative Studies Project III

Table 5.9 Summary of Hypotheses

Hypothesis		*Expanded* IC			*Core* IC			*Ancillary* IC			Supported
		Full	Public	NP	Full	Public	NP	Full	Public	NP	
H1a	*Advancement motivation is significantly associated with the innovation climate.*	+	+			+		+			Partially
H1b	*Security motivation is significantly associated with the innovation climate.*				–		–				No
H1c	*Financial motivation is significantly associated with the innovation climate.*										No
H1d	*Pro-social motivation or the ability to serve the public or public interest is significantly associated with the innovation climate.*										No
H2a	*Personnel inflexibility is significantly associated with the innovation climate.*	–	–	–	–	–	–	–	–	–	Yes
H2b	*Job flexibility is significantly associated with the innovation climate.*	+	+	+	+	+	+	+	+	+	Yes
H3	*Positive perceptions on the quality and reputation of organizations are significantly associated with the innovation climate.*	+	+	+	+	+	+	+	+	+	Yes
H4	*The desire for a low-conflict work environment is significantly associated with the innovation climate.*							–	–		No
H5	*Those who are more likely to believe work is the most important element in their life are significantly associated with the innovation climate.*	+	+	+	+	+	+	+	+	+	Yes

\+ = *positive and statistically significant*

– = *negative and statistically significant*

Figure 5.1 Classification of Innovation Climate (IC) Variables

		Expanded
	Core	1) Innovation is one of the most important values in this organization
		2) Employees in this organization are afraid to take risks (reversed)
		3) Top management in this organization is afraid to take risks (reversed)
		4) How would you assess the level of red tape in your organization? (reversed)
Ancillary		5) Top management displays a high level of trust in this organization's employees
		6) I feel a sense of pride working for this organization
		7) I would rate the overall quality of work done in my organization as very good
		8) There are incentives for me to work hard in my job
		9) This organization has high ethical standards

CHAPTER 6

DISCUSSION AND CONCLUSION

This chapter concludes the study with a brief review of the findings in Chapter Five, an assessment of the research questions posed in Chapter One, and outlines of the contributions of the study, as well as some strengths and limitations. The chapter concludes with some suggestions for future research and final thoughts.

Review of Findings: Revisiting Research Questions and Contributions of the Study

Thompson's (1965, 1969) work over forty years ago discussed the necessity of organizational innovation because of an "obvious fact" of an increased rate of change, mostly relating to technological change. This, however, is a relatively simple observation given what may be entailed in this "rate of change." The changes that affect innovation and the rate in which they occur are one facet to consider. The other facet may be examined through the lens of actual tasks organizations are faced with as they relate to providing services in public and nonprofit organizations. Organizations that have missions to affront critical issues or to maintain a quality level of service delivery are more likely to predicate their success based on their organizational capacity. To reiterate this position, consider some points from the literature: Mueller (1971) illustrated that innovation is not limited to technological products and processes of industry and business alone, but also among social institutions and their interrelationships. Hartley (2008) noted that successful innovation is judged by impact on profit, wealth creation or market share, but in terms of public services, innovation is "justifiable to the extent that it increases public

value in the quality, efficiency or fitness for the purpose of governance or services" (p. 205). Finally, Steven Johnson (2010), author of the popular press book *Where Good Ideas Come From: The Natural History of Innovation* wrote:

> What kind of environment creates good ideas? The simplest way to answer [that] is this: innovative environments are better at helping their inhabitants explore the adjacent possible, because they expose a wide and diverse sample of spare parts—mechanical or conceptual—and they encourage novel ways of recombining those parts. Environments that block or limit those new combinations—by punishing experimentation, by obscuring certain branches of possibility, by making the current state so satisfying that no one bothers to explore the edges—will, on average, generate and circulate fewer innovations than environments that encourage exploration (Johnson, 2010: 41).

This dissertation set out to examine two research questions in general, the first of which was: do specific environmental factors influence managerial perceptions of innovation within their respective organizations? Previous research along with the current study suggests that this question should be responded to in the affirmative. The hypotheses that were tested—on various aspects of motivation, flexibility, perceptions of the quality and reputation of the organization, the desire for low conflict, and the importance of work to organizational members—demonstrate that these workplace attributes influence perceptions of innovation and the innovation climate in different ways.

The results in Chapter Five indicate that *advancement motivation* can potentially affect the innovation climate in a positive way. Though the hypothesis was only partially supported, it is conceivable that an individual's desire to "move up" within his respective organization can

bolster the innovation climate. If anything, the motivation to advance within the hierarchy of the organization and to take on more responsibilities may create opportunities for competition of ideas and conflict among individuals, which when positively viewed, has the potential to foster a creative and innovative environment. Conversely, conflict within organizations can easily influence the organizational culture and become a detriment to the work environment. This is a delicate issue that managers will have to deal with on a regular basis. The support for this hypothesis came from the full and public models in the *expanded*, *core*, and *ancillary* categories of innovation climate, and did not find traction in the nonprofit model. The number of assumptions as to why this is the case is probably uncountable, but outward assumptions may include the mission-based orientation of many nonprofit organizations and that when giving consideration to the motivation element, employees and managers of nonprofits may be more motivated to achieve their missions and devote themselves to the causes of the organization, rather than focus on extrinsic motivators including rewards and competition. Many nonprofit organizations have little necessity of intra-organizational competition in the first place since the mission-based orientation is one that generally emphasizes unity in working toward objectives. That said, there are a couple of points to consider, the first being that public organizations may follow a similar model of unity in their operations depending on the tasks required of them. Secondly, approximately half of the nonprofit respondents worked in 501(c)(6) business associations, which are more likely to mirror public or private sector work environments. To preempt the forthcoming section on limitations, one limitation to consider in this study is the number of nonprofit respondents relative to public sector respondents and a relative lack of diversity among respondents of the various nonprofit classifications. Future research could very well examine the same questions here among different types of nonprofits alone (*e.g.* 501(c)(3)

public charities, 501(c)(4) political advocacy organizations, 501(c)(6) business associations, etc.), excluding public organizations entirely.

Security motivation did not find enough traction across all models to have its associated hypothesis supported, that is, that it is not significantly associated with the innovation climate. The desire for greater job security has been found to be something that does not necessarily promote innovation in organizations. This, however, is something that can also act as a stabilizer in organizations, ensuring that those who prefer to avoid risk and maintain the status quo keep a balance within the organization relative to the risk-taking, innovation contingent. *Financial motivation* and *the ability to serve the public* were not significantly associated with the innovation climate in all models and across all categories, supporting the associated hypotheses. The findings regarding the ability to serve the public are interesting and deserve further treatment in the future. For example, can innovation, generally speaking, improve the lives of the people who are served by the respective public and nonprofit organizations? If so, then why would the ability to serve the public not be significantly associated with the innovation climate? The relation between this element of motivation and innovation is an area of research that can be strengthened and should be given further treatment in the future.

Personnel inflexibility takes three statements from the NASP-III survey into consideration: 1) Because of the rules here, promotions are based mainly on performance; 2) Even if a manager is a poor performer, formal rules make it hard to remove him or her from the organization; and 3) The formal pay structures and the rules make it hard to reward a good employee with higher pay here. The hypothesis was that personnel inflexibility is significantly related to the innovation climate, which is supported, and furthermore is negatively related to the innovation climate. It would then appear that if promotions were not based solely on

performance, if human resources procedures allowed for an easier termination process, and if restrictions on pay structures and rules were lessened, that the work environment in question may be more conducive to the innovation climate. With regard to flexibility at the individual level, *job flexibility* was found to be significantly related to the innovation climate, underlining the assumptions made here that greater personal freedom in one's respective tasks are likely to contribute to the innovation process within an organization. These results were uniform across all models, in all categories, and the hypothesis was supported.

Positive perceptions on the *quality and reputation* of the organization enhances the innovation climate, a finding that was consistent with other research that emphasized creating a felt need for change and promoting innovation within the organization in general. The associated hypothesis for *desire for a low conflict environment* was not supported as it was only statistically significant in the *ancillary* category of innovation climate, though negatively related, which still lends a modicum of credibility to the idea that the less conflict that exists within an organization, the less innovative it will be in terms of organizational climate. Finally, those who are more likely to believe *work is the most important element* in their life was statistically significant and positively related to the innovation climate in the full, public, and nonprofit models across the *expanded*, *core*, and *ancillary* categories of innovation climate, giving support to the associated hypothesis, and demonstrating that those who place a greater importance on their work will positively contribute to and enhance the innovation climate.

The second research question that was asked at the beginning of the study was: do levels of perceived innovation vary between the public sector as compared to the nonprofit sector, and, if so, to what extent? The results indicate that there is some variance between the two sectors in the hypotheses that were associated with the *advancement motivation*, *security motivation*, and

the *desire for a low-conflict work environment.* The remaining variables and their associated hypotheses, however—*financial motivation*, *the ability to serve the public*, *personnel inflexibility*, *job flexibility*, positive perceptions on the *quality and reputation of the organization*, and *work as the most important element* in one's life—all obtained the same level of statistical significance and directionality in each of the full, public, and nonprofit models across all three innovation climate categories. This demonstrates that with regard to these variables, the perceptions of innovation in public and nonprofit organizations do not differ from one another. This mixture of results is fairly consistent with previous research and theories that while distinct in their own rites, public and nonprofit organizations can be quite similar in a multitude of organizational dimensions and perceptions of organizational members do not necessarily vary greatly between the two sectors.

This work set out to make a contribution to research on innovation, by demonstrating that various organizational and environmental attributes can hinder or promote innovation in organizations. The results lend credibility to this assumption, and therefore, an additional dynamic to innovation research, and specifically to comparative elements of organizational innovation in public and nonprofit organizations have been provided in this study. Perhaps the biggest findings of the study center around the results of job flexibility and personnel flexibility. It would seem that the more freedom one has in carrying out their job, and the more freedom organizations have in their personnel procedures, the more likely they will be able to enhance their innovation climate. The major contribution of the study is the introduction of the concept of innovation climate as a multi-dimensional construct for assessing various elements that may affect organizational and managerial innovation. Innovation as a single-item measure is subject to many different interpretations as evidenced by some of the qualitative responses from the

NASP-III survey. For example, one respondent wrote, "State government is experiencing a lot of change. My personal experience is that it provides less security, innovation and opportunities than in the period prior to the late 1990s" (Feeney, 2006: 21). Rather than generalize what innovation is, the innovation climate concept puts forth several elements that assess the climates that lead to innovations or hinder them from being developed. This study deals with subjective measures, but the very idea of what is and is not innovative is extremely subjective. Assessing an innovation climate, however, allows us to reign in some of that subjectivity into "an internally consistent set of attitudes…because much of science is about discovering orderly patterns and observable distinctions" (Brewer, 2006: 48). Brewer (2006) further called for the further study of "the complex interrelationships and gnarly interactive effects between management and other factors that affect organizational performance" (p. 49). I believe this study, in a way, helps satisfy that request. There are, however, steps that must be taken from this point, and some suggestions will be provided in the section on future research later in the chapter.

Strengths and Limitations of the Study

The nature of many studies on organizational innovation and the innovation process are often accompanied by a host of limitations, and this study is not exempt. Throughout much of the literature on innovation, scholars cast a mostly positive light on innovation and how it can contribute to the overall well being of an organization. This, of course, is the aim in most cases. Managers who seek to stimulate innovation within their organizations are essentially seeking continuous improvement, but the reality of these efforts can demonstrate both positive and negative. Sometimes innovations do not produce the intended result, and negative outcomes—sometimes quite significant—then situate the organization and team members in a position worse

off than before. The element of risk that is inherently tied to innovation can indeed harm the organization, and that is an aspect that was not thoroughly covered in this study. There are studies on several "innovations" in the public sector that despite warnings or any trials proceed to diffuse across organizations and political jurisdictions and do little, if anything, to improve organizational outcomes or performance. Merit pay, at-will employment, new recruitment and retention efforts and the diffusion of such "innovations" across states are often-cited examples (*e.g.* Ingraham, 1993; Condrey & Battaglio, 2007). As mentioned in Chapter Two, Kellough and Nigro's (2002) GeorgiaGain study serves as another example. Part of GeorgiaGain's efforts included a competitive compensation plan, but the authors warned that it was poor way to motivate employees, and in turn employees were rather critical of the reform as a whole and claimed that it was not effective in producing intended outcomes. This supports the findings related to personnel inflexibility, but in this vein, also demonstrates that there are potential downsides to innovation. Future research would benefit from additional treatment of this subject.

In terms of other limitations, though organization size is controlled for in the statistical results and not statistically significant, the comparative element between public and nonprofit organizations might be strengthened by a comparison of similarly structured organizations and from samples sizes that are relatively equal in number. Many respondents in the public sample work in large state agencies, whereas some of the nonprofit respondents work in much smaller organizations[24]. A study that compares small service-based nonprofit organizations and local government departments that provide similar services may yield additional results that provide insights into the differences and similarities between these types of nonprofit and public

[24] Kimberly and Evanisko (1981), for example, find that size is an important factor in their study of innovation adoption in hospitals. Since this study is not an innovation adoption study, this reference is given to generalize innovation as it relates to organizations in diverse ways.

organizations. The control for size in this study is sound and sufficient, but a more intricate examination of truly comparable organizations may produce further insights.

Something that may be viewed as a weakness of this study is the use of NASP-III as secondary data; however, I feel that it is something at risk of being overemphasized. As a simple definition, the use of secondary versus primary data is not based on specific qualities of the data itself, but on its history and relationship to a specific analysis (Boslaugh, 2010). NASP-III as it relates to this study is secondary data in the sense that someone else collected them for another purpose. In Chapter Three, however, NASP-III and its predecessors were described as data that sought to expand and increase empirical knowledge of public management by focusing on common themes of organizational culture, rules and procedures, and engagement in public service. This study, in general, fits within that greater spectrum and provides insights on those three tenets.

This research would benefit from having a more comprehensive construct of certain independent variables, including that of pro-social motivation. This research uses one item from the NASP-III instrument to measure pro-social motivation, based on a four-point Likert scale that measures the perceived importance of one's *ability to serve the public and public interest*, which may not adequately capture the full sentiment of the respondents. While it suffices for the short definition on pro-social motivation, work by Grant (2008) shows that indices of pro-social motivation can be used with multiple items. As research on innovation climate goes forth, these indices of pro-social motivation should be utilized as they may yield more robust and reliable results.

Future Research

This analysis, based on perceptions of government and nonprofit managers, sheds light on some of the organizational aspects of innovation and the similarities and differences between the two sectors. The perspective of employees, and perhaps managers specifically, is important because of the nature of their jobs, as they are usually charged with implementation and management, and are often forced to find creative solutions to difficult problems. Brewer (2005, 2006) cites several studies that find positive correlations between objective and subjective measures of performance in organizations, thus adding some reliability to the subjective measures assessed in this study, though objective measures for comparison sake would be optimal. Nevertheless, what is presented is sufficient as Brewer (2006) astutely notes that organizational performance is—like innovation—a "socially-constructed concept; thus, *all measures of performance are subjective*" (italics in original, p. 37). Whether or not policy makers, stakeholders, or members of the public consider certain aspects of organizational outputs to be innovative, it is important to explore the perceptions of those who *do* believe their organizations are innovative and what environmental aspects affect these perceptions. The results presented in this study provide interesting similarities and contrasts between the public and nonprofit sectors in terms of organizational innovation. Some of the differences in results between the public and nonprofit samples provide new phenomena that will require even further analysis.

The profusion of research on innovation continues to grow despite many aspects that do not seem to be entirely understood. The offshoot of research that focuses on the innovation climate, however, not only has room for expansion, but also has the potential to reveal aspects about the innovation process in organizations that enhance our understanding of innovation in

general. A 2007 article in *The Atlantic* written by P. J. O'Rourke captures a consideration to make as research on the organizational climate of innovation is carried out in the future: "…even if we can't see what innovations are around the corner, maybe we can at least predict what places are likely to be the most innovative in the future." This may be especially true when examining the multiple components that promote or inhibit innovation in public and nonprofit organizations. There are, however, at least two areas that merit further treatment in future research: the construct of the innovation climate measure and innovation climate as an end result in and of itself versus innovation climate as a moderating variable on the effect of select environmental variables on organizational performance.

The use of secondary data addressed earlier outlined a limitation to this study and underlines the necessity of constructing a more comprehensive innovation climate measure. While the factor score dependent variable employed in this research revealed much about the components that comprise the innovation climate, there are potentially missing elements that were unable to be included simply because there were not adequate measures in the data. With respect to Ekvall's (1996) components of innovative organizational climates, many of the components such as freedom, trust, and risk taking influenced the innovation climate variable that became the *expanded*, *core*, and *ancillary* categories of the innovation climate variable. Other aspects of Ekvall's (1996) components, such as challenges within the organization, idea support, dynamism of the organization, and the amount of time organization members have at their disposal for generating and crafting new ideas are not captured well in this study, if at all. Amabile and Gryskiewicz's (1989) study, also influential in the construction of the climate variable used in this research, differed in components used to measure the climate for innovation. When examining the environmental stimulants to creativity in their study, they utilized scales

that measured access to appropriate resources, the extent to which the organization provided a cooperative and collaborative atmosphere, and the extent to which creativity is encouraged and mechanisms are in place to foster development of ideas. These elements should be explored in greater depth to see if results are consistent with prior studies, though a caveat to these suggestions is the fact that a uniform measure of the innovation climate may not be a realistic expectation. As divergent as many theories are on singular innovation and innovation diffusion studies, we can expect the theories on what components are essential to innovation climate to differ greatly as well.

In order to rein in any divergent theories, one aspect of measuring the innovation climate that should ultimately be taken into consideration is whether or not it is an end to the means or means to an end. The innovation climate reveals much about organizational phenomena that can occur in public and nonprofit organizations. What is not revealed in the current study, or in many previous studies, is whether or not a highly innovative climate leads to better organizational efficiency, effectiveness, or performance. Since the current study is focusing on the innovation climate of organizations, our results focus on the likelihood of certain organizational and personal attributes to either promote or inhibit innovation within the organization. We can make inferences and assumptions about idea generation and implementation, but using innovation climate as a moderating variable may prove to be more fruitful in terms of concrete research findings. For example, a study on the influence of elements such as red tape[25], organizational size, freedom, or flexibility on measures of organizational performance may yield stronger results when interaction terms are created using the innovation climate variable. Research by

[25] The innovation climate variable used in this study includes a variable on red tape, though a modification of the factor score used to construct the variable for the purpose of future research is not something that should be ruled out. In this case, red tape is the variable that forced the use of a factor score as the dependent variable rather than an additive or multiplicative scale since it was not measured on a four-point Likert scale as the other items included in the variable were measured.

Subramanian and Nilakanta (1996) indicates that a reconceptualization of innovativeness as a multidimensional construct can explain the mixed results of past research, which is something the current innovation climate variable can do. Furthermore, these authors found that innovativeness does improve organizational performance. Variables in the NASP-III data, such as items that measure clientele satisfaction or the perception of the quality of work being performed in the organization may be the most suitable items measuring some aspect of performance. Future research using these items from NASP-III or other data with similar variables should absolutely focus on the innovation climate as part of a multidimensional construct that can potentially reaffirm Subramanian and Nilakanta's (1996) findings of organizational innovation leading to improved organizational performance[26].

Concluding Thoughts

As problems that society confronts become more complex, the necessity for innovation in the organizations that serve this greater society becomes critical. For those innovations to come to the fore, the organizational setting must be one that promotes innovation as a mechanism for achieving goals of the organization. The innovations themselves may be internal to the organization, such as innovative, creative ways to cut costs and better allocate resources, or they may be external in the sense that the innovation affects service delivery, hopefully leading to improvement and the greatest efficacy possible to the greatest number of people. Henry Mintzberg, in his book *The Structuring of Organizations* (1979), outlined five types of organizations that give have different coordinating mechanisms, design parameters, and contingency factors that can potentially affect the determinants of innovative behavior and the

[26] I am examining this question with the NASP-III data and have found and presented (Ronquillo & Ryu, 2010) preliminary findings that suggest similar results to Subramanian and Nilakanta (1996).

innovation climate. They are the simple structure, the machine bureaucracy, the professional bureaucracy, the divisionalized form, and the adhocracy. This study has been conducted with the assumption that the managers sampled work in organizations that likely fit into one of the five organizational types. I am cognizant, however, of the fact that these five types of organizations are likely to influence the way public and nonprofit organizations innovate in terms of internal improvements and services provided to the greater public in very diverse ways. Innovation is at times difficult to comprehend due to phenomenal elements of surprise and unpredictability, and as such, the difficulty of bringing in every organizational aspect into a singular study on innovation will remain a perennial and impractical challenge. Breaking the study of this topic into niches, however, and further delving into research on the climate of innovation—focusing on the assumption that many components affect an organization's capacity to innovate—will be one of many maneuverings of management and organizational innovation research that will assist scholars to distill and disentangle the extant research and provide practical guidance to managers looking for ways to enhance their organizations.

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APPENDIX A: DESCRIPTIVE STATISTICS

Ordered Variables	Observations	4	3	2	1
Organizational Innovation *(Innovation is one of the most important values in this organization)*	1,205	199 (16.51%)	481 (39.92%)	375 (31.12%)	150 (12.45%)
Job Security *(Job security)*	1,206	658 (54.56%)	387 (32.09%)	96 (7.96%)	65 (5.39%)
Employee Risk Aversion *(Employees in this organization are afraid to take risks)*	1,201	163 (13.57%)	508 (42.30%)	420 (34.97%)	110 (9.16%)
Managerial Risk Aversion *(Top management in this organization is afraid to take risks)*	1,194	137 (11.47%)	427 (35.76%)	398 (33.33%)	232 (19.43%)
Job Flexibility *(My job offers a great deal of flexibility)*	1,209	392 (32.42%)	548 (45.33%)	207 (17.12%)	62 (5.13%)
Ability to Serve Public Interest *(Ability to serve the public and public interest)*	1,199	522 (43.54%)	446 (37.20%)	138 (11.51%)	93 (7.76%)
Organization Quality/Reputation *(Overall quality and reputation of this organization)*	1,204	503 (41.78%)	483 (40.12%)	138 (11.46%)	80 (6.64%)
Organization Commitment *(The most important things that happen to me involve my work)*	1,206	77 (6.38%)	371 (30.76%)	495 (41.04%)	263 (21.81%)
Organization Pride *(I feel a sense of pride working for this organization)*	1,209	596 (49.305)	470 (38.88%)	107 (8.85%)	36 (2.98%)
Managerial Trust *(Top management displays a high level of trust in this organization's employees)*	1,201	373 (31.06%)	448 (37.30%)	244 (20.32%)	136 (11.32%)
Salary *(Salary)*	1,201	498 (41.47%)	578 (48.13%)	90 (7.49%)	35 (2.91%)
Quality of Work *(I would rate the overall quality of work being done in my organization as very good)*	1,209	585 (48.39%)	491 (40.61%)	101 (8.35%)	32 (2.65%)
Incentives *(There are incentives for me to work hard in my job)*	1,208	172 (14.24%)	375 (31.04%)	340 (28.15%)	321 (26.57%)
Performance-based Promotion *(Because of the rules here, promotions are based mainly on performance)*	1,193	176 (14.75%)	401 (33.61%)	321 (26.91%)	295 (24.73%)

Unordered Variables	**Observations**	**Mean**	**SD**	**Min.**	**Max**
Organization Age *(Year established)*	1,091	1947.104	37.73	1798	2005
Organization Size *(Number of full-time Employees)*	1,125	3525.72	5703.10	1	18700
Red Tape *(0-10 point scale ranging from "Almost No Red Tape" to "Great Deal of Red Tape")*	1,193	6.03	2.68	0	10
Work Hours *(___hours worked during typical work week)*	1,196	46.98	7.78	20	90
Female *(Are you Male/Female? 1=Male, 2=Female)*	1,208	0.55	---	0	1
Age *(In what year were you born?)*	1,204	49.4	8.9	23	81
Graduate/Professional Degree *(Graduated from a graduate or professional school—e.g., MBA, MPA, JD, MD)*	1,220	0.45	---	0	1
College Degree *(Graduated from a 4-year college)*	1,220	0.29	---	0	1
High School Diploma *(High school graduate)*	1,220	0.02	---	0	1
Nonwhite *(What is your racial identification? Recoded to 1=White, 0=Nonwhite)*	1,220	0.82	---	0	1

Ordered Variables: 4 = highest (i.e. Very Important) to 1 = lowest (i.e. Not Important)
Survey questions in parentheses

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