ADOPTION OF MANAGEMENT INNOVATION: AN ORGANIZATIONAL

LEARNING PERSPECTIVE

by

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ABSTRACT OF THE DISSERTATION

Adoption of Management Innovation: An Organizational Learning Perspective

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Institutional theorists have generally focused on the role of social and cultural characteristics of the external environment that motivate and facilitate the diffusion of management innovations (MIs). However, most studies have treated innovation as a discrete phenomenon and have not examined the variability of innovation adoption over time. MI, characterized by flexibility, variability, and continuity, necessitates probing into the "Iron Cage" to describe a more complete image of institutional change. Based on insights from the behavioral theory of the firm (Cyert & March, 1963), this dissertation focuses on the dynamic process that determines organizational responses to institutional pressure. It is composed of three studies which deal with the population-level diffusion, individual-level adoption, and field-level isomorphism of MI practices respectively.

The empirical setting is the adoption of alternative types of public service delivery in U.S. local governments. Information on service delivery was obtained from the International City/County Management Association's (ICMA) surveys of local governments' service delivery choices in 1982, 1987, 1992, 1997, 2002, and 2007. The ICMA data were supplemented by the data from censuses of governments and other sources. The primary method of implementing the New Public Management (NPM) movement has been the use of contractual or cooperative agreements between local

governments and private sector businesses or non-profit organizations to deliver public services. Whereas the outsourcing of government services has its advocates and critics, this study posits that accompanying the NPM movement has been an institutional change from traditional to market-driven public management, where conflicting institutional models coexist.

This dissertation hopes to make several contributions. First, it depicts how organizational heterogeneity is generated through path dependence, even in dealing with identical institutional change. Second, it provides a more dynamic process of institutional change by borrowing insights from the behavior theory of the firm (Cyert & March, 1963). Third, it offers a new approach to understanding the nature and process of institutional isomorphism. Demonstrating the impact of variability and flexibility pertaining to MI, this dissertation calls for holistic, balanced interpretations and applications of structuralistic, deterministic theories.

Dedicated to my parents and wife, whose love and support gave me courage and strength

to complete this dissertation.

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Table of Contents

vii

Two monks were arguing about the temple flag flapping in the wind. One said, "The flag moves." The other said, "The wind moves." They could not agree.

Master Huineng, the Sixth Patriarch of the Zen Sect, said, "Not the flag, not the wind; it is your mind that moves." The two monks were struck with awe.

A Chinese Buddhist story

1. INTRODUCTION

Institutional theorists focus on the role of social and cultural characteristics of the external environment rather than the internal efficiency or structural factors in the spreading of innovations (Baron, Dobbin, & Jennings, 1986; Meyer & Rowan, 1977). DiMaggio and Powell (1983) highlighted three major social forces: mimetic, coercive, and normative to account for the homogeneity of organizational forms and practices. Subsequent studies demonstrated how both the macro-social factors, such as regulatory pressure, and organizational level factors, like performance pressure, influence the chances of adopting management innovations (MIs) (e.g., Davis, 1991; Palmer, Jennings, & Zhou, 1993). Recently, it has become a pattern for researchers to introduce both technical (rational) and institutional factors as the determinants of the diffusion of innovations (Casile & Davis-Blake, 2002; Kostova & Roth, 2002; Sherer & Lee, 2002; Spell & Blum, 2005).

In spite of significant progress in finding out determinants of innovation adoption at both the organizational and social levels, as Westphal et al. (1997: 366) pointed out, most researchers using institutional theory to discuss innovation diffusion or adoption treated innovation as "a discrete phenomenon" and neglected to examine variability "in the form of adoption itself or in implementation". When the actual adoption or diffusion processes,

as in the case of MI, are not as simple as a yes/no issue to which institutional theory has been extensively applied, a good opportunity presents itself to researchers to examine further the generalizability of institutional theory and the uniqueness of the focal innovation itself.

In a general sense, MI (administrative innovation or organizational innovation) is defined as the adoption of a new idea or behavior that is directly related to the management process (Daft, 1978; Damanpour, 1987; Hamel, 2006; Lam, 2005). In seeking an operational definition of MI, Birkinshaw et al. (2008) raised three key questions. First, what is being innovated? Second, how new does an MI have to be? Third, what is the purpose of MI? Accordingly, MI is defined as "the generation and implementation of a management practice, process, structure, or technique that is new to the state of the art and is intended to further organizational goals" (Birkinshaw et al., 2008: 829).

In responding to the observation made by Westphal et al. (1997) and questions raised by Birkinshaw et al. (2008), MI in this dissertation refers specifically to an idea, ideology, philosophy, and corresponding practices, processes, structures, or techniques that are new to the organization and intended to further organizational goals. Examples of MI include Total Quality Management, Balanced Scorecard, Matrix Management, New Public Management (NPM), and so on.

The foundation of MI is its idea propositions, comparably named *management idea* (Kramer, 1975), *organizational ideology* (Guillén, 1994), or *management rhetoric*

(Abrahamson, 1996; Suddaby & Greenwood, 2005), which depart from traditional administrative principles and regulate what an organization and its constituencies ought to do. Of the same magnitude is *management innovation practice* (MI practice), a concrete behavior that actualizes the entire or part of idea propositions of MI in a specific area or a particular format.

Obviously, my definition of MI entails a unity of theorization and action. Indeed, MI practices are more visible and perceivable in tangible organizational contexts. However, these practices cannot manifest without their underlying purposes or motivations being proposed to and accepted by decision makers in the first place. In other words, organizations are not likely to launch MI practices merely for the sake of launching them. Meanwhile, although generally well elaborated by MI advocates (such as consultants, innovation champions, and management scholars) in order to stimulate common interests, idea propositions eventually materialize through tangible MI practices.

For technical innovations that occur in the technical system and are intended to improve the performance of the technical system (Damanpour & Evan, 1984), a high level of consistency and transparency exists between the expected outcome and the selected means, thanks to the unambiguous nature of technical systems. Nevertheless, the actual adoption processes of most MIs can vary (Alange, Jacobsson, & Jarnehammar, 1998). Organizations can exercise their discretion toward both idea propositions and practice actualizations. The absence of a credible authoritative and prescriptive accreditation system makes tacit idea propositions open to various interpretations and free

improvisations. In this sense, the innovation-decision process of a discrete innovation (Rogers, 1995) which consists of knowledge, persuasion, decision, implementation, and confirmation is enriched and complicated in the case of MI. Each time, an organization with knowledge generated inside from performing similar activities and/or transmitted from outside has to pick a specific MI practice over others before its implementation. This procedure is generally carried out multiple times until deemed sufficient. Accordingly, the ultimate demonstration of MI practices arising out of idea propositions of the same MI are characterized by diversity, flexibility, and subjectivity.

1.1. The Diffusion of Management Innovation

Diffusion in general refers to the spread of something within a social system (Strang & Soule, 1998), which literally implies the reoccurrence of an action, practice, or program at another time and another place. The diffusion of MI involves the reoccurrence of certain MI practices that are intended to realize idea propositions of a given MI. In this sense, the diffusion of MI is more complex and process-dependent than a simple yes/no decision, which can be illustrated by the following three aspects on which Study I is focused.

The diffusion of MI involves the spreading of each individual MI practice within the entire population. However, many diffusion scholars seem to take the "pro-innovation" predisposition to assume a destination of "hegemony" for their subjects under investigation, which is vividly and commonly exemplified by graphs exhibiting *in retrospect* a steady increase of the number (of the percentage) of adopters with time (e.g., Briscoe & Safford, 2008: 469; Sanders & Tuschke, 2007: 41; Spell & Blum, 2005: 1132).

The pro-innovation bias is an underlying *implication* "that an innovation should be diffused and adopted by all members of a social system, that it should be diffused more rapidly, and that the innovation should be neither re-invented nor rejected" (Rogers, 1995: 106). Typical of this bias in recent publications is the finding of a positive linear relationship between the prior prevalence of a practice or program and its probability of being adopted by remaining organizations (e.g., Kraatz et al., 2010; Sanders & Tuschke, 2007; Spell & Blum, 2005). If such a finding is indeed valid, readers should anticipate a trajectory in which the relationship between prior prevalence and the adoption likelihood approximates an upward sloping curve, since prior prevalence causes even more adoptions. Overemphasis of such a "successful diffusion", in which a specific practice eventually becomes the only option available to the whole population, is a type of selection bias and may hide or even mislead our understanding of social reality (Jonsson, 2009). In regard to the diffusion of a specific MI practice, Study I suggests a bottleneck of diffusion, a state of prevalence where the positive effect of prior diffusion on the adoption likelihood of a remaining organization reaches the maximum level and starts to decrease.

The diffusion of MI also involves accumulation of multiple MI practices within an organization. A traditional consensus is that prior changes increase the probability of a following change of the same kind (e.g., Amburgey, Kelly, & Barnett, 1993; Dobrev, Kim, & Hannan, 2001; Kelly & Amburgey, 1991). However, Beck et al. (2008) challenged this consensus and argued for the opposite direction; prior changes will reduce the chances for a subsequent change. Since the purpose of organizational change is to

improve organizational structures and processes, the refinement of organizational

procedures makes it less necessary to change procedures again (Beck et al., 2008). As a

result, there seem to be competing answers to the question of whether already adopted MI

practices within an organization contribute to the adoption of another kindred practice.

While being supportive of the deceleration effect of prior changes, Study I proposes a

positive relationship between changes that have been internalized by a focal organization

and a subsequent change of the same type. Specifically, a specific MI practice is less

likely to be adopted with the *experienced practices* of the same kind increasing within an

organization. *Experienced practices* are the total number of practices associated with a

given MI an organization went through over time. On the contrary, a specific MI practice

is more likely to be adopted with *routinized practices* of the same kind increasing within

an organization. *Routinized practices,* as a proxy of internalized practices, refer to

practices associated with the same MI that an organization has been committed to without

abandoning them.

The diffusion of MI also involves a longitudinal process. Perhaps the most influential

example is Tolbert and Zucker's (1983) two-stage model in which early adopters of city

reforms seek to resolve technical problems whereas later adopters are primarily interested

in appearing legitimate. In the two-stage model, the passing of time is accompanied by

the building up of social pressure for homogeneity, which is more of an empirical

peculiarity than a universal regularity. Study I holds a more neutral and dialectical stance

on this issue. With time passing, organizations prone to the diffusing practice will

eventually adopt it due to social or technical considerations; those who are indifferent

from the very beginning will be more prepared to overcome external forces and follow

their own determination to remain unchanged. In this sense, the degree of prior

prevalence loses its conforming power at a later period, such that the bottlenecking effect

can only emerge at a lower level of prevalence.

Additionally, traditional diffusion theories have been focused on inter-organizational

similarity or homogeneity with respect to bearing a structural feature or undergoing an

organizational change. The behavioral theory of the firm (Cyert & March, 1963; Levitt &

March, 1988), however, advocates a more proactive role of history and routines in

forming subsequent actions. Multiplicity of MI practices allows more customizations and

preferences to take place. Organizational heterogeneity in terms of what specific practice

to choose can be spun off from routinization of previously adopted practices belonging to

the same type. An organization chooses an idiosyncratically meaningful practice

according to its unique interpretations of routinized practices. Therefore, connectedness

or relatedness between a candidate practice and already routinized ones is a convenient

heuristic that organizations employ to make decisions. Study I interprets the relatedness

from two dimensions, operational and skill, and finds that both contribute to the adoption

of a specific MI practice. Furthermore, results reveal that in the long run the positive

effect of operational relatedness reduces and that of skill relatedness increases.

1.2. Adopting Management Innovation Practices during Institutional Change: A Behavioral Interpretation

According to the behavioral theory of the firm, organizational decision-makers pursue

multiple goals (such as production goals, inventory goals, and sales goals). However,

most extant studies have predominantly focused on financial performance as the stimulus

for organizational change (e.g., Audia, Locke, & Smith, 2000; Iyer & Miller, 2008;

Miller & Chen, 2004). The popularity of financial performance does not preclude the

importance of other organizational goals. In the behavioral view, organizations are goal-

directed systems that use simple decision heuristics to adjust behavior in response to

performance feedback (Cyert & March, 1963; Iyer & Miller, 2008). The behavioral

theory is not a theory of a particular organizational behavior. Instead, it is a general

theory of motivated organizational search and change (Iyer & Miller, 2008). In the sense

that behavioral theory views organizations as occasions for political negotiations and

coalition formation, organizations have to meet aspiration levels for multiple goals to

avoid struggles among stakeholders with different interests. Therefore, it is both

necessary and promising to pay attention to non-financial goals in determining

organizational behaviors.

An often-cited criticism of early neo-institutional theory was that it paid relatively less

attention to the issue of institutional change (Dacin, Goodstein, & Scott, 2002). Many

studies have started to probe into this subject and provided many interesting

interpretations. However, most of them are either too heroically individualistic, where

institutional entrepreneurs have revolutionized the entire field (e.g., Greenwood et al.,

2002; Maguire, Hardy, & Lawrence, 2004) or too dramatic, where institutions are resisted

or are fiercely competing with each other (e.g., Marquis & Lounsbury, 2007; Lounsbury,

2007). Approaching organizations as unitary entities creating or responding to

population-level pressures, these studies do not address the role of intra-organizational

dynamics in the face of conflicting institutional demands (Greenwood & Hinings, 1996; Pache & Santos, 2010). Very few studies (e.g., Kim et al., 2007) have discussed the micro-structural processes through which interactions between the old and new institutional logics lead to unique choices for an individual organization.

Responding to the two gaps, Study II investigates the adoption of MI practices during an institutional change from the behavioral perspective. Political interplay is an integral part of the behavioral theory of the firm; nevertheless, extant research gives primacy to intra-organizational dynamics based on financial performance. As open systems, organizations face pressures from stakeholders with distinct interests and diverse objectives. In a context of institutional change, competing institutional logics wield their influences simultaneously. Under this situation, it is unlikely that most organizations in which both institutional logics are internally represented will purposefully favor one institution over the other. Instead, organizations adjust decisions to meet goals derived from conflicting institutional logics.

Although slack resources have long been recognized as contributing to risk taking and organizational change (Cyert & March, 1963), extant studies provide mixed findings with regard to the relationship between slack and innovation outcomes (e.g., Bromiley, 1991; George, 2005; Greve, 2003a; Voss et al., 2008). Study II proposes dual effects of slack on the adoption of MI practices. Organizations are more likely to use abundant slack to neutralize external pressure and avoid adopting MI practices that are fundamentally inconsistent with the incumbent ways of doing things. However, less abundant slack

resources, although unable to prevent the challenging institutional logic from emerging, become conducive to specific MI practices because they make inevitable changes easier and smoother.

The behavior theory of the firm also presents performance feedback as a predictor of organizational change. Comparison of the achieved outcome with the aspiration level provides organizations with clues for future actions (Cyert & March, 1963). The aspiration level refers to "the smallest outcome that would be deemed satisfactory by decision makers" (Schneider, 1992:1053). It functions as an indicator of success or failure for boundedly rational decision makers in spite of continuous measures of performance (e.g., Fiegenbaum, Hart, & Schendel, 1996; Greve, 2003c). Inadequate organizational performance causes organizational changes, such as acquisition (Iyer & Miller, 2008), size growth (Greve, 2008), and innovation introduction (Greve, 2003a).

Situated in institutional change, organizations obtain performance feedbacks from two distinct goals: one goal appealing to the emerging institutional logic and the other corresponding to the incumbent logic. Previous research focusing solely on the profitability goal shows that performance below the aspiration level encourages problemistic search (e.g., Iyer & Miller, 2008; Miller & Chen, 2004) while performance above the aspiration level mitigates search efforts (e.g., Greve, 1998; Greve, 2003b). Cyert and March (1963) proposed a sequential attention model in which decision-makers transfer attention from one goal to the next when performance on the first meets their aspiration level. As one of the few empirical investigations, Greve's (2008) study finds

supporting evidence that firms below the aspiration level for size grow more when (financial or profitability) performance goals are satisfied. Nevertheless, it is worth noting that profitability goal and size goal are not mutually exclusive in the sense that they can both represent performance and be correlated with each other.

For organizations trying to maintain a balance between two conflicting goals, attention is likely to be allocated according to the extent of urgency or salience (Ocasio, 1997) and decisions are made in order to avoid and resolve disturbances. Study II demonstrates that in a context of institutional change, decisions to adopt those MI practices that reflect the emerging logic can be characterized by passivity due to organizations' embeddedness within the incumbent institution. Specifically, organizations whose performance pertaining to the emerging logic has passed their aspiration level are less likely to adopt more MI practices. For organizations below their aspiration level in this regard, the relation between performance and adopting MI practices becomes weaker. In addition, organizations below their aspiration level for the goal manifesting the incumbent institutional logic are disinclined to take in more MI practices. However, when organizations have satisfied this goal, the negative relation of performance to adopting MI practices is attenuated.

Challenging the conventional view that prior changes of a given kind increase the likelihood of a subsequent change, Beck et al. (2008) proposed a deceleration effect in which change propensity diminishes as prior changes accumulate. Study I of this dissertation provides general support to the deceleration view. Since changes leads to the

refinement of organizational procedures or the adjustment of organizational goals to a more appropriate level, there should be less need to change again (Beck et al., 2008). However, such reasoning is de-contextualized and longitudinal in nature; specific situations, such as immediate change propensities, can affect the apparent salience of the deceleration effect. Study II presents and tests abundant slack and performance feedback from the incumbent and emerging logics as moderators of the negative relationship between the accumulated MI practices and the adoption of other MI practices. In this way, Study II contributes to extant literature by depicting a balanced and holistic process that governs organizational change.

1.3. Show Me the Isomorphism: The Case of Management Innovation

Isomorphism is a foundational concept for institutional theories. According to DiMaggio and Powell's (1983: 149) definition, isomorphism is "a constraining process that forces one unit in a population to resemble other units that face the same set of environmental conditions". In explaining the ubiquity of bureaucratization, they identified three institutional mechanisms: *coercive isomorphism, mimetic isomorphism,* and *normative isomorphism.* Innovation literature gained support from institutional isomorphism to explain the spreading of an innovation by holding the thesis that organizations do so in order to conform to these social pressures (e.g., Abrahamson, 1991; Barreto & Baden-Fuller, 2006; Burns, Lawton, & Douglas, 1993).

DiMaggio and Powell (1983: 148) intended to explain the "startling homogeneity of organizational forms and practices". Their presumption is the existence of a high level of homogeneity, although the authors admitted that "much of modern organizational theory

posits a diverse and differentiated world of organizations and seeks to explain variation among organizations in structure and behavior" (DiMaggio & Powell, 1983: 148). Interestingly, except for a few anecdotal examples, the authors provided no convincing evidence to substantiate their stance that nowadays organizations share a great deal of mutual resemblance. Therefore, this homogeneity view is essentially an ontological assumption made by the authors, which needs to be empirically verified.

Another shortcoming of the structuralistic viewpoint of organizational life is its inherent assumption of the "passiveness" or "indifference" of organizations. As Oliver (1991: 151) pointed out, institutional researchers "have tended to overlook the role of active agency and resistance in organization-environment relations." However, when faced with the same kind of institutional antecedents, organizations are, once again, expected to respond *strategically* in a uniform fashion (Oliver, 1991). A logical question ensues: why must active agency or resistance manifest itself so predictably and similarly? This may be attributed to the typical American conception of organizations as sharply defined and fairly rational actors (Meyer, 1996).

While researchers have made significant progress in finding out determinants of innovation adoption at both the organizational and social levels, they have not examined the variability of the adoption process. The diffusion pattern of MI can be peculiar due to the fact that MI is subjective, unstandardized, and open to interpretations and that MI needs to be realized by various concrete practices. Continuity and flexibility of MI provide a unique approach to isomorphism and structural homogeneity. To describe the

nature of adopting MI practices at the population level better, Study III makes a distinction between isomorphic state and isomorphic change. Isomorphic state happens when social actors exhibit exactly the same structural features, whereas isomorphic change refers to change that organizations driven by external pressures universally go through. Institutionalization of an MI is more related to behavioral homogenization (i.e., isomorphic change) than to the precise structural homogeneity. Study III further argues that the extent of isomorphic change in adopting MI practices decreases over time, whereas isomorphic state in adopting MI practices initially increases.

Study III shows that structural matching organizations exhibit higher levels of isomorphic state in the adoption of MI practices. As time passes, the effect of identity-based matching on the isomorphic state reduces, while that of geography-based matching increases. Echoing the translation perspective toward institutionalization (Czarniawska & Sevon, 1996; Zilber, 2006), which emphasizes the internal interactive process in constructing idiosyncratic meanings and interpretations, Study III expects that learning and sense-making from the previous MI practices will give organizations more discretion in future choices. Organizations having experienced more MI practices thus demonstrate lower levels of isomorphic state.

1.4. New Public Management Reform and Outsourcing of Public Services

Relatively recently, a management movement has risen to create a new approach to the management of government services. This movement, called NPM or Reinventing Government (RG), has led some scholars to advocate that government service organizations should be run like business organizations, as there is no real distinction between the role of the free market and government (Ferlie et al., 1996; Lane, 2000).

Contrary to this concept of market-driven public sector management is the traditional view of public administration, which claims that relying on private firms to provide government services circumvents government accountability to the general citizens and deeply undermines systems of constitutionally responsible democracy (Frederickson, 1996; Goodsell, 1993; Moe, 1994; Terry, 1998). In the United States, a primary method of implementing an NPM perspective is the use of contractual agreements between government agencies and private sector businesses or non-profit organizations for delivery of public services. As one of its major tenets, NPM encourages governments to employ market mechanisms such as outsourcing to deliver more efficient and responsive public services (Hood 2002; Osborne & Gaebler 1992). Advocates of outsourcing government services have claimed that private service delivery (PSD) promotes efficiency, effectiveness, cost savings, and citizen use (Rondinelli, 2003). Critics of outsourcing, on the other hand, have claimed that outsourcing often sacrifices quality for efficiency in public services, deliberately hides the true costs for service delivery, and ultimately hollows out government service capacity and hurts the principles of democratic accountability (DeLeon & Denhardt, 2000). As can be seen, the NPM movement represents an institutional change of public administration from the big-government approach to the business-like approach. It is about the fundamental transformation of public systems and organizations to create dramatic increases in their effectiveness, efficiency, adaptability, and capacity to innovate (Osborne & Plastrik 1997: 13-14).

Given the divergence of ideas, beliefs, and logics, a decision to adopt PSD is difficult to reach because it results in considerable change to established organizational routines and procedures. I conceive outsourcing of public services to private sector as MI corresponding to the gist of the NPM movement. Like most MIs, outsourcing of public services is an abstract idea that does not provide detailed prescriptions on how exactly to respond to NPM.

In the private or business sector, homogeneity in innovation adoption is easier to achieve because profitability (or related issues), deemed as ultimate power (e.g., Porter, 1996), is more likely to mold the collective behavior of concerned organizations. However, in the public sector various interest groups and values can interact with each other to form or change organizational aspirations, culture, and behaviors, especially in the absence of consensus among stakeholders. Under these circumstances, I find an opportunity to complement the literature by studying how MI diffuses within an organizational field given the relative flexibility caused by the lack of a strong accreditation system.

1.5. Empirical Setting

The empirical context of this study is the adoption of alternative types of public service delivery in the U.S. local governments from 1982 to 2007. The data are drawn from multiple sources. Information on the adoption of alternative types of public service delivery was obtained from the International City/County Management Association's (ICMA) surveys of local governments' service delivery choices (SDC) conducted in 1982, 1987, 1992, 1997, 2002, and 2007. The SDC surveys were designed to measure local government's propensity of adopting PSD in offering approximately 64-71 services.

The sample sizes of these surveys range from approximately 1280-1770. PSD is defined in the questionnaires by using one of the following types of service delivery: outsourcing of the service to a for-profit or a non-profit organization, establishing franchises/concessions by awarding a right to a private firm to deliver a public service (e.g., Cable TV or a snack bar at a park), and creating subsidies by making a contribution to an individual or private organization to deliver a public service at a reduced cost (e.g., free space in a public building to a private day care center). In addition, the questionnaires collected information on the traditional mode of service delivery (in-house provision) and two alternative modes of service provision: cooperation with other local governments and outsourcing to another government. These traditional modes essentially depend on governments instead of the private sector to provide public services.

This dissertation defines market-driven public service management as a generic MI. Accordingly, for a local government, the outsourcing of a specific public service by means of PSD is regarded as an MI practice.

Appendices 1 to 6 summarize the extent of PSD of each public service at each time period. Number replying to the survey refers to the total number of local governments that answered the ICMA questionnaire at each time. Number reporting service provided refers to the total number of respondents indicating that the focal public service was provided by their jurisdictions. Private for-profit reports the ratio of governments outsourcing the focal service (to a private for-profit entity) to the total number of governments that actually provided the focal public service. Similarly, Private non-profit

reports the ratio of governments outsourcing the focal service to a private non-profit

entity. Franchises/concessions refers to the ratio of governments using

franchises/concessions to deliver the focal public service. Subsidiaries refers to the ratio

of governments providing subsidiaries to private entities to deliver the focal public

service. Total PSD delivery percentage is the sum of the above four ratios, which reports

the overall extent of outsourcing for a particular public service.[1]

The total number of public services also varied over time. Appendix 1 (for 1982) includes

64 services. Appendix 2 (for 1988) includes 71, the most, services. Appendix 3 (for 1992)

includes 65. Appendix 4 (for 1997) has 64 services, Appendix 5 (for 2002) has 67, and

Appendix (for 2007) has 67. The variation in the number of public services surveyed

does not cause a severe problem for two reasons. First, the majority (more than 60) of the

public services have appeared in every survey. Second, I focused only on those public

services that were included in all the surveys for the time periods I analyzed.

In Appendices 1 to 6, public services are also grouped into several broad categories,

following ICMA surveys. It is interesting to note that the group affiliation of some

services changed over time (e.g., public utilities in Appendices 2 and 3). Therefore, in

analyses where those broad categories were relevant, I used categorization in Appendices

5 and 6 because it was the most frequently updated and the most stable. In addition,

Appendix 7 provides a rudimentary summary of the average extent of PSD, outsourced

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[1] However, one exception is Appendix 2 for Year 1988 where Private for-profit and Private non-profit were combined into one item called Private firms in the original ICMA survey.

services divided by the total number of provided services, among governments actually offering public services[2] over time.

To complement ICAM data, I downloaded and processed a few more datasets: Census of government finances and employment 1977, Census of government finances and employment 1982, and Census of government finance and employment 1987, from the website of the Inter-University Consortium for Political and Social Research (ICPSR). I also collected local government finance and employment 1992, 1997, and 2002 from the website of the U.S. Census Bureau (2010). In addition, I obtained U.S. presidential election results at the state and county level from a detailed and reliable website: *Dave Leip's Atlas of U.S. Presidential Elections* (2010). Lastly, I imported per capita personal income at the county level from the website of the U.S. Bureau of Economic Analysis (2010).

Appendix 8 presents a brief summary of the variables used in this dissertation and their measures and data sources.

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[2] Organizations replying to surveys do not necessarily offer public services. This is why <u>number replying to the survey</u> in Appendices 1 to 6 is not the same as <u>number of observations</u> in Appendix 7.

2. STUDY I: THE DIFFUSION OF MANAGEMENT INNOVATION.

2.1. Theory

Self-reinforcing diffusion? Multiple theories have been proposed to explain the underlying mechanisms of the phenomenon that "something", such as a technology, an idea, a practice, a standard, an institution, an ideology, or a structure, moves from one time and place to another with salient frequency in a social system. Prominent examples include institutional isomorphism (DiMaggio & Powell, 1983), network theories (e.g., Burt, 1987; Granovetter, 1973), information cascade (Bikhchandani et al., 1992), management fashions (Abrahamson, 1991), contagion accounts (Strang & Macy, 2001), and rhetorical perspectives (Green, 2004).[1] Despite consistencies and contradictions among various explanations, these theories can be generally categorized into two tracks: rational and social (Ansari et al., 2010). The rational perspective holds the view that presumed economic benefits motivate organizations to repeat others' actions, such as adopting a practice or an innovation. The social perspective claims that environmental pressures for social conformity, rather than deliberate rational calculation, drive an organization to imitate others in order to be deemed as legitimate (Ansari et al., 2010).

Research has commonly found a direct positive relationship between the prevalence of a new practice and the focal organization's likelihood of adopting that practice (e.g., Lee & Pennings, 2002; Palmer, Jennings, & Zhou, 1993; Sanders & Tuschke, 2007; Spell &

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[1] For detailed reviews, see Strang and Soule (1998), Lieberman and Asaba (2006), and Ansari et al. (2010).

Blum, 2005). In terms of rational perspective, frequent use of a new practice reveals more

information about its value (Rogers, 1995), which reduces uncertainty and accelerates

further diffusion. Even if little new information arrives, an information cascade occurs in

which it is still an optimal decision for an individual organization to choose the new

course of action that has been taken by the preceding organizations without regard to its

own information, given the high uncertainty caused by a lack of sufficient information

(Bikhchandani et al., 1992). In terms of social perspective, prevalence can be the result of

legitimization of a new practice or can bestow the status of legitimacy on a new practice

through mimetic processes (DiMaggio & Powell, 1983; Suchman, 1995). Consequently,

concerns over legitimacy lead the remaining organizations to install an "appropriate"

practice already adopted by early movers. Both perspectives seem to underwrite a

conclusion that the diffusion of a practice reinforces itself in such a way that population-

level prevalence foreruns higher adoption likelihood at the individual level.

   The bottleneck of diffusion. In my opinion, the fact that the diffusion process of an

action is concomitant with quantitative reoccurrence at the population level does not

dictate a self-reinforcing prospect. On the contrary, I believe that at a certain point a

widely diffused practice is less likely to be adopted by the remaining population. In

general, the essence of various diffusion mechanisms is to increase the visibility of a

practice and/or constituents' propensity to execute this practice. However, the diffusion

process itself is also a *selection* or *filtering* process in nature. Audiences who are

intrinsically susceptible to chances, benefits, forces, pressures, or temptation jump onto

the bandwagon more easily and earlier. As a result, contrasted with the increasing

number of hasty adopters is the reducing number of members who are disinterested and inert from the very beginning, an association supported by both rational and social perspectives.

With respect to rational perspective, information and the associated uncertainty are of paramount importance in motivating organizations to follow others to take a new course of action. Organizations can make an adoption decision after a cost-benefit calculation through collecting more accurate information from previous diffusions. Organizations can also make "optimal" decisions to imitate others because others' herding behavior is perceived as revealing positive information (Bikhchandani et al., 1992). In either scenario, it is reasonable to anticipate that at a certain point, the diffusion process will eventually convey and send out sufficient and accurate information about a new course of action. Under such a circumstance, hesitating organizations in the remaining population no longer gain additional useful information from previous diffusion and therefore base their adoption decision purely on the utility of the new action. With the marginal usefulness of conveyed information decoupling from the diffusion process, a remaining organization is unlikely to follow the masses to take a new course of action it does not regard as beneficial.

In terms of social perspective, one significant shortcoming of the traditional structuralistic viewpoint is its inherent assumption of organizations as passive or indifferent actors. As Oliver (1991: 151) pointed out, institutional researchers "have tended to overlook the role of active agency and resistance in organization-environment

relations." Agency effect can manifest itself in a variety of forms, such as acquiescence, compromise, avoidance, defiance, and manipulation (Oliver, 1991). Moreover, no matter in whatever mechanisms (e.g., coercive, mimetic, or normative; DiMaggio & Powell, 1983), through whatever communication channels (e.g., weak ties or structural equivalence; Burt, 1987; Granovetter, 1973) with whatever rhetorical justifications (pathos, logos, or ethos; Green, 2004), the diffusion process serves as an elimination procedure. Organizations with relatively higher change propensity self-select themselves out of the remaining population. Therefore, the spreading of a practice at the population level should be accompanied by another process where organizations with sufficiently low susceptivity to the diffusing practice form, develop, and strengthen their resistance to social pressures for homogeneity. With the remaining population being more and more dominated by uncompromising organizations, the role of prevalence gradually changes from predicting a higher level of popularity to indicating a lower level of adoption incidence.

Integrating the two points, I suggest a bottleneck of diffusion in which the positive effect of prior diffusion (prevalence) on the adoption likelihood by a remaining organization reaches the maximum level and starts to decrease. It is worth emphasizing that the bottleneck of diffusion pertains to the relationship between the state of prior diffusion and the adoption likelihood of organizations in the remaining population. It is fundamentally different from the well-known S-shaped curve (Mahajan & Peterson, 1985; Rogers, 1995), which refers specifically to a relationship between the accumulated number of adoptions and time at the population level. The S-shaped curve increases slowly initially,

because only a few members of the social system adopt the new practice in each time spell. Subsequently, the trajectory accelerates to a highest level with increasing adoptions per time period. Then the curve climbs at a lowering rate as fewer and fewer individuals in the remaining population adopt the practice. The S-shaped curve can also be plotted as a normal, bell-shaped curve over time on a frequency basis. At the population level, adoptions of the new practice are less frequent at the early and final stages of diffusion process and more frequent in between. Rogers (1995), on the basis of innovativeness, further categorized adopters into five groups: innovators, early adopters, early majority, later majority, and laggards. Innovativeness is defined as "the degree to which an individual or other unit of adoption is relatively earlier in adopting new ideas than other members of a social system" (Rogers, 1995: 280). Apparently, even the S-shaped (cumulative) curve or the bell-shaped (frequency) curve reflects the fact that individuals demonstrate their differentiated susceptibility toward the new practice or entity, even in the face of ongoing diffusion. In addition, the most critical condition for the applicability of the S shaped curve is the "successful innovation", which is able to spread to all of the potential adopters in a social system (Rogers, 1995: 275). It will be incomplete or even biased research if scholars only focus on instances of successful innovation. Therefore, it is worth the effort to come up with models to approach diffusion dynamics in a more general way.

As can be seen from arguments presented earlier, the bottleneck model does not make a particular assumption about the extent of "successfulness" of the spreading practice. Quite often a new practice is not crowd-pleasing and even rejected. In the bottleneck

model, nevertheless, I still anticipate the adoption likelihood, along the increasing of prevalence, to rise up initially before it diminishes toward zero. This is because the few interested individuals, although accounting for only a small fraction of the population, are sensitive to small increments in the popularity of a generally unpopular practice and respond quickly by adopting the same thing. Similarly, when a new practice is fully spread in the fashion of a cumulative S-shaped curve, the bottleneck model also appears. In the case of a successful practice, the majority of members of a social system, with moderate or higher innovativeness in dealing with the new practice, adopt it fast despite the relatively low level of prevalence. To this extent, the prior state of diffusion does correlate to the adoption likelihood of members in the remaining population. However, those individuals (including the extreme example of laggards), who are cautious, reserved, or resistant toward blind following, become loath to respond in a manner similar to the majority. Inevitably, the mere state of prior prevalence gradually loses power to represent proportionately how appealing a diffusing practice is deemed by the remaining potential adopters until a negative effect of prior diffusion appears and intensifies itself.

Such a bottleneck of diffusion should be evident in the case of MI. MI is more fundamental, complex, intangible, and subjective, leaving more freedom for organizations to interpret in their own ways. In addition, opposed to MI are the old ways, methods, or intentions to maintain the status quo which reflect the traditional culture, values, or institutions. Those resisting forces are more likely to be mobilized to make organizations hesitate or even reject a diffusing MI, which is more ambiguous and

manipulative (compared with technical ones). Kim et al. (2007) found that external

pressures for a change in the presidential selection system in Korean universities are

countervailed when organizations have powerful incumbents. Jonsson (2009) showed that

discounting of previously observed adoption performance by resisting professional

groups limits the diffusion of new products in mutual fund industry.

Another unique feature of MI is its nature of continuity and flexibility. Whereas a

technological innovation can be regarded as a discrete phenomenon: specific, physical,

and easily replicable (Birkinshaw & Mol, 2006), an MI can include a number of routines

that can be combined in different ways (Westphal et al., 1997). In addition, the

underlying idea propositions (e.g., philosophy, mentality, and beliefs) of an MI can be

embodied in various spheres of organizations, such as divisions, functions, member

groups, locations, and so on. In this study, outsourcing a specific public service (such as

solid waste disposal, street repair, and water distribution) to a private delivery entity can

be treated as a practice of the generic MI of outsourcing. Thus, applying arguments to a

specific MI practice, I hypothesize:

> *Hypothesis 1.1: For a specific MI practice, the likelihood of being adopted has an*
> *inverted U-shaped relationship with its prevalence.*

Momentum versus deceleration. Previous diffusion studies have tended to focus on

cases of success in which a unitary practice spread throughout a population or

institutional field (Strang & Soule, 1998). Examples of such unitary practices include

civil service reform (Tobert & Zucker, 1983), multidivisional form (Palmer, Jennings, &

Zhou, 1993), workplace substance abuse prevention programs (Spell & Blum, 2005), and stock option pay (Sanders & Tuschke, 2007). One thing in common among these studies is that the adoption of a practice is empirically simplified as a yes-no outcome. Ontologically, we can question the validity of categorizing a particular type of organizational behavior into isolated events that are universally transferrable across different organizations at different times. Specifically, in the case of civil service reform (Tolbert & Zucker, 1983), we do not know whether civil service reform in one government is the same as it is in another government or whether civil service reform at one time is the same as it is at another time. Similarly, in the case of workplace substance abuse prevention programs (Spell & Blum, 2005), it remains unclear how annual adoptions of drug testing and employee assistance programs (two major forms of substance abuse prevention programs) impact each other and how past adoptions shape organizational interpretations and the decisions of future adoptions. The variability and ambiguity of MI make it necessary to approach adoption decisions from a continuous and contextualized perspective.

The conventional view in organizational change is that prior changes of a given kind would increase the likelihood of a kindred change. This view is based on behavioral aspects of organization learning (Cyert & March, 1992). The kernel of this view is that when changes become part of organizational routines, organizations are more likely to make similar changes in the future. In this direction, numerous studies have found a

positive impact of prior changes on further change.[2] Beck et al. (2008) challenged this view and proposed a negative relationship between the two. They argued that proponents of the conventional view ignored the fact that "organizational change is aimed at improving organizational structures and processes" and if previous changes lead to the refinement of organizational procedures, organizational change becomes less necessary (Beck et al., 2008: 416).

To provide methodological explanations why findings of a positive relationship are misleading, Beck et al. (2008) claimed that previous studies adopted standard event history analysis without ruling out the effect of organizational inherent propensity to change, resulting in a biased self-reinforcing process. Because some organizations have a higher likelihood of changing than others, they accumulate more changes in the long run. As a result, firms with a higher propensity to change dominate the risk set with more prior changes. Therefore, spurious occurrence dependence happens where the rate of future change is estimated to be reliant on the number of prior changes. Simply put, *both theories and methodologies* warrant a departure from the momentum camp, which claims that prior change increases the chances for further change of the same kind.

Holding a different position with respect to the competition between the momentum view and the deceleration view, I believe these two views complement, rather than contradict

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[2] See Beck et al. (2008) for an overview of these studies.

each other: momentum of prior change coexists with the decelerating possibility of future change of the same type.

Issues of momentum view. The reason why I do not take the side of the momentum view is that I disagree with its assumption that pure *accumulation* of a given type of organizational change necessarily reflects the extent to which organizations internally legitimate and embrace those changes. Internal legitimization is a sense-making process in which *perceived favorable outcome* is causally connected with prior actions in retrospect so that those actions are deemed as desirable, proper or appropriate by an organization (Suchman, 1995; Weick, 1993). This is the very first step that grants a procedure, rule, strategy, technology, or *routine* the qualification to be considered as a potential option for further action. Organizations learn simultaneously to discriminate among routines and to refine routines by learning within them (Levitt & March, 1988). Consequently, skills or competence developed from executing a particular routine further increase the frequency at which this routine is used, which results in more proficiency with this routine. Mutual reinforcing between frequency and competence eventually leads to organizational preference for one particular routine over others. The competency trap happens when "favorable performance with an inferior procedure leads an organization to accumulate more experience with it, thus keeping experience with a superior procedure inadequate to make it rewarding to use" (Levitt & March, 1988: 322). Even in the case of the competency trap, a *favorable* performance attributed to an inferior procedure is necessary.

In substantiating their prediction that prior change leads to future change of the same change, momentum scholars generally employ a representative argument as follows: if an organization engages in the activity more than once, it automatically develops capability in performing that type of activity. Here is a typical excerpt from Amburgey and Miner (1992: 336) on merger activity:

> From this perspective, when a firm engages in an acquisition, *for whatever reason*, it develops competency in the process of making that type of acquisition. Each acquisition of the same type allows these competencies to be refined, which increases the likelihood of even more acquisitions of the same type.

I disagree with the presumption that having performed a type of activity necessarily leads to competence in doing so. As has been argued above, what really matters is the extent to which organizations internally legitimate and embrace those activities they have performed. Change routines, or routines that govern change processes, which are primarily developed through the repetition of the same changes, are of cornerstone importance in upholding the momentum view. Since routines are standardized and durable solutions to typical problems that organizations encounter (Beck et al., 2008; Cyert & March, 1992; Nelson & Winter, 1982), the notion of change routines logically implies that a specific type of organizational change itself has been accepted as a dependable problem solution in the first place. Once again, an internal mechanism recognizing the *usefulness or appropriateness* of those organizational changes must have occurred already. Certainly, change routines have to be cultivated during the process of performing kindred changes multiple times; however, a simple replication of kindred changes, as an externally observed phenomenon, does not sufficiently indicate that change routines are successfully established.

Undeniably, some organizations opt for a wrong direction because they believe it is a right one, as illustrated by the competency trap. However, the bottom line should be that those organizations still perceive the *de facto* wrong direction as right when they make the decision. It is unrealistic to expect that decision makers, being clearly aware what direction is wrong, still choose the wrong direction on purpose. In other words, whether it is regular competence (which is developed from frequent utilization of a routine) or a competency trap (which crowds out the optimal procedure),[3] internal legitimization based on perceived outcome positivity is a prerequisite to causally relating prior changes to future change. In this sense, we should modify a famous proverb to better describe the momentum view: "If *you think* you know how to use a hammer *well*, everything looks like a nail".[4]

So can the numeric count of prior changes accurately represent the extent to which those changes have been internally legitimized and routinized within an organization when it comes to empirical operationalization? Not necessarily, due to the following two reasons.

First, internal legitimization is an interpretive, interactive, and dynamic process happening across different parts within an organization. It is dependent on each organization itself how much connotation of legitimacy and positivity it attaches to the

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[3] For the sake of brevity, "competency trap" in the following sections includes both regular competence and the competency trap.

[4] The original proverb, cited by Amburgey et al. (1993: 55) and later Beck et al. (2008: 415) goes: "If you know how to use a hammer, everything looks like a nail."

act of repeating prior changes, in keeping with the contextual requirements. For instance, suppose a company undergoes many changes purely because of external or societal pressure (such as new laws and regulations) or political struggle among different stakeholders. It is simply a flawed claim that the accumulation of changes demonstrates that they have been legitimized and routinized internally and thus predict the reoccurrence of the same change. The status of organizational competence is provisional instead of steady and static because competence is situated and enacted accomplishment which cannot be simply presumed (Orlikowski, 2002).

Second, different types of organizational change can occur simultaneously or sequentially, independently or interdependently, rapidly or slowly. When abstract and de-contextualized theories, such as the competency trap, are applied to real-life settings, a simple oversight by a researcher may severely confound the findings. Although imperfection in operationalization can pose challenges to all empirical studies, organizational change is extremely complex and elusive and deserves much more attention and caution. In order to treat an accumulative number as representing the outcome of an organizational process, many specific issues need to be dealt with. For instance, are all organizational changes under study observable and observed? Are previous changes accompanied by changes in the opposite direction? Are all changes homogeneous or differentiated in terms of content, impact, radicalness, etc.?

Another stream of literature in support of the momentum view discusses the failure trap (Levinthal & March, 1993), a situation where unsuccessful changes trigger future change

that leads to failure again (Beck et al., 2008; Levinthal & March, 1993). However sound the theory is, the failure trap cannot be tested the same way as the competency trap by counting the number of organizational change of a given type. Difficulty in empirically testing the failure trap is increased exponentially because researchers must prove prior changes failed and all the following changes in *whatever form* also failed. It is not convincing to rely on the increase of organizational changes in a fixed direction to test the failure trap. To put it more concretely, it is not feasible to demonstrate the failure trap by anticipating that the failure of a strategic change from cost leadership strategy to differentiation strategy leads to another strategic change from cost leadership strategy to differentiation strategy whose failure leads to even more changes in the same direction. Actually, trial-and-error learning should result in a situation where failure of change in one direction leads to change in another direction to rectify the current failure, thus lowering the chance for repeating the first change. Even if researchers intend to prove a failure trap, they must collect information on all the changes in different directions or formats rather than "changes of a given type".

Essentially, accumulation of prior changes only represents organizational experiences with a particular type of change. Such a number, recorded externally, artificially, and cumulatively, does not delve into the extent to which a type of change has been assimilated and taken for granted within an organization or the extent to which prior changes have failed. Instead, the number of experienced changes reflects the degree to which an organization has been searching back and forth in a particular way or area to meet its aspiration level.

An integrated view. The role of accumulation of prior changes being clarified, I offer two responses to the competition between the momentum view and the deceleration view. Noting methodological flaws pointed out by Beck et al. (2008), I do not agree with the momentum view that prior changes of a given type increase the likelihood of a subsequent change in the sense that the numeric accumulation of prior changes or, more precisely, the number of experienced changes does not necessarily fit the gist of organizational learning theory (Cyert & March, 1963; Levitt & March, 1988). However, I endorse the deceleration view only to the extent that deceleration effect applies to the number of experienced changes. More importantly, such a deceleration effect *by no means* refutes the competency trap or the failure trap because once again, numeric accumulation of prior changes cannot proxy either competency from prior changes (through internal legitimization) or failure of prior changes.

In my opinion, both a momentum and a deceleration effect caused by past organizational changes coexist with each other in an organization. Specifically, momentum effect refers to organizational commitment to a particular type of changes as a result of competency or failure in performing past changes. Deceleration effect refers to the overall inclination of an organization to avoid a type of change with which it has multiple experiences. The momentum of a particular type of change happens in spite of the deceleration of its likelihood of reoccurrence.

I agree with Beck et al.'s (2008) point that the purpose of organizational change is to improve organizational structure and processes. Refined procedures should decrease the need to change these procedures again because organizations in general have inertia to avoid changes (e.g., Hannan & Freeman, 1984). Meanwhile, experienced changes also modify organizational aspiration to a "realistic" level so that motivation for further change is reduced. Hence, the more changes of a given type an organization experiences, the more adaptations and adjustments it goes through to make procedures match with the aspiration level. Under this circumstance, an organization is in generally less likely to get engaged in further change. However, experienced changes are not necessarily internally legitimized and assimilated into routines within an organization. Given the same level of experienced changes, an organization is still more likely to repeat a change if it has developed competence from previous changes of the same type. Even if experience of unsuccessful changes leads to adjustment of organizational goals, which may prevent further change, an organization in the failure trap is more likely to select a change that is expected to correct prior failures. Admitting a negative relationship between the number of experienced changes and the incidence for further change, I argue that this relationship should not conceal the effects of the competency trap or the failure trap.

This coexistence perspective can be embodied in organizational decisions about adopting MI. As an important form of organizational change, MI is aimed at improving organizational structure and process to further organizational goals, such as financial performance or employee satisfaction (Birkinshaw et al., 2008). MI consists of multiple practices intended to actualize idea propositions. Therefore, an organization having

experienced more organizational changes, such as MI practices, becomes less likely to adopt them again, in that refinements of organizational procedures and organizational aspirations make another adoption less attractive and desirable.

As has been mentioned, the extent to which organizations internally legitimate and embrace a particular type of changes is an organization-specific, context-dependent issue. In the case of MI, the number of MI practices an organization has routinized can be regarded as suggestive of organizational competence in adoption and implementation. After all, abandonment is a natural expression of organizational dissatisfaction with the newly adopted practices (e.g., Burns & Wholey, 1993). According to Staw (1981), commitment to a course of action is a result of self-justification, which in essence is the same as internal legitimization, the foundation for building up a repetitive momentum. The number of routinized MI practices is a better indicator of organizational competence regarding a type of organizational change than the number of experienced practices is. If an organization cannot even stick to practices it has initiated due to reasons such as unfilled expectation, internal political conflict, and so on, it is hard to imagine that it has fostered competence for further adoption. Therefore, the more specific practices concerning the focal MI an organization has routinized, the more likely the organization has developed competence to adopt another MI practice. I hypothesize:[5]

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[5] I do not make a hypothesis concerning the failure trap. As has been pointed out earlier, researchers must prove that previous organizational changes have failed in order to connect them with further change to verify a failure trap empirically. This poses a formidable challenge to data collection and data in this dissertation cannot provide such information. However, my point here is to argue that momentum and deceleration coexist with each other. Therefore, as long as the positive effect of the competency trap is supported in spite of the negative effect of experienced changes, my purpose will be served.

Hypothesis 1.2: A specific MI practice is less likely to be adopted if an organization has experienced more practices of the same kind.

Hypothesis 1.3: A specific MI practice is more likely to be adopted if an organization has routinized more practices of the same kind.

Expedited bottlenecking. I propose the existence of diffusion bottleneck on the basis that the diffusion process itself differentiates organizations in terms of their sensitivity to the focal practice. Experienced and routinized kindred practices have direct impacts on organizational motivation to engage in another practice of the same type. Therefore, we can reasonably anticipate that the emergence of the bottlenecking effect in the diffusion process will be expedited in the sense that both experienced and routinized ones can speed up the filtering (self-selection) effect along with the prevalence of a candidate practice.

Specifically, for organizations having experienced a number of MI practices to meet their aspirations, refinement of their operating procedures leads to a satisfying outcome which limits the strength of motivating forces for further adoption; or previous search experiences help organizations adjust their aspiration levels to proper levels that discourage motivation to change. Consequently, for a sample composed of organizations that in general have aligned their refined operational procedures with their expectations in executing previous practices, the conforming power of either information cascade or social legitimacy eclipses fast along the prior diffusion (prevalence) of a particular MI

practice. Simply put, among organizations having experienced many MI practices, the focal practice can hardly arouse interest despite its popularity.

Hypothesis 1.4: For a specific MI practice, the bottleneck occurs at a lower level of prevalence when an organization has experienced more practices of the same kind.

However, for organizations having routinized many practices pertaining to a generic MI, the bottleneck of diffusion emerges at a lower level of prevalence. This is not because those organizations are too content with the status quo to adopt another practice. Instead, it is because organizations become less reliant on how widely a potential MI practice has been circulating when they have formed their preference with regard to what specific practice to choose. Routinized practices of the focal MI can have different nuances, meanings, or implications for different organizations. As has been argued, the internal legitimization process is interpretive, interactive, and dynamic and it is dependent on each organization itself what connotation of worth and appropriateness it attaches to these routinized practices.

Adoption decisions can be path-dependent in that organizations search for solutions in areas with favorable outcomes (Christensen, 1998; Cyert & March, 1963) and develop capabilities in this regard that can be used to guide future searches (Cohen & Levinthal, 1990; Zahra & George, 2002). Comparatively speaking, organizations having kept MI practices are generally more likely to try others, as opposed to organizations that found it impossible to retain adopted practices. Nevertheless, everything else being equal, the routinization of MI practices enhances the adoption likelihood only to the extent that the

new practice can be meaningfully linked to already preserved ones. Otherwise,
organizations with MI practices that are already routinized are less inclined to infer extra
useful information or unrealized legitimacy from a high degree of prevalence. By
contrast, organizations that do not commit themselves to a fixed combination of MI
practices are not constrained either. It will be easier for them to jump on the bandwagon
to pursue gains or avoid losses, economic or social (Kennedy & Fiss, 2009), by primarily
observing how crowd-pleasing the focal practice seems to be, until a bottleneck of
diffusion appears. To sum up, motivating pressure, either rational or social, associated
with prior diffusion of a particular MI practice starts to wane among a community having
its own prioritized options. I hypothesize:

*Hypothesis 1.5: For a specific MI practice, the bottleneck occurs at a lower level of
prevalence when an organization has routinized more practices of the same kind.*

Heterogenized momentum. A major tenet of the behavioral theory of the firm is that
organizational learning is history-dependent and routine-based (Cyert & March, 1963;
Levitt & March, 1988). Routines are standardized and durable solutions to typical
problems organizations face (Beck et al., 2008; Cyert & March, 1992; Nelson & Winter,
1982). When change has been initiated because of unfilled goals (e.g., Greve, 2003) or
turbulent environments (e.g., Lant & Mezias, 1990), the search for a solution will start
locally in the procedures on which organizations have ordinarily relied. If a local search
does not produce satisfying results, the search will be extended to more distant areas until
a solution is finally found. However, frequent local searches may also lead to the
occurrence of the *competency trap*, whereby repetition and specialization make

organizations stick to familiar routines although better options may be available (Levitt & March, 1988). Path dependence of routines is an important component of evolutionary economics and many studies have shown how path dependence of routines leads to persistent heterogeneity of capabilities as well as difficulties in adapting to new routines, such as new technologies (Argote & Greve, 2007).

In the case of MI, relational connectivity between a potential MI practice and those that have been internalized into ongoing procedures plays a significant part in adoption decisions. I expect that path dependence will sustain itself and organizations will adopt a practice that is closely related to previously cultivated routines. With the accumulation of knowledge, information, and expertise of a generic MI, organizations are more inclined to search locally for a solution or practice in incumbent procedures and routines. In this sense, accumulation of routinized MI practices can generate more heterogenized preference in practice selection.

Relatedness, the logic and degree by which an organization's different lines of activities are connected (Farjoun, 1998), is an important channel bridging the positive relationship between routinized practices and the adoption likelihood of a candidate practice. In the strategic management literature, the operational (physical) and skill dimensions of relatedness have been emphasized in exploring antecedents of diversification, one of the most important organizational changes (Chandler, 1962; Chatterjee & Wernerfelt, 1991; Farjoun, 1998; Teece, 1982). The physical dimension deals with relations between the physical attributes of production and final products, whereas the skill dimension pertains

to managerial and human skills, as well as to knowledge that is common to two or more products.

MI can be applied to both operational and administrative (or human) processes (Birkinshaw et al., 2008; Hamel, 2006). Therefore, I approach relatedness from operational and skill dimensions. *Operational relatedness* can be interpreted as the extent to which a potential MI practice shares physical, operational, and content attributes with practices routinized in an organization.[6] *Skill relatedness* refers to the how easy it is to adopt and implement a potential MI practice given the expertise and capabilities an organization has developed from routinized practices. As has been expounded above, practice routinization results from an internal legitimating process in which an organization ascribes positivity to certain practices in which it has engaged. Along with the process, mutual reinforcement between legitimated practices and (perceived) outcome favorability may engender competence or the competency trap in performing practices of a particular kind. In this sense, relatedness between a candidate practice and those already routinized is the product of the legitimating process and reflective of the engendered competence. Specifically, operational relatedness is derived from competence in terms of tangible, physical familiarity and skill relatedness is derived from competence in terms of intangible, knowledge-based capabilities.

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[6] To make it more understandable, in this study, I consider an outsourcing decision of a library operation is related to that of museum operation in terms of operation because those two decisions deal with similar physical and content attributes. Also, I consider two outsourcing decisions are related in terms of competence if successfully adopting the first decision helps an organization develop capability in areas like contract writing, resource allocation, and contract implementation so that the second decision becomes relatively easier to implement, regardless of its functional and physical attributes.

Familiarity with operationally related practices lowers the marginal costs of launching

more in the same functional sphere. Working procedures and arrangements can easily be

extended to accommodate physically similar activities. It involves less negotiations and

struggles among stakeholders to (re)form a dominant coalition to accept operationally

proximate practices. A shared mindset may also develop among members in a dominant

coalition that confines strategic actions to a convenient spectrum of options that are

historically connected (Walsh & Ungson, 1991). Because the cost decreases, practices

that produce less prospective benefits become more attractive and more likely to be

performed (Amburgey et al., 1993).

> *Hypothesis 1.6a: A specific MI practice is more likely to be adopted if it is more*
>
> *related in terms of operation to practices of the same kind that an organization has*
>
> *routinized.*

Ample evidence from the literature shows that organizations create a self-reinforcing

trajectory where knowledge and ensuing capabilities developed from previous actions

significantly determine their future choices. One prominent example is absorptive

capacity (Cohen & Levinthal, 1990), a function of prior related knowledge, which

organizations use to evaluate and apply external information. Pennings and Harianto

(1992a, 1992b) showed that in the commercial banking industry firms with an

accumulated stock of skills in the computer and telecommunication areas are more

inclined to embark on a technologically fitting innovation: video banking services. Martin

and Salomon (2003) argued that a firm tends to make another foreign investment as it

learns from making investments using similar technology over time. Analogously, when

an organization has amassed expertise in executing practices affiliated with the same MI, an MI practice is more likely to be favorably evaluated and therefore adopted if it requires related knowledge and skills. Boynton et al. (1994) found that pertinent managerial knowledge directly determines the extent of IT use within an organization. To sum up, I hypothesize:

> *Hypothesis 1.6b: A specific MI practice is more likely to be adopted if it is more related in terms of skills to practices of the same kind that an organization has routinized.*

Longitudinal effect. Institutional studies have traditionally emphasized the importance of time effects with a two-stage model in which *early adaptors* of an innovation are driven by technical considerations and later adopters imitate each other based on legitimacy considerations (Tolbert & Zucker, 1983). This model assumes that the focal innovation is discrete and invariant and organizations can only achieve legitimacy by adopting this innovation. Undeniably, the passing of time does not reveal information about how organizations tackle a diffusing practice. In this model, institutional pressure stays potent and long enough over time to compel organizations to accept the designated attribute, even if only symbolically.

However, when it comes to mutable and flexible MI composed of profound idea propositions and numerous practices, organizations can make discretionary choices according to their own needs and interests. In this case, organizational heterogeneity will grow strong over time to balance the impact of prevailing institutional pressure.

Complexity and ambiguity of MI result in the lack of exact consensus about the precise

mixture of MI practices on which organizations converge. Consequently, at the early

stage, an organization faced with uncertainty may comfortably choose a specific MI

practice because many other organizations are also doing this (e.g., DiMaggio & Powell,

1983; Lieberman & Asaba, 2006). Later, with more information and knowledge

internally accumulated through already adopted MI practices, organizations develop

individualized routines and preferences about what other practices to choose. The

absence of credible, detailed external standards regarding the optimal, correct, or proper

way to accomplish MI leads organizations to rely less on the level of prevalence as the

indicator of economic soundness or legitimacy. Thus, over time, the positive relation

between prevalence (prior diffusion) and future adoption will be attenuated so that the

bottleneck comes at a lower level of prevalence.

>   *Hypothesis 1.7*: *The diffusion bottleneck of a specific MI practice occurs at a lower*
>
>   *level of prevalence as time goes on.*

The longitudinal trend of an organization's dependence on routinized practices is

moderated by the nature of relatedness. Over time, an organization relies less and less on

operational relatedness in deciding what specific practices to enact. Refined

organizational procedures brought by past MI practices in a given functional sphere

decrease the likelihood of a subsequent MI practice that is applied to precisely the same

function (Beck et al., 2008). Consequently, the long term effect of operational relatedness

on the adoption likelihood of a MI practice diminishes, even though organizations in

general still prefer operationally related practices to non-related ones. In addition, with

practices in the same functional sphere gradually stocked and exhausted, organizations

find it less informative and less productive to base their choices solely on physical

congruence. Correspondingly, it has been noted in strategic management research that

areas (e.g., industries, product markets, etc.) to which operational (physical) relatedness

can be applied are limited due to the fact that operational relatedness is more peculiar to

and dependent on specific products (e.g., Chandler, 1962; Chatterjee & Wernerfelt, 1991;

Farjoun, 1998).

> *Hypothesis 1.8a: For a specific MI practice, the effect of operational relatedness to*
>
> *routinized practices of the same kind on its adoption likelihood decreases as time*
>
> *goes on.*

On the contrary, with time going on, organizations are more and more likely to choose

MI practices that they are capable of performing. Skills generated from carrying out

certain routines further increase the frequency at which these routines are employed,

resulting in even more proficiency with them. Mutual reinforcing between frequency and

competence eventually leads to organizational preference for one type of routines over

others (Levitt & March, 1988). The self-reinforcing exploitation of current competence

devalues the attractiveness of exploration in distant or novel areas (March, 1991;

Levinthal & March, 1993). As organizations age, they become increasingly inclined to

launch innovations that exploit existing competency (Sorensen & Stuart, 2000). Danneels

(2007) presented a case study in which a firm committed to successfully applying a

fungible technology to products for its served markets eventually became unable to

realize its considerable potential in new markets. Kogut and Zander (2000) noted that

persistent heterogeneities of firms are more strongly determined by history than by the environment. In summary, the relative significance of skill relatedness as a decision heuristic increases as time elapses. I hypothesize:

> *Hypothesis 1.8b: For a specific MI practice, the effect of skill relatedness to routinized practices of the same kind on its adoption likelihood increases as time goes on.*

2.2. Method

2.2.1. Sample and measures. Analysis of this study is at the service level. I examined the adoption of PSD of public services by combining all ICMA questionnaires across the six time periods. For a public service that was offered but not outsourced within a jurisdiction in 1982, I kept it in my sample from 1988 until it was eventually outsourced or until the last time period of 2007. Thus, there were actually five time periods in the dataset, because data in 1982 served as the basis to track the change of delivery mode. 38,634 initial observations were produced in this way. I also excluded observations that missed information about outsourcing decisions at a certain period because in those cases it was not clear if a change of service delivery happened or not, which reduced the sample to 28,577 observations. In addition, if a jurisdiction no longer offered a public service after time *j*, I kept the observations until time *j-1*. Consequently, a sample of 776 local governments and 27,214 observations was produced. Missing data in control variables, such as local population, long-term debt, general revenue, and total expenditure, which were from census data, further reduced the sample to 337 local governments and 10,906 observations. Because I used conditional logistic regression as

an analysis method, another 1,381 observations where local governments had outsourced all of their services or outsourced no services at all during the relevant time periods were dropped from the sample. The final sample contained 265 local governments and 9,525 observations, with the number of observations for each government ranging from 2 to 140.

2.2.2.1. Dependent variable. The dependent variable in the study is the binary outcome of the adoption or non-adoption of PSD for a public service in a local government.

2.2.2.2. Independent and control variables.
Prevalence (prior diffusion) is represented by the percentage of local governments that have outsourced a specific service to the total number of governments actually offering this public service in each *previous* ICMA survey sample.

Experienced practices were calculated by the cumulative number of outsourced services that an organization had experienced until the previous time period. I used the total number of outsourced services in 1982 as the base number. During each time period since 1982, I updated the number of *experienced practices* whenever changes occurred and assigned this value to the following time period. Admittedly, the number of outsourced services in 1982 was not necessarily the same as the number of outsourced services before 1982. It is possible that some public services were constantly delivered through market approach from the day these services were offered by a jurisdiction. However,

given that in my final data each government had at least two observations and I added up all previously experienced practices, the potential inconsistency between total number of outsourced services in 1982 and actual number of outsourced services did not impact my regression results because it was cancelled out in the conditional fixed effect logistic regression.

Routinized practices were measured by the number of services whose status had remained unchanged ever since they were outsourced. Specifically, for an observation at time *j*, the number of routinized practices was calculated by using all observations from time *1* to time *j* to count the number of services that were constantly outsourced since the first time (any spell between time *1* and time *j-1*) they were. One possible criticism of this operationalization is that for some reason, organizations initiating new outsourcing at time *j* are more likely to keep those already outsourced intact. However, I am confident in the validity of this measure for two reasons. First, I can conceive of no theoretical grounds for this scenario. Why would an organization deciding to outsource more services automatically be committed to prior decisions, rather than the other way around as I suggest? Second, I also lagged this variable for one time period to redo the analysis; the result still supported Hypothesis 1.3. However, the significant reduction of observations from 9,525 to 4,165 as a result of lagging is accompanied by a lack of significance for the results for Hypotheses 1.4, 1.6, and 1.7. This lagging hides the dynamic and instantaneous nature of routinization of previous practices.

Operational relatedness represents the extent to which a focal organization is familiar with a potential practice at the operation, or the content, level. For instance, I expect residential solid waste collection to seem familiar for organizations that have adopted commercial solid waste collection. The ICMA survey grouped about 67 services into seven categories: public works/transportation, public utilities, public safety, health and human services, parks and recreation, cultural and art programs, and support functions. I used a dummy variable to indicate whether a service under consideration to be outsourced belongs to the same category as other outsourced services that have been routinized by a focal organization.

Skill relatedness represents relatively how easy it is for a focal organization that has fostered skills and capabilities from routinized MI practices to adopt and implement a potential service. Brown and Potoski (2003a) developed a scale to differentiate public services. They surveyed 75 randomly selected city managers and mayors across the United States and asked them to rate 64 ICMA listed services from 1 to 5 in terms of asset specificity and service measurability. Asset specificity refers to "whether specialized investments are required to produce the service" whereas service measurability reflects "whether it is relatively straightforward to monitor the activities... and to identify performance measures" (Brown & Potoski, 2003a: 466). Those two aspects are pillars in transaction cost theory as causes of in-house production (Williamson, 1981). Based on 36 returned surveys, they averaged ratings across respondents to represent characteristics of different services. Higher values mean that a service is more asset-specific or difficult to measure. I came up with the following

formula to capture the dynamic relatedness between a potential service to be outsourced

and already outsourced services that have been routinized by a focal organization at each

time period:

$$\text{Skill Relatedness} = \frac{\text{Total number of routinized services with bigger asset specificity}}{2*\text{Total number of routinized services}} + \frac{\text{Total number of routinized services with bigger service measurebility}}{2*\text{Total number of routinized services}}$$

To illustrate, suppose an organization has routinized 10 outsourced services at time *j*. For

a focal public service under consideration to be outsourced at this time, if there are five

services whose asset specificity is bigger than the focal one's and eight services whose

service measurability is bigger than the focal one's, skill relatedness in this scenario will

be 0.65. The bigger skill relatedness is, the more able a focal organization is to adopt and

implement a potential MI practice. My assumption here is that organizations are more

likely to develop skills from MI practices they have retained. Although it is possible that

organizations may not be totally proficient with all MI practices they have initiated and

kept, I still deem it as a kind of skill to be committed to adopted MI practices instead of

quickly abandoning them.

Control variables. I included populations of local governments as a control variable,

because governments in large communities are less likely to contract out owing to the

economy of scale (Brown & Potoski, 2003a; Levin & Tadelis, 2010). Financial variables

were also included in the regressions. Ratio of long standing debt to total revenues was

computed from census data. Financially constrained cities which run into a great deal of

outstanding debt may be more likely to outsource in order to save costs (Levin & Tadelis,

2010). I also calculated local governments' slack resource by the difference between revenue per capita and expenditure per capita. It is possible that short-term financial flexibility releases local governments from pressure to deal with urgent economic needs; it is also possible that local governments with more slack resources are more likely to explore and experiment with new options for serving the public better. I entered a time trend variable starting from 0 (to represent time spell of 8288) to 4 (to represent time spell of 0207). I included the total number of public services offered by a local government at a previous time because governments offering more public services have more options and thus higher random chances of outsourcing. All monetary values were deflated using the 2002 U.S. Consumer Price Index deflator.

   2.2.2. Analysis. I implemented logistic models for pooled time series data (Allison, 1984; Yamaguchi, 1991). Due to the fact that the data include multiple observations of the same local government that are not independent of each other, I used conditional logistic (also called fixed effect logistic) regression in Stata 10 to account for unobserved heterogeneities of local governments. This method was recommended by Beck et al. (2008) to avoid the bias that has plagued previous studies on organizational changes.

As mentioned earlier, my analysis resulted in the dropping of 1,381 observations due to the fact that some local governments either outsourced all of their services or outsourced no services across the relevant time spells. One possible criticism could be that excluding observations may waste information and lead to sample selection bias. However, scholars (e.g., Allison & Christakis, 2006; Beck et al., 2008) have pointed out that non-changing

observations do not make contributions to the occurrence of organizational change and therefore are not needed for parameter estimation. Another consequence of my analytical method is that time-constant variables cannot be included, because those variables do not vary over time. As a result, I could not estimate the effects of time-invariant variables, such as geographic location, city or county metropolitan status (which remained unchanged in the sample), and the form of government (mayor-council, council-manager, commission, town meeting, and representative town meeting for cities and commission, council-administrator, and council-elected executives for counties). Nevertheless, the absence of time-invariant covariates should not bias the results because their effects were controlled for by fixed-effect regressions.

2.3. Results

Table 1 presents the descriptive statistics and correlations for all the variables in the study. Because my theory hypothesized an inverted U-shaped relationship and multiple moderation effects, I centered prior diffusion, experienced practices, routinized practices, operational relatedness, and skill relatedness in running analyses. Multicollinearity did not pose a problem because the VIFs for the saturated models varied from 1.05 to 2.34 with a mean of 1.46.

Insert Table 1 here

Table 2 displays the results of the conditional logistic analysis testing the hypotheses. Model 1 includes all control variables. In Models 2, 3, and 6, squared prior diffusion, the number of experienced practices, the number of routinized practices, operational

relatedness, and skill relatedness were put into regressions respectively. In Models 4 and 5, moderation of prior diffusion and experienced practices and moderation of prior diffusion and routinized practices were entered separately. Model 7 is the saturated model with all the aforementioned variables and interactions. In light of theoretical coherence, I used two separate saturated models rather than a model with all proposed relationships. Model 7 was used to test Hypotheses 1.1 to 1.6, while Model 10 was used to test Hypotheses 1.7 and 1.8. Based on Model 2, Model 8 includes the interaction of prior diffusion and trends to test Hypothesis 1.7. Based on Model 6, Model 9 includes the moderation effects of trends on operational relatedness and skill relatedness to test Hypotheses 1.8a and 1.8b. Model 10 is saturated and includes control variables and prior diffusion squared, operational relatedness, skill relatedness, trend, and relevant interactions.

Insert Table 2 here

Hypothesis 1.1 predicts an inverted U-shaped relationship between prior diffusion and adoption likelihood. Although all the six models with squared prior diffusion produced a negative and statistically significant coefficient for it (Model 2: $b = -6.27$, $p < 0.001$; Model 4: $b = -6.93$, $p < 0.001$; Model 5: $b = -6.78$, $p < 0.001$; Model 7: $b = -6.80$, $p < 0.001$; Model 8: $b = -6.92$, $p < 0.001$; Model 10: $b = -6.56$, $p < 0.001$), we still need to be cautious when it comes to interpreting squared terms or moderations in nonlinear models (e.g., Ai & Norton, 2003; Hoetker, 2007; Huang & Shields, 2000). The fundamental reason for such an inconvenience lies in the fact that nonlinear regressions are carried out after data transformations which have their own shapes of distribution. In this case,

although I predicted the directions of relationships between adoption likelihood and

independent variables, the coefficients came out of the correspondence between log-

transformed dependent variable and IVs. Therefore, given curvilinear or interactive

associations, it is necessary to switch them back to their original formats. Hoetker (2007)

suggested that graphical presentations become "required" under those circumstances and

Huang and Shields (2000) provided a direct and clear example which this study follows.

I verified the relationship by graphing the predicted likelihood along with prior diffusion

in Model 2, holding all the other variables in their mean values. In Figure 1, to produce

an intuitive and evident conclusion, I depicted the relationship between predicted

adoption likelihood and prior diffusion. Conditional logistic regression does not generate

an intercept (constant) due to its unique way of computation. In order to reflect the

change of adoption likelihood better, I redid the analysis with a regular logistic

regression, including dummy variables for counties and cities. The coefficients are very

similar to those of the conditional logistic regression because the number of observations

per group is relatively large (Stata Manual 9, 2005: 224). Previous literature (e.g., Huang

& Shields, 2000) graphed squared and moderation effect with control variables being

held at their typical values. Therefore, I located an organization whose control variables

are close to their mean values when trend is equal to 1 (the mean of trend is 0.67). I found

the organization's intercept in the regular regression with dummy variables. After that, I

added the value of the intercept into the odds ratio produced from the conditional logistic

regression with control variables held at their typical (mean) values to calculate the

corresponding probability.

I took the first derivative of the conditional logistic regression in terms of prior diffusion and found out that the critical point (or the bottleneck of diffusion in my theory) where the relationship shifts from positive to negative occurs when prior diffusion is around 0.62, as illustrated in Figure 1. Undoubtedly, this critical point is just a result of data computation from the sample and it varies across different local governments. However, statistical significance and graphic presentations consistently support Hypothesis 1.1.

Insert Figure 1 here

Hypothesis 1.2 proposes a negative relationship between experienced MI practices and the adoption likelihood of another MI practice. Hypothesis 1.3 puts forward a positive one between routinized practices and the adoption likelihood of another MI practice. Each is constantly supported by Model 3 and the saturated Model 7 (for Hypothesis 1.2, b = -3.48, p < 0.001 in Model 3; b = -3.27, p < 0.001 in Model 7; for Hypothesis 1.3, b = 0.64, p < 0.001 in Model 3; b = 0.55, p < 0.001 in Model 7). Therefore, Hypothesis 1.2 and Hypothesis 1.3 are supported.

Hypothesis 1.4 claims that accumulation of experiences with previous MI practices will expedite the advent of the bottleneck of diffusion of another MI practice. With squared prior diffusion and experienced practices as main effects, I also included an interaction of prior diffusion and experienced practices in Model 4 to test this proposition. I expected the coefficient of the interaction item to be negative so that the turning point (the axis of symmetry) appeared at a lower level of prevalence. My expectation was eventually confirmed by statistically significant results in Model 4 (b = -0.97, p < 0.01). In addition,

I repeated the graphic presentation procedure mentioned earlier to validate this

moderation effect. In the saturated Model 7, this moderation effect is still significant at

the $p < 0.05$ level (b = -0.85). I also followed the above steps of graph presentation and

found it in accordance with statistical inference. Therefore, Hypothesis 1.4 is supported.

Figure 2 illustrates the moderation effect with coefficients generated in Model 4. Low

experienced represents the curvilinear relationship when the number of experienced

practices is one standard deviation below its mean and high experienced represents the

relationship when the number of experienced practices is one standard deviation above its

mean. Calculation shows that the bottleneck of diffusion in low experienced situations

occurs when prior diffusion is around 0.62 and that in high experienced situations it

occurs when prior diffusion is around 0.53. It can also be mathematically proved that

given the moderation effect, the bottleneck of diffusion in the high experienced situation

comes at a lower level of prevalence than in the low experienced situation.

Insert Figure 2 here

Hypothesis 1.5 predicts that routinized practices will also speed up the coming of a

diffusion bottleneck. Aside from squared prior diffusion and the number of routinized

practices as main effects, I also put an interaction of prior diffusion and routinized

practices in Model 5. I expected a negative coefficient of the interaction item so that the

turning point occurred at a lower level of prevalence. Regression results in Model 5

endorsed such an interaction effect at $p < 0.01$ (b = -0.89). In the saturated Model 7, this

moderation effect became insignificant. It has been pointed out that there may still be a

significant interaction effect even if the interaction coefficient is not significant in logistic regression (Hoetker, 2007). Hence, I repeated the graphic procedure mentioned to examine this moderation effect with coefficients from Model 5 and Model 7. Visual presentations supported the moderation effect. Therefore, Hypothesis 1.5 is basically supported.

Figure 3 illustrates the moderating effect of routinized practices with coefficients generated in Model 5. Low routinized refers to the curvilinear relationship when the number of routinized practices is one standard deviation below its mean and high routinized represents the relationship when the number of routinized practices is one standard deviation above its mean. As the figure demonstrates, the bottleneck of diffusion in the low routinized situation comes when prior diffusion is around 0.65; in the high routinized situation the bottleneck happens when prior diffusion is around 0.62. Mathematical deduction can prove that the bottleneck of diffusion in the high routinized situation emerges a lower level of prevalence as long as a moderation effect exists.

Insert Figure 3 here

Hypothesis 1.6a focuses on the dyadic relationship between a candidate service and a local government and predicts that operational relatedness is positively associated with the adoption likelihood. The result in Model 6 accords with my anticipation ($b = 0.17$, $p < 0.05$). In saturated Model 7, the coefficient ($b = 0.11$) becomes no longer significant. Seeing that measurement for operational relatedness is calculated on the basis of and, hence, closely correlated with routinized practices, I reran Model 7 without routinized

practices and their interactions with prior diffusion. The results (not reported here) in this case were consistent with my prediction (b = 0.22, p < 0.01). Therefore, Hypothesis 1.6a is at least partially supported.

Hypothesis 1.6b also focuses on the dyadic relationship between a specific public service and a local government and predicts that skill relatedness is positively associated with the adoption likelihood. The result in Model 6 is marginally consistent with my anticipation (b = 0.23, p < 0.1). In the saturated Model 7, the increased coefficient (b = 0.54) became significant (p < 0.001). I also reran Model 7 without routinized practices and their interactions with prior diffusion to keep the effect of skill relatedness from being crowded out due to the correlation between routinized practices and skill relatedness. The regression coefficient in this case further increased (b = 0.69) and remained significant (p < 0.001). Therefore, Hypothesis 1.6b is supported.

Hypothesis 1.7 claims the effect of prior diffusion of a MI practice on the future adoption likelihood will decrease as time goes on. I included an interaction of prior diffusion and time trends in Model 8 to test this proposition. I expected the coefficient of the interaction item to be negative. Given any level of prior diffusion, its effect should be further reduced by the negative interaction. Model 8 (b = -0.67, p < 0.05) confirmed my anticipation with statistically significant results. In addition, I repeated the graphic presentation procedure mentioned earlier to validate the moderation effect. In the saturated Model 10, this moderation effect was also significant at the p < 0.01 level (b = -

0.83). I also followed the steps of graph presentation and found it in accordance with regression results, as illustrated in Figure 4. Therefore, Hypothesis 1.7 is supported.

Insert Figure 4 here

Hypothesis 1.8a claims that the effect of operational relatedness on the adoption likelihood of a potential MI practice will decrease over time. I put the interaction of operational relatedness and trend into Model 9 to test this proposition. The moderation effect was negative ($b = -0.13$), as expected, but not significant. In the saturated Model 10, this moderation effect became significant at the $p < 0.05$ level ($b = -0.16$). To verify the moderation effect of trend on operational relatedness further, I repeated the graphic presentation procedure using the results from Model 9. As Figure 5 shows, the effect of operational relatedness is positive in the early stages (trend = 0 and trend = 1) and it becomes almost horizontal (flat) in the later stages (trend = 2, trend = 3, and trend = 4). Such a presentation is consistent with my proposition that over time the positive effect of operational relatedness on further adoption reduces. I redid the graphic procedure using results from the saturated Model 10 and found that the moderation effect persisted. Therefore, Hypothesis 1.8a is supported.

Insert Figure 5 here

Hypothesis 1.8b predicts that the effect of skill relatedness on the adoption likelihood of a potential MI practice will increase as time goes on. To test this proposition, I included the interaction of skill relatedness and trend into Model 9. The interaction effect was positive and significant ($b = 0.55$, $p < 0.001$). In the saturated Model 10, this moderation effect

remained positive and significant (b = 0.27, p < 0.05). Following the graphic procedure

based on the results from Model 9, I also found a salient enhancing effect of the time

trend on the relationship between adoption likelihood and skill relatedness, as can be seen

in Figure 6. I redid the graphic procedure using the results from the saturated Model 10

and found that the moderation effect remained. Therefore, Hypothesis 1.8b is supported.

Insert Figure 6 here

2.4. Discussion

Study I proposes and verifies the bottleneck effect in the diffusion of a practice to

challenge the optimistic assumption in many studies that wide diffusion leads to a state of

hegemony (e.g., Lee & Pennings, 2002; Palmer, Jennings, and Zhou, 1993; Sanders &

Tuschke, 2007; Spell & Blum, 2005; exceptions include Fiss & Zajac, 2004; Jonsson,

2009). Whether it is rational force or social force for homogeneity, the positive

relationship between prevalence of a specific practice and the adoption likelihood of a

remaining organization will turn negative at a certain point of diffusion. The diffusion

process condenses the remaining population into an uncompromising community.

Meanwhile, organizations with low levels of susceptivity to the diffusing practice may

manage to avoid the socially recommended template. Empirical results show that the

likelihood for a practice to be adopted further when a large number of organizations in

the population have adopted it *is not necessarily higher* than that when only a few have

done so. In this sense, this study makes a contribution to diffusion theory by calling for a

balanced attention to structural features as well as agentic reactions. Practically speaking,

relying purely on the observed popularity without regard to the peculiarity of adopters

will lead to biases or even mistakes in predicting the prospect of a diffusing practice, an important reminder to both researchers and practitioners.

By distinguishing experienced changes and internalized changes, this study clarifies, theoretically and empirically, the competition between the momentum view and the deceleration view (Beck et al., 2008). I applied such a distinction to the case of MI, which has generally been oversimplified as a unitary and isolated event in previous studies (e.g., Sanders & Tuschke, 2007; Spell & Blum, 2005; Tobert & Zucker, 1983). The count of experienced practices reflects the degree to which an organization has been searching back and forth in a particular way or area to meet its own aspiration. Therefore, it should be negatively related to the incidence of another practice of the same type because refinement of current procedure mitigates organizational need and intention for further change. Routinized practices, on the contrary, indicate the extent to which prior practices have been legitimized and internalized within an organization. Thus, competency developed from routinization makes organizations willing to repeat similar practices. Viewing MI as a series of kindred practices, this study provides supporting evidence. Treating the externally observed number of prior changes to the same way as those internalized into organizational procedures, like reducing MI into a yes-no dummy variable, exhibits an oversimplifying tendency of scholars that does not take account of the actual process of organizational changes. In this sense, this study makes a contribution to literature by both appeasing a debate and encouraging researchers to delve into concrete contexts of organizations to generate and test theories.

This study also finds the moderating effects of experienced practices and routinized practices on the bottleneck of diffusion. Experienced practices expedite the emergence of bottlenecks by lowering organizational change propensity in general while routinized practices do so by shaping organizational preferences for a particular change. Contrary to an acculturation process (such as a two-stage model; Tobert & Zucker, 1983) in which organizations eventually adjust their structures to converge on a common template, this study demonstrates that organizational direct engagement with the template modifies the diffusion process at the population level. It is interesting to note from Figure 3 that the filtering effect of the diffusion process is more salient among organizations that have routinized many MI practices. This finding is consistent with my emphasis on organizational agency. Individuated preference through organizational learning should take precedence over, not giving way to, unconditional and passive acceptance of any type of practices suggested by the external environment.

To illustrate organizational agency incubated and developed in the process of following a common template further, this study introduces operational relatedness and skill relatedness between a potential candidate and routinized practices and finds that both are positively linked with adoption likelihood. Instead of depicting an image of an assembly line where organizations are waiting in a queue to be branded identically by conforming forces, my findings show that organizational adaptation can diminish the overarching impact of structural pressure to the extent that each organization attaches a peculiar meaning to a potential choice. In this sense, this study makes a contribution by

transferring attention from rigid isomorphism to heterogeneity or diversity as the outcome of practice diffusion.

Although results (Figure 4) show that as time passes the same level of prior diffusion is associated with higher adoption likelihood, the prediction that the bottleneck comes at a lower level of diffusion in the later stages is strongly supported. With peculiar knowledge, expectations, and preferences developed from prior experience over time, organizations become less sensitive to the environmental dominance of a specific practice. The important implication here is that in the long run organizations only follow an externally recommended practice to the extent that this practice is perceived to be saliently visible and attractive. However, between operational relatedness and skill relatedness, organizations choose to depend less on the former and more on the latter in the long run, which is in accordance with the gist of organizational learning (Levitt & March, 1988), evolutionary economics (Nelson & Winter, 1982), and a knowledge-based view (Kogut & Zander, 1992). In this sense, it is necessary for the diffusion literature to curb its structuralistic tendency and start to contextualize exploration in the concrete process of organizational change, such as innovation adoption.

To sum up, this study presents important evidence that the diffusion process should be understood from a more balanced and dynamic approach, especially when it comes to MI, which is marked by changeability and ambiguity. In essence, both the pro-diffusion disposition and the oversimplification tendency hold a static view in the sense that the former ignores the cross-sectional idiosyncrasies of organizations in terms of susceptivity

to diffusing practices, while the latter fails to recognize the longitudinal effect of organizational learning in shaping succeeding behavior. Holding an adaptation perspective, I intend to make a contribution by both complementing the extant diffusion literature and inspiring more research in this direction.

This study is not exempt from limitations that should be addressed in future research. First, this study attempts to draw due attention back to the active agency of organizations themselves as ultimate actors in a social phenomenon such as practice diffusion. Specifically, I advocate that the macro diffusion of an MI in the organizational field is accompanied by a micro sense-making and learning process at the organizational level. During the process, organizations idiosyncratically reparaphrase societal connotations and expectations of the diffusing innovation according to their own knowledge and aspirations, such that eventually they respond differently. However, the quantitative nature of this study can only approximate this micro process by statistical inference. Profound and thorough qualitative inquiries documenting how intra- and inter-organizational interactions actually adjust the understanding of and expectations from diffusing MI will be a feasible option to verify my reasoning further and gain more insight.

Second, challenging the pro-diffusion bias in which most extant literature is preoccupied with the successful spreading of a single innovation, the current study still focuses on the incidence of adopting MI practices. Given that organizations can potentially execute as much abandonment as adoption in responding to a diffusing practice and that research on

practice abandonment remains sporadic (e.g., Burns & Wholey, 1993; Greve, 1995), it is a worthy direction to investigate when and how being diffused turns into being abandoned. In a broader sense, it merits efforts to search for determinants and content of customized reactions, aside from a simple yes-no adoption decision, when organizations have to deal with pressure for behavioral conformity (e.g., Ansari et al., 2010)

Third, this study points out that most studies oversimplifying MI into a discrete and isolated event ignore its decomposability and variability beneath a homogenous surface. However, my probe into interdependence among many episodes of MI deepens only to the level of the recorded number and relatedness of kindred practices in the case of outsourcing of public services. Organizational decision-making on the basis of interpretations of past behavior is individuated and contextualized. Therefore, future research should explore multiple empirical settings and put forward more channels or mechanisms through which interconnections among past organizational changes, such as innovation adoption and implementation, induce and impact later choices.

3. STUDY II: ADOPTING MANAGEMENT INNOVATION PRACTICES DURING INSTITUTIONAL CHANGE: A BEHAVIORAL INTERPRETATION

3.1. Theory

Multiple goals. The behavioral theory of the firm has long recognized the coexistence of multiple goals within an organization. Cyert and March (1963) initially numerated five goals: production, inventory, sales, market share, and profitability. Although most studies have focused on profitability as the dominant goal (e.g., Bromiley, 1991; Greve, 2003a; Iyer & Miller, 2008; Miller & Chen, 2004), scholars also used other goal variables, such as market share and status (Baum et al., 2005), railroad accident costs (Baum & Dahlin, 2007), and firm size (Greve, 2008). The presence of various constituencies, audiences, and stakeholders results in the multiplicity of organizational goals.

Comparison of the achieved outcome with the aspiration level for a certain goal stimulates organizations to act further (Cyert & March, 1963). Social comparison theory suggests that an aspiration level can be decided by the performance of similar others (Festinger, 1954). People compare themselves with others in reference groups for self-assessment (Wood, 1989). When an organization does not meet the aspiration for a goal, decision makers launch problemistic searches for solutions that may lead to better performance. Researchers have argued that performance below aspiration level motivates decision makers to take risks and engage in organizational change (Bromiley, 1991; Greve, 2003c; Lant et al., 1992).

Not only can an appropriate aspiration level for an organizational goal be externally or socially determined, but an exact goal itself can also be externally determined. As open systems, organizations have to achieve proper relationships with their environments, which constrain, shape, penetrate, and renew organizations (Scott, 1998). Institutional theorists (e.g., DiMaggio & Powell, 1983) accounted for how external pressures, coercive, normative, or mimetic, lead organizations with the goal of fitting social expectations to exhibit certain behavior. The fundamental motivation of an organization to seek resemblance to others is to acquire legitimacy, a generalized perception that actions of an entity are desirable, proper, or appropriate (Suchman, 1995). Being subject and open to environmental influences, organizations internalize the purpose of gaining and maintaining legitimacy into an aspiration level for a specific goal, even if the outcome may sometimes be categorical in nature (e.g., innovation adoption, accreditation, a specific organizational form, etc.).

Seeing the simultaneous existence of multiple goals within an organization, scholars proposed the shift of attention, in which satisfactory performance on one goal diverts the attention toward another goal, as a mechanism organizations use to locate one target to pursue at a time (Cyert & March, 1963). For instance, Miller and Chen (2004) verified March and Shapira's (1992) model where meeting the survival goal motivates organizations to take more risks for better performance. Iyer and Miller (2004) found that organizations not threatened by bankruptcy are more likely to make acquisitions to improve performance. Greve (2008) tested a sequential attention model where high-performing firms grow more to meet their aspiration level for size. Absent from the

literature is a clear clarification of relationships among those goals. For example, are survival goals totally independent of performance goals or is there some degree of congruity? Similarly, are size goals contradicting (financial) performance goals or are they complementing each other? It is interesting that, in their original book, Cyert and March (1963: 118) suggested a connotation of competition in explaining the sequential attention to goals.

> Just as the political organization is likely to resolve conflicting pressures to "go left" and "go right" by first doing one thing and then the other, the business firm is likely to resolve conflicting pressures to "smooth production" and "satisfy customers" by first doing one and then the other.

However, it is also interesting to note that organizational goals can be causally hierarchical, so that fulfilling one goal helps fulfill the next (March & Simon, 1958). A scarcity of research on the nature, categorization, and consequences of coexisting goals on organizational action invites more efforts in this direction.

Competing logics. The behavioral theory of the firm also necessitates a causal link between a certain organizational action and the performance improvement of a corresponding goal. A problematic search is launched when organizations fail to satisfy one goal. The search stops either by discovering an alternative that satisfies the goal or by adapting the goal to a level making an available alternative acceptable (Cyert & March, 1963: 121). Essentially, a search behavior for another satisfactory alternative is based on a presumption of causality between this very alternative and performance improvement of the specific goal to which decision makers have turned their attention. However, variations among stakeholders in characteristics such as training, experiences, and

individual interests result in biases about the way in which the environment is perceived

and communications are processed (Cyert & March, 1963: 121). Thus, the occurrence of

a certain organizational action to rectify failure to reach a goal is dependent on whether a

dominant coalition exists to recognize this problem (Cyert & March, 1963: 29-32) and

whether the coalition accepts, believes, or even takes for granted that the proposed

organizational action will necessarily improve outcome of the focal goal.

Researchers (e.g., Kim et al., 2007; Lounsbury, 2007; Schneiberg, 2007) have begun to

conceptualize the institutional environment as more fragmented and contested where

competing institutional models coexist. An institutional model is composed of an

institutional logic and organizational practices that reflect that logic (Kim et al., 2007).

During an institutional change[1] in which the incumbent intuitional beliefs and logics are

undermined and challenged by the emergence of a competing institution, internal and

external stakeholders associated with an organization become confused and diverged. It

will be unrealistic to assume that the emergence of a particular institution will prevail

easily and sweepingly within a field without countering doubts, questioning,

impediments, or resistance. It will be equally unrealistic to assume that every individual

organization within the organizational field will quickly jump into the bandwagon

without paying attention to other goals, expectations, and needs. Institutional change can

be deemed as a dynamic process where organizations simultaneously tackle opposing

logics and contentious practices.

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[1] To be clearer, this study regards institutional change as a process instead of an outcome and places its arguments in the context of changing processes.

During an institutional change, the concurrence of competing logics in regard to which organizational practice to choose naturally yields conflicts among groups of stakeholders with different interests and beliefs. The dominant coalition, the goal setting mechanism over a relative brief time or for a particular decision (Cyert & March, 1963: 27), will become increasingly unstable, vulnerable, and transitory. In consequence, constant political struggles will become more relevant and salient under the context of institutional change (e.g., Kim et al., 2007). In addition, scholars (Cyert & March, 1963; Greve, 2008) have suggested that organizations, pursuing multiple goals, switch between different goals and perform pertinent behaviors in a sequential manner. Since institutional change involves conflicting behavioral templates, the challenging and the incumbent, organizations alternate between the two more frequently and erratically due to political dynamics.

MI, embodying the emerging institutional logic, can further politicize the decision process about its own adoption. Unlike technological innovations, whose boundary, content, and causality are more objective, approachable, and standardized, MIs, deeply rooted in norms, values, and philosophies (e.g., TQM, Westphal et al.,1997) are more subjective, contextual, and cultural (e.g., McCobe, 2002). Subjectivity, openness to interpretation, and causal ambiguity allow intensive interplay among stakeholders, inside or outside an organization, challenging or incumbent. Consequently, it is more difficult to reach consensus among stakeholders as to the "right" institutional logic to follow. A dissolution and reformation of the dominant coalition on an adoption decision can be a tedious process of bargaining, compromising, and maneuvering. It is conceivable that

under a context of an institutional change most organizations dealing with various interest cliques or groups will be cautious and reserved in regard to engaging in MI.

Duality of slack. Slack, spare resources that can be used for the achievement of organizational goals (George, 2005), become highly relevant in dealing with competing institutional logics. Slack plays both a stabilizing and a facilitating role in organizations. On one hand, slack can smooth an organization's operation by absorbing a substantial amount of variability and maintain commitments even during adverse times (Cyert & March, 1963; George, 2005; Meyer, 1982). On the other hand, slack resources allow organizations to engage in experimentation, risk taking, and organizational changes (Cyert & March, 1963). Organizations with slack have greater opportunities to increase searches and less strict performance monitoring (Greve, 2003b). Not surprisingly, while most studies found positive effects of slack on innovation (e.g., Bromiley, 1991), R&D (Greve, 2003a), acquisition (e.g., Iyer & Miller, 2008), etc., some also identified situations where slack has a negative relationship with innovation launches (Greve, 2003a), performance (George, 2005), innovativeness (Nohria & Gulati, 1996), and exploitation and exploration activities (Voss et al., 2008).

The coexistence of competing goals during an institutional change subtilizes the role of slack resources in adopting MI practices that embody the emerging institutional logic. Slack can serve as a resource pool that facilitates internal negotiation and bargaining. Ready access to extra resources accelerates the process of launching changes. Therefore, we should anticipate a positive effect of slack resources on the adoption of MI practices

that have been socially recommended. However, abundant slack resources can also buffer organizations from external pressures. Organizations get accustomed to performing minimal adaptive initiatives by capitalizing on known procedures (Levinthal & March, 1993). Admittedly, prior studies offered findings in which slack was positively linked to innovation activities such as R&D searches (Chen & Miller, 2007; Greve, 2003a). However, those activities, adhering to the same logic or belief, can be programmable, habitual, and departmentalized; carrying out such activities does not severely disrupt routines and procedures or profoundly *interfere with interests of* stakeholders in the dominant coalition. When it comes to institutionally contested MI, whose adoption is bound to cause a great deal of controversy, abundant slack resources are more likely to be utilized to maintain incumbent operations or to be presented to validate the legitimacy of ongoing procedures; organizations with substantial slack resources will be risk-averse and inert to introduce new practices at the expense of upsetting the incumbent ones. Simply put, slack resources contribute most to the adoption of MI practices when organizations actually do not have enough slack resources to avoid adopting those practices in the first place. Figure 7 illustrates the following two hypotheses:

Hypothesis 2.1: As organizational slack increases, focal MI practices are more likely to be adopted.

Hypothesis 2.2: The effect of organizational slack on the adoption of focal MI practices is more significant for organizations with relatively less slack.

Adoption based on the emerging logic. When an MI is gaining popularity, social pressures lead organizations to cater for the emerging behavioral template and its

underlying logic. Therefore, organizations have to attend to the outcome variable that manifests idea propositions of the diffusing MI and establish a relevant aspiration level for it. Commonly employing financial variables, previous literature suggests a performance feedback framework in which performance below the aspiration level motivates search for problem solutions (e.g., Greve, 2003a, 2003b; Iyer & Miller, 2008; Miller & Chen, 2004), whereas performance above the aspiration level discourages search behavior (e.g., Greve, 1998, 2003b). Given the superiority and taken-for-grantedness attached ubiquitously to economic profitability, it is unsurprising to observe that organizations react to performance deficits by changes to solve problems and to performance surpluses by inertia to prolong the status quo.

An institutional change leads to the juxtaposition of the emerging and incumbent logics within the field (Lounsbury, 2007; Love & Cebon, 2008; Schneiberg, 2007). Until one institution triumphs over the other one, organizations situated in a diverse and pluralistic environment endeavor to meet the conflicting logics to appear legitimate to stakeholders with contesting motivations, interests, beliefs, and values. The emerging institutional model takes in a system of ideas and behaviors that is inconsistent or even conflicting with the incumbent one. Without an overarching logic embraced by all stakeholders, decisions to abandon the old practice and adopt the new become exceedingly painstaking because they have to be reached after continuous rounds of bargaining between deeply incompatible parties. In this sense, as long as current procedures coincide sufficiently with acceptable performance to satisfy the emerging logic, related parties are mostly likely to reach a decision to remain stable to avoid troublesome and unpredictable

negotiations. Even if confronted with failure to meet performance aspirations pertaining to the emerging model, organizations become slow in reaction because agreements on both the urgency of a *problem* and *solutions* are difficult to reach.

Since adopting MI practices is at the cost of abandoning old procedures, organizations having met aspiration levels for the new institutional model are highly resistant to disturb ongoing routines further to usher in controversial practices. However, for organizations failing to meet the aspiration level for the emerging logic, it becomes less clear whether organizations will adopt more MI practices. This is because decisions to adopt new practices of a given MI that conflicts with the status quo involve risk taking and have to be made through intensive struggles and negotiations. Figure 8 illustrates the following two hypotheses:

> ***Hypothesis 2.3:*** *For organizations above their aspiration level for the goal manifesting the emerging institutional logic, focal MI practices are less likely to be adopted.*
>
> ***Hypothesis 2.4:*** *For organizations below their aspiration level for the goal manifesting the emerging institutional logic, the relation between performance for the goal and the adoption of focal MI practices becomes weaker.*

Adoption based on the incumbent logic. In light of the behavioral theory of the firm, this study holds a political view of organizations. In a context of institutional change, organizations need to fulfill expectations from all related constituencies who identify themselves either with the old institutional model or with the new one. Admittedly, there

are some institutional entrepreneurs who are totally committed to the new institutional model (e.g., Greenwood & Suddaby, 2006; Maguire et al., 2004). Nevertheless, well-established organizations in general have to be responsive to expectations and requirements from all influential stakeholders. In this vein, it is imperative for organizations in pursuit of legitimacy to maintain adequate procedures that have been traditionally or locally kept or even taken for granted. For instance, Marquis and Lounsbury (2007) found that local communities, despite the large scale consolidation and dominance by national banks in the United States, still chose to shift their own banking to firms embracing the same institutional logics. In this sense, during institutional change, a goal manifesting the incumbent institutional logic also comes under scrutiny and impacts search behavior.

Performance feedback based on the incumbent institutional logic also affects the adopting of behavioral templates that concretize the emerging logic. The fact that the incumbent institutional logic precedes the emerging alternative implies that the incumbent logic enjoys privileges analogous to *first mover advantages* in the strategic management literature (Lieberman & Montgomery, 1988). A challenging institutional model is not born into in a vacuum; instead, it displaces and replaces the existing model only to the extent its potency allows. Rooted deeply in long-standing beliefs and behaviors, the incumbent institutional logic remains relevant and influential. As long as the still fledging model is not able to saturate the institutional field fully, the incumbent model avails or even prevails.

The incumbent logic defines a bottom-line expectation/aspiration that organizations should surpass. Failure to attain a decent outcome in fulfilling the incumbent model causes immediate concerns, doubts, and objections from related stakeholders, whose impact has been long-lasting and indispensable. For organizations trying to adjust ongoing procedures to rectify deficient performance, it is definitely undesirable to substitute current practices that are actually needed with contending ones that may enlarge the performance gap. However, I do not infer a causal relationship between exceeding bottom-line aspiration regarding the incumbent logic and adopting practices that reflect a challenging model. It is possible that organizations that have fully satisfied the incumbent model are willing to risk launching unconventional actions. Presumably, these organizations have accumulated credentials as devoted supporters of the incumbent model so that occasional experimentation in the opposite direction is permitted by their stakeholders. It is also possible that some organizations are totally committed to the incumbent model and any procedure modifications deviating from the taken for granted routines cannot go through. In this sense, for organizations having acquired sufficient legitimacy in maintaining the incumbent model, decisions about adopting inconsistent behaviors become discretionary in that they rely on actual political interplay among all members with opposing logics.

In the case of MI, an organization that does not meet its aspiration level for the goal manifesting the incumbent logic is less likely to launch MI practices because doing so will further deplete legitimacy in this regard. However, organizations above their aspiration level for this goal, in no desperate need for sustaining legitimacy among pro-

incumbent stakeholders, have relatively more flexibility in deciding whether or not to adopt more MI practices, resulting in an obscure empirical connection. Figure 9 illustrates the following two hypotheses:

Hypothesis 2.5: *For organizations below their aspiration level for the goal manifesting the incumbent institutional logic, focal MI practices are less likely to be adopted.*

Hypothesis 2.6: *For organizations above their aspiration level for the goal manifesting incumbent institutional logic, the relation between performance for the goal and the adoption of focal MI practices becomes weaker.*

Moderated deceleration. The conventional view on organizational change is that prior changes of a given kind increase the likelihood of a kindred change. This view is based on behavioral aspects of organization learning (Cyert & March, 1992). The core idea of this view is that when change itself becomes part of organization routines, organizations are more likely to make similar changes in the future. However, Beck et al. (2008) challenged this view and proposed a deceleration effect of prior changes. They argued that proponents of the conventional view ignored the fact that "organizational change is aimed at improving organizational structures and processes" and if change leads to the refinement of organizational procedures or the adaption of organizational goals (aspiration level), organizational change becomes less necessary (Beck et al., 2008: 416). According to Beck et al., previous studies failed to consider the effect of organizational heterogeneity, resulting in a biased finding of a self-reinforcing process of change. Because some organizations have a higher inherent propensity to change than

others, they accumulated more changes in the long run. As a result, firms with higher

propensities to change dominate the risk set with more prior changes. Therefore, spurious

occurrence dependence happens when the rate of future change is estimated to be

positively reliant on the number of prior changes. Study I of this dissertation offers

empirical support to the deceleration view in general. Following this logic, it is a natural

conjecture *that accumulation of MI practices is negatively related to the adoption*

likelihood of other MI practices of the same type.[2]

Beck et al. (2008) raised two paths to validate the deceleration view. First, as long as

changes refine organizational procedures to the extent that a specific goal is

accomplished, there should be less need to change procedures again. Second, even if

changes cannot improve organizational procedures to a satisfactory level, organizations

learn from change processes and build a more realistic expectation (aspiration level),

which reduces the need for similar changes. The two points reach the same conclusion

that prior changes decrease the probability of another change of the same kind; however,

at the expense of de-contextualization (as exemplified by the fixed effect panel analysis).

The above mechanism in which organizations achieve the alignment between ongoing

procedures and aspiration level is in a dynamic and open state. Although the deceleration

view suggests a qualitatively downward tendency of an organization's motivation to

repeat kindred changes, specific situational factors, internal or external, can determine

how much the deceleration effect can unfold itself. In the following section, Study II

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[2] I do not make this statement into a hypothesis because it is redundant given the arguments in Study I.

introduces more immediate or instantaneous change propensities driven by slack search and performance search as moderators of the negative relationship between the accumulated MI practices and the adoption likelihood of other MI practices.

Slack resources allow organizations to carry out more experimentation and take more risks (Cyert & March, 1963). Other things being equal, organizations constrained by scant slack, as opposed to those rendered more courageous by abundant slack, are less likely to disrupt refined procedures to bring in additional risky and controversial MI practices. The existence of abundant slack resources is also likely to be considered and presented by pro-change stakeholders as the outcome of already adopted MI practices, thus contributing to the soundness of taking up more in a fashion similar to the *competency trap* (Levitt & March, 1988). Furthermore, when faced with unsatisfactory performance due to demanding aspirations, organizations with ample slack can still marshal extra resources to repeat changes in the hope of being able to catch up; nevertheless, organizations lacking slack resources have no other options in this situation but to stay stable and develop a more appropriate aspiration level. To sum up, scarce slack resources strengthen the adjustment toward limiting repetitive changes. Thus,

> **Hypothesis 2.7:** *The accumulation of MI practices is more negatively related to the adoption likelihood of other MI practices of the same type when organizational slack is low.*

Organizations pursue multiple goals in order to meet expectations from various categories of stakeholders (Dutton & Preston, 1995), even though some goals may

conflict with each other (Cyert & March, 1963). Fundamentally, the specific goal on which an organization focuses on at one moment is decided by the particular context in which it is located (Ocasio, 1997). When introducing the two paths to justify the deceleration effect, Beck et al. (2008) did not indicate which one is a more powerful and effective contributor. During institutional change, an opposing concern that appeals to the incumbent logic can affect the deceleration effect in the accumulation of practices reflecting the challenging logic by interacting with the two paths in differentiated ways.

In fact, both the paths that lead to the deceleration effect are longitudinal or chronic in nature. In the first path, organizations first go through changes to improve performance, before they can be in a position to lose momentum due to satisfaction with the improved performance. In the second path, in order for organizations unsatisfied with their performance to develop appropriate aspiration levels, learning from prior experiences is a temporal precondition. The very fact that the two paths do not proceed in a prerequisite-free and automatically self-reinforcing fashion means that situational factors can (at least temporarily) exercise thwarting or facilitating influence, although in the long run organizations still demonstrate a deceleration trajectory.

I anticipate that the de-motivation effect of prior changes on subsequent ones will be salient when organizations have reached their aspiration level for the goal that manifests the emerging institutional model. In view of the first path, organizations above their aspiration level for the challenging institutional model are disinclined to take in more MI practices because procedures have been refined to satisfaction in this aspect. More

importantly, the coexistence of competing institutional models gives rise to ambiguity and divergence as to what should be deemed legitimate, making it extremely troublesome to abandon established practices and adopt contradictory ones at the same time. Conceivably, the process for negotiation and coalition formation is extremely tedious, formidable, and resource consuming, so that remaining in the status quo turns out to be a convenient and appropriate solution.

However, organizations below their aspiration level for the goal concerning the emerging institutional logic, as opposed to those above their aspiration level, will display the deceleration trajectory to a lesser extent, although the second path alone does not suggest an attenuated effect. In their original argument for the second path, Beck et al. (2008: 417) attached little importance to the role of social comparison as the alternative to individual experiences in constructing organizational aspiration. Echoing Cyert and March's (1963: 124) point, Beck et al. claimed that an organization, by learning what to heed and what to ignore in the environment, improves its abilities to select criteria that provide satisfactory results and to compare itself with competitors. The implication is that eventually organizational aspiration comes out of a deliberate choice based on learning and adaptation. However, as has been pointed out above, the two paths define a general and longitudinal model. Organizations cannot escape completely from externally exposed *standards or criteria*; instead, at least for a brief time, organizations succumb to environmental dictation, especially when conforming forces are too strong to eschew. It is noteworthy that Cyert and March (1963: 124) also observed:

With which attributes of which organizations should we compare ourselves? Although in a relatively short-run model we might reasonably consider this fixed, we would expect that in the long run we would require a model in which such attention factors changed.

During an institutional change, uncertainty and segregated legitimacy motivate pro-change stakeholders to be keen on performance in the area that matches the challenging model. *Fixed attributes* and related performance expectations imposed by the environment constitute major and ineluctable constraints on organizations. Before the deceleration effect noticeably occurs, it takes a lengthy process, internally and externally, for organizations to be able to calibrate aspirations in a way that relies primarily on individuated experiences rather than on social comparison. Temporary failure to attain a good result in regard to the emerging institutional logic does not cause instant discontinuation of changes. Instead, it can be interpreted as needing more commitments in some organizations dominated by pro-change coalitions, although other organizations may properly decide to lower their aspiration level and motivation to change. In this sense, the functioning of the deceleration effect in the adoption of MI practices is likely to be contained if organizations fail to fulfill the goal that embodies the emerging institutional logic. Under this situation, not all organizations necessarily adjust their aspiration levels down to deal with unmet goals. However, as we have argued above, a salient deceleration effect is highly possible for organizations above their aspiration level. To sum up, I hypothesize

> ***Hypothesis 2.8:*** *The accumulation of MI practices is more negatively related to the adoption likelihood of other MI practices of the same type when performance of the goal manifesting the emerging institutional logic is above the aspiration level.*

In addition to the abundance of slack resources and performance feedback based on the emerging logic, performance feedback based on the incumbent logic also moderates the proceeding of the deceleration effect in adopting MI practices. As open systems, organizations have to obtain from all audiences the impression of being legitimate to secure resources for survival and persistence. However, those not meeting their aspiration levels for the goal that manifests the incumbent institutional logic face legitimacy deficit among constituents upholding the incumbent model. Obviously, organizational procedures have not been refined well enough to generate adequate results. Such a performance deficiency stimulates problematic searches. Whatever the solutions are, those organizations are unlikely to adopt more conflicting MI practices in that doing so will only worsen the situation by increasing performance gap in regard to the incumbent model.

For those having passed their aspiration levels pertaining to the incumbent institutional model, the priority order for next decisions comes out of internal dynamics. Cyert and March (1963: 118) proposed a sequential attention rule to resolve conflicts among goals by attending to different goals at different times. Empirically, Greve (2008) provided supporting evidence that in the general insurance industry firms below their aspiration levels for size grow more when their performance goals are satisfied. It is reasonable to expect that attention in organizations having met aspiration levels concerning the incumbent logic will be shifted to the goal pertaining to the emerging logic, thus creating a relatively more favorable atmosphere for adopting MI practices. Certainly, as has been put out previously, the exact degree to which organizations adopt more MI practices is

contingent on how well organizational procedures have been refined so far in terms of the newly coming institutional logic. Nevertheless, comparatively speaking, continuing to adopt MI practices is still much less acceptable in organizations with unfulfilled aspirations in the old ways of doing things. Ceteris paribus, the negative relationship between prior MI practices and subsequent MI practice adoption is reinforced in this situation.

> *Hypothesis 2.9: The accumulation of MI practices is more negatively related to the*
> *adoption likelihood of other MI practices of the same type when performance of the*
> *goal manifesting the incumbent institutional logic is below the aspiration level.*

3.2. Method

3.2.1. Sample and measures. Analysis of Study II is at the organizational level. ICMA survey data for the years of 1982, 1987, 1992, 1997, 2002, and 2007 were combined into a panel structure. Given the importance of reference groups in constructing aspiration level (Cyert & March, 1963; Greve, 1998), the focal dataset is only focused on the county government level. Differences in terms of population, form of government, type of government, jurisdictional affiliation, and so on make it extremely difficult to approximate externally a collection of counterparts that are meaningfully comparable for an individual local government. On the contrary, county governments, established in accordance with the constitutions and statutes of each state, provide general public services in a first-layer geographic division of a state. Therefore, counties within the same state comprise the most qualified and suitable pool of candidates from which to choose reference group members. For this reason, only county governments, not

other forms of municipality, in ICMA surveys were retained for analysis. Admittedly, there are cross-state differences about the definition and function of counties. For instance, counties (or county equivalents) are referred to as parishes in Louisiana and boroughs in Alaska. Connecticut, Rhode Island, and Massachusetts have abolished county governments, totally or partially. However, counties from these five states did not remain after matching with other data sources. Altogether, 1,110 county governments appeared at least once in ICMA surveys. However, as described below, the dependent variable of this study was measured by the absolute number of newly outsourced public services between two consecutive periods, which eliminated 733 county governments. To implement fixed effect modeling as the estimation technique (detailed reasons are provided in the analysis section), I only kept county governments with at least two cross-time observations in the dataset, thus dropping another 222 governments. After dropping those without information in independent variables, the final data consist of 144 county governments and 373 observations.

3.2.1.1. Dependent variable. The adoption of MI practices is represented by the absolute number of newly outsourced public services between two consecutive time periods (specifically, 1982 and 1988, 1988 and 1992, 1992 and 1997, 1997 and 2002, 2002 and 2007). In the final data, the maximum number of observations for an organization is five, whereas the minimum number is two. I dropped organizations with only one observation to take full advantage of fixed effect modeling to control for unobserved heterogeneity.

3.2.1.2. Independent variables.

Hypotheses 2.1 & 2.2: In spite of many categorizations and measures of slack (Daniel et al., 2004) the research setting of public agencies does not provide many options for measurement. Since slack is extra resources that can be used in a discretionary manner, I used the difference between general revenue and total expenditure of a county government in each time period to proxy it. To test the effect of slack at different levels, I implemented a spline function for slack above and below a particular value. After trying different values, I finally chose zero as the cutting point because it generates the highest "log-likelihood",[3] which means the best fitness of the model. Theoretically, zero can be considered as an appropriate threshold as well because it represents a turning point from a deficit of annual public finance to a surplus. The fact that a value between the two extremes fits the model best provides rudimentary evidence for the postulation that slack resources do not necessarily correlate with adoption likelihood.

Hypotheses 2.3 & 2.4: The NPM movement advocates market mechanisms (such as outsourcing) to deliver public services in a more efficient and responsive way. Cost savings and financial performance therefore become a major concern (Poister & Streib, 1999). Considering the scarcity of measures for financial performance in public sector, I divided long-term debt by general revenue for each time period and multiplied by negative one (-1) to proxy the extent to which county governments have been running public finances efficiently. Obviously, the higher the ratio is, the better the financial

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[3] The exact value for the highest log-likelihood is 0.0036

performance is. For the sake of brevity and convenience, I named this variable negative debt ratio.

Social aspiration level is determined by the performance of similar others. To approximate the reference group on which a focal county government relies for performance comparison better, I only kept those counties that have a similar population to the focal one. For any pair of a focal county and another county, I calculated a size ratio by dividing the smaller population by the bigger one. Only those for which the size ratios concerning a focal county are bigger than a particular number (e.g., 0.1, 0.3, 0.5, 0.7, 0.9) should be included into the reference group. However, if the threshold value is too high, only a few county governments can be kept as the reference group; organizations which are actually similar to the focal one may be mistakenly dropped. If the threshold value is too low, incomparable governments may be included, thus confounding the accuracy of the social aspiration. Experimentation with different values eventually showed that 0.5 was the best option. I constructed a reference group for each focal county and used the median value of negative debt ratio as the social aspiration level. Historical aspiration level was represented by negative debt ratio at an earlier time period (e.g., Iyer & Miller, 2008).

Following Greve (2003a), I computed aspiration level as a combination of social and historical aspiration levels by attaching different weights to each one. The restriction condition is that the sum of the two separate weights should be equal to 1. I estimated the weights by searching all parameters by increments of 0.1 and chose the pair giving the

highest log likelihood. This procedure produced a pair with the value of 1 for social

aspiration and 0 for historical aspiration. The difference between financial performance

and aspiration level was specified as a spline function with zero as cutting point to test

the different effects of performance above and below aspiration level.

Hypotheses 2.5 & 2.6: For a county government, I calculated the goal that manifested

the incumbent logic with the ratio of total number of government employees to the total

number of the local population**.** Admittedly, states have their own laws, regulations,

infrastructures, and degrees of unionization concerning public employment. Nevertheless,

I believe this measure should reflect the extent to which a local government provided

services through its own staff in a big-government fashion. I named this variable

employment ratio. Using the same reference groups as for Hypotheses 2.3 & 2.4, I

performed a procedure to compute weights for social and historical aspiration levels. A

pair with the value of 0.4 for social aspiration and 0.6 for historical aspiration yields the

highest log likelihood. The difference between performance regarding the incumbent

logic and the aspiration level was also specified as a spline function with zero as cutting

point to test the different effects. Greve (2003c) suggested that a kinked-curve response

function between a given goal and an important outcome variable strongly shows that

decision makers care about the goal and this should be used as a technique to locate the

important goal variables. In this sense, the results of Study II validate my choice of proxy

variables (negative debt ratio and employment ratio) for goals manifesting the emerging

and incumbent logics.

Hypotheses 2.7, 2.8, & 2.9: The total number of already outsourced services at a prior time was entered as accumulated MI practices. I created dummy variables to represent three scenarios with the value of 1. First, slack resources are smaller than zero. Second, performance manifesting the emerging institutional logic (negative debt ratio) is above aspiration level. Third, performance manifesting the incumbent logic (employment ratio) is below aspiration level. I multiplied the three dummy variables with accumulated MI practices to test their moderation effects.

Control variables: I entered a time trend variable starting from 0 (representing the time spell of 8288) to 4 (representing the time spell of 0207) into the analysis to control for the longitudinal tendency of innovation adoption. To control for the potential impact of political ideology, I included percentages of Republican voters in state-level and county-level voting data from presidential elections prior to each time period in use. County-level per capita personal income was added to control for propensity to outsource due to local prosperity. I also entered the total number of public services not outsourced yet by a local government because governments with more services that can be outsourced may eventually outsource more services. County population was used because governments in large communities are less likely to contract out due to the economy of scale from in-house provision (Brown & Potoski, 2003a; Levin & Tadelis, 2010). All monetary values used in the study were deflated using the 1982 U.S. Consumer Price Index deflator.

   3.2.2. Analysis. I estimated models in panel data structure with an unconditional fixed effect negative binomial regression for two reasons. First, Beck et al. (2008) and

Study I of this dissertation have clearly demonstrated the importance of controlling for the inherent change propensity of an organization that is likely to be correlated with independent variables; thus fixed effect modeling should be the preferred approach. Second, since dependent variable in this study is overdispersed (variance is bigger than mean), I adopted negative binomial regression instead of Poisson regression, which requires the equality of mean and variance, to estimate coefficients.

Another important issue deserving of ample attention from management researchers is a better understanding of fixed effect negative binomial regression in order to choose an appropriate statistical command. Cancelling out unobserved heterogeneity and keeping only within-group variation for parameter estimation is the most desirable feature of fixed effect models. Fixed effect techniques have been well established for most data types, such as linear regression, (conditional) logistic regression, Cox regression, and Poisson regression. However, with regard to overdispersed count data, Allison and Waterman (2002) noted that the conditional fixed effects negative binomial model, proposed by Hausman, Hall, and Griliches (1984), is not a true fixed effect model. The Hausman, Hall, and Griliches (HHG) model, unlike other counterpart conditional models, does not successfully condition all stable covariates out of the likelihood function, despite being devised to do so. To be more specific, the feasibility of conditioning out individual heterogeneity in HHG model is based on the particular premise that the fixed effect equals the logarithm of the overdispersion parameter, which can hardly be met in empirical settings (Guimaraes, 2008). As a result, users of popular statistical packages such as STATA and Limdep (earlier versions), which implement the HHG model, often

find it counter-intuitive that their conditional fixed effect negative binomial command even reports coefficients for time invariant variables, something impossible in other fixed effect regressions.

In responding to the defects of the HHG model, methodologists (Allison & Waterman, 2002; Greene, 2004) have suggested applying unconditional negative binomial estimators with dummy variables representing fixed effects. However, a major shortcoming of unconditional maximum likelihood estimation is the so called *incidental parameter problem*. The incidental parameter problem occurs because the number of parameters (dummy variables in this case) increases with the number of units in the sample, while the number of periods stays fixed. Consequently, with a limited number of observations being used to estimate a large number of parameters, regression coefficients become biased and inconsistent (Greene 2008; Neyman & Scott, 1948).

Seemingly caught in a dilemma between a groundless assumption and potentially biased coefficients, this study still chose unconditional fixed effect regression. First, to my knowledge, no studies have convincingly refuted the applicability of unconditional fixed effect estimation. As a matter of fact, existing evidences are more in favor of this method. Allison and Waterman's (2002) simulation study reveals no proof of incidental parameter bias in applying an unconditional fixed effect negative binomial estimator. Greene (2004) showed that, given the presence of fixed effects in maximum likelihood estimation, not all limited dependent variable estimators are biased away from zero and some (e.g., the Tobit model) are not biased at all.

Second, a comparison of estimates based on the actual data of this study shows that the results of conditional (HHG) models are very similar to those of unconditional ones. However, the latter are more conservative in terms of rejecting null hypotheses because of the relatively bigger p-values. Therefore, I opted for unconditional fixed effect negative binomial modeling for the sake of accuracy and robustness. The newer version of Limdep 9 has rectified the aforementioned defect in the HHG model. This software has managed to fit the fixed effect model by actually calculating dummy variable coefficients rather than sweeping them out of model (Limdep, 2011). For this reason, analysis for this study was carried out in Nlogit 4 which is an advanced version of Limdep 9 with more functions on categorical dependent variables.

Because unconditional fixed effect negative binomial regression does not produce strictly consistent estimation, it is impossible to resort to the Hausman test, which has been widely applied to linear panel regressions, to detect heterogeneity. However, Mundlak's approach (1978) is another convenient alternative to the Hausman test.[4] Following this approach, I entered all the time-varying variables and their group means into the random effect regression in Limdep 9.0 and used Likelihood ratio test to check if, even in the presence of individual time-varying variables, the coefficients of group means are significantly different from zero. In a random regression of Model 1 (in Table 4) with only controls, adding in an extra six group means of control variables (except time) lifts the log-likelihood from -1017.80 to -975.32, strongly rejecting the null hypothesis at the

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[4] I thank Professor William Greene for his advice on this approach.

p < 0.001 level. In a random regression of Model 5 (in Table 4) which includes both controls and six individual variables, entering 12 group means (except time) leads to the increase of log likelihood from -1008.76 to -963.14, a firm rejection of the null hypothesis at the p < 0.001 level. These results indicate that group means of independent variables still pick up the difference of within-group effect and between-group effect, thus favoring fixed effect regressions over random effect ones.

3.3. Results

Table 3 displays descriptive statistics and correlations for the 373 observations used for data analysis. The correlations are low to intermediate except for a few control variables. However, since these control variables do not correlate with independent variables at high levels, their correlations do not confound our findings, as has been verified by experiments (results not reported here) with subsets of control variables.

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            Insert Table 3 here
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Table 4 shows results from the unconditional fixed effect negative binomial regression. Model 1 has only control variables. Model 2 includes controls and the spline function of slack resources to test Hypotheses 2.1 and 2.2. Model 3 puts the negative debt ratio adjusted by the aspiration level into Model 2. Model 4 puts the employment ratio adjusted by the aspiration level into Model 2. Model 5 is the saturated model which includes slack, negative debt ratio, and employment ratio. Since results from Model 2,

Model 3, and Model 4 are consistent with those of Model 5. Model 5 is used for interpretation. Model 6 includes the indicator for slack resources and its moderation with accumulated MI practices on the basis of Model 5. Model 7 includes the indicator for negative debt ratio and its moderation with accumulated MI practices on the basis of Model 5. Model 8 includes the indicator for employment ratio and its moderation with accumulated innovations on the basis of Model 5. Model 9 is the saturated model including all indicator variables and their moderations. Model 9 is used for interpretation because its results are very similar to those of Model 6, Model 7, and Model 8.

Hypothesis 2.1 states that organizational slack has a positive effect on the adoption of MI practices and Hypothesis 2.2 claims that the positive effect is more significant for organizations with relatively less slack. The results of Model 5 show that slack is positively related to the adoption likelihood at a significant level when slack is less than the threshold value of zero (b = 8.18, p < 0.05). However, when slack is bigger than zero, this relationship is reduced and becomes insignificant. In a modified regression (not reported here) of Model 5 that replaces the spline function of slack with the continuous variable, slack is positively and significantly related to adoption likelihood (b = 6.019, p < 0.05). Therefore, both Hypothesis 2.1 and Hypothesis 2.2 are supported.

Hypothesis 2.3 predicts that organizations above the aspiration level for the goal actualizing the emerging logic will be less likely to adopt MI practices. Hypothesis 2.4 postulates that for organizations below their aspiration level the negative relation between performance on the goal and the adoption of MI practices becomes attenuated. I tested

these hypotheses by entering the negative debt ratio adjusted by the aspiration level.

Results from Model 5 report a negative coefficient (-0.68), significant at the 5 percent

level, when performance on the goal is above the aspiration level. When performance is

below the aspiration level, the coefficient becomes smaller and insignificant. Both

Hypothesis 2.3 and Hypothesis 2.4 are thus supported. A negative impact on the adoption

likelihood is most likely to occur when performance for the goal reflecting the emerging

logic surpasses the aspiration level. However, being below the aspiration level in this

regard does not necessarily mean that an organization will adopt MI practices to catch up.

A reduced and insignificant coefficient indicates that a generalized behavioral pattern

cannot be summarized (or regressed) when organizations are below their aspiration level

for the goal corresponding to the emerging logic. In other words, it is indeed an empirical

question whether organizations below the aspiration level will launch externally

recommend templates or remain quiescent, depending on internal political interplay

among stakeholders following different institutional logics.

Hypothesis 2.5 expects that with performance on the goal manifesting the incumbent

logic relative to the aspiration level *decreasing*, organizations below their aspiration level

will be less likely to adopt MI practices. Hypothesis 2.6 predicts that this negative effect

should be weaker for organizations above their aspiration level. Separate variables for

performance above and below the aspiration level were entered in Model 5. The

employment ratio is positive (b = 47.05) and significant at the 5 percent level when

organizations are below their aspiration level, endorsing a downward tendency along the

decreasing performance relative to the aspiration level. When organizations are above

their aspiration level, the coefficient turns negative and insignificant. Hypothesis 2.5 and Hypothesis 2.6 are, therefore, supported. Apparently, organizations constrained by their failure to meet the goal that represents the incumbent logic are less likely to launch controversial MI practices; however, it is not certain either that organizations having satisfied their aspiration concerning the incumbent logic are willing to adopt more.

To test the moderating effect of slack resources in Hypothesis 2.7, I entered a dummy variable equal to 1 when slack is less than zero and tested its interaction with accumulated practices. Results in Model 9 show that this moderation effect is negative ($b = -0.22$) and significant at the 5 percent level, thus lending support to Hypothesis 2.7. Hypothesis 2.8 claims that organizations having achieved their aspiration level for the goal manifesting the emerging logic are more risk-averse and inert, thus increasing the negative impact of accumulated practices. I created a dummy variable equal to 1 when performance on this goal (negative debt ratio) was above the aspiration level. Model 9 reveals that the interaction between the dummy variable and accumulated practices is non-significant, therefore rejecting Hypothesis 2.8. Hypothesis 2.9 proposes a situation in which the negative effect of accumulated practices is enhanced. I generated a dummy variable equal to 1 when performance on the goal reflecting the incumbent logic was below the aspiration level and multiplied this dummy variable with accumulated practices. The results in Model 9 prove this moderation effect to be negative ($b = -0.22$) and significant ($p < 0.05$). Hypothesis 2.9 is therefore supported.

3.4. Discussion

The thesis that organizations seek to satisfy multiple goals has been an integral part of organizational theory (Cyert & March, 1963). Except for a few studies (e.g., Greve, 2008), extant literature has put emphasis on the economic or financial goal. Moreover, no studies in the light of the behavior perspective have investigated organizational decision-making in a context with competing institutional models. In this sense, this study enriches the literature by aligning the behavior view with institutional theory in exploring organizational responses to conflicting goals during an institutional change.

The findings that relatively less slack facilitates the adoption of MI practices and that abundant slack becomes less contributing point to the significance of better understanding the nature of organizational search and change. Previous studies have reported mixed results on the impact of slack resources. For instance, Bromiley (1991) found a positive effect of slack on innovation and Chen and Miller (2007) verified a positive relationship between slack and R&D research intensity. Other studies, however, presented situations where slack has a negative relationship with innovativeness (Nohria & Gulati, 1996) and exploitation and exploration activities (Voss et al., 2008). This study discovers a non-monotonous effect in which slack resources function differently, depending on whether the focal change is inevitable or avoidable. A more profound knowledge of outcome variables and empirical settings is necessary for future studies in this direction.

Acknowledging that organizations have multiple goals that represent different institutional models to satisfy, this study empirically demonstrates that organizations in an institutional change are subject to both pressures for adopting new practices and pressures for maintaining the status quo. The observed kinked-curve response functions between the goal variables (negative debt ratio and employment ratio) and the outcome variable (innovation adoption) self-proves that those variables capture an essential part of decision-making (Greve, 2003a). Organizations situated between competing institutional logics become deeply inert in terms of adopting MI practices when performance on the goal manifesting the emerging logic has surpassed their aspiration level or when performance on the goal manifesting the incumbent logic has fallen below their aspiration level. Greve (2008) put forward a sequential model in which satisfying one goal (profitability) motivates search to meet another goal (organizational size). Findings in this study, however, support a deactivation or passivity model, where organizations, by avoiding adopting extra MI practices, endeavor not to be over-committed to the emerging institution or under-committed to the incumbent institution.

Such a deactivation model opens up avenues for thought. First, research on institutional change retains a pro-change bias in which the emerging institution appears to be so triumphing that responses, feedback, or resistance from the incumbent institution become feeble or invisible (e.g., Greenwood & Suddbay; Maguire, Hardy, & Lawrence, 2004). Recent studies show that organizations are confronted with competing institutional pressures for conformity (Kim et al., 2007; Lounsbury, 2007; Marquis & Lounsbury, 2007). The deactivation model, in which being a decent follower of the incumbent

institution seems to take precedence over being an adventurous proponent of the emerging institution, contributes to the diversity of organizational responses to conflicting institutional demands (Pache & Santos, 2010). Fully recognizing that different constituencies assume different parts in an institutional change, this study also calls for more balanced approaches as well as more balanced empirical settings in future research.

Second, the contrast between the sequential model and the deactivation model reveals a need for more attention to relationships among multiple goals of organizations. The fact that financial measures have been widely applied to test problemistic searches does not rule out other goals organizations pursue. The literature shows that there are multifarious goal variables: production, inventory, sales, market share, profitability (Cyert & March, 1963), customers, learning and growth, internal business processes (Kaplan & Norton, 1996) and more specific variables, such as broadcasting station's audience coverage (Greve, 1998), banks' market share (Baum et al., 2005), and railroads' accident costs (Baum & Dahlin, 2007). Obviously, a more systematic categorization of goal variables becomes increasingly necessary. Among those goal variables, some are hierarchical, because fulfilling one goal helps accomplish the other (March & Simon, 1958); however, some goals cannibalize each other. It is also possible that seemingly competing goals actually overlap to some extent. Since the profitability goal and the growth goal are not totally mutually exclusive in terms of measuring overall performance, the sequential model (Greve, 2008) may describe one form of response when organizations face goals that are competing as well as partly consistent. The deactivation model may be regarded as one type of organizational response to exactly opposite goals. Although it is still

premature to name it as a theoretical framework, the juxtaposition of the sequential model and the deactivation model can serve as a starting point for future research to explore the effect of coexisting goals in view of the behavior theory of the firm.

Institutional theory borrows insights (such as bounded rationality) from the behavior theory to explain how organizations adapt to environmental forces (Argote & Greve, 2007); results from empirical operationalization following the behavioral view also corroborate theories on institutional change. The initial introduction of MI driven by the emerging institutional pressure creates a high degree of uncertainty and ambiguity (e.g., Newman, 2000). Therefore, an organization not only engages in problem searches for socially desirable behaviors such as practice adoption, but also establishes an aspiration level from the reference group whose members are perceived to be similar to the focal organization itself. This has been vividly proven by the optimal formula to calculate an aspiration level for the goal concerning the emerging logic in which prior periods wield no influence and the reference group has 100 percent impact. Recent institutional theorists have pointed out the long lasting effect of the incumbent institutional logics, notwithstanding the challenges from an emerging institutional model (Kim et al., 2007; Marquis & Lounsbury, 2007). Analogously, this contention has been empirically endorsed by the optimal formula in which prior periods contribute more (60 percent) than the reference group (40 percent) in estimating the optimal formula to calculate an aspiration level for the goal concerning the incumbent logic. Such an inter-theory consistency verifies connections between the behavioral approach and institutional approach and validates my efforts to merge the two together.

Study I of this thesis endorses in general the deceleration view raised by Beck et al.

(2008) that prior changes reduce chances for further change through the refinement of

organizational procedures and aspirations. Study II, however, balances and complements

this view by illustrating the significance of instantaneous change propensity out of

situational and transitory conditions as moderators of the deceleration effect. Empirical

results confirm that a lack of flexible resources and concerns over losing legitimacy

regarding the incumbent institutional model further reduce the attractiveness or utility of

kindred changes. Obviously, organizational change occurs as a result of complex

dynamics of multiple factors, internal or external, long-term or short-term, unique or

common, and so on. In this sense, de-contextualized theories, such as the competency

trap, the failure trap, and the deceleration effect, can actually supplement each other. Just

as Study II presents scenarios where the deceleration effect is strengthened, specific

contexts should exist in which instantaneous change propensity offsets the deceleration

effect or even brings about repetitive momentum,[5] a research direction awaiting more

efforts.

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[5] Certainly, such a setting should still be located after implementing fixed effect regression, as advocated by Beck et al. (2008).

4. STUDY III: SHOW ME THE ISOMORPHISM: THE CASE OF MANAGEMENT INNOVATION

4.1. Theory

From myth to local folklore. Conventional neo-institutional research emphasizes a two-stage model of diffusion where early adopters are driven by technical considerations and later adopters follow each other in a rule-like way decoupled from the original rationality (Tolbert & Zucker, 1983). This model rests upon two assumptions. First, the diffusing object across time and space is homogenous and invariant. Second, the diffusing object is unitary and discrete, so that it requires only a one-time decision. Grounded on these assumptions, a state of isomorphism dominated by the same object is expected to follow a (perceived) process of institutionalization closely. Some scholars have paid attention to the variability of the diffusing object among differentiated and localized contexts (e.g., Kostova & Roth, 2002; Westphal et al., 1997; Zbaracki, 1998). However, organizations are still mostly depicted as passively responding to externally exposed structures or features.

The translation model (Czarniawska & Sevon, 1996) emphasizes the role of interactive dynamics which reconstruct idiosyncratic meanings and interpretations of the spreading structures and ideas (e.g., Creed, Scully, & Austin, 2002; Frenkel, 2005; Zilber, 2006). Rationalized myth (Meyer & Rowan, 1977), that is, institutional logic, winds up transformed into local folklore. Institutionalization is accompanied by the mobilizing and reshaping of cultural meaning systems (Zilber, 2006). A diffusing entity routinely comes

from remote spheres; however, the embedded messages and ideational DNAs have to be deciphered locally. Transcending taken-for-grantedness and normative prescriptions underlying the structure, which have been legitimated and theorized by other actors (Meyer, 1996), cannot be identically and readily grafted into every single unit of the organizational field. Since the instant a diffusing entity is being considered to be adopted, a non-stop translation process, in which connotations and meanings are being continuously and uniquely reconstructed, results in a heterogeneous cultural schema. Local folklore may include components that are consistent with the overarching rationalized myth; it may also include components that turn out to be refuting parts of the myth. More importantly, local folklore uniquely systemizes and configures these components to incarnate within its jurisdiction the externally exposed myth.

Facing uncertainty caused by lack of information and direct experiences at the early stage of diffusion/institutionalization, organizations may conveniently choose to manipulate symbolic resemblance in order to gain legitimacy (DiMaggio & Powell, 1983; Suchman, 1995). Along with the proceeding of a translation process, situated sense-making and ongoing interactions among assorted constituencies result in unique meaning systems in which legitimacy is becoming more and more indigenous and self-justified. It gradually becomes primitive, improbable, and pointless to acquire environmental and social approval by maintaining superficial similarity to others (isomorphic state). The concurring of diffusion/institutionalization and localization eventually gives rise to divergence right after initial (symbolic) convergence.

Homogeneity and homogenization. The original concept of isomorphism, which literally means "same shape", entails a state of static homogeneity at the population level. In explaining how bureaucracy became the dominant organizational form in modern times, DiMaggio and Powell (1983) referred to the notion of isomorphism to argue that social factors make organizations undergo the change from a non-bureaucratic structure to a bureaucratic structure. In this sense, isomorphism, such as the observed homogeneity of bureaucracy, is the result of the same kind of organizational change, namely bureaucratization, which organizations widely experience. To put it slightly differently, isomorphic change precedes an isomorphic state. An *isomorphic state* can be defined as a situation in which social actors demonstrate exactly the same structural traits, features, or characteristics, while *isomorphic change* can be regarded as the same kind of change through which organizations driven by external pressures commonly go.

Making such a distinction helps understand the institutionalization of an innovation. The pervasive spread of a specific innovation is the result of organizational change, that is, a physical adoption of the innovation, performed by a large number of organizations. Therefore, the isomorphic organizational change, such as innovation adoption, occurs before the isomorphism of the same organizational structures, such as bearing the same structural features. When innovation is (perceived to be) unitary, the homogeneity of the adoption behavior can be conceived as synonymous to the homogeneity of the pertinent organizational structure. After all, adopting a discrete innovation necessarily entails the installation of a corresponding organizational structure. However, when innovation is continuous, ambiguous, and flexible, the homogeneity of the organizational structure is

then entirely conditioned on whether organizational change can be homogenous. Unless the exactly identical content of organizational change can be made to happen universally, institutionalization will be characterized by the extensive dissemination of the visible act of, rather than the structural consequences of, innovation adoption. In other words, institutionalization here is more related to behavioral homogenization than to structural homogeneity. Attending to change processes necessitates a departure from the snapshot approach in which organizations, although constantly subject to the institutional pressure, are portrayed as or observed as responding only for one time. A process orientation instead focuses on the longitudinal evolution of homogenization and subsequent homogeneity.

MIs are fundamental, continuous, and subjective, leaving freedom for organizations to improvise in adopting (Birkinshaw et al., 2008). Furthermore, MIs and associated idea propositions eventually need to be actualized through a number of MI practices; however, without detailed, black-and-white prescriptions as to what and what not to do. Over time, the extent of isomorphic change of adopting MI practices should decrease. According to the organizational learning literature (Cyert & March, 1992; Levitt & March, 1988), with more knowledge gained in prior adoption of MI practices, organizations will be better informed and take into consideration the specific demands or the expected outcomes. As a result, the degree of uniformity in terms of undergoing the same organizational changes, such as MI practices, will diminish in the long run because organizations have more discretionary motives to decide what MI practices to adopt based on their own needs and competencies. More generally, the translating of rational myth, or idea

propositions of MI, is path-dependent in the sense that earlier translating and received feedback shapes the scope of following options. Translating is also context-dependent because it is vulnerable to the macro material fluctuations and the dynamics of local institutional arrangements (Zilber, 2006).

In terms of the general tendency of the homogeneity of organizational features, some organizations may eventually start to abandon some parts, depending on the distribution of institutional pressures and ensuing organizational responses (Burns & Wholey, 1993; Oliver, 1991). Nevertheless, we should still be able to observe a period during which certain features, like certain popular MI practices temporarily assumed to be normative (Westphal et al., 1997), are accepted by a growing number of organizations. This initial expansion may be caused by regulative, mimetic, and normative pressures or their interplay, although it is dependent on specific contexts whether such a wide diffusion sustains or how long such a period lasts. After this initial stage, isomorphic state, causally following the reducing extent of isomorphic change, will eventually start to decrease as well. In summary, I hypothesize:

> **Hypothesis 3.1**: *Over time, the isomorphic state in the adoption of practices of a given MI initially increases and then decreases.*
>
> **Hypothesis 3.2:** *Over time, the isomorphic change in the adoption of practices of a given MI decreases.*

Officialization and dialectization. The essence of isomorphism is that organizations facing the same environmental conditions are forced to resemble each other (DiMaggio &

Powell, 1983; Hawley, 1968). Environment in neo-institutional theory refers specifically to organizational field, the aggregate of key stakeholders, such as suppliers, resource and product consumers, regulatory agencies, and organizations that produce similar services or products (DiMaggio & Powell, 1983). Through coercive, mimetic, and normative processes, extant structures and the structuration in the organizational field encourage constituencies to opt uniformly for the same kind of organizational change. Additional theories, such as social network (e.g., Granovetter, 1973), information cascade (Bikhchandani et al., 1992), management fashions (Abrahamson, 1991), contagion accounts (Strang & Macy, 2001), and rhetorical perspective (Green, 2004), each highlighting a different aspect or approach, profoundly enrich and tune our understanding of the dynamics and the multiplicity of isomorphism. Ultimately, the focal change becomes *officialized*, legally, normatively, and/or cognitively (Scott, 1995), as an indispensable reality in the organizational field.

The notion of isomorphism implies that positional equivalence causes the resemblance (similarity) of organizational structures. Therefore, I define the situation where organizations are proximate to each other along a particular social structural dimension in the organizational field as *structural matching*. Conceivably, proximity in the social structure contributes to the isomorphic state in adopting MI practices. Organizations in the same structural cluster are more likely to face similar social, political, and normative pressures and expectations from stakeholders, especially at a time of uncertainty and ambiguity with the advent of an MI. Propinquity along structural traits makes organizations more visible and sensitive to each other (e.g., Baum et al., 2005; Davis &

Greve, 1997). Hence, organizations are also more likely to model after comparable others and adopt similar MI practices in search of legitimacy (e.g., DiMaggio & Powell, 1983), goal aspiration (Cyert & March, 1963), or economic optimality (e.g., Bikhchandani, 1992). Additionally, network and social interaction are more likely to occur among organizations bearing identical structural characteristics (e.g., Greve, 1996; Kraatz, 1998), through which information sharing facilitates the spreading of organizational changes. Even within the same social network, Burt (1987) found that innovations diffuse via structural equivalence because of potentially competitive relationships between focal actors and those located similarly in a network structure. I hypothesize:

> **Hypothesis 3.3**: *Structural matching organizations demonstrate higher levels of isomorphic state in the adoption of practices of a given MI than other organizations*.

Given the overarching effect of social pressures, structurally matching organizations will demonstrate isomorphism in adopting MI practices. However, the longitudinal patterns may vary due to different properties of matching. Here, I propose two types of structural matching: identity-based and geography-based. Identity-based matching applies when organizations share a common social identity, on which relevant stakeholders can rely to group organizations into the same category. Geography-based matching refers to the situation where organizations are situated in the same or a proximate physical location.

Identity is an important component in the construction of the organizational field. Stakeholders or audiences generate expectations based on organizational identity. An unclear, ambiguous identity generates illegitimacy and makes it difficult to gain resources

(Suchman, 1995; Zuckerman, 1999). Organizational identity is a sorting device; once "sorted", conformist organizations are rewarded and nonconformists ones are ignored (Smith, 2011). In this sense, constraints regarding what constitutes a legitimate organizational identity result in isomorphism (DiMaggio & Powell, 1983; Thomas et al., 1986). Kane et al. (2005) found that groups sharing a superordinate social identity were more likely to learn from each other than groups lacking an overarching social identity. Being better informed of knowledge of the diffusing MI via learning by doing, organizations have more discretion in choosing the exact MI practices in performing the next round of changes. Idiosyncratic interests of each individual organization have more chances to appear; consequently, probabilities for behavioral uniformity among the entire population will reduce. With the initial uncertainty related to the focal MI reducing, organizations depend less and less on shared social identity as decision heuristics in adopting MI practices. Hence, I predict the impact of identity-based matching on the isomorphic state diminishes in the sense that organizations turn more attention inward in making adoption decisions.

> *Hypothesis 3.4*: *Over time, the effect of identity-based structural matching on the isomorphic state in the adoption of practices of a given MI reduces.*

Organizational field, the unit of analysis in neo-institutional theory, is independent of geographic ramifications. As neo-institutional theories evolved into a normative and cognitive orientation from a power and political approach of the old institutionalism, they attached little weight to local influences (Marquis et al., 2007). The absence of other coexisting institutions certainly makes the focal institutional model dominant and

triumphant, which conveniently deemphasizes the potency of organizational agency. The notion of organizational field seems to be tautological and short of predicting power, in the sense that isomorphism is defined to happen in conditions where isomorphism can happen.

Previous studies have demonstrated the important role of geographic proximity on practice diffusion. Burns and Wholey (1993) found that matrix management spread geographically. Davis and Greve (1997) noted that golden parachute practice diffused mainly through geographic business communities. Greve (1998) found that change in strategic position is more likely to be imitated in a close market. Lounsbury (2007) investigated how different logics in Boston and New York led to variation in the way mutual funds established contracts with external money management firms. Marquis et al. (2007) put forward the notion of community isomorphism to describe firms' participation in corporate social actions, practices that extend beyond immediate profit goals and are intended to increase social benefits or mitigate problems for external constituencies within the metropolitan areas where firms are headquartered.

The importance of geographic proximity is two-fold: First, institutional forces aimed at bringing in systems of symbols and behaviors do not occur in an institutional vacuum. *Instead,* institutional environments can be more fragmented and contested (e.g., Lounsbury, 2007; Marquis & Lounsbury, 2007; Schneiberg, 2007). Organizations and community environment are influenced by common elements of culture, norms, and laws as a result of sharing a common physical location (Marquis & Battilana, 2009). The

multiplicity of institutional logics within a geographic region is the reality rather than the exception. The local geographic community, as an immediate environment, functions as a touchstone for legitimacy and as a target for organizational change (Marquis et al., 2007). Incumbent or preexisting institutional logics generated and embedded in different geographic locations can interact with the overarching institutional pressures in such a way that certain practices are endorsed or modified, whereas others are eliminated or rejected. Greenwood et al. (2010) showed how regional state logics impacted firm responses to market logic and found that regional logics are most potent when firm activities are concentrated in regions whose governments champion regional distinctiveness.

Second, organizations situated in the same geographic community jointly engage in the actualization of ideas underlying a diffusing MI. Doubtlessly, isomorphic mechanisms can easily accomplish the population-level diffusion of a unitary practice. However, MI is characterized by the loose linkage and possible inconsistency between idea propositions and practice concretization. It is unlikely that specific practices and activities executed in a particular area or sphere can be repeated faithfully, intactly, and extensively in other areas or spheres. Neo-institutional theory has been preoccupied with societal-level arrangements, which are conducive to the hegemony or persistence of a practice or an organizational structure. Nevertheless, organizations, however virtual they appear to be, cannot escape from geographic constraints and must deal with their neighbors regularly. Geographic proximity thus creates an occasion where an MI is being translated and actualized through collaborative efforts with other local actors representing different

interests, values, and beliefs. An expanded and open sense-making process comes into being in which improvisations, communications, and interactions within the physical vicinity collectively generate localized cultural or normative criteria in regard to MI practices. Galaskiewicz (1985, 1991) demonstrated how corporate philanthropic practices vary across regions because of different community norms.

Organizations facing the same geographic and accompanying institutional or cultural environments are more likely to respond in similar manners. They are more likely to interact with and impact each other profoundly through various direct communication channels. Moreover, spatially close organizations are also likely to create shared cultural understandings about MI practices interdependently. Localized accounts, norms, and communities of practice (Brown & Duguid, 1991) will be gradually forged and stabilized, due to the subjectivity, tacitness, and openness of MI. Over time, a *dialect* in terms of configuration or combination of MI practices that are deemed as proper and appropriate within a locality emerges and strengthens. Organizations are less and less concerned with seemingly similar others sharing the same abstract and artificial identity; instead, organizations in the same location increasingly resemble each other on the portfolio of MI practices because of localization, standardization, and normalization of the focal MI. In spite of similar histories and technologies, structural differences between the Route 128 region in Boston and Silicon Valley were established well before technology firms emerged; the final characteristics of each region reflected historical differences (Saxenian, 1994). Contrasting the divergent trajectories of Santa Barbara, California and Ventura, California in response to the same exogenous forces, Molotch, Freudenberg, and

Paulsen (2000) examined how unlike elements conjoined to produce particular characters and how characters perpetuated to constitute different local traditions.

Hypothesis 3.5: *Over time, the effect of geography-based structural matching on the isomorphic state in the adoption of practices of a given MI increases.*

Translation and heterogeneity. Translation involves "displacement, drift, invention, mediation, creation of a new link that did not exist before" and simultaneously alters the original two (Latour, 1999: 179), that is, "those who translated and that which is translated" (Czarniawska & Joerges, 1996: 24). In this sense, as soon as the translating process is initiated, interpretations and meanings of the translated *content or text* start to be idiosyncratically enacted, bundled, and systematized. Translation does not take place in a science laboratory where conditions have been carefully monitored and controlled. On the contrary, the proceeding of translating is inevitably affected by preexisting infrastructures, social dynamisms, and/or unforeseeable disturbances. In addition, translating is an ongoing loop where previously translated elements or segments further determine what is to be translated subsequently. Therefore, intentional translation of outside ideas produces versions that are profoundly distinguished from each other. Heterogeneity stems from translation itself. This is not only because these ideas have to be converted and transformed tangibly into equivalent counterparts, but also because the actual process of translating starts to diverge whenever it is embedded in another language system.

In the case of MI, idea propositions have to be substantiated into a number of interconnected and separate practices. However, compared with technical innovation, MI does not offer a credible and stringent standardization mechanism that can be used accurately, consistently, and distinctly to convey and regulate what to do and how to do it. Hence, organizations have to make continuous and deliberate choices about the configuration or portfolio of MI practices. Organizational experiences can exert a crucial impact on the extent of homogeneity (isomorphic state) of adopted MI practices over time. Learning and internal sense-making from already adopted MI practices will give organizations more discretion, preference, or meaning with regard to the specific content or direction of future adoption. With more knowledge gained in prior adoption of MI practices, organizations will be more likely to establish their interpretations and take into consideration the specific demands or expected outcomes in decision-making (Cyert & March, 1963). As a result, organizations having accumulated more experience, knowledge, and interpretations about a generic MI become less likely to pursue the status of legitimacy by solely appearing similar to others. Unlike traditional neo-institutionalists, I suggest that with an MI and its underlying ideas, philosophies, or arguments gaining legitimacy over time, internally and externally, more and more organizations will choose MI practices based on organizational heterogeneities, such as individualized needs and culture. Ansari et al. (2010) argued that technical, cultural, and political misfits between diffusing practices and adopters can trigger different patterns of adaptation. Study I of this dissertation also suggests that over time organizations rely more on developed capabilities to make unique adoption decisions. The combination of MI practices an organization exhibits is essentially decided domestically, because there is

no intact rational myth at the level of the population that is able to dictate to all members

to follow the same behavioral trajectory. Therefore, experiences with MI practices can

bring more idiosyncratic changes, resulting in a smaller extent of mutual resemblance.

Hypothesis 3.6: *Organizations having experienced more MI practices demonstrate lower levels of isomorphic state in the adoption of practices of a given MI.*

4.2. Method

4.2.1. Sample and measures. Multiple data sets were built from ICMA surveys in

order to test hypotheses in this study. The longitudinal nature and (expected) consistency

are the most noticeable merits of these datasets. However, in-depth reading revealed that

not all survey respondents follow instructions clearly and there are some apparent

contradictions. For instance, some respondents still chose a PSD[1] mode even though they

had indicated that the focal government <u>did not</u> offer this focal public service at all. Some

did not answer the specific PSD even though they had indicated that the focal

government <u>did</u> implement PSD for the focal public service. Isomorphic state and

isomorphic change, the core variables of this study, depend on the accuracy of surveys

for hypothesis testing. Therefore, I held a very strict criterion and dropped a survey if a

single aforementioned conflict appeared. This procedure, however, reduced the number

of remaining governments for the sake of result validity. Dyadic data structure renders it

necessary to be cautious and conservative here, due to the fact that one mistake from one

respondent can be amplified significantly in forming multiple pairs with all the other

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[1] Note: in this study, PSD and outsourcing are used interchangeably for convenience and ease of expression.

respondents. However, in Study I and Study II I did not implement such a stringent step. To maintain the credibility of regression results in the two studies, I only deleted those actually corrupted observations (specific public services offered by local governments), without disqualifying all observations from the same respondent.

In order to take full advantage of multi-time structure, I built up different data sets to test hypotheses more conservatively and reliably. To test Hypothesis 3.1, data for consecutive time periods, 8288, 8892, 9297, 9702, and 0207, were created so that the *isomorphic state* of MI practices among organizations at an earlier time can be compared with that among the same organizations at a later time. To test Hypothesis 3.2, I first created data sets for the newly outsourced services (which represent change) between two consecutive time periods mentioned above. After that, I built up consecutive data to compare changes at an earlier time with those among the same organizations at a later time. In this case, change data for consecutive time periods included 8288 and 8892, 8892 and 9297, 9297 and 9702, and 9702 and 0207. For instance, 8288 and 8892, as one sample, refers to the comparison of *isomorphic change* that happened between 82 and 88 with *isomorphic change* that happened between 88 and 92.

To test Hypotheses 3.3, 3.4, and 3.5, I created two-time panel data using consecutive years, 8288, 8892, 9297, 9702, and 0207, with *isomorphic state* as the dependent variable. To test Hypothesis 3.6, I created two-time panel data using consecutive years 8892, 9297, 9702, and 0207. The reason 8288 was not included this time is because in analysis I used

variables from one time period earlier (experienced practices) as an operationalization of the accumulation of experienced practices.

4.2.1.1 Dependent variable.

Hypothesis 3.1: In this study, MI practices refer to the outsourcing of public services by local governments. Isomorphic state was measured by similarity between any pair of local governments in terms of already outsourced services. The first measure is the simple count of the number of instances in which two organizations outsourced the same kinds of public services from the pool of approximately 67 public services.

The second measure is the standardized similarity controlling for variation in the total number of services outsourced by the two organizations. In order to outsource a public service, a local government must provide this service in its jurisdiction. Local governments in the United States do not provide exactly the same public services, although in total there are approximately 67 such public services.

Standardized similarity of two organizations in outsourcing public services is computed by the following formula:

$$S_{ij} = x_{ij} / \sqrt{x_i x_j}$$

where x_{ij} is the number of services outsourced mutually by organization i and organization j, x_i is the total number of services that are <u>outsourced by organization i</u> and <u>also provided by organization j</u> and x_j is the total number of services that are <u>outsourced by organization j and also provided by organization i.</u> This measure ranges from zero (no

matches in the services outsourced) to one (outsourcing exactly the same services). I

standardized matches to control for the increase in random likelihood of matched

outsourcing when two organizations increase their total numbers of outsourced services.

Also, I made sure that x_i and x_j were those services that were provided by both

governments, so that one's outsourcing of public services that were not even provided by

the other did not erroneously diminish the extent of similarity.

For instance, suppose county A at time 1 had 15 services outsourced out of 20 total

services and county B at time 1 had 10 services outsourced out of 40 services it offered.

Among the total number of 60 public services by county A and county B, there were 15

public services that were common to both. County A outsourced 10 of these 15 services

and county B outsourced 10 of these 15 services. County A and County B both

outsourced 5 identical services. Then the isomorphic state for this pair at time 1 is 5 as

absolute count and 0.5 (5 divided by the square root of 10*10) as standardized similarity.

For time 2, the similarity can be calculated by the same procedure. I then compared

whether the dyadic similarity of each pair composed of any two local governments

increased over time or not.

Hypothesis 3.2: Isomorphic change is measured by the similarity between any pair of

local governments in terms of newly outsourced services from one time to another. The

first measure is the simple count of the number of matched public services newly

outsourced by two organizations during this period. The second measure is the

standardized similarity controlling for variation in the total number of services

outsourced by the two organizations. Standardized similarity of two organizations in outsourcing public services is computed by the following formula:

$$S_{ij} = x_{ij} / \sqrt{x_i x_j}$$

where x_{ij} is the number of new programs outsourced mutually by organization i and organization j from time 1 to time 2, x_i is the total number of services that are <u>outsourced</u> during this time spell by organization i and <u>also provided</u> by organization j at time 2, and x_j is the total number of services that are <u>outsourced</u> by organization j and <u>also provided</u> by organization i at time 2. This measure ranges from zero (no matches in the services newly outsourced) to one (outsourcing exactly the same services during the same period). I standardized matches to make sure that two organizations did not appear more similar simply because the total number of newly outsourced services increased. Also, I made sure that x_i and x_j were those services that were provided by both local governments at time 2 so that one government's outsourcing of public services that were not even offered by the other government at time 2 did not erroneously diminish the extent of change similarity.

For instance, county A had 15 new services outsourced from time 1 to time 2 out of 20 total services it offered at time 2 and county B had 10 new services outsourced from time 1 to time 2 out of 40 services it offered at time 2. Among 15 new outsourced services by county A, 4 services were provided by both two counties at time 2; among 20 new outsourced services of county B, there were 5 shared public services at time 2. Meanwhile, from time 1 to time 2, the two counties outsourced 2 identical services. As a result, the isomorphic change for this pair from time 1 to time 2 is 2 as the absolute

number of count and 0.44 (2 divided by the square root of 4*5) as standardized similarity. From time 2 to time 3, I calculated the same type of measures again.

4.2.1.2 Independent and control variables.

Hypotheses 3.3, 3.4, and 3.5: According to the ICMA surveys, *forms of government* for cities include mayor-council, council-manager, commission, town meeting, and representative town meeting. For counties they include commission, council-administrator, and council-elected executive. *Types of local governments* include city, town, village, township, borough, district, county, parish, and plantation. As we can see, regions sharing the same type of local governments are naturally more likely to share the same form of government, because sharing the same type can be a necessary condition of sharing the same form of government.

I first constructed two separate dummy variables to indicate whether two local governments in a pair share the same form of governments and the same type of governments. Factor analyses from multiple data sets uniformly show that the same form of government and the same type of government can be loaded to the same latent variable. Therefore, I created a variable named the same government structure ranging from 0 to 2. Zero means that local governments in a pair have nothing in common in terms of the two aspects. One means that local governments in a pair have one aspect, either the same form or the same type, in common. Two means that governments in a pair have both aspects in common.

ICMA surveys also include data on whether a local government is located within an MSA (Metropolitan Statistical Area), as designated by the U.S. Office of Management and Budget.[2] I constructed a dummy variable to indicate whether two local governments in a pair share the same metropolitan status (1) or not (0).

ICMA surveys defined levels of community population in the following way: 0 = over 1,000,000, 1 = 500,000-1,000,000, 2 = 250,000-499,999, 3 = 100,000-249,999, 4 = 50,000-99,999, 5 = 25,000-49,999, 6 = 10,000-24,999, 7 = 5,000-9,999, 8 = 2,500-4,999, and 9 = under 2,500. It seems to be a feasible option to construct a dummy variable to indicate whether populations from a pair of local governments fall into the same level as categorized above.

However, one obvious disadvantage of this approach is that populations close to each other may still be regarded as not being at the same level. For instance, one local government with a population of 250,000 belongs to level 2 whereas another one with a population of 249,000 belongs to level 3, in spite of the minor difference.

Instead, I used another approach to representing population similarity. For any pair of two populations, I calculated the ratio of the smaller one to the bigger one. As long as the ratio is larger than a threshold value, this pair of populations will be deemed as being at

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[2] The three levels of metropolitan status are
1 = Central (city = core city in an MSA; central counties are these in which a central city is located).
2 = Suburban (city/county located in MSA).
3 = Independent (city/county not located in MSA).

the same level and be recorded as one in a dummy variable for the same level of

population. I set 0.5 as the threshold value because in the ICMA scale, the ratio of the

smallest to the biggest in the same level is also 0.5. Additionally, experimentation with

other threshold values produced very similar results. Therefore, 0.5 was chosen to be

used for final analysis.

ICMA surveys have two types of broad geographic categorization of local governments.

Geographic division places a local government in one of nine divisions comprising the

United States, as defined by the U.S. Census Bureau.[3] Geographic region places a local

government in one of four broader regions comprising the United States, as defined by

the U.S. Census Bureau.[4] I also added other levels of geographic proximity. First,

whether two states to which local governments in a pair separately belong are adjacent.

Second, whether local governments in a pair belong to the same state. Third, whether

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[3] Geographic divisions include
1 = New England (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont) East of the Mississippi River.
2 = Mid-Atlantic (New Jersey, New York, Pennsylvania) East of the Mississippi River.
3 = East North-Central (Illinois, Indiana, Michigan, Ohio, Wisconsin) East of the Mississippi River.
4 = West North-Central (Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, South Dakota) West of Mississippi River.
5 = South Atlantic (Delaware, Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia, West Virginia, District of Columbia) East of Mississippi River.
6 = East South-Central (Alabama, Kentucky, Mississippi, Tennessee) East of the Mississippi River.
7 = West South-Central (Arkansas, Louisiana, Oklahoma, Texas) West of the Mississippi River.
8 = Mountain (Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, Wyoming) West of the Mississippi River.
9 = Pacific Coast (Alaska, California, Hawaii, Oregon, Washington) West of the Mississippi River.

[4] Geographic regions include
1 = Northeast (New England and Mid-Atlantic).
2 = North Central (East North-Central and West North-Central).
3 = South (South Atlantic, East South-Central, and West South-Central).
4 = West (Mountain and Pacific Coast).

local governments in a pair belong to the same county. Then, I used a scale from 0 to 5 to label geographic proximity from far to close in the following order: no geographic affiliations at all (0), in the same geographic region but not adjacent (1), in the same geographic division but not adjacent (2), in the same geographic division and adjacent (3), in the same state (4), and in the same county (5). Adjacency here is measured at the level of state.

To sum up, three variables, the same government structure, the same metropolitan status, and the same level of population, were used to proxy identity-based matching. Geographic proximity was used to proxy geography-based matching.

Hypothesis 3.6: Experienced MI practices were measured by the number of new services outsourced by the focal organization at an earlier time. Thanks to the fixed effect analysis of this study, I do not have to tally up the actual number of services that have been outsourced by the focal organization since the very beginning, which is, as a matter of fact, not feasible given the way the data were collected. Instead, I use the number of newly adopted practices implemented from two periods earlier to one period earlier to proxy the experienced practices because fixed effect analysis, by virtue of mean subtraction, eventually cancels out the total number of previously accumulated innovations. For instance, In order to use panel data 8892 data to test Hypothesis 3.6, I needed to put in the total numbers of MI practices the focal organization experienced until the year of 1988 and the year 1992. If newly experienced practices during 8288 and 8892 are used to approach experienced practices, one natural criticism will be that there

may be a direct relationship between newly adopted practices from 1982 to 1988 and the adoption similarity at the year of 1988. In order to avoid such an ambiguity, I can use a lagged value of experienced practices. As a result, for the similarity of 1992, I can use experienced practices from 1982 to 1988; for the similarity of 1988, I can just use zero, since no data are available for experienced innovations from 1977 to 1982. Due to fixed effect regression, it is totally feasible to use zero to represent experienced innovations from 1977 to 1982; it makes sense to use experienced practices from 1982 to 1988 to represent all experienced practices before 1988, because whatever the actual number is, it will be thrown away by the fixed effect regression. Consequently, I can just use zero and experienced changes from two periods earlier to one period earlier to test Hypothesis 3.6 without loss of statistical validity.

Control variables: I entered a time dummy variable with 1 representing a later time into the analysis to control for the longitudinal tendency of practice adoption. To control for the potential impact of political ideology, I included percentages of Republican voters in state-level and county-level voting data from presidential elections prior to each time period in use. County-level per capita personal income was added to control for outsourcing possibility due to local prosperity. I included the maximum number of public services that can be outsourced by the focal pair of local governments because governments sharing more potential services to be outsourced have more options to choose from and thus a higher possibility of outsourcing similar ones. County population was used because governments in large communities are likely to contract less because of the economy of scale (Brown & Potoski, 2003a; Levin & Tadelis, 2010). I used the ratio

of long term debt to general revenue at each time period to proxy the extent to which local governments have been running efficiently in terms of public finances. I also used the difference between general revenue and total expenditure of a county government at each time period to proxy slack resources. Additionally, the ratio of total number of government employees to total number of population was included to control for the propensity of outsourcing by a local government. All monetary values used in the study were deflated using the U.S. Consumer Price Index deflator for the earliest time of a panel data set. Seeing the fact that the dependent variable reflects a dyadic relationship between a pair of local governments, I included control variables at individual organizational level for the two, i and j. For instance, two state level Republican percentages were put into regressions, one for government i and another for government j.

   4.2.2. Analysis. In order to analyze Hypothesis 3.1, I kept those governments that had responded to ICMA surveys twice consecutively, which resulted in <u>five</u> two-time samples: 8288, 8892, 9297, 9702, and 0207. In each sample, dyads of any two local governments were created and used for comparison to check whether average similarity of adopted practices increased or not. The underlying logic for such a method is as follows. If a certain attribute has indeed institutionalized so that each organization within the field starts to possess it, then necessarily <u>any two</u> organizations within in the field should be found sharing this attribute. By comparing the extent of sharing among the same dyads before and after, we should be able to detect the overall tendency of the process of institutionalization. For the dyads generated from the sample pool of

governments, it is certain that some of them cannot be used simply because those two

places, each providing a unique set of public services separately, have nothing to be

shared. I dropped those dyads from analysis. For statistical significance, I used both

paired t test and nonparametric Wilcoxon signed-rank test which is less restrictive (e.g.,

Kapoor & Lim, 2007).

Comparably, in order to analyze Hypothesis 3.2, I kept those governments that have

responded three times consecutively. My purpose this time is to compare the similarity of

newly adopted practices, as the extent of organizational change. With these three-time

data, I was able to create further two-time change data, eventually leading to four two-

time samples for organizational change: 8288 and 8892, 8892 and 9297, 9297 and 9702,

and 9702 and 0207. By comparing the extent of new changes among the same dyads

before and after, we should be able to detect the overall tendency of the diffusing of

organizational change. Correspondingly, unusable dyads were also dropped from

analysis. For statistical significance, I used both a paired t test and a nonparametric

Wilcoxon signed-rank test.

Since all dyads are created by mutual relations among various local governments

providing multiple public services, the observations are not statistically independent,

leading to problems of autocorrelation that are not easy to handle in conventional

regression techniques. To analyze Hypotheses 3.3, 3.4, 3.5, and 3.6, I used Quadratic

Assignment Procedure (QAP) regression to overcome the problems associated with

autocorrelation of network data (Krackhardt, 1988). Simulation studies indicate that,

regardless of the degree of autocorrelation, QAP regression yields unbiased parameter estimates that can be interpreted in the same manner as those of a standard regression (Krackhardt, 1988).

QAP regression, a bootstrapping approach, first calculates regular OLS coefficients for all the independent variables. Then it randomly permutes all the rows and columns of the dependent variable matrix, while preserving the relationship between the nodes. After that, the permuted dependent variables are regressed on the unpermuted independent variables. Because the dependent variable is scrambled, regression coefficients are supposed to reflect the null hypothesis that there exists no relationship between the dependent variable and independent variables, regardless of the actual value of the coefficients. Iteration of the procedure for a predetermined time generates an empirical sampling distribution of regression coefficients with which the original coefficients from unpermuted data are compared. If an observed coefficient falls into an extreme high or low percentile of the sampling distribution, we can safely conclude that it is not produced by chance and the null hypothesis is rejected.

To test Hypotheses 3.3, 3.4, 3.5, and 3.6, I performed QAP regression with fixed effect analysis to control for unobserved time-invariant characteristics of specific government dyads as well as for the given impact of each time period. Since organizations with higher initial propensities to change are more likely to make more future changes and therefore more likely to outsource identical public services, it is of great importance to adopt fixed effect regressions in order to avoid a spurious positive relationship caused by

uncontrolled unobserved heterogeneity (Beck et al., 2008). Hausman tests performed on these panel data consistently favored fixed effect regressions over random effect ones.

It is worth mentioning that structural matching variables are time-constant. Time-invariant variables can still moderate with other time-varying variables to test moderation effects (Greene, 2008). Therefore, Hypotheses 3.4 and 3.5 can still be easily tested in a panel data structure. However, regular fixed effect regressions cannot readily produce results for time-invariant variables. Following Halaby's (2004) procedure, I implemented fixed effect regressions with time-varying variables first. Using the residuals from fixed effect regressions as the dependent variable, I implemented random effect regressions with time-invariant variables. In such a way, Hypothesis 3.3 was tested by ruling out organizational heterogeneities. Because no extant statistical software is available to carry out random effect regression using residuals from fixed effect regression through QAP, I wrote a STATA command to do so using permuted matrix data and produced sampling distribution as the basis to test statistical significance. Hypotheses 3.4, 3.5, and 3.6 were tested in STATA 10 by installing a QAP module written by Simpson (2001). Experimentation applying my command to Hypotheses 3.4, 3.5, and 3.6 generated exactly the same results as Simpson's module, thus proving the validity of my command.

In implementing QAP, I set the number of iterations as 1000, which means a sampling distribution from 1000 simulated regression results was the criterion to judge whether results from the original unscrambled data were statistically significant or not. Theoretically, it is better if the iteration number can be sufficiently large, considering the

fact that a matrix with N nodes (organizations) can result in as many formats as the factorial of N. As a matter of fact, 1000 is a common number for simulation research. In addition, it generally takes more than 2 hours to regress one model for a sample with around 120 nodes. Given the large number of regressions waiting to be performed for this study, at this stage 1000 iterations should be accepted as proper for the time being.

4.3. Results

Table 5 shows the comparison results in testing Hypothesis 3.1, which predicts that the degree of isomorphic state initially increases during institutional change. I used both an absolute value (the number of PSDs shared by a pair of local governments) and a standardized value (the standardized number of PSDs shared by a pair of local governments) as similarity measures. Also, both paired t statistics and signed-rank statistics were used for comparison, which provided identical results. Respondents to ICMA surveys were not consistent over time, so the number of dyads changed as well. In terms of absolute number of commonly outsourced services, an initial increase from 1.97 to 2.26, statistically significant at $Z = -21.73$ for the signed-rank test, did appear during the window 8288. Results for the following time windows depict a clear decreasing tendency with significant statistics. Interestingly, in terms of standardized similarity, means of 1982 are not significantly different from means of 1988. Subsequent windows again display a downward trend. My original point behind Hypothesis 3.1 is that at the early stage, MI practices will be rapidly diffused because social pressures and lack of information limit options available to organizations. However, with more knowledge learned and interpreted, organizations make discretionary decisions. In this sense, a

significant increase in the absolute number of MI practices and unchanged standardized

similarity of MI practices rightly reflect that organizations, still accepting many popular

options, start to choose their own, which eventually dilutes the extent of absolute sharing.

Hence, Hypothesis 3.1 is supported.

Insert Table 5 here

Hypothesis 3.2 claims that isomorphic change decreases over time. The number of dyads

reduced a lot because three consecutive time points were needed for the same group of

governments in order to compare the similarity of new changes that occurred during an

earlier time interval and a later one. In light of Hypothesis 3.1, I used both an absolute

value (the number of new PSDs shared by a pair of local governments) and a

standardized value (the standardized number of new PSDs shared by a pair of local

governments) as similarity measures. Table 6 compares changes during two consecutive

intervals. Paired *t* tests and signed-rank tests produced the same results. Except for the

time window 8288-8892, in which earlier change similarity was not significantly

different from later change similarity, a decreasing pattern evidently emerged during the

next three windows: 8892-9297, 9297-9702, and 9702-0207. Hypothesis 3.2 is basically

supported.

Insert Table 6 here

Hypothesis 3.3 asserts that structurally matching organizations are more likely to

resemble each other on isomorphic state of MI practices, whilst Hypotheses 3.4 and 3.5

predict long-term trajectories for identity-based matching and geography-based matching

separately. In a fixed effect regression, time-invariant variables can still interact with time-varying variables for moderation effect. I used residuals from fixed effect regressions as dependent variables for random effect regressions of time-invariant variables. Therefore, an ensuing question is whether to use residuals of regressions with or without hypothesized moderation effects. I chose those with the presence of moderation effects to calculate residuals for random effect regression. Since Hypothesis 3.4 and Hypothesis 3.5, which demonstrate the late-time effects of independent variables, were directly tested, it is more informative and proper to report early-time effects in testing Hypothesis 3.3. Otherwise, regressions using residuals without deleting moderation effects return time-averaged effects of independent variables, which will be partly redundant with Hypothesis 3.4 and Hypothesis 3.5. As a result, results concerning Hypothesis 3.3 actually report the effect of matching variables at the earlier time of a panel structure.

In addition, to maximize the validity of my results, I took advantage of two-time consecutive organizations to capture time effect and maintain as many organizations in the sample as possible simultaneously. Finally, I set up five two-time panel data sets covering 8288, 8892, 9297, 9702, and 0207 to test Hypothesis 3,3, Hypothesis 3,4, and Hypothesis 3.5. Tables 7, 8, 9, 10, and 11 report descriptive statistics and correlations for the five samples respectively. Tables 16, 17, 18, 19, and 20 present regression results for the five samples respectively. A deeper reading shows that most of the variables are correlated at low levels with few exceptions. State-level Republican percentage, county-level Republican percentage, and time trend seem to be correlated at moderate or even

high levels. Since they are control variables whose multicollinearity should not impact

the results of the focal matching variables, I kept them in regressions intact.

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          Insert Table 7 here
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Some clarifications need to be made before I proceed to discuss results more specifically.

First, the fact that the R squared for each of those models from Table 16 to Table 20 is

quite small should not be regarded as problematic. Control variables of individual

organizations, some even at county or state level, certainly cannot be very powerful in

explaining outcomes of dyadic relationships. Meanwhile, the drastically different

distributions of the dependent (standardized similarity) and independent variables

(dummy or time invariant) in my data understandably leave large variances unexplained,

not to mention that I used only a few structural matching variables. For instance, in the

8288 regression, even if I assume structural matching variables in my data are the only

matching variables and their highest possible values lead to exact similarity; R squared

from a random effect regression with all structural matching variables in this case will

only be 0.08. Second, it seems that regression coefficients for independent variables are

low. However, if effects of those variables are combined, they can still largely increase

the extent of adoption similarity of two governments. For instance, in the 8288 data, for

two governments randomly chosen, their average adoption similarity should be 0.27.

However, if the two governments are structurally matching in all aspects at the highest

levels, their average adoption similarity will be increased to 0.414, a 53 percent increase.[5]

Insert Table 16 here

Table 16 presents the 8288 regression results. Model 1 includes all control variables.

Model 2, Model 3, Model 4, and Model 5 include control variables and the interaction of

time and one of four structural matching variables. Model 6 includes control variables

and the interaction of time and all four matching variables. Such an arrangement is

necessary for my data because these time-moderated independent variables, for sure, are

highly correlated with each other and potentially may impact coefficients through

multicollinearity in the saturated Model 6. Therefore, models with individual moderation

effects help to make correct inferences. Unlike these six models using fixed effect

regressions, Model 7 regresses residuals of Model 6 on matching variables through a

random effect approach. Coefficients of the same government structure and the same

level of population, two identity-based matching variables, reduce their effects over time,

both in their individual models (-0.21, $p < 0.05$ and -0.29, $p < 0.01$) and the saturated

model (-0.019, $p < 0.1$ and -0.025, $p < 0.01$). However, the coefficient of the same metro

level, another matching variable, shows no sign of changing over time. Geographic

proximity, the sole geographic-based matching variable, increases its effect in both

[5] Results for this regression are not reported here.

models (0.003, p < 0.01 and 0.004, p < 0.01). Model 7 shows that at the earlier time of the two periods (the year of 1982), the three identity-based matching variables exert significantly positive impacts on the isomorphic state, while geographic-based matching appears non-functional. These results fit my theory well. At the early stage of practice diffusion, identity-based matching facilitates social pressures to make organizations act uniformly. Meanwhile, no localized knowledge, rules, norms, or even ideologies have been accumulated and formed in the face of ambiguity, chaos, and uncertainty. To sum up, in the 8288 regression, Hypothesis 3.3, Hypothesis 3.4, and Hypothesis 3.5 are well supported, despite the fact that the same metro level does not moderate with time.

Insert Table 17 here

Table 17 presents the 8892 regression results. Moderations of time and structural matching variables are not significant in either individual models or the saturated model. In Model 7, Coefficients for the same metro status (0.059, p < 0.001), the same level of population (0.013, p < 0.05), and geographic proximity (0.008, p < 0.001) are positive and statistically significant. However, the result for the same government structure is negative and statically significant (-0.023, p < 0.001). In the 8892 regression, only Hypothesis 3.3 is basically supported, with other two unsupported.

Insert Table 18 here

Table 18 presents the 9297 results. In individual models, only the same level of population reduces its effect (-0.016, p < 0.1) at a later date, as expected, while the other three matching variables exhibit no significant moderation effect with time. In the

saturated Model 6, the coefficient of the same level of population remains negative (-0.018, $p < 0.1$) at a marginally significant level. The same metro status seems to be interacting positively with time in Model 6 (0.015, $p < 0.1$), which is most likely to be a result of multicollinearity, because this effect is not significant in the individual Model 3. In Model 7, coefficients of the same government structure (0.017, $p < 0.001$) and the same level of population (0.013, $p < 0.01$) are positive at significant levels. The coefficient of the same metro status is positive (0.003), but insignificant. The coefficient of geographic proximity appears to be negative (-0.003, $p < 0.1$) at a marginally significant level. In short, Hypothesis 3.3 and Hypothesis 3.4 are partly supported while Hypothesis 3.5 is not supported in the 9297 regression.

Insert Table 19 here

Table 19 presents the 9702 results. For the individual moderation effect of time on structural matching variables, only geographic proximity (0.004, $p < 0.1$) strengthens its influence over time in a marginally significant way. Coefficients of the identity-based matching variables are negative, in accordance with my expectation, and insignificant. In the saturated Model 6, similar results were repeated. Model 7 indicates that at an earlier time, the same government structure, the same level of population, and geographic proximity (0.011, $p < 0.05$, 0.034, $p < 0.05$, 0.003, $p < 0.05$) all yield positive influences on adoption similarity. The same level of population exerts no impact in Model 7. To conclude, in the 9702 regression, Hypothesis 3.3 is mostly supported and Hypothesis 3.5 is marginally supported, while Hypothesis 3.4 is not supported.

Insert Table 20 here

Table 20 presents the 0207 results. Among models separately testing the moderating effect of time, only geographic proximity (0.007, $p < 0.05$) demonstrates an increased effect on adoption similarity of MI practices over time. In the saturated Model 6, the coefficient of the same level of population (-0.024, $p < 0.1$) decreases over time, while that of geographic proximity (0.006, $p < 0.1$) increases over time. In Model 7, only the same metro status displays a significantly positive impact (0.059, $p < 0.05$), as expected. Coefficients of the same level of population (-0.019, $p < 0.1$) and geographic proximity (-0.005, $p < 0.05$) turn significantly negative. Additionally, the coefficient of the same government structure is positive and insignificant.

Given the complexity and structures of data in this study, it will be unrealistic to expect that each of the five regressions will unanimously endorse my hypotheses with statistical significance. In addition, it should be understandable that occasionally the coefficients of identity-based structurally matching variables become negative, given the fact that Hypothesis 3.4 actually expected them to be reducing over time. Moreover, no results from various models emerge to contradict hypotheses with strong statistics. Thus, it should be reasonable to conclude that Hypothesis 3.3, Hypothesis 3.4 and Hypothesis 3.5 are, at least, basically supported.

Hypothesis 3.6 contends that, with experienced practices accumulated, a focal organization is less likely to appear similar to others in terms of adopted practices. Two

important points have been taken into consideration for testing this hypothesis. First,

thanks to the fixed-effect approach, the accumulation of experienced MI practices can be

represented by adding up newly experienced practices at a prior time. Second, I used

organizations responding to ICMA surveys for three consecutive times, eventually

leading to four two-time panel data sets: 828892 (Panel I), 889297(Panel II), 929702

(Panel III), and 970207 (Panel IV), with similarity measures at the latter two times of

each trilogy as dependent variables. In each of the four two-time panels, experienced

practices at time 1 are zero, and experienced practices at time 2 are newly adopted

practices that have occurred during the first two times of each trilogy. The purpose of

using laggard variables is to increase validity by avoiding potential issues caused by

endogeneity.

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           Insert Table 12 here
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Table 12, Table 13, Table 14, and Table 15 display descriptive statistics and correlations

for the four samples respectively in order. Table 21 reports regression results for the four

samples respectively. Two things can be noticed in Table 21. First, I included the logged

value of population in testing Hypothesis 3.6. Population is absent from testing

Hypotheses 3.3, 3.4, and 3.5 because they directly relate to the same level of population. Interplay between population and the same level of population complicates interpretations of coefficients. Second, results of control variables for government i and government j become different in saturated models of Table 21. This is due to the fact that experienced changes were not entered in a symmetric way.

The first model in four panels only has control variables. Accumulation of experienced MI practices is entered in Model 2. All the four second models clearly produce negative coefficients at statistically significant levels (-0.017, $p < 0.001$, -0.009, $p < 0.05$, -0.013, $p < 0.001$, -0.015, $p < 0.01$). <u>Evidently, Hypothesis 3.6 is strongly supported.</u> According to regression coefficients, the absolute value of experienced practices is comparable to that of structural matching variables in previous results. However, descriptive statistics show that each organization undergoes multiple MI practices. In this sense, individualized experiences ultimately play a more powerful role in causing diverging behaviors among organizations.

4.4. Discussion

Researchers have universally accepted institutional factors as indispensable in explaining the spread of innovation (Casile & Davis-Blake, 2002; Kostova & Roth, 2002; Spell & Blum, 2005). However, in their introduction to the Academy of Management Journal research forum on institutional theory and institutional change, Dacin, Goodstein, and Scott (2002) encouraged researchers to explore institutional change more thoroughly and comprehensively, rather than only using institutional theory to explain the persistence and the homogeneity of a phenomenon. Following this direction, Study III seeks to extend

theorizing and empirical techniques on innovation diffusion through a longitudinal

perspective, which depicts a more dynamic and balanced process.

A variety of unique and/or interrelated theories (e.g., Abrahamson, 1991; DiMaggio &

Powell, 1983; Strang & Macy, 2001) have been put forward to explain the ubiquitous

presence of a certain attributes, activities, or practices. The term *isomorphism* naturally

became pervasive as well in relating to theories. This study distinguishes between

isomorphic change, as the process, and *isomorphic state*, as the outcome, for a deeper

probe into the diffusing mechanism. A simplified observation that a particular type of

isomorphic change has been widely spreading does not necessarily lead to a

homogeneous isomorphic state. Similarly, extensive visibility of a social phenomenon

does not guarantee that all constituencies must have experienced the exactly identical

isomorphic change. This study provides an example in which a diluting isomorphic state

is accompanied by isomorphic changes with diversifying content. Institutional theorists

(e.g., Oliver, 1991) did note purposeful actions by organizations in responding to

institutional pressures; however, they assumed that organizations, with or without full

information, only make a one-time reaction. Borrowing from the behavior theory of the

firm (Cyert & March, 1963) and the translation model (Czarniawska & Sevon, 1996), this

study advocates a learning and cultural approach to understanding the relationship

between organizations and social pressures.

MI further necessitates a learning perspective. Despite the fact that scholars (e.g.,

Damanpour, 1987) have long pointed out the importance of differentiating technological

and MIs in identifying conditions that facilitate or hamper innovation adoption, most studies have treated innovation as a discrete phenomenon and have not examined the variability of innovation adoption (Westphal et al., 1997). Whereas the boundary, content, and causality of technological innovations are more objective and clearer, MIs, embodying norms, values, and philosophy, are more subjective and contextual (e.g., McCobe, 2002). The adoption and implementation of MI may disrupt, modify, or establish different routines and procedures in different ways, which requires localized interactions such as negotiation, persuasion, interpretation, and so on. When it comes to interpreting and making sense of MI, intra-organizational interactions can play a deterministic role and result in variations in actual behaviors. In this regard, future research, in applying extant diffusion theories, should be more cautious about the nature of innovation and pay more attention to the impact of organizations with active agency.

This study highlights the converging effect of social pressures on structurally matching organizations and the diverging effect of prior adoption experiences on each individual organization. Structural dependence is an inherent foundation of institutional theory in the sense that social structure determines types and extent of external pressures for which organizations must cater. The results of this study clearly endorse this theoretical stand. However, comparison of regression coefficients also suggests that the positive impact of structural matching can be countervailed when an organization undergoes more MI practices. Thus, a more integrated theory surfaces itself. Organizations can never be exempt from external impact; however, accepting and digesting socially recommended

practices gradually fosters their own opinions and preferences, which eventually give rise to idiosyncratic choices.

Another intriguing finding is the opposing longitudinal trends of identity-based and geography-based structural matching. The waning effect of identity-based matching is, as a matter of fact, consistent with and supportive of my point that prior experiences guide more autonomous behavior. However, a simultaneous rising of geography-based matching adds a balanced touch. Despite discretion in making decisions, organizations still adhere to a localized uniformity in their immediate environment, voluntarily or involuntarily, purposefully or unknowingly. Such a difference between the two types of matching can be attributed to the fact that MIs are flexible, subjective, and open to interpretations. Without a centralized system for accreditation and standardization, the concrete definition, content, and norms of MI are more likely to be jointly decided by local actors who are closest and most impactful to each other, rather than by those who are solely connected by abstract and superficial identities.

To my knowledge, this study is the first that attempts to approach isomorphism, mutual resemblance of organizations, at a dyadic level and analyzes isomorphism using an advanced technique of social network analysis, whilst the majority of prior studies rely on event history analysis to estimate adoption likelihood. Reflecting a network mentality, QAP is capable of revealing in general whether macro or high-level social structures precede the spreading of certain attributes, thus making it a robust and conservative test

of diffusion theories. The findings of this study further prove the applicability of the QAP technique and thus open avenues, both theoretical and methodological, for future research.

This study has limitations in need of further work. Firstly, in operationalizing the extent of similarity, I constructed dyadic relationships on the basis of the specific kinds of public services outsourced by local governments. Nevertheless, theories presented in this study are general enough to the extent that other aspects of similarity can be developed and empirically tested. For instance, ICMA surveys also asked respondents to answer the degree of PSD intensity local organizations implemented. Specifically, a PSD can be solely carried out by a private for-profit entity, by a private non-profit entity, by other formats, such as concessions or subsidies, or even by collaboration with others. Accordingly, trying to find out whether the extent of PSD intensity brings about comparable results can be the next step of research. Second, limited by data availability, this study only came up with four ways to operationalize structural matching. In future work, a more comprehensive measure of government structure should be proposed to explore the categorization and impact of structural matching in greater detail. Third, although admitting a proactive role is assumed by intra-organizational interactions in deciding which MI practices are adopted, my study is still holding a relatively rigid approach in the sense that organizational discretion is approximated by the number of experienced practices. In-depth qualitative research in an actual context can provide both evidence and aspirations for future explorations.

5. GENERAL DISCUSSION

5.1. Contribution to Public Management Literature

Exploring the empirical setting of local governments in the United States, this

dissertation contributes to scholarship on the outsourcing of public services. First, this

dissertation points to the importance of outsourcing management capacity. In the private

sector, the ''make or buy'' decision deals with whether transactions occur inside the firm

or whether they take place in the market, depending on the relative transaction costs of

market or internal production (Coase, 1937; Williamson, 1981). Outsourcing of public

services was regarded as a way to increase efficiency, address citizen concerns better, and

promote local economic development (Osborne & Gaebler, 1992; Savas 1987). Noting

insight from transactions costs theory, empirical studies in this direction have probed the

characteristics of public services as well as the contracting process (e.g., Brown et al.,

2008; Hefetz & Warner 2004, 2007; Levin & Tadelis, 2010). Analysis of privatization

and contracting out interprets transaction costs in terms of administrative costs and

contracting costs. Brown and Potoski (2003a) assigned values to public services in two

dimensions: asset specificity and service measurability and statistically proved that

service characteristics are related to outsourcing possibility. Similarly, Levin and Tadelis

(2010) found that services with high transaction costs of contracting and services with

high quality sensitivity are privatized less frequently.

Although public services can be distinguished on the basis of their operational easiness

for contracting out, Brown and Potoski (2003b) asserted that contracting out is not a one-

size-fits-all solution and that the applicability of any market-orientation arrangement to deliver public services depends on governments' capabilities to manage the entire contract process, ranging from feasibility assessment to monitoring and evaluation. Echoing this assertion, Study I proposes *operational relatedness* and *skill relatedness,* on the basis of organizations' internalization of past outsourcing decisions, to capture the dynamic and instantaneous capability of local governments to carry out additional PSD activities. Notwithstanding that characteristics of public services can be differentiated from each other along multiple criteria, it is more useful to figure out how *different* a public service is as opposed to a particular organization. Conceptualizing the feasibility of contracting out a public service as a relational concept helps practitioners to comprehend the essences of the market approach better. Instead of rushing into decisions to outsource services that are claimed to be simple and efficient, local governments should focus on how well they are able to digest and assimilate the consequences of contracting out those services.

Second, this dissertation endorses a pragmatic attitude toward market-oriented methods to provide public services. Although privatization has gained global support at the national and local levels since the end of 1970 and advocates have predicted a decreasing role for direct government provision of public service delivery (e.g., Savas, 1987), the actual extent of privatization among U.S. local governments has grown more slowly than expected (Hefetz & Warner, 2012). Studies have not provided persuasive evidence of cost savings and efficiency improvements from privatization reforms (e.g., Boyne 1998; Domberger & Jensen, 1997). Bel et al. (2010) conducted a meta-analysis of empirical

studies pertaining to privatization of water distribution and solid waste collection services and found no systematic evidence for lower costs as a result of private production. Result disparities can be attributed to differences in time periods, service characteristics, and policy environments, thus underscoring the importance of situational elements (Bel et al., 2010). The debate over public versus private delivery is gradually replaced by pragmatism with more comprehensive concerns (Warner & Hebdon 2001; Warner & Hefetz 2004). For instance, Fernandez et al. (2008) showed that the influence of political factors still helps to explain variations in local government contracting, even though some findings suggested that the outsourcing of public services has become less politically controversial and more embraced as a service delivery approach (Auger, 1999; Brudney et al., 2005). Moreover, Levin and Tadelis (2010) developed a model of "make-or-buy" decision by including the costs of contract administration and highlighting the trade-off between productive efficiency and contracting costs. Their analysis also suggests an important part for politics in contracting for government services.

All three studies in the dissertation illustrate or allude to the crucial role of contextual concerns that are beyond rigid drives for efficiency improvements or cost reductions in guiding outsourcing decisions by local governments. The bottlenecking model in Study I fully recognizes the potential of local governments to stand temptation from and cultivate immunity to ubiquitous practices. It is also pragmatic of local governments to select services to privatize by relying on their relative capabilities to do so, not the absolute degree of difficulty derived from transaction costs theory. In Study II, local governments dance with the incumbent institutional logic and the challenging logic at the same time

and continually adjust the number of services to contract out in keeping with the interplay of the two logics as well as governments' motivation to change. Study III proves that pragmatic and individualized choices by local governments lead to the weakening of isomorphism. Experiences foster idiosyncrasy and flexibility, resulting in unique portfolios of outsourced services, even if local governments seem to be under the same exogenous pressure to privatize. Recognizing the growing pragmatism in local governments, this dissertation calls for a better understanding of the dynamics between market and hierarchy in the public sector and a deeper investigation into the circumstances of sourcing decisions.

5.2. Contribution to the Management Innovation Literature

MI has been gaining prominence as a new agenda for both practice and research (Mol & Birkinshaw, 2010). Unlike studies in which MI is assumed to be discrete and isolated, this dissertation holds a process and constructionist perspective on the adoption/diffusion of MI, exemplified by the outsourcing of public services by U.S. local governments from 1982 to 2007.

Based on Ogburn's (1922) notion of *cultural lag*, which asserts that technology develops at a faster rate than other non-material culture, Evan (1966) proposed that MIs in organizations tend to lag behind technical innovations. Damanpour and Evan (1984) empirically verified organizational lag and found that a balanced rate of adoption of management and technical innovations is more effective in maintaining or improving performance. This dissertation advances the literature by noting two related points. First, MI involves the unity of idea propositions and MI practices. Second, idea propositions do

not stringently correspond to MI practices in a one-to-one fashion,[1] a phenomenon that may be conceived as vaguely analogous to cultural lag or organizational lag. Without a credible authoritative and prescriptive accreditation system, idea propositions are subject to various interpretations and improvisations. Consequently, the ultimate materialization of the same MI is characterized by diversity, flexibility, and subjectivity, which has been systematically confirmed in all the three studies. In addition, steering away from the relationship between MI and technical innovation, this dissertation delves into internal connections among MI practices and their influence on subsequent behaviors. Lastly, *culture* is brought back to MI in the sense that MI is not only culture already made externally but also culture in-making locally (Czarniawska & Sevon, 1996).

5.3. Contribution to Organization Theory

As Glynn, Barr, and Dacin (2000: 726) have pointed out, "organizational theorists tend to homogenize what is, in reality, a pluralistic world, emphasizing the discovery of unifying principles that lend organizational focus, legitimacy, and identity while downplaying some of the complexity that pluralism often entails". Paradoxically, this preference over conformity, universality, or homogeneity cohabits with theories and empirical evidence endorsing an opposite view. The purpose of business strategy is to create sustainable *uniqueness* in terms of how to produce or what to produce to achieve above-average returns (Porter, 1996). Another prominent example is the resource portioning model (Carroll, 1985; Carroll & Swaminathan, 2000) in which generalists (conformists) and specialists (non-conformists) thrive on resources from separate niches. At first glance,

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[1] Perhaps we can term this phenomenon *actualization lag* or *practice lag*.

this inconsistency can be ascribed to the fact that the conformity view is primarily

focused on social, institutional forces (e.g., DiMaggio & Powell, 1983) whereas the non-

conformity view is based on the competitive landscape. However, a subsequent question

can easily refute this explanation. *If non-conformity can emerge and sustain in a*

competitive environment, on which grounds must non-competitive forces be able to

pressure organizations, whose survival does not depend on others' demise, to conform?

If it is too extreme or hasty to contend that complete conformity in a population can

hardly occur in the sense that specialists always exist and prosper in reality, it should be

safe to maintain that popular-level conformity just <u>happens to</u> occur or is perceived,

accurately or inaccurately, to occur. Unfortunately, it is common for theorists to explain

homogeneity, conformity, or repetition when they first choose to assume (part of) the

world as homogeneous, conforming, and repeatable.

Specifically, this dissertation demonstrates that organizations develop preferences over

specific aspects of MI on the basis of internalized decisions. Such a choosing-by-doing

model clearly attests to the proactive role played by organizational agencies in

responding to conforming pressures. By the same logic, the concept of bottleneck in

diffusion is presented to divert scholars' attention from the fact that organizations can

succumb to external pressures as much as they can purposefully avoid them. This

dissertation challenges a self-reinforcing or self-prophesying disposition in the literature.

Whether it is inter-organizational or intra-organizational, numeric stocking, accumulation,

or repetition of a particular mode of arrangement, structure, or behavior, this does not

mean that this mode further proliferates itself to a level of hegemony where it thoroughly

saturates every social sphere. Diversity or non-conformity is not the result of weakening

institutionalization, diffusion, or linear reinforcement; on the contrary, diversity,

versatility, and adaptability are the very reasons why institutionalization, diffusion, or

linear reinforcement are constrained, confined, or weakened. When a particular mode of

arrangement is perceived as a simple switch from null to existence, it becomes easier to

regard the multiple occurrences across the population as the major, dominant, and only

form of societal reality. By the same token, when an instantaneous or stochastic mode of

arrangement is perceived as belonging to a group affiliation, it becomes easier to think of

multiple incidences within an organization as the proficient, favorite, and best form of

organizational action. In both cases, observers, including scholars, practitioners, reporters,

and other audiences, have been relying on a cognitive convenience or shortcut,

consciously or subconsciously.

Additionally, the influence of DiMaggio and Powell (1983) has led to a one-sided picture

of institutional development in the new sociological institutionalism in which

isomorphism is given undue analytic magnitude (Beckert, 2010: 151; Mizruchi & Fein,

1999). It is not theories that predict a self-reinforcing trajectory; it is simply that our

minds *move* back and forth to favor a self-reinforcing trajectory. Not only does the "iron

cage" have other causes than those raised by Max Weber; it may not exist at all (Beckert,

2010). In this sense, this dissertation calls for a more open-minded perspective toward

social reality and invites researchers as well as practitioners to be more prudent about this

self-prophesying disposition.

Depending on the behavior theory of the firm (Cyert & March, 1963) to make arguments and propositions, this dissertation also tries to contribute by taking into consideration the coexistence of plural, multiple, and even competing goals in the context of institutional changes. A deactivation model, where most organizations choose to be decent followers of the old institution rather than adventurous champions of the new institution, offers another possibility besides the sequential model put forward and verified by scholars from the behavioral school (e.g., Greve, 2008). More work is needed to figure out the relationship between the two models and relationships among various organizational goals.

In a nutshell, this dissertation advocates attention to the pluralism, diversity, and variety of organizational life. It is by no means my intention here to persuade scholars and managers to abandon the deterministic approach totally in making sense of subjects under investigation. However, researchers and practitioners ought to exercise caution before they expect, predict, or take for granted a destination of conformity or before they foresee a penalty for non-conformity. It is worth serious consideration whether a unique niche for survival or prosperity can be located before efforts are spent in correcting non-conformity or in pursuing conformity aggressively.

This dissertation, to my knowledge, is the first to approximate isomorphism, a state after a practice or innovation has been thoroughly diffused, from the perspective of dyadic similarity, which helps to distinguish between isomorphic state and isomorphic change. Applying and making statistical innovations in QAP regressions, this dissertation vividly

documents the longitudinal trajectory of the diffusing of MI, which should be replicable in other empirical settings in the future. An interesting finding is that geographic proximity is still exerting significant influence on building up local behavioral temples, even if globalization has been proclaimed as an unstoppable force to homogenize the world.

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7. Tables & Figures

Table 1: Descriptive Statistics and Correlations[1]

Variable	Mean	s. d.	1	2	3	4	5	6	7	8	9	10
1. Private service delivery	0.12	0.33										
2. Total provision[2]	3.77	0.19	-0.00									
3. Debt to revenue ratio	0.97	0.96	0.00	0.09								
4. Slack resource	0.00	0.28	0.02	0.01	-0.21							
5. Population	11.35	0.89	0.07	0.11	-0.01	0.03						
6. Trend	0.67	1.00	-0.04	0.12	0.06	-0.02	0.06					
7. Prior diffusion	0.20	0.14	0.20	-0.03	-0.02	-0.00	0.01	-0.11				
8. Experienced practices	2.53	0.67	-0.00	0.48	0.07	0.07	0.14	0.52	-0.13			
9. Routinized practices[3]	1.19	0.76	0.11	0.24	-0.04	0.06	0.18	0.03	-0.05	0.44		
10. Operational relatedness	0.40	0.49	0.07	0.13	-0.00	0.02	0.10	-0.01	-0.06	0.25	0.55	
11. Skill relatedness	0.40	0.35	0.05	0.05	-0.01	0.02	0.03	-0.07	-0.11	0.12	0.39	0.23

[1] Correlations greater than 0.032 are significant at $p < 0.001$; correlations > 0.024 are significant at $p < 0.01$; correlations > 0.017 are significant at $p < 0.05$.

[2] Logarithm.

[3] Logarithm with 1 added before transformation because some governments experienced or committed to no practices at some time.

Table 2: Results of Conditional Logistic Regression

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10
Total provision[1]	-.34	-.32	1.63**	1.72**	-.50	-.36	1.68**	-.30	-.37	-.27
Debt to revenue ratio	-.39**	-.39**	-.10	-.21	-.33*	-.37*	-.09	-.37*	-.32*	-.29+
Slack resource	.16	.18	.79***	.84***	.17	.17	.79***	.19	.25	.27
Population	-.53	-.44	-.99+	-.90+	-.35	-.45	-.81	-.49	-.43	-.32
Trend	.34***	.43***	1.60***	1.53***	.40***	.33***	1.61***	.44***	.36***	.50***
Prior diffusion		5.50***		5.51***	5.74***		5.76***	5.96***		6.20***
Prior diffusion squared		-6.27***		-6.93***	-6.78***		-6.80***	-6.92***		-6.56***
Experienced practices			-3.48***	-2.91***			-3.27***			
Routinized practices[2]			.64***		.45***		.55***			
Prior diffusion * Experienced practices				-.97**			-.85*			
Prior diffusion * Routinized practices					-.89**		-.36			
Operational relatedness						.17*	.11		.23*	.28**
Skill relatedness						.23+	.54***		-.10	.53***
Trend * Prior diffusion								-.67*		-.83**
Trend * Operational relatedness									-.13	-.16*
Trend * Skill relatedness									.55***	.27*
Log-likelihood	-2740.08	-2553.12	-2652.28	-2490.80	-2537.71	-2735.50	-2459.25	-2549.82	-2725.09	-2527.42

+ p < .10; * p < .05; ** p < .01; *** p < .001.

[1] Logarithm.

[2] Logarithm with 1 added before transformation.

Table 3: Descriptive Statistics and Correlations[1]

Variable	Mean	s. d.	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Total PSD change	5.882	5.161													
2. Time trend	1.922	1.342	-.02												
3. State Republican percentage	.523	.078	-.04	-.38											
4. County Republican percentage	55.792	10.272	-.10	-.21	.68										
5. County per capita personal income[2]	13.199	3.113	.14	.45	-.18	.01									
6. Number of potential changes[3]	3.362	.404	.38	-.07	.16	.12	.02								
7. Population[4]	11.622	1.104	.15	.11	-.04	-.05	.54	.01							
8. Accumulated practices[5]	2.029	.882	-.16	.03	-.01	-.09	.02	-.26	.17						
9. Negative debt ratio-aspiration level > 0	.093	.234	.01	-.03	.16	.07	-.03	-.02	.09	-.01					
10. Negative debt ratio-aspiration level < 0	-.278	.977	-.03	-.02	.02	.07	-.03	-.05	.06	.03	.11				
11. Employment ratio-aspiration level > 0	.003	.005	.01	.08	-.04	-.14	-.21	-.07	-.26	-.01	.09	.02			
12. Employment ratio-aspiration level < 0	-.001	.003	.13	-.04	.04	-.06	-.09	-.04	.05	-.03	-.00	-.03	.29		
13. Slack > 0[6]	.003	.008	.07	.07	.02	.03	.19	.04	.34	.14	.06	.06	-.07	.04	
14. Slack < 0[7]	-.005	.019	.07	-.23	.01	.06	-.31	.04	-.37	-.08	.07	-.00	.07	-.01	0.12

[1] Correlations greater than 0.17 are significant at $p < 0.001$; correlations > 0.13 are significant at $p < 0.01$; correlations > 0.10 are significant at $p < 0.05$.

[2] In thousands of dollars.

[3] Logarithm.

[4] Logarithm.

[5] Logarithm.

[6] In billions of dollars.

[7] In billions of dollars.

Table 4: Results of Unconditional Fixed Effect Negative Binomial Regression[1]

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
Time trend	.09	.09	.12*	.09	.12*	.14*	.10	.13*	.12+
State Republican percentage	.93	1.14	1.59	.86	1.30	1.57	1.01	1.44	1.31
County Republican percentage	-.02+	-.03*	-.03*	-.02+	-.02+	-.02+	-.02	-.03+	-.02+
County per capita personal income	-.03	-.01	-.03	-.01	-.03	-.04	-.02	-.03	-.02
Number of potential changes[2]	1.20***	1.14***	1.12***	1.15***	1.11***	1.06***	1.12***	1.17***	1.12***
Population[3]	-.17*	-.17*	-.15*	-.15*	-.14*	-.11+	-.15*	-.16*	-.14*
Accumulated changes[4]	-.28***	-.29***	-.33***	-.28***	-.32***	-.25***	-.36***	-.24**	-.21+
Slack > 0		1.42	1.65	.55	0.75	-4.24	-1.30	0.95	-5.53
Slack < 0		6.51*	7.68*	7.00*	8.18*	7.76*	8.15*	7.87*	7.82*
Negative debt ratio-aspiration level > 0			-.67*		-.68*	-.71*	-1.02**	-.77*	-1.01**
Negative debt ratio-aspiration level < 0			-.05		-.05	-0.05	-.06	-.04	-0.04
Employment ratio-aspiration level > 0				-0.98	-3.26	-5.85	-3.39	6.18	2.75
Employment ratio-aspiration level < 0				45.93*	47.05*	47.26*	45.73*	105.21***	101.44***
Slack indicator						-.13			-.10
Slack indicator * Accumulated practices						-.20*			-.22*
Performance indicator							.22		.15
Performance indicator * Accumulated practices							.05		.07
Employment ratio indicator								.44**	.44**
Employment ratio indicator * Accumulated practices								-.21+	-.22*
Log-likelihood	-514.61	-512.10	-508.43	-509.50	-505.74	-503.35	-504.36	-500.85	-497.11
Likelihood ratio		5.02+	7.34*	5.2+	12.72*	4.78+	2.76	9.78**	17.26**
Degree of freedom (vs. model no.)		2(1)	2(2)	2(2)	4(2)	2(5)	2(5)	2(5)	6(5)

+ $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$.

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[1] Fixed effects of individual county governments are not reported here for brevity.

[2] Logarithm.

[3] Logarithm.

[4] Logarithm with 1 added before transformation.

Table 5: Comparisons of Isomorphic State over Time

Time window	No. of dyads	A: Means of the absolute number of commonly outsourced services			Paired *t* statistics	Signed-rank statistics
		The former	The latter	Difference		
1982-1988	51,020	1.97	2.26	-0.29	-23.32***	-21.73***
1988-1992	17,949	2.16	2.00	0.16	7.41***	4.72***
1992-1997	62,397	2.19	1.93	0.26	20.71***	34.92***
1997-2002	55,546	2.24	2.14	0.10	6.43***	6.29***
2002-2007	15,985	2.31	1.80	0.52	20.53***	20.26***
Time window	No. of dyads	B: Means of the standardized similarity of commonly outsourced services			Paired *t* statistics	Signed-rank statistics
		The former	The latter	Difference		
1982-1988	51,020	0.31	0.31	0.00	1.58	0.46
1988-1992	17,949	0.30	0.29	0.01	4.66***	4.06***
1992-1997	62,397	0.32	0.28	0.04	25.93***	26.19***
1997-2002	55,546	0.31	0.29	0.02	16.19***	15.07***
2002-2007	15,985	0.30	0.26	0.04	15.68***	15.48***

+ p < .10; * p < .05; ** p < .01; *** p < .001.

Table 6: Comparisons of Isomorphic Change over Time

Time window	No. of dyads	A: Means of the absolute number of common services newly outsourced			Paired t statistics	Signed-rank statistics
		The former	The latter	Difference		
8288-8892	8,245	0.72	0.71	0.01	0.75	0.66
8892-9297	4,166	0.74	0.65	0.09	3.32***	7.54***
9297-9702	5,543	0.91	0.78	0.12	3.84***	3.89***
9702-0207	4,401	0.88	0.49	0.39	13.49***	12.67***

Time window	No. of dyads	B: Means of the standardized similarity of common services newly outsourced			Paired t statistics	Signed-rank statistics
		The former	The latter	Difference		
8288-8892	8,245	0.18	0.19	-0.00	-0.55	-0.84
8892-9297	4,166	0.19	0.16	0.02	4.22***	5.43***
9297-9702	5,543	0.18	0.17	0.01	2.37*	2.61**
9702-0207	4,401	0.20	0.14	0.06	10.58***	10.08***

+ p < .10; * p < .05; ** p < .01; *** p < .001.

Table 7: Descriptive Statistics and Correlations (8288)[1]

Variable	Mean	s. d.	1	2	3	4	5	6	7	8	9	10	11	12
1. Standardized similarity	.316	.235	1.000											
2. Time	.500	.500	-.013	1.000										
3. State Republican percentage	.550	.062	-.035	.635	1.000									
4. County Republican percentage	56.185	9.912	-.009	.424	.623	1.000								
5. County per capita personal income	7.724	1.496	.079	.058	-.081	-.046	1.000							
6. Local government employment ratio	.012	.009	.016	-.072	-.059	-.011	-.179	1.000						
7. Slack	.420	6.477	-.010	.050	.010	-.016	.010	-.071	1.000					
8. Long term debt ratio	.915	1.146	.031	-.018	.029	.009	-.046	-.093	-.079	1.000				
9. Total same public services provided[2]	3.268	.316	.254	-.002	.009	.028	.027	.169	-.008	.052	1.000			
10. Same government structure	1.045	.777	.098	.000	.062	.055	-.023	-.037	.021	.064	.255	1.000		
11. Same metro status	.369	.482	.045	.000	-.035	-.037	.091	-.036	-.005	.003	.018	.012	1.000	
12. Same level of population	.421	.494	.027	.000	.003	.022	-.014	-.008	-.011	.039	.059	.143	.130	1.000
13. Geographic proximity	.624	1.173	.020	.000	-.013	-.011	-.000	-.020	.006	.003	.029	.087	.044	.030

[1] Correlations greater than 0.0076 are significant at p < 0.001; correlations > 0.006 are significant at p < 0.01; correlations > 0.0045 are significant at p < 0.05. The number of observations for this table is 185,424 and the number of organizations is 305.

[2] Logarithm.

Table 8: Descriptive Statistics and Correlations (8892)[1]

Variable	Mean	s. d.	1	2	3	4	5	6	7	8	9	10	11	12
1. Standardized similarity	.291	.230	1.000											
2. Time	.500	.500	-.050	1.000										
3. State Republican percentage	.564	.0549	-.002	-.541	1.000									
4. County Republican percentage	57.686	9.900	.020	-.329	.548	1.000								
5. County per capita personal income	13.103	3.121	.059	.278	-.328	-.101	1.000							
6. Local government employment ratio	.012	.009	-.061	.028	.120	-.009	-.116	1.000						
7. Slack	-.314	22.964	.000	-.049	-.044	-.007	.063	.011	1.000					
8. Long term debt ratio	1.060	1.441	.054	.080	.012	-.018	-.043	-.185	-.418	1.000				
9. Total same public services provided[2]	3.413	.292	.215	.340	-.161	-.161	.135	.164	-.037	.097	1.000			
10. Same government structure	1.046	.809	.049	.000	-.020	-.018	-.004	-.009	.045	.033	.271	1.000		
11. Same metro status	.363	.481	.061	.000	-.019	-.009	.089	-.029	-.008	.027	.019	.020	1.000	
12. Same level of population	.395	.489	.050	-.000	-.027	-.020	.044	-.012	-.024	.030	.060	.087	.175	1.000
13. Geographic proximity	.650	1.207	.022	-.000	-.016	-.001	-.015	-.033	.008	.020	.000	.089	.042	.057

[1] Correlations greater than 0.015 are significant at $p < 0.001$; correlations > 0.012 are significant at $p < 0.01$; correlations > 0.009 are significant at $p < 0.05$. The number of observations for this table is 47,124 and the number of organizations is 154.

[2] Logarithm.

Table 9: Descriptive Statistics and Correlations (9297)[1]

Variable	Mean	s. d.	1	2	3	4	5	6	7	8	9	10	11	12
1. Standardized similarity	.291	.252	1.000											
2. Time	.500	.500	-.088	1.000										
3. State Republican percentage	.472	.084	.025	-.735	1.000									
4. County Republican percentage	48.376	11.679	.000	-.525	.711	1.000								
5. County per capita personal income	16.629	3.889	.063	.054	-.266	-.165	1.000							
6. Local government employment ratio	.012	.010	.012	.011	.008	-.091	-.090	1.000						
7. Slack	.342	10.860	-.010	-.100	.072	.058	-.063	-.027	1.000					
8. Long term debt ratio	.980	1.022	.008	-.027	.083	.072	-.040	-.196	-.043	1.000				
9. Total same public services provided[2]	3.324	.465	.122	-.403	.315	.195	-.034	.077	.055	.019	1.000			
10. Same government structure	1.003	.762	.052	.000	.046	.009	-.005	.002	.010	.072	.142	1.000		
11. Same metro status	.393	.489	.050	.000	-.048	-.030	.159	-.053	-.017	-.011	-.017	.048	1.000	
12. Same level of population	.440	.496	.029	.000	-.031	-.042	.033	-.034	-.009	-.025	-.007	.045	.146	1.000
13. Geographic proximity	.623	1.176	.014	.000	-.008	-.006	-.001	-.042	.005	.017	.013	.094	.026	.042

[1] Correlations greater than 0.0076 are significant at $p < 0.001$; correlations > 0.006 are significant at $p < 0.01$; correlations > 0.0045 are significant at $p < 0.05$. The number of observations for this table is 186,660 and the number of organizations is 306.

[2] Logarithm.

Table 10: Descriptive Statistics and Correlations (9702)[1]

Variable	Mean	s. d.	1	2	3	4	5	6	7	8	9	10	11	12
1. Standardized similarity	.302	.269	1.000											
2. Time	.500	.500	-.043	1.000										
3. State Republican percentage	.447	.076	-.049	.464	1.000									
4. County Republican percentage	46.694	11.451	-.057	.314	.617	1.000								
5. County per capita personal income	21.480	5.004	.069	.145	-.242	-.234	1.000							
6. Local government employment ratio	.011	.008	-.045	.030	-.117	-.090	.136	1.000						
7. Slack	.278	12.407	-.004	.028	.043	.020	.001	-.055	1.000					
8. Long term debt ratio	.907	1.061	.040	-.048	.104	.001	-.013	-.117	-.047	1.000				
9. Total same public services provided[2]	3.189	.506	-.017	.135	.042	-.025	.061	.129	.027	.072	1.000			
10. Same government structure	.923	.820	.052	.000	.026	-.018	-.012	-.041	-.002	.068	.084	1.000		
11. Same metro status	.377	.485	.063	.000	-.034	-.050	.128	-.031	.000	.006	-.023	.057	1.000	
12. Same level of population	.428	.495	-.004	.000	-.002	-.002	-.000	.011	-.007	-.030	-.002	.112	.147	1.000
13. Geographic proximity	.652	1.212	.028	.000	-.006	-.007	-.003	-.054	-.001	.006	-.014	.090	.032	.025

[1] Correlations greater than 0.0074 are significant at $p < 0.001$; correlations > 0.0058 are significant at $p < 0.01$; correlations > 0.0044 are significant at $p < 0.05$. The number of observations for this table is 198,864 and the number of organizations is 317.

[2] Logarithm.

Table 11: Descriptive Statistics and Correlations (0207)[1]

Variable	Mean	s. d.	1	2	3	4	5	6	7	8	9	10	11	12
1. Standardized similarity	.277	.264	1.000											
2. Time	.500	.500	-.090	1.000										
3. State Republican percentage	.499	.073	-.089	.165	1.000									
4. County Republican percentage	51.382	12.657	-.039	.092	.573	1.000								
5. County per capita personal income	26.667	6.881	.092	.146	-.425	-.370	1.000							
6. Local government employment ratio	.012	.010	-.048	.007	.084	.082	-.146	1.000						
7. Slack	1.235	22.652	.016	-.087	-.017	-.010	.041	-.057	1.000					
8. Long term debt ratio	.997	1.418	.035	-.030	.046	-.114	.023	-.154	-.060	1.000				
9. Total same public services provided[2]	3.228	.485	.085	-.058	-.057	-.116	.027	.081	-.021	.081	1.000			
10. Same government structure	.900	.819	.022	.000	.061	-.062	-.008	-.087	-.054	.089	.097	1.000		
11. Same metro status	.391	.488	.092	.000	-.063	-.046	.132	-.040	-.002	-.008	-.005	.066	1.000	
12. Same level of population	.394	.489	-.025	.000	.020	.030	-.023	.031	-.044	-.001	-.002	.110	.193	1.000
13. Geographic proximity	.671	1.231	.016	.000	-.013	-.004	-.008	-.040	.003	.017	.006	.092	.036	.055

[1] Correlations greater than 0.0176 are significant at p < 0.001; correlations > 0.0138 are significant at p < 0.01; correlations > 0.0105 are significant at p < 0.05. The number of observations for this table is 34,756 and the number of organizations is 133.

[2] Logarithm.

Table 12: Descriptive Statistics and Correlations (828892)[1]

Variable	Mean	s. d.	1	2	3	4	5	6	7	8	9
1. Standardized similarity	.304	.226	1.000								
2. Time	.500	.500	-.047	1.000							
3. State Republican percentage	.559	.054	-.002	-.550	1.000						
4. County Republican percentage	57.592	9.771	.012	-.325	.571	1.000					
5. County per capita personal income	13.450	3.005	.030	.294	-.352	-.093	1.000				
6. Local government employment ratio	.012	.008	-.046	.032	.172	-.060	-.028	1.000			
7. Slack	.967	8.965	.029	-.043	-.007	.039	.064	-.004	1.000		
8. Long term debt ratio	1.031	1.415	.059	.069	-.044	-.004	-.048	-.136	-.109	1.000	
9. Population[2]	10.803	.967	-.026	.035	.059	-.062	.046	.079	.070	-.139	
10. Total same public services provided[3]	3.449	.260	.240	.429	-.212	-.185	.162	.113	-.044	.127	1.000
11. Experienced practices	2.841	4.157	-.046	.683	-.333	-.235	.270	.054	-.111	.097	.337

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[1] Correlations greater than 0.021 are significant at $p < 0.001$; correlations > 0.0167 are significant at $p < 0.01$; correlations > 0.0127 are significant at $p < 0.05$. The number of observations for this table is 23,980 and the number of organizations is 110.

[2] Logarithm.

[3] Logarithm.

Table 13: Descriptive Statistics and Correlations (889297) [1]

Variable	Mean	s. d.	1	2	3	4	5	6	7	8	9
1. Standardized similarity	.313	.248	1.000								
2. Time	.500	.500	-.023	1.000							
3. State Republican percentage	.468	.078	-.018	-.770	1.000						
4. County Republican percentage	47.171	11.160	.012	-.555	.684	1.000					
5. County per capita personal income	17.236	3.703	.071	.046	-.240	-.063	1.000				
6. Local government employment ratio	.012	.008	-.016	-.026	.112	.106	.075	1.000			
7. Slack	1.041	11.773	-.105	-.142	.177	.142	-.165	.029	1.000		
8. Long term debt ratio	1.090	1.024	.014	.009	.170	.054	-.229	-.273	-.008	1.000	
9. Population[2]	10.949	.937	-.035	.027	.090	.111	-.235	.138	.203	.088	
10. Total same public services provided[3]	3.345	.440	.085	-.424	.318	.204	-.033	.052	.114	.102	1.000
11. Experienced practices	2.861	4.042	-.000	.708	-.473	-.293	.020	-.137	-.149	-.041	-.255

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[1] Correlations greater than 0.0296 are significant at $p < 0.001$; correlations > 0.0232 are significant at $p < 0.01$; correlations > 0.0177 are significant at $p < 0.05$. The number of observations for this table is 12,324 and the number of organizations is 79.

[2] Logarithm.

[3] Logarithm.

Table 14: Descriptive Statistics and Correlations (929702)[1]

Variable	Mean	s. d.	1	2	3	4	5	6	7	8	9
1. Standardized similarity	.294	.256	1.000								
2. Time	.500	.500	-.035	1.000							
3. State Republican percentage	.447	.079	-.078	.443	1.00						
4. County Republican percentage	46.058	10.728	-.128	.316	.611	1.000					
5. County per capita personal income	22.381	5.810	.081	.131	-.301	-.276	1.000				
6. Local government employment ratio	.011	.008	-.009	.006	-.134	-.184	.161	1.000			
7. Slack	1.211	12.279	-.035	.031	.085	-.015	-.025	.068	1.000		
8. Long term debt ratio	1.068	1.485	.025	-.031	.207	.072	-.133	-.173	-.012	1.000	
9. Population[2]	10.667	1.043	-.008	.031	.168	.144	-.087	-.046	.089	.180	
10. Total same public services provided[3]	3.321	.326	.025	-.022	.002	-.018	-.012	.156	.066	.065	1.000
11. Experienced practices	3.376	5.449	-.038	.620	.303	.125	.093	-.003	.106	.009	.057

[1] Correlations greater than 0.0222 are significant at p < 0.001; correlations > 0.0174 are significant at p < 0.01; correlations > 0.0132 are significant at p < 0.05. The number of observations for this table is 21,840 and the number of organizations is 105.

[2] Logarithm.

[3] Logarithm.

Table 15: Descriptive Statistics and Correlations (970207)[1]

Variable	Mean	s. d.	1	2	3	4	5	6	7	8	9
1. Standardized similarity	.300	.263	1.000								
2. Time	.500	.500	-.076	1.000							
3. State Republican percentage	.499	.071	-.017	.167	1.000						
4. County Republican percentage	51.219	12.862	-.017	.104	.589	1.000					
5. County per capita personal income	26.170	6.617	.018	.153	-.360	-.316	1.000				
6. Local government employment ratio	.011	.009	-.055	.018	-.010	.163	-.061	1.000			
7. Slack	.225	12.567	.015	-.063	.028	.014	.010	-.106	1.000		
8. Long term debt ratio	1.153	1.839	.016	-.028	.128	-.102	-.017	-.181	-.035	1.000	
9. Population[2]	10.636	.962	.104	.045	.015	-.106	-.193	-.193	.137	.062	
10. Total same public services provided[3]	3.255	.475	.046	-.163	-.055	-.115	-.067	.030	-.030	.071	1.000
11. Experienced practices	2.444	4.107	-.021	.595	.033	.030	.005	.043	.091	-.030	-.042

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[1] Correlations greater than 0.0332 are significant at $p < 0.001$; correlations > 0.026 are significant at $p < 0.01$; correlations > 0.02 are significant at $p < 0.05$. The number of observations for this table is 9,836 and the number of organizations is 71.

[2] Logarithm.

[3] Logarithm.

Table 16: Results of QAP Regression (8288)

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Time	0.026	0.051	0.027	0.039	0.024	0.056	
State Republican percentage i	-0.130	-0.138	-0.130	-0.133	-0.129	-0.139	
County Republican percentage i	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	
County per capita personal income i	0.002	0.001	0.002	0.002	0.002	0.002	
Local government employment ratio i	2.939^{+}	2.915	2.941^{+}	2.916^{+}	2.942^{+}	2.895^{+}	
Slack i	0.000	0.000	0.000	-0.000	0.000	-0.000	
Long term debt ratio i	-0.001	-0.001	-0.001	-0.000	-0.000	-0.001	
State Republican percentage j	-0.130	-0.138	-0.130	-0.133	-0.129	-0.139	
County Republican percentage j	-0.000	-0.000	-0.000	-.000	-.000	-0.000	
County per capita personal income j	0.002	0.001	0.002	0.002	0.002	0.002	
Local government employment ratio j	2.939^{+}	2.915	2.941^{+}	2.916^{+}	2.942^{+}	2.895^{+}	
Slack j	0.000	0.000	0.000	-0.000	0.000	-0.000	
Long term debt ratio j	-0.001	-0.001	-0.001	-0.000	-0.000	-0.001	
Total same public services provided	0.167***	0.165***	0.167***	0.166***	0.167***	0.165***	
Same government structure							0.026***
Same metro status							0.019**
Same level of population							0.015***
Geographic proximity							0.000
Same government structure * time		-0.021*				-0.019^{+}	
Same metro status * time			-0.001			0.002	
Same level of population * time				-.029**		-0.025**	
Geographic proximity * time					0.003*	0.004**	
Constant	-0.163	-0.129	-0.164	-0.158	-0.170	-0.134	-0.041***
R squared (within)	0.034	0.037	0.034	0.036	0.034	0.039	
R squared (between)							0.021

+ $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$.

Table 17: Results of QAP Regression (8892)

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Time	-0.050	-0.065	-0.047	-0.053	-0.049	-0.063	
State Republican percentage i	-0.563	-0.533	-0.564	-0.561	-0.564	-0.534	
County Republican percentage i	0.003	0.003	0.003	0.003	0.003	0.003	
County per capita personal income i	-0.019*	-0.019*	-0.019*	-0.020*	-0.019*	-0.019*	
Local government employment ratio i	7.497*	7.501*	7.479*	7.467*	7.497*	7.448*	
Slack i	-0.001^{+}	-0.001^{+}	-0.001^{+}	-0.001^{+}	-0.001	-0.001^{+}	
Long term debt ratio i	-0.014	-0.014	-0.014	-0.014	-0.014	-0.015	
State Republican percentage j	-0.563	-0.533	-0.564	-0.561	-0.564	-0.534	
County Republican percentage j	0.003	0.003	0.003	0.003	0.003	0.003	
County per capita personal income j	-0.019*	-0.019*	-0.019*	-0.020*	-0.019*	-0.019*	
Local government employment ratio j	7.497*	7.501*	7.479*	7.467*	7.497*	7.448*	
Slack j	-0.001^{+}	-0.001^{+}	-0.001^{+}	-0.001^{+}	-0.001	-0.001^{+}	
Long term debt ratio j	-0.014	-0.014	-0.014	-0.014	-0.014	-0.015	
Total same public services provided	0.336***	0.334***	0.336***	0.334***	0.336***	0.333***	
Same government structure							-0.023***
Same metro status							0.059***
Same level of population							0.013*
Geographic proximity							0.008***
Same government structure * time		0.015				0.015	
Same metro status * time			-0.008			-0.011	
Same level of population * time				0.011		0.010	
Geographic proximity * time					-0.001	-0.002	
Constant	-0.233	-0.262	-0.239	-0.226	-0.234	-0.262	-0.007
R squared (within)	0.106	0.108	0.106	0.107	0.106	0.108	
R squared (between)							0.022

+ $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$.

Table 18: Results of QAP Regression (9297)

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Time	-0.097	-0.095	-0.103$^+$	-0.092	-0.100	-0.091	
State Republican percentage i	-0.188	-0.182	-0.191	-0.185	-0.190	-0.175	
County Republican percentage i	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	
County per capita personal income i	0.000	0.000	0.000	0.001	0.000	0.000	
Local government employment ratio i	-4.380	-4.483	-4.395	-4.466	-4.378	-4.532	
Slack i	-0.000	-0.000	-0.000	0.000	-0.000	0.000	
Long term debt ratio i	0.012	0.012	0.012	0.012	0.012	0.012	
State Republican percentage j	-0.188	-0.182	-0.191	-0.185	-0.190	-0.175	
County Republican percentage j	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	
County per capita personal income j	0.000	0.000	0.000	0.001	0.000	0.000	
Local government employment ratio j	-4.380	-4.483	-4.395	-4.466	-4.378	-4.532	
Slack j	-0.000	-0.000	-0.000	0.000	-0.000	0.000	
Long term debt ratio j	0.012	0.012	0.012	0.012	0.012	0.012	
Total same public services provided	0.029$^+$	0.024	0.025	0.028$^+$	0.029	0.024	
Same government structure							0.017***
Same metro status							0.003
Same level of population							0.013**
Geographic proximity							-0.003$^+$
Same government structure * time		-0.004				-0.004	
Same metro status * time			0.012			0.015$^+$	
Same level of population * time				-0.016$^+$		-0.018$^+$	
Geographic proximity * time					0.001	0.002	
Constant	0.579	0.599	0.590	0.570	0.580	0.580	-0.022**
R squared (within)	0.025	0.024	0.024	0.025	0.025	0.025	
R squared (between)							0.006

+ p < .10; * p < .05; ** p < .01; *** p < .001.

Table 19: Results of QAP Regression (9702)

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Time	-0.010	-0.009	-0.009	-0.005	-0.014	-0.007	
State Republican percentage i	0.189	0.192	0.193	0.187	0.189	0.189	
County Republican percentage i	-0.002	-0.002	-0.003	-0.002	-0.002	-0.002	
County per capita personal income i	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	
Local government employment ratio i	-0.265	-0.276	-0.263	-0.234	-0.244	-0.217	
Slack i	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	
Long term debt ratio i	0.012	0.012^+	0.012^+	0.012	0.012^+	0.012	
State Republican percentage j	0.189	0.192	0.193	0.187	0.189	0.189	
County Republican percentage j	-0.002	-0.002	-0.003	-0.002	-0.002	-0.002	
County per capita personal income j	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	
Local government employment ratio j	-0.265	-0.276	-0.263	-0.234	-0.244	-0.217	
Slack j	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	
Long term debt ratio j	0.012	0.012^+	0.012^+	0.012	0.012^+	0.012	
Total same public services provided	0.016	0.016	0.017	0.017	0.016	0.017	
Same government structure							0.011*
Same metro status							0.034*
Same level of population							0.000
Geographic proximity							0.003*
Same government structure * time		-0.002				-0.001	
Same metro status * time			-0.004			-0.002	
Same level of population * time				-0.016		-0.016	
Geographic proximity * time					0.004^+	0.004^+	
Constant	0.327	0.331	0.326	0.316	0.323	0.312	-0.025***
R squared (within)	0.011	0.011	0.011	0.011	0.011	0.011	
R squared (between)							0.010

+ p < .10; * p < .05; ** p < .01; *** p < .001.

Table 20: Results of QAP Regression (0207)

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Time	-0.030	-0.037	-0.031	-0.024	-0.036	-0.037	
State Republican percentage i	-0.825	-0.875	-0.831	-0.801	-0.803	-0.831	
County Republican percentage i	0.008	0.008	0.008	0.008	0.008	0.008	
County per capita personal income i	-0.003	-0.003	-0.003	-0.003	-0.003	-0.003	
Local government employment ratio i	-5.642	-5.401	-5.639	-5.564	-5.660	-5.303	
Slack i	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	
Long term debt ratio i	0.026*	0.026*	0.026*	0.026*	0.026*	0.026*	
State Republican percentage j	-0.825	-0.875	-0.831	-0.801	-0.803	-0.831	
County Republican percentage j	0.008	0.008	0.008	0.008	0.008	0.008	
County per capita personal income j	-0.003	-0.003	-0.003	-0.003	-0.003	-0.003	
Local government employment ratio j	-5.642	-5.401	-5.639	-5.564	-5.660	-5.303	
Slack j	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	
Long term debt ratio j	0.026*	0.026*	0.026*	0.026*	0.026*	0.026*	
Total same public services provided	-0.018	-0.018	-0.018	-0.018	-0.018	-0.018	
Same government structure							0.007
Same metro status							0.059*
Same level of population							-0.019[+]
Geographic proximity							-0.005*
Same government structure * time		0.011				0.012	
Same metro status * time			0.005			0.008	
Same level of population * time				-0.020		-0.024[+]	
Geographic proximity * time					0.007*	0.006[+]	
Constant	0.555	0.603	0.569	0.523	0.523	0.563	-0.018[+]
R squared (within)	0.042	0.043	0.042	0.043	0.043	0.044	
R squared (between)							0.014

+ $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$.

Table 21: Results of QAP Regressions (I, II, III, & IV)

Variables	Panel I (828892)		Panel II (889297)		Panel III (929702)		Panel IV (970207)	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Time	-0.065	0.029	-0.317**	-0.233*	-0.099	0.008	-0.050	0.044
State Republican percentage i	-1.240$^+$	-0.866	-0.607	-0.363	0.603	0.837	-0.720	-1.075
County Republican percentage i	0.006	0.004	-0.007$^+$	-0.007*	-0.002	-0.005	0.010	0.011
County per capita personal income i	-0.021*	-0.015$^+$	-0.013	-0.005	0.000	-0.007	-0.012	-0.014
Local government employment ratio i	3.719	-2.604	-1.750	-2.648	1.430	3.482	7.961	2.104
Slack i	-0.002$^+$	-0.004**	-0.001	-0.001	-0.002**	-0.002**	-0.003*	-0.002$^+$
Long term debt ratio i	-0.003	-0.016	0.039$^+$	0.033	0.005	0.004	0.036**	0.029*
Population i	-0.220$^+$	-0.092	0.033	0.016	0.244	0.196	0.165	0.032
State Republican percentage j	-1.240$^+$	-1.291$^+$	-0.607	-0.608	0.603	0.573	-0.720	-0.706
County Republican percentage j	0.006	0.006$^+$	-0.007$^+$	-0.007$^+$	-0.002	-0.002	0.010	0.010
County per capita personal income j	-0.021*	-0.020*	-0.013	-0.013	0.000	0.000	-0.012	-0.012
Local government employment ratio j	3.719	3.733	-1.750	-1.755	1.430	1.595	7.961	7.965
Slack j	-0.002$^+$	-0.002$^+$	-0.001	-.001	-0.002**	-0.002**	-0.003*	-0.003*
Long term debt ratio j	-0.003	-0.003	0.039$^+$	0.039$^+$	0.005	0.005	0.036**	0.036*
Population j	-0.220$^+$	-0.220$^+$	0.033	0.033	0.244	0.246	0.165	0.165
Total same public services provided	0.315***	0.282***	0.052	0.053	0.079	0.054	-0.052	-0.055$^+$
Experienced practices		-0.017***		-0.009*		-0.013***		-0.015**
Constant	5.188$^+$	3.885	1.231	1.140	-5.491	-4.773	-2.929	-1.289
R squared (within)	0.102	0.150	0.059	0.07	0.050	0.101	0.082	0.121

$+ p < .10$; $* p < .05$; $** p < .01$; $*** p < .001$.

Figure 1: Predicted Adoption Likelihood vs. Prior Diffusion (Model 2)[1]

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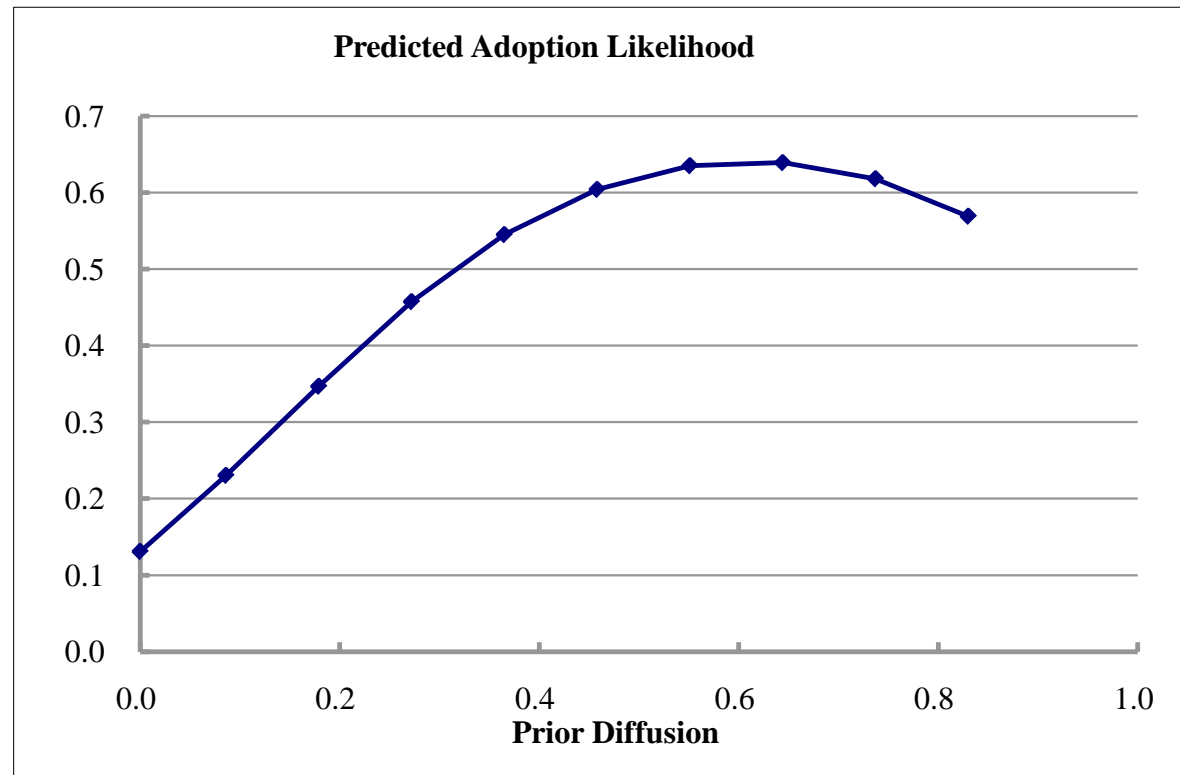
[1] One issue associated with testing non-monotonic and moderation effects in logistic regression is that the predicted likelihood is also dependent on values of other variables in the model. Therefore, the generalizability of the predicated likelihood with "typical" values of control variables can be questioned. I must stress that the above graph does not display an "average effect". Rather, it is just a predicted relationship for a typical organization. However, I redid the graph trying different values of control variables. Despite the fact that predicted likelihoods are changing, such a curvilinear relationship persists. Fixed effect regular linear regression provides additional evidence by revealing a significant curvilinear relationship.

Figure 2: Predicted Adoption Likelihood vs. Prior Diffusion (Model 4)[1]
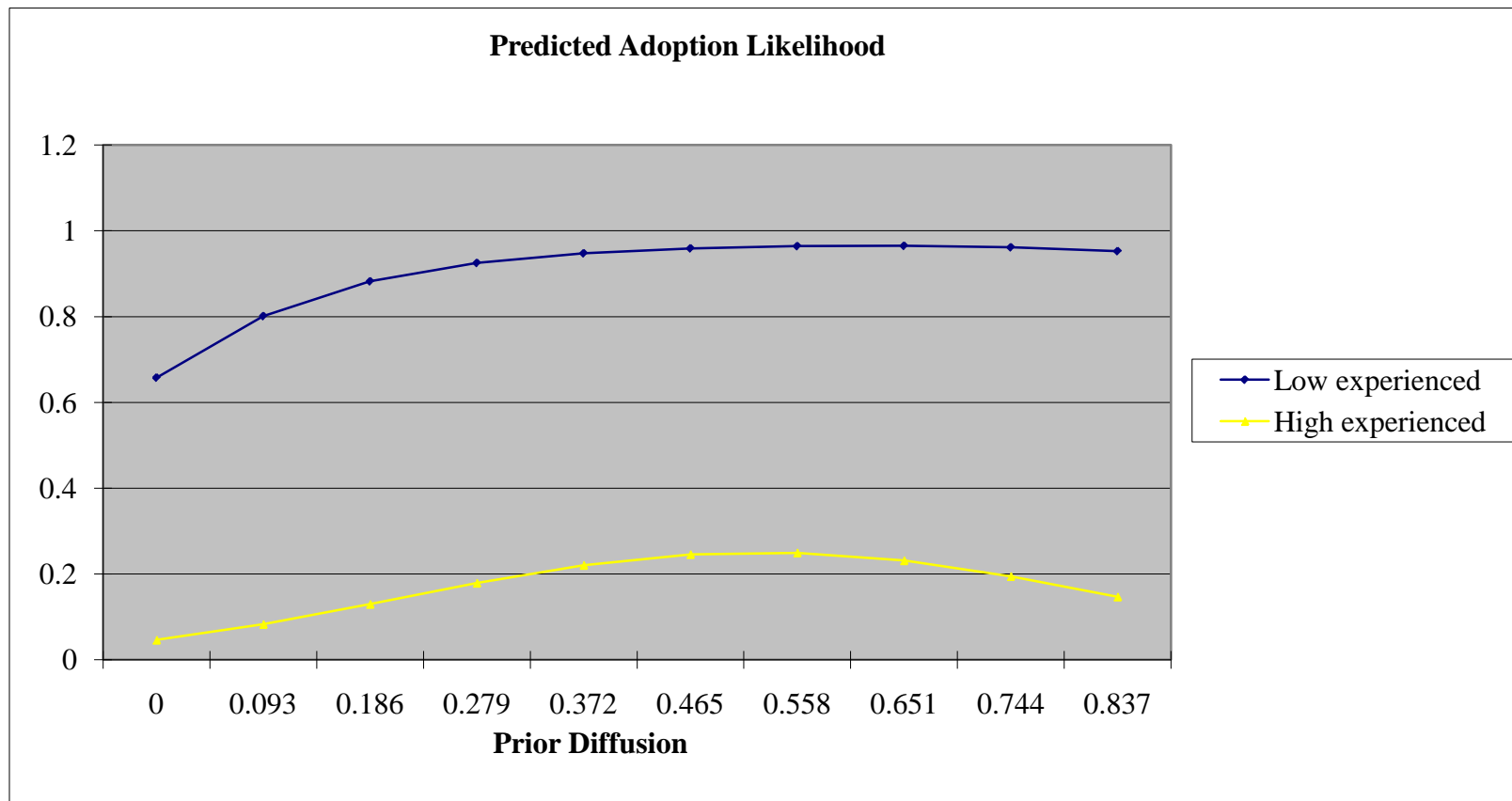
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[1] Once again, the predicated likelihood is based on a "typical" local government. The above graph does <u>not</u> display an "average effect"; it is just a predicted relationship for a typical organization. However, I redid the graph trying different values of control variables. Despite the fact that predicted likelihoods are changing, such a moderation effect persists. Fixed effect regular linear regression provides additional evidence by revealing a significant curvilinear relationship.

Figure 3: Predicted Adoption Likelihood vs. Prior Diffusion (Model 5)[1]

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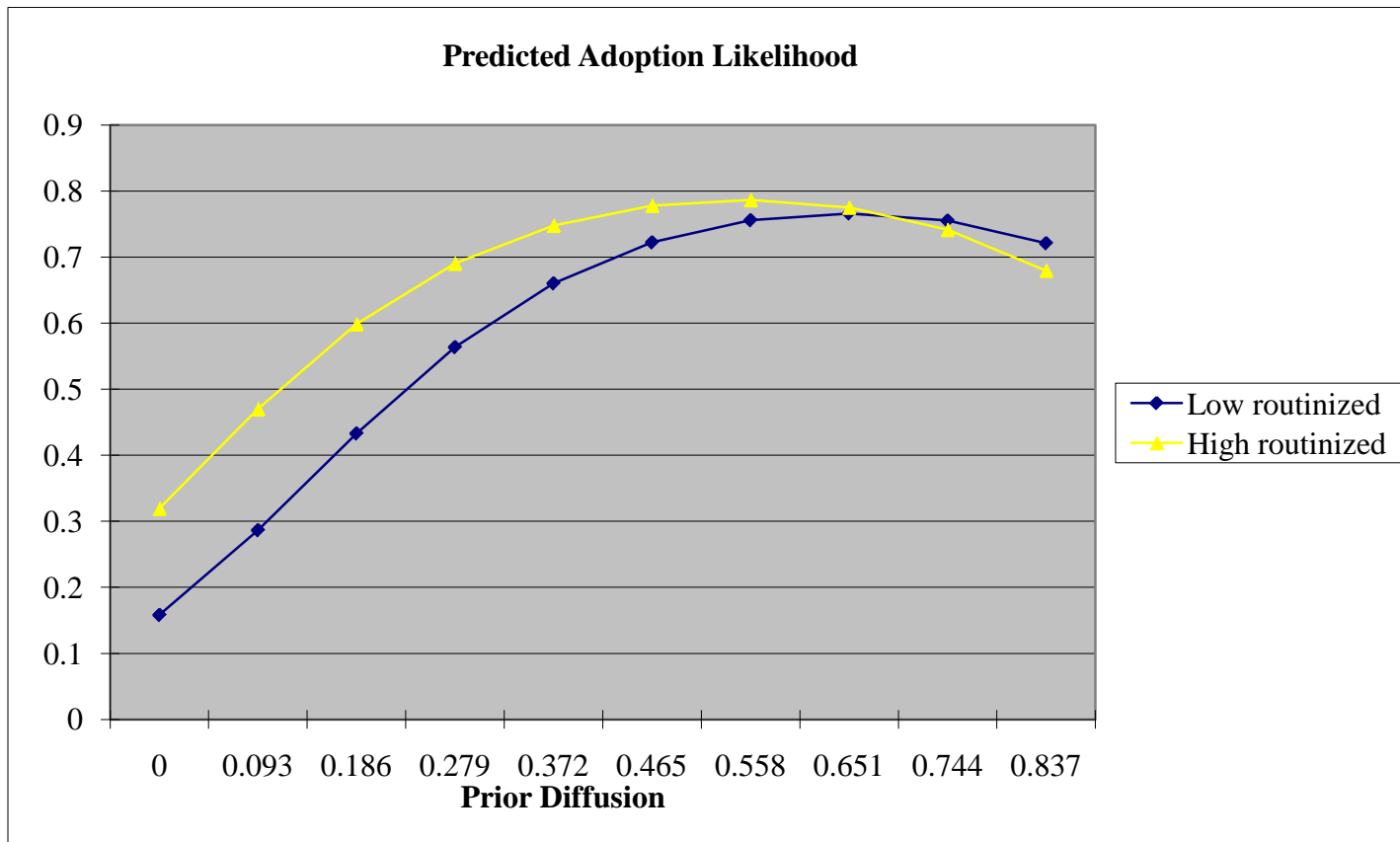
[1] The predicated likelihood is based on a "typical" local government. The above graph does <u>not</u> display an "average effect"; it is just a predicted relationship for a typical organization. However, I redid the graph trying different values of control variables. Despite the fact that predicted likelihoods are changing, such a moderation effect persists. Fixed effect regular linear regression provided additional evidence by revealing a significant curvilinear relationship.

Figure 4: Predicted Adoption Likelihood vs. Prior Diffusion (Model 10)[1]
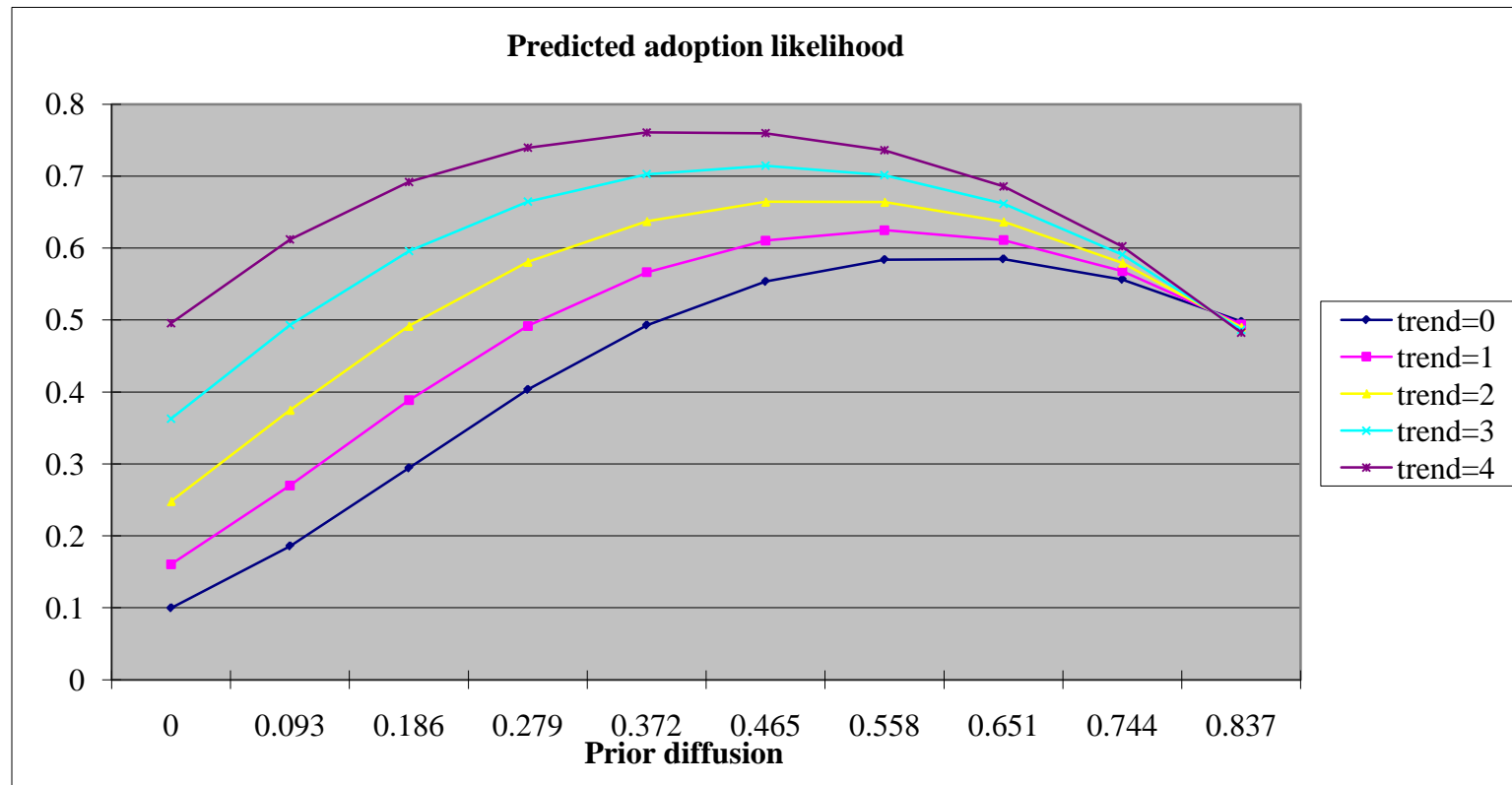
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[1] Once again, the predicated likelihood is based on a "typical" local government. The above graph does <u>not</u> display an "average effect"; it is just a predicted relationship for a typical organization. However, I redid the graph trying different values of control variables. Despite the fact that predicted likelihoods are changing, such a moderation effect persists.

Figure 5: Predicted Adoption Likelihood vs. Operational Relatedness (Model 9)[1]
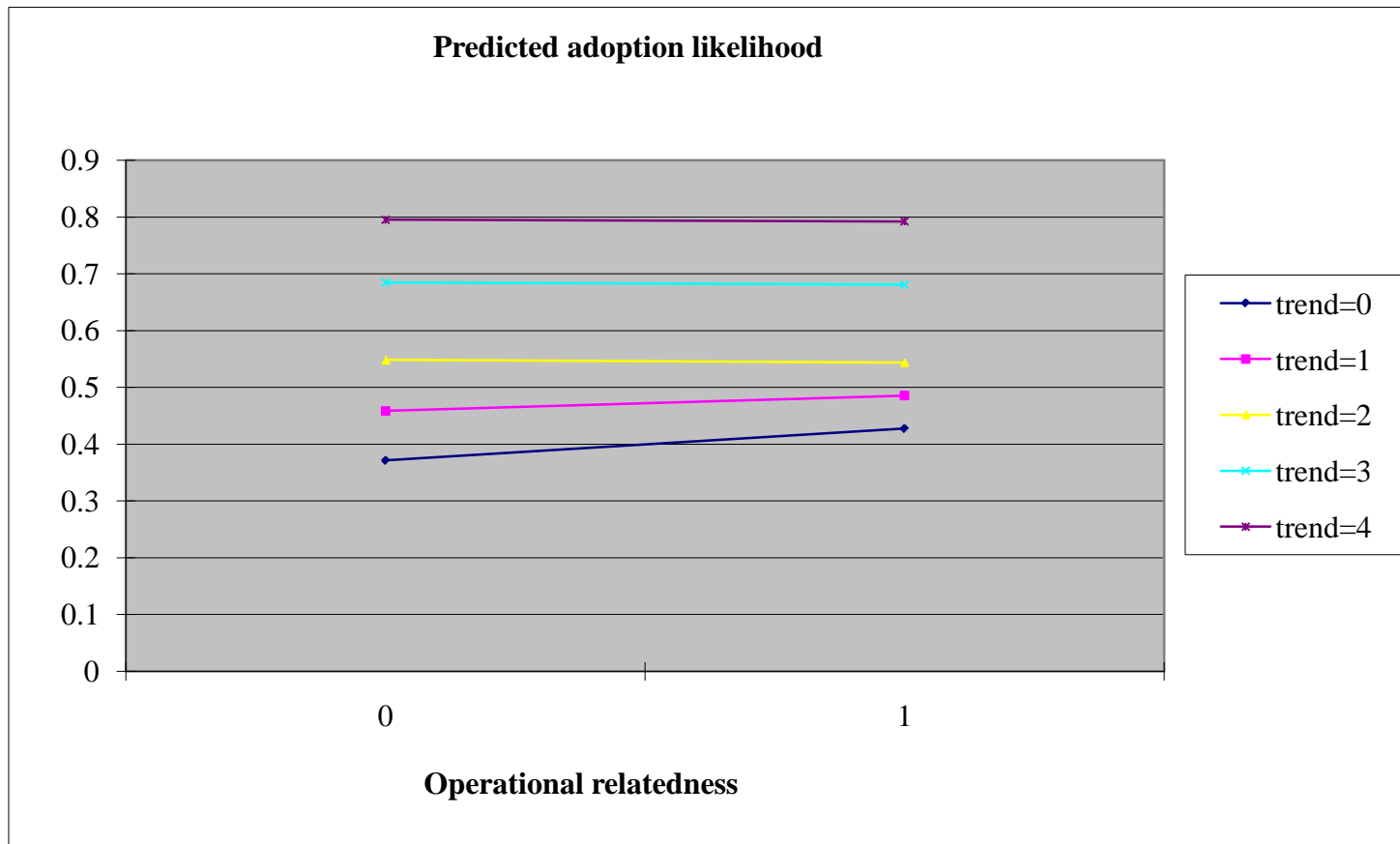
Predicted adoption likelihood

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[1] Once again, the predicated likelihood is based on a "typical" local government. The above graph does <u>not</u> display an "average effect"; it is just a predicted relationship for a typical organization. However, I redid the graph trying different values of control variables. Despite the fact that predicted likelihoods are changing, such a moderation effect persists.

Figure 6: Predicted Adoption Likelihood vs. Skill Relatedness (Model 9)[1]
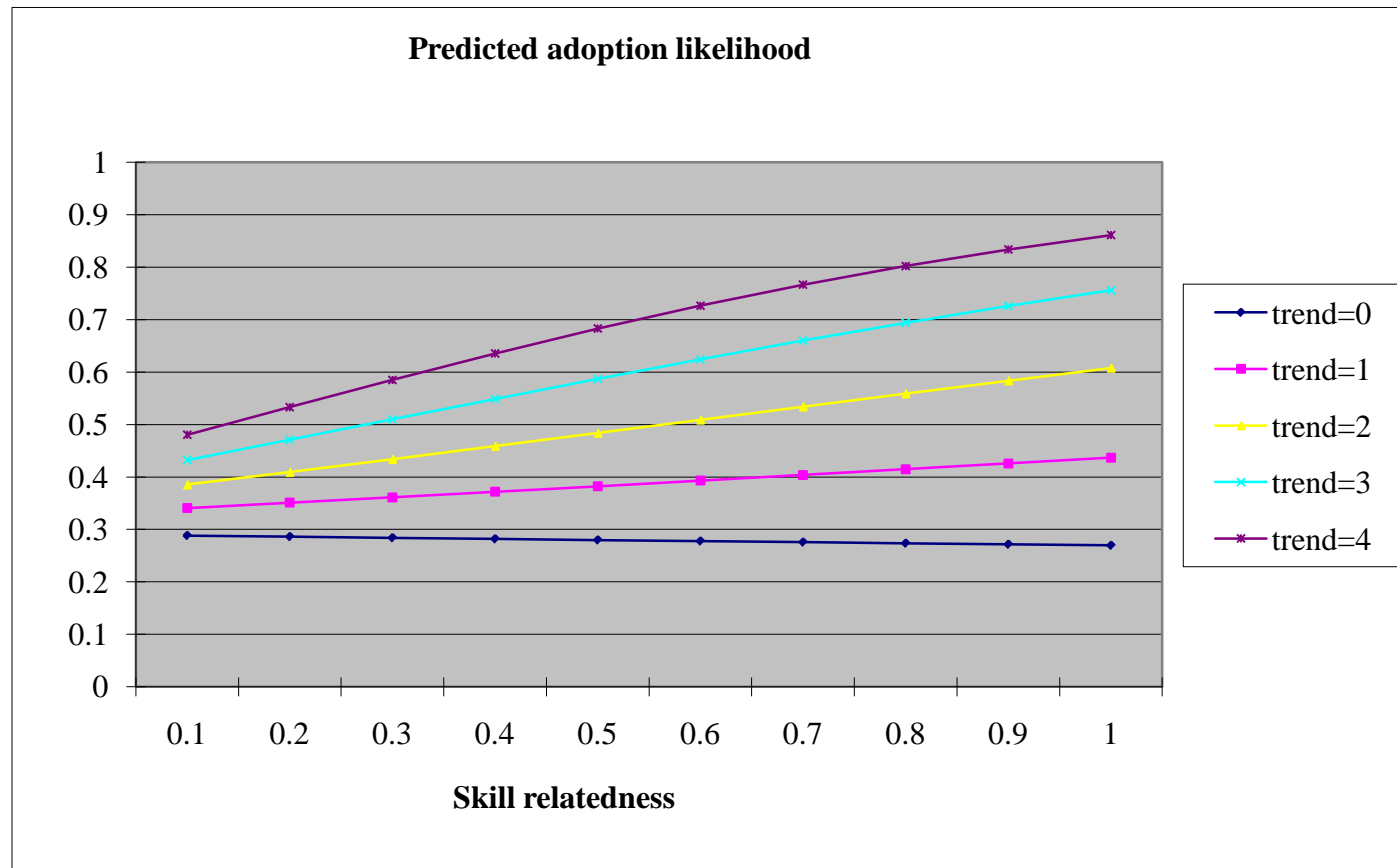
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[1] Once again, the predicated likelihood is based on a "typical" local government. The above graph does <u>not</u> display an "average effect"; it is just a predicted relationship for a typical organization. However, I redid the graph trying different values of control variables. Despite the fact that predicted likelihoods are changing, such a moderation effect persists.

Figure 7: Illustration for Hypotheses 2.1 & 2.2

Weakened effect of abundant slack

Likelihood for future adoption

Low level of slack

High level of slack
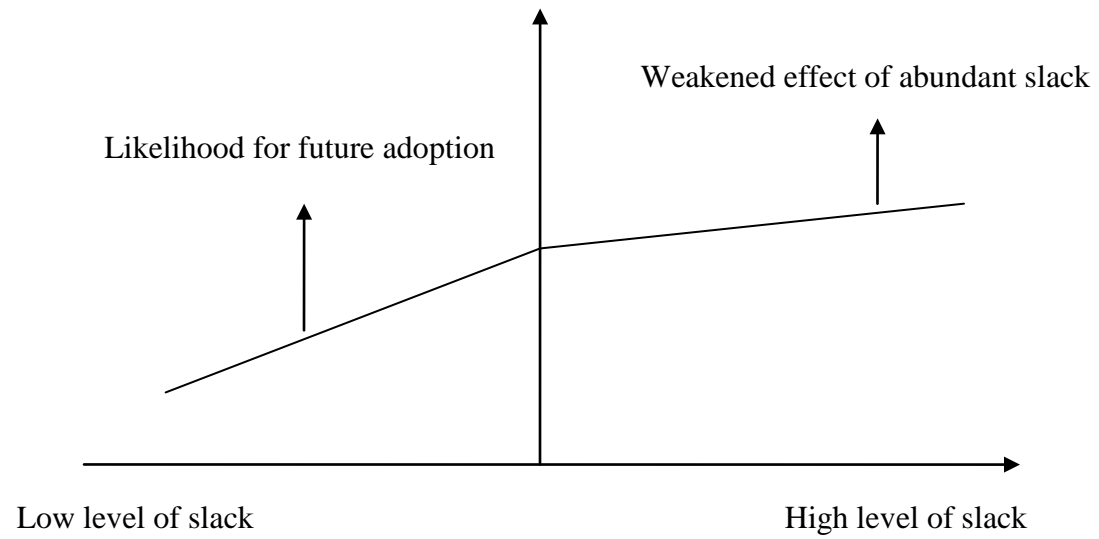
Figure 8: Illustrations for Hypotheses 2.3 & 2.4[1]
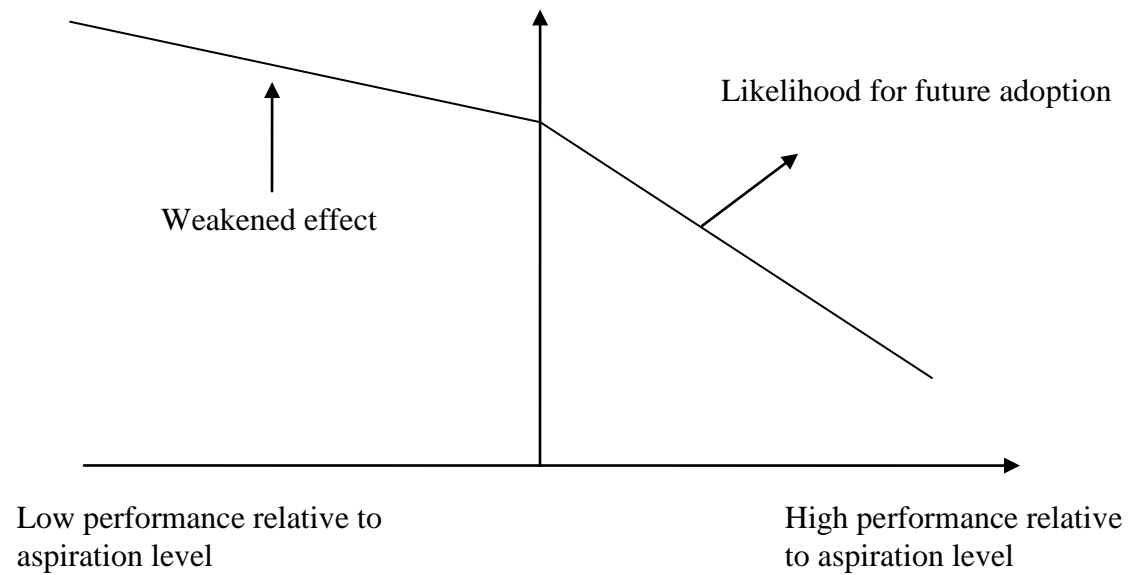
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[1] Performance here refers to performance on the goal manifesting the emerging institutional logic.

Figure 9: Illustrations for Hypotheses 2.5 & 2.6[1]
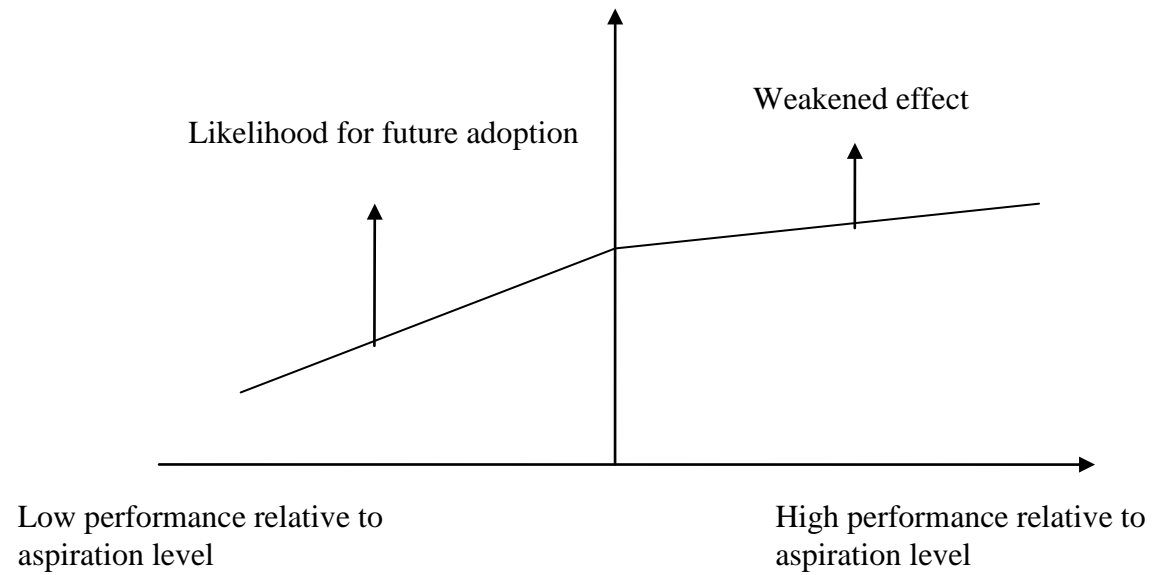
Likelihood for future adoption

Weakened effect

Low performance relative to
aspiration level

High performance relative to
aspiration level

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[1] Performance here refers to performance on the goal manifesting the incumbent institutional logic.

8. Appendices

Appendix 1: Private Service Delivery Summary for Year 1982

Services provided	Number replying survey	Number reporting service provided	Private for profit	Private non profit	Franchises/ concessions	Subsidies	Total PSD delivery percentage
Public Works/Transportation							
1.Residential solid waste collection	1777	1347	0.35	0.00	0.16	0.01	0.52
2.Commercial solid waste collection	1777	1076	0.45	0.00	0.19	0.01	0.65
3.Solid waste disposal	1777	950	0.37	0.03	0.07	0.01	0.47
4.Street repair	1777	1620	0.27	0.01	0.00	0.00	0.28
5.Street/parking lot cleaning	1777	1462	0.09	0.00	0.00	0.00	0.10
6.Snow plowing/sanding	1777	1271	0.14	0.00	0.00	0.00	0.15
7.Traffic sign/signal installation/maintenance	1777	1492	0.28	0.02	0.01	0.00	0.31
8.Parking meter maintenance and collection	1777	625	0.07	0.00	0.00	0.00	0.08
9.Tree trimming and planting on public rights of way	1777	1433	0.31	0.01	0.01	0.00	0.34
10.Maintenance and administration of cemeteries	1777	689	0.11	0.09	0.01	0.01	0.21
11.Inspection/Code enforcement	1777	1540	0.07	0.01	0.00	0.00	0.09
12.Operation of parking lots and garages	1777	749	0.12	0.02	0.02	0.00	0.16
13.Operation/maintenance of bus transit system	1777	362	0.33	0.13	0.06	0.12	0.65
14.Operation/maintenance of paratransit system	1777	475	0.27	0.25	0.04	0.16	0.72
15.Operation of airports	1777	426	0.30	0.05	0.12	0.03	0.49
Public Utilities							
16.Electric utility operation and management	1777	635	0.29	0.01	0.46	0.00	0.76
17.Gas utility operation and management	1777	554	0.35	0.01	0.56	0.00	0.92
18.Water distribution and treatment	1777	1124	0.05	0.02	0.06	0.00	0.13
19.Sewage collection and treatment	1777	1138	0.04	0.03	0.03	0.00	0.10

Services provided	Number replying survey	Number reporting service provided	Private for profit	Private non profit	Franchises/ concessions	Subsidies	Total PSD delivery percentage
20.Disposal of sludge	1777	903	0.14	0.02	0.04	0.00	0.20
21.Utility meter reading	1777	1134	0.11	0.01	0.11	0.00	0.23
22.Utility billing	1777	1172	0.14	0.01	0.09	0.00	0.25
23. Operation of street lights	1777	1127	0.45	0.02	0.16	0.00	0.63
Public Safety							
24.Crime prevention/patrol	1777	1611	0.03	0.02	0.00	0.00	0.06
25.Police/fire communications	1777	1555	0.01	0.04	0.00	0.00	0.05
26.Fire prevention/suppression	1777	1445	0.01	0.03	0.00	0.02	0.06
27.Emergency medical service	1777	1209	0.15	0.11	0.03	0.06	0.36
28.Ambulance service	1777	1095	0.27	0.11	0.05	0.08	0.51
29.Traffic control/parking enforcement	1777	1461	0.01	0.01	0.00	0.00	0.02
30.Vehicle towing and storage	1777	1273	0.81	0.00	0.07	0.00	0.88
Health and Human Services							
31.Sanitary inspection	1777	655	0.01	0.08	0.00	0.01	0.10
32.Insect/rodent control	1777	823	0.17	0.07	0.00	0.01	0.25
33.Animal control	1777	1297	0.07	0.10	0.01	0.02	0.19
34.Operation of animal shelters	1777	955	0.17	0.23	0.01	0.04	0.45
35.Operation of daycare facilities	1777	393	0.39	0.41	0.02	0.16	0.98
36.Child welfare programs	1777	450	0.06	0.29	0.01	0.10	0.46
37.Programs for the elderly	1777	1075	0.04	0.32	0.01	0.14	0.51
38.Operation/management of public/elderly housing	1777	395	0.20	0.27	0.01	0.07	0.55
39.Operation/management of hospitals	1777	285	0.38	0.34	0.02	0.05	0.78
40.Public health programs	1777	585	0.09	0.33	0.02	0.10	0.55
41.Drug and alcohol treatment programs	1777	498	0.08	0.51	0.01	0.16	0.76
42.Operation of mental health/mental retardation programs and facilities	1777	387	0.09	0.53	0.02	0.20	0.83

Parks and Recreation

Services provided	Number replying survey	Number reporting service provided	Private for profit	Private non profit	Franchises/ concessions	Subsidies	Total PSD delivery percentage
43.Recreation services	1777	1378	0.05	0.13	0.02	0.04	0.24
44.Operation and maintenance of recreation facilities	1777	1474	0.08	0.09	0.10	0.01	0.29
45.Parks landscaping and maintenance	1777	1530	0.09	0.02	0.01	0.00	0.12
46.Operation of convention centers and auditoriums	1777	417	0.06	0.06	0.04	0.02	0.18
Cultural and Arts Programs							
47.Operation of cultural and arts programs	1777	672	0.08	0.41	0.02	0.19	0.70
48.Operation of libraries	1777	925	0.01	0.13	0.00	0.07	0.21
49.Operation of museums	1777	450	0.04	0.35	0.01	0.19	0.59
Support Services							
50.Buildings and grounds maintenance	1777	1648	0.20	0.01	0.00	0.00	0.22
51.Building security	1777	1474	0.08	0.01	0.00	0.00	0.08
52.Fleet mgmt/vehicle maintenance: Heavy equipment	1777	1625	0.32	0.00	0.00	0.00	0.32
53.Fleet mgmt/vehicle maintenance: Emergency vehicles	1777	1530	0.32	0.00	0.00	0.00	0.32
54.Fleet mgmt/vehicle maintenance: All other vehicles	1777	1612	0.29	0.00	0.00	0.00	0.30
55.Payroll	1777	1700	0.10	0.01	0.00	0.00	0.11
56.Tax bill processing	1777	1148	0.12	0.06	0.00	0.00	0.19
57.Tax assessing	1777	777	0.09	0.06	0.01	0.00	0.16
58.Data processing	1777	1388	0.24	0.03	0.00	0.00	0.27
59.Collection of delinquent taxes	1777	1026	0.12	0.04	0.00	0.00	0.16
60.Legal services	1777	1565	0.50	0.02	0.00	0.00	0.52
61.Secretarial services	1777	1647	0.04	0.00	0.00	0.00	0.05
62.Personnel services	1777	1647	0.05	0.01	0.00	0.00	0.07
63.Labor relations	1777	1499	0.23	0.01	0.00	0.00	0.25
64.Public relations/public information	1777	1535	0.07	0.02	0.00	0.00	0.10

Appendix 2: Private Service Delivery Summary for Year 1988

Services provided	Number replying survey	Number reporting service provided	Private firm	Franchises/ concessions	Subsidies	Total PSD delivery percentage
Public Works/Transportation						
1.Residential solid waste collection	1668	1025	0.36	0.13	0.00	0.50
2.Commercial solid waste collection	1668	675	0.39	0.20	0.00	0.59
3.Solid waste disposal	1668	708	0.27	0.05	0.01	0.32
4.Street repair	1668	1475	0.38	0.00	0.00	0.38
5.Street/parking lot cleaning	1668	1238	0.16	0.00	0.00	0.16
6.Snow plowing/sanding	1668	1143	0.16	0.00	0.00	0.16
7.Traffic sign/signal installation/maintenance	1668	1337	0.28	0.00	0.00	0.28
8.Parking meter maintenance and collection	1668	404	0.08	0.00	0.00	0.08
9.Tree trimming and planting on public rights of way	1668	1254	0.38	0.01	0.00	0.39
10.Maintenance and administration of cemeteries	1668	549	0.12	0.00	0.01	0.13
11.Inspection/Code enforcement	1668	1421	0.09	0.00	0.00	0.10
12.Operation of parking lots and garages	1668	607	0.15	0.02	0.00	0.17
13.Operation/maintenance of bus transit system	1668	300	0.27	0.03	0.11	0.41
14.Operation/maintenance of paratransit system	1668	401	0.30	0.05	0.14	0.50
15.Operation of airports	1668	456	0.31	0.15	0.04	0.50
Public Utilities						
16.Electric utility operation and management	1668	270	0.11	0.31	0.00	0.42
17.Gas utility operation and management	1668	162	0.12	0.52	0.00	0.64
18.Water distribution	1668	1033	0.04	0.01	0.00	0.06
19.Water treatment	1668	879	0.03	0.01	0.00	0.04
20.Sewage collection and treatment	1668	1043	0.06	0.01	0.00	0.07
21.Disposal of sludge	1668	809	0.20	0.01	0.00	0.21
22.Disposal of hazardous materials	1668	301	0.45	0.02	0.00	0.47
23.Utility meter reading	1668	957	0.07	0.03	0.00	0.11

Services provided	Number replying survey	Number reporting service provided	Private firm	Franchises/ concessions	Subsidies	Total PSD delivery percentage
24.Utility billing	1668	664	0.34	0.03	0.00	0.36
25.Operation of street lights	1668	939	0.48	0.13	0.00	0.61
Public Safety						
26.Crime prevention/patrol	1668	1469	0.04	0.00	0.00	0.05
27.Police/fire communications	1668	1448	0.01	0.00	0.00	0.01
28.Fire prevention/suppression	1668	1243	0.01	0.00	0.01	0.02
29.Emergency medical service	1668	958	0.19	0.02	0.04	0.25
30.Ambulance service	1668	729	0.24	0.04	0.06	0.34
31.Traffic control/parking enforcement	1668	1311	0.01	0.00	0.00	0.01
32.Vehicle towing and storage	1668	692	0.83	0.08	0.00	0.91
Health and Human Services						
33.Sanitary inspection	1668	667	0.03	0.00	0.00	0.04
34.Insect/rodent control	1668	675	0.16	0.00	0.01	0.17
35.Animal control	1668	1235	0.12	0.00	0.02	0.14
36.Operation of animal shelters	1668	759	0.18	0.01	0.04	0.24
37.Operation of daycare facilities	1668	180	0.36	0.03	0.19	0.57
38.Child welfare programs	1668	350	0.18	0.01	0.11	0.30
39.Programs for the elderly	1668	933	0.19	0.01	0.13	0.34
40.Operation/management of public/elderly housing	1668	431	0.15	0.01	0.08	0.24
41.Operation/management of hospitals	1668	141	0.25	0.03	0.06	0.33
42.Public health programs	1668	547	0.20	0.01	0.08	0.28
43.Drug and alcohol treatment programs	1668	367	0.35	0.02	0.14	0.51
44.Operation of mental health/mental retardation programs and facilities	1668	301	0.37	0.01	0.16	0.54
45.Prisons/jails	1668	776	0.02	0.00	0.01	0.02
46.Parole programs	1668	221	0.03	0.01	0.01	0.05
47.Operation of homeless shelters	1668	186	0.42	0.02	0.36	0.80
48.Food programs for the homeless	1668	249	0.26	0.01	0.25	0.52

Services provided	Number replying survey	Number reporting service provided	Private firm	Franchises/ concessions	Subsidies	Total PSD delivery percentage
Parks and Recreation						
49.Recreation services	1668	1203	0.09	0.03	0.04	0.16
50.Operation and maintenance of recreation facilities	1668	1308	0.12	0.10	0.02	0.24
51.Parks landscaping and maintenance	1668	1338	0.13	0.00	0.01	0.14
52.Operation of convention centers and auditoriums	1668	351	0.11	0.05	0.04	0.21
Cultural and Arts Programs						
53.Operation of cultural and arts programs	1668	466	0.24	0.03	0.24	0.51
54.Operation of libraries	1668	925	0.01	0.01	0.06	0.08
55.Operation of museums	1668	347	0.09	0.01	0.19	0.29
Support Services						
56.Buildings and grounds maintenance	1668	1495	0.28	0.01	0.00	0.29
57.Building security	1668	1096	0.14	0.00	0.00	0.14
58.Fleet mgmt/vehicle maintenance: Heavy equipment	1668	1439	0.42	0.00	0.00	0.42
59.Fleet mgmt/vehicle maintenance: Emergency vehicles	1668	1309	0.42	0.00	0.00	0.43
60.Fleet mgmt/vehicle maintenance: All other vehicles	1668	1432	0.39	0.00	0.00	0.39
61.Payroll	1668	1522	0.07	0.00	0.00	0.07
62.Tax bill processing	1668	1012	0.09	0.00	0.00	0.10
63.Tax assessing	1668	822	0.10	0.00	0.00	0.11
64.Data processing	1668	1373	0.19	0.00	0.00	0.19
65.Collection of delinquent taxes	1668	968	0.15	0.00	0.00	0.15
66.Title records/plat map maintenance	1668	837	0.14	0.00	0.00	0.14
67.Legal services	1668	1230	0.58	0.01	0.00	0.59
68.Secretarial services	1668	1372	0.08	0.00	0.00	0.08
69.Personnel services	1668	1394	0.08	0.00	0.00	0.09
70.Labor relations	1668	1218	0.34	0.00	0.00	0.34
71.Public relations/public information	1668	1327	0.11	0.00	0.00	0.12

Appendix 3: Private Service Delivery Summary for Year 1992

Services provided	Number replying survey	Number reporting service provided	Private for profit	Private non profit	Franchises/ concessions	Subsidies	Total PSD delivery percentage
Public Works/Transportation							
1.Residential solid waste collection	1503	912	0.37	0.01	0.13	0.00	0.51
2.Commercial solid waste collection	1503	712	0.53	0.01	0.14	0.00	0.68
3.Solid waste disposal	1503	921	0.32	0.01	0.07	0.00	0.40
4.Street repair	1503	1369	0.28	0.01	0.01	0.00	0.29
5.Street/parking lot cleaning	1503	1203	0.16	0.01	0.01	0.00	0.18
6.Snow plowing/sanding	1503	1034	0.10	0.00	0.00	0.00	0.11
7.Traffic sign/signal installation/maintenance	1503	1297	0.24	0.01	0.01	0.00	0.25
8.Parking meter maintenance and collection	1503	344	0.06	0.00	0.00	0.00	0.06
9.Tree trimming and planting on public rights of way	1503	1250	0.29	0.01	0.00	0.00	0.31
10.Maintenance and administration of cemeteries	1503	549	0.11	0.07	0.00	0.01	0.19
11.Inspection/Code enforcement	1503	1378	0.05	0.00	0.00	0.00	0.06
12.Operation of parking lots and garages	1503	525	0.13	0.02	0.02	0.01	0.18
13.Operation/maintenance of bus transit system	1503	437	0.14	0.08	0.02	0.03	0.27
14.Operation/maintenance of paratransit system	1503	395	0.19	0.15	0.03	0.05	0.42
15.Operation of airports	1503	513	0.16	0.02	0.05	0.01	0.24
16.Water distribution	1503	1079	0.05	0.01	0.01	0.00	0.07
17.Water treatment	1503	988	0.04	0.01	0.01	0.00	0.06
18.Sewage collection and treatment	1503	1113	0.04	0.01	0.01	0.00	0.06
19.Disposal of sludge	1503	971	0.17	0.01	0.01	0.00	0.19
20.Disposal of hazardous materials	1503	710	0.35	0.03	0.01	0.01	0.39
Public Utilities							0.00
21.Electric utility operation and management	1503	414	0.37	0.04	0.14	0.00	0.56

Services provided	Number replying survey	Number reporting service provided	Private for profit	Private non profit	Franchises/ concessions	Subsidies	Total PSD delivery percentage
22.Gas utility operation and management	1503	351	0.53	0.05	0.20	0.00	0.78
23.Utility meter reading	1503	784	0.17	0.02	0.04	0.00	0.23
24.Utility billing	1503	633	0.30	0.02	0.05	0.00	0.38
Public Safety							
25.Crime prevention/patrol	1503	1405	0.01	0.00	0.00	0.00	0.01
26.Police/fire communications	1503	1387	0.01	0.01	0.00	0.00	0.02
27.Fire prevention/suppression	1503	1298	0.01	0.03	0.00	0.00	0.04
28.Emergency medical service	1503	1199	0.13	0.08	0.01	0.01	0.24
29.Ambulance service	1503	1101	0.26	0.10	0.02	0.02	0.40
30.Traffic control/parking enforcement	1503	1242	0.01	0.00	0.00	0.00	0.01
31.Vehicle towing and storage	1503	992	0.82	0.03	0.05	0.00	0.90
Health and Human Services							
32.Sanitary inspection	1503	980	0.02	0.00	0.00	0.01	0.02
33.Insect/rodent control	1503	847	0.14	0.01	0.00	0.01	0.16
34.Animal control	1503	1225	0.05	0.09	0.01	0.01	0.15
35.Operation of animal shelters	1503	987	0.10	0.23	0.01	0.02	0.35
36.Operation of daycare facilities	1503	416	0.53	0.35	0.01	0.05	0.93
37.Child welfare programs	1503	545	0.04	0.12	0.00	0.03	0.20
38.Programs for the elderly	1503	973	0.06	0.24	0.01	0.06	0.36
39.Operation/management of hospitals	1503	390	0.31	0.30	0.00	0.02	0.62
40.Public health programs	1503	735	0.05	0.08	0.00	0.01	0.15
41.Drug and alcohol treatment programs	1503	703	0.20	0.33	0.00	0.05	0.58
42.Operation of mental health/mental retardation programs and facilities	1503	635	0.15	0.29	0.00	0.05	0.49
43.Prisons/jails	1503	939	0.01	0.00	0.00	0.01	0.03
44.Operation of homeless shelters	1503	510	0.05	0.54	0.01	0.08	0.67
Parks and Recreation							

Services provided	Number replying survey	Number reporting service provided	Private for profit	Private non profit	Franchises/ concessions	Subsidies	Total PSD delivery percentage
45.Operation and maintenance of recreation facilities	1503	1308	0.05	0.03	0.01	0.01	0.10
46.Parks landscaping and maintenance	1503	1310	0.09	0.02	0.00	0.00	0.11
47.Operation of convention centers and auditoriums	1503	421	0.08	0.06	0.01	0.01	0.16
Cultural and Arts Programs							0.00
48.Operation of cultural and arts programs	1503	679	0.06	0.40	0.02	0.09	0.58
49.Operation of libraries	1503	1019	0.01	0.04	0.00	0.03	0.08
50.Operation of museums	1503	542	0.02	0.36	0.01	0.08	0.47
Support Services							
51.Buildings and grounds maintenance	1503	1402	0.18	0.01	0.00	0.00	0.20
52.Building security	1503	1130	0.11	0.01	0.00	0.00	0.13
53.Fleet mgmt/vehicle maintenance: Heavy equipment	1503	1357	0.25	0.02	0.00	0.00	0.28
54.Fleet mgmt/vehicle maintenance: Emergency vehicles	1503	1290	0.26	0.03	0.00	0.00	0.29
55.Fleet mgmt/vehicle maintenance: All other vehicles	1503	1350	0.24	0.02	0.00	0.00	0.26
56.Payroll	1503	1421	0.04	0.00	0.00	0.00	0.04
57.Tax bill processing	1503	1196	0.05	0.01	0.00	0.00	0.06
58.Tax assessing	1503	1113	0.05	0.00	0.00	0.00	0.06
59.Data processing	1503	1377	0.08	0.01	0.00	0.00	0.08
60.Collection of delinquent taxes	1503	1197	0.08	0.01	0.00	0.00	0.10
61.Title records/plat map maintenance	1503	1152	0.07	0.01	0.00	0.00	0.08
62.Legal services	1503	1323	0.44	0.02	0.01	0.00	0.48
63.Secretarial services	1503	1385	0.05	0.00	0.00	0.00	0.05
64.Personnel services	1503	1391	0.03	0.00	0.00	0.00	0.04
65.Public relations/public information	1503	1325	0.06	0.01	0.00	0.00	0.07

Appendix 4: Private Service Delivery Summary for Year 1997

Services provided	Number replying survey	Number reporting service provided	Private for profit	Private non profit	Franchises/ concessions	Subsidies	Total PSD delivery percentage
Public Works/Transportation							
1.Residential solid waste collection	1586	882	0.49	0.00	0.00	0.00	0.49
2.Commercial solid waste collection	1586	649	0.60	0.00	0.00	0.00	0.61
3.Solid waste disposal	1586	794	0.40	0.00	0.00	0.00	0.42
4.Street repair	1586	1191	0.34	0.00	0.00	0.00	0.36
5.Street/parking lot cleaning	1586	1025	0.20	0.00	0.00	0.00	0.21
6.Snow plowing/sanding	1586	902	0.13	0.00	0.00	0.00	0.14
7.Traffic sign/signal installation/maintenance	1586	1126	0.24	0.00	0.00	0.00	0.24
8.Parking meter maintenance and collection	1586	287	0.10	0.01	0.01	0.01	0.13
9.Tree trimming and planting on public rights of way	1586	1100	0.36	0.02	0.02	0.02	0.41
10.Maintenance and administration of cemeteries	1586	472	0.14	0.08	0.08	0.08	0.39
11.Inspection/Code enforcement	1586	1210	0.08	0.00	0.00	0.00	0.09
12.Operation of parking lots and garages	1586	434	0.15	0.02	0.02	0.02	0.22
13.Operation/maintenance of bus transit system	1586	378	0.22	0.08	0.08	0.08	0.47
14.Operation/maintenance of paratransit system	1586	350	0.22	0.16	0.16	0.16	0.69
15.Operation of airports	1586	437	0.19	0.01	0.01	0.01	0.22
16.Water distribution	1586	812	0.07	0.01	0.01	0.01	0.10
17.Water treatment	1586	820	0.05	0.01	0.01	0.01	0.08
18.Sewage collection and treatment	1586	912	0.08	0.00	0.00	0.00	0.09
19.Disposal of sludge	1586	763	0.28	0.01	0.01	0.01	0.29
20.Disposal of hazardous materials	1586	556	0.37	0.02	0.02	0.02	0.43
Public Utilities							
21.Electric utility operation and management	1586	341	0.40	0.03	0.03	0.03	0.48
22.Gas utility operation and management	1586	255	0.57	0.03	0.03	0.03	0.66

Services provided	Number replying survey	Number reporting service provided	Private for profit	Private non profit	Franchises/ concessions	Subsidies	Total PSD delivery percentage
23.Utility meter reading	1586	715	0.17	0.01	0.01	0.01	0.20
24.Utility billing	1586	757	0.13	0.00	0.00	0.00	0.14
Public Safety							
25.Crime prevention/patrol	1586	1204	0.00	0.00	0.00	0.00	0.01
26.Police/fire communications	1586	1196	0.01	0.01	0.01	0.01	0.03
27.Fire prevention/suppression	1586	1040	0.01	0.02	0.02	0.02	0.06
28.Emergency medical service	1586	961	0.16	0.08	0.08	0.08	0.38
29.Ambulance service	1586	820	0.28	0.09	0.09	0.09	0.55
30.Traffic control/parking enforcement	1586	1088	0.01	0.00	0.00	0.00	0.03
31.Vehicle towing and storage	1586	731	0.79	0.04	0.04	0.04	0.89
Health and Human Services							
32.Sanitary inspection	1586	740	0.04	0.01	0.01	0.01	0.06
33.Insect/rodent control	1586	620	0.20	0.02	0.02	0.02	0.25
34.Animal control	1586	1089	0.08	0.10	0.10	0.10	0.36
35.Operation of animal shelters	1586	832	0.10	0.23	0.23	0.23	0.81
36.Operation of daycare facilities	1586	294	0.48	0.31	0.31	0.31	1.41
37.Child welfare programs	1586	416	0.08	0.19	0.19	0.19	0.66
38.Programs for the elderly	1586	782	0.08	0.26	0.26	0.26	0.85
39.Operation/management of hospitals	1586	255	0.36	0.36	0.36	0.36	1.43
40.Public health programs	1586	559	0.09	0.14	0.14	0.14	0.51
41.Drug and alcohol treatment programs	1586	425	0.20	0.35	0.35	0.35	1.26
42.Operation of mental health/mental retardation programs and facilities	1586	386	0.17	0.28	0.28	0.28	1.01
43.Prisons/jails	1586	709	0.03	0.01	0.01	0.01	0.05
44.Operation of homeless shelters	1586	287	0.05	0.61	0.61	0.61	1.87
Parks and Recreation							
45.Operation and maintenance of recreation facilities	1586	1145	0.10	0.05	0.05	0.05	0.24
46.Parks landscaping and maintenance	1586	1155	0.18	0.02	0.02	0.02	0.24

Services provided	Number replying survey	Number reporting service provided	Private for profit	Private non profit	Franchises/ concessions	Subsidies	Total PSD delivery percentage
47.Operation of convention centers and auditoriums	1586	387	0.14	0.08	0.08	0.08	0.39
Cultural and Arts Programs							
48.Operation of cultural and arts programs	1586	554	0.07	0.36	0.36	0.36	1.14
49.Operation of libraries	1586	800	0.01	0.05	0.05	0.05	0.15
50.Operation of museums	1586	442	0.05	0.39	0.39	0.39	1.24
Support Services							
51.Buildings and grounds maintenance	1586	1232	0.26	0.02	0.02	0.02	0.31
52.Building security	1586	847	0.19	0.01	0.01	0.01	0.22
53.Fleet mgmt/vehicle maintenance: Heavy equipment	1586	1176	0.32	0.02	0.02	0.02	0.39
54.Fleet mgmt/vehicle maintenance: Emergency vehicles	1586	1113	0.34	0.03	0.03	0.03	0.42
55.Fleet mgmt/vehicle maintenance: All other vehicles	1586	1182	0.32	0.02	0.02	0.02	0.38
56.Payroll	1586	1279	0.06	0.00	0.00	0.00	0.07
57.Tax assessing	1586	876	0.06	0.00	0.00	0.00	0.07
58.Data processing	1586	1177	0.15	0.00	0.00	0.00	0.16
59.Collection of delinquent taxes	1586	939	0.14	0.01	0.01	0.01	0.17
60.Title records/plat map maintenance	1586	833	0.08	0.00	0.00	0.00	0.08
61.Legal services	1586	1066	0.51	0.02	0.02	0.02	0.58
62.Secretarial services	1586	1157	0.07	0.01	0.01	0.01	0.09
63.Personnel services	1586	1199	0.07	0.01	0.01	0.01	0.10
64.Public relations/public information	1586	1118	0.09	0.02	0.02	0.02	0.15

Appendix 5: Private Service Delivery Summary for Year 2002

Services provided	Number replying survey	Number reporting service provided	Private for profit	Private non profit	Franchises/ concessions	Subsidies	Total PSD delivery percentage
Public Works/Transportation							
1.Residential solid waste collection	1283	620	0.39	0.01	0.16	0.00	0.56
2.Commercial solid waste collection	1283	408	0.43	0.00	0.20	0.00	0.63
3.Solid waste disposal	1283	504	0.38	0.01	0.10	0.01	0.50
4.Street repair	1283	971	0.35	0.01	0.01	0.00	0.37
5.Street/parking lot cleaning	1283	787	0.18	0.01	0.01	0.00	0.20
6.Snow plowing/sanding	1283	739	0.13	0.00	0.00	0.00	0.13
7.Traffic sign/signal installation/maintenance	1283	864	0.27	0.00	0.01	0.00	0.29
8.Parking meter maintenance and collection	1283	229	0.10	0.00	0.01	0.00	0.10
9.Tree trimming and planting on public rights of way	1283	904	0.38	0.03	0.01	0.01	0.43
10.Maintenance and administration of cemeteries	1283	384	0.12	0.04	0.01	0.01	0.18
11.Inspection/Code enforcement	1283	981	0.07	0.00	0.01	0.00	0.08
12.Operation of parking lots and garages	1283	379	0.21	0.02	0.01	0.01	0.25
13.Operation/maintenance of bus transit system	1283	258	0.21	0.11	0.02	0.05	0.40
14.Operation/maintenance of paratransit system	1283	240	0.19	0.16	0.02	0.07	0.44
15.Operation of airports	1283	302	0.21	0.01	0.04	0.03	0.29
16.Water distribution	1283	694	0.07	0.00	0.01	0.00	0.09
17.Water treatment	1283	619	0.06	0.01	0.01	0.00	0.08
18.Sewage collection and treatment	1283	743	0.08	0.00	0.00	0.00	0.09
19.Disposal of sludge	1283	559	0.31	0.01	0.01	0.00	0.33
20.Disposal of hazardous materials	1283	399	0.38	0.04	0.04	0.02	0.48
Public Utilities							
21.Electric utility operation and management	1283	172	0.27	0.04	0.11	0.00	0.42

Services provided	Number replying survey	Number reporting service provided	Private for profit	Private non profit	Franchises/ concessions	Subsidies	Total PSD delivery percentage
22.Gas utility operation and management	1283	113	0.42	0.04	0.19	0.00	0.65
23.Utility meter reading	1283	593	0.12	0.01	0.03	0.00	0.16
24.Utility billing	1283	637	0.12	0.01	0.03	0.00	0.16
Public Safety							
25.Crime prevention/patrol	1283	1001	0.00	0.00	0.00	0.00	0.01
26.Police/fire communications	1283	925	0.00	0.01	0.00	0.00	0.01
27.Fire prevention/suppression	1283	821	0.01	0.02	0.00	0.01	0.04
28.Emergency medical service	1283	724	0.13	0.08	0.02	0.01	0.23
29.Ambulance service	1283	575	0.21	0.08	0.02	0.02	0.33
30.Traffic control/parking enforcement	1283	854	0.01	0.00	0.00	0.00	0.02
31.Vehicle towing and storage	1283	473	0.79	0.01	0.06	0.00	0.88
Health and Human Services							
32.Sanitary inspection	1283	520	0.03	0.00	0.00	0.00	0.04
33.Insect/rodent control	1283	409	0.16	0.00	0.00	0.00	0.17
34.Animal control	1283	809	0.06	0.09	0.00	0.01	0.16
35.Operation of animal shelters	1283	508	0.07	0.22	0.00	0.03	0.31
36.Operation of daycare facilities	1283	124	0.38	0.35	0.02	0.11	0.85
37.Child welfare programs	1283	248	0.11	0.25	0.01	0.10	0.47
38.Programs for the elderly	1283	614	0.07	0.31	0.01	0.08	0.47
39.Operation/management of hospitals	1283	67	0.25	0.28	0.01	0.01	0.57
40.Public health programs	1283	350	0.11	0.19	0.02	0.06	0.39
41.Drug and alcohol treatment programs	1283	256	0.18	0.46	0.02	0.12	0.79
42.Operation of mental health/mental retardation programs and facilities	1283	201	0.19	0.36	0.02	0.10	0.69
43.Prisons/jails	1283	457	0.02	0.01	0.00	0.00	0.04
44.Operation of homeless shelters	1283	124	0.05	0.62	0.03	0.15	0.85
45.Workforce development/ job training programs	1283	261	0.11	0.31	0.02	0.07	0.51
46.Intake/eligibility determination for welfare programs	1283	219	0.02	0.10	0.00	0.01	0.14

Services provided	Number replying survey	Number reporting service provided	Private for profit	Private non profit	Franchises/ concessions	Subsidies	Total PSD delivery percentage
Parks and Recreation							
47.Operation and maintenance of recreation facilities	1283	940	0.09	0.07	0.03	0.02	0.21
48.Parks landscaping and maintenance	1283	949	0.18	0.02	0.01	0.00	0.21
49.Operation of convention centers and auditoriums	1283	274	0.15	0.09	0.03	0.03	0.31
Cultural and Arts Programs							
50.Operation of cultural and arts programs	1283	417	0.10	0.45	0.01	0.12	0.68
51.Operation of libraries	1283	617	0.00	0.06	0.00	0.04	0.11
52.Operation of museums	1283	290	0.04	0.35	0.01	0.12	0.53
Support Services							
53.Buildings and grounds maintenance	1283	1028	0.30	0.02	0.01	0.00	0.34
54.Building security	1283	799	0.19	0.01	0.00	0.00	0.21
55.Fleet mgmt/vehicle maintenance: Heavy equipment	1283	963	0.37	0.01	0.00	0.00	0.38
56.Fleet mgmt/vehicle maintenance: Emergency vehicles	1283	907	0.40	0.01	0.00	0.00	0.42
57.Fleet mgmt/vehicle maintenance: All other vehicles	1283	972	0.36	0.01	0.00	0.00	0.37
58.Payroll	1283	1024	0.05	0.00	0.00	0.00	0.06
59.Tax bill processing	1283	674	0.07	0.00	0.00	0.00	0.08
60.Tax assessing	1283	546	0.08	0.00	0.00	0.00	0.09
61.Data processing	1283	938	0.17	0.00	0.00	0.00	0.18
62.Collection of delinquent taxes	1283	653	0.18	0.01	0.00	0.00	0.19
63.Title records/plat map maintenance	1283	565	0.06	0.00	0.00	0.00	0.07
64.Legal services	1283	838	0.56	0.02	0.00	0.01	0.58
65.Secretarial services	1283	960	0.05	0.00	0.00	0.00	0.06
66.Personnel services	1283	982	0.09	0.00	0.00	0.00	0.09
67.Public relations/public information	1283	944	0.12	0.01	0.00	0.00	0.14

Appendix 6: Private Service Delivery Summary for Year 2007

Services provided	Number replying survey	Number reporting service provided	Private for profit	Private non profit	Franchises/ concessions	Subsidies	Total PSD delivery percentage
Public Works/Transportation							
1.Residential solid waste collection	1599	932	0.47	0.02	0.14	0.00	0.63
2.Commercial solid waste collection	1599	699	0.56	0.02	0.14	0.00	0.72
3.Solid waste disposal	1599	851	0.43	0.02	0.09	0.00	0.53
4.Street repair	1599	1180	0.31	0.01	0.00	0.00	0.32
5.Street/parking lot cleaning	1599	1035	0.16	0.01	0.01	0.00	0.17
6.Snow plowing/sanding	1599	917	0.10	0.00	0.00	0.00	0.10
7.Traffic sign/signal installation/maintenance	1599	1070	0.21	0.00	0.00	0.00	0.22
8.Parking meter maintenance and collection	1599	279	0.10	0.01	0.00	0.00	0.11
9.Tree trimming and planting on public rights of way	1599	1066	0.32	0.02	0.00	0.00	0.34
10.Maintenance and administration of cemeteries	1599	513	0.13	0.06	0.00	0.01	0.21
11.Inspection/Code enforcement	1599	1146	0.08	0.00	0.00	0.00	0.08
12.Operation of parking lots and garages	1599	454	0.19	0.03	0.00	0.00	0.22
13.Operation/maintenance of bus transit system	1599	403	0.19	0.12	0.01	0.04	0.36
14.Operation/maintenance of paratransit system	1599	366	0.18	0.18	0.02	0.05	0.43
15.Operation of airports	1599	422	0.13	0.03	0.01	0.01	0.18
Public Utilities							
16.Electric utility operation and management	1599	908	0.06	0.02	0.00	0.00	0.08
17.Gas utility operation and management	1599	851	0.06	0.02	0.00	0.00	0.08
18.Water distribution	1599	942	0.07	0.01	0.00	0.00	0.09
19.Water treatment	1599	782	0.29	0.02	0.01	0.00	0.32
20.Sewage collection and treatment	1599	615	0.32	0.04	0.02	0.00	0.38
21.Disposal of sludge	1599	387	0.48	0.05	0.10	0.01	0.63
22.Disposal of hazardous materials	1599	315	0.60	0.06	0.11	0.01	0.78

Services provided	Number replying survey	Number reporting service provided	Private for profit	Private non profit	Franchises/ concessions	Subsidies	Total PSD delivery percentage
23.Utility meter reading	1599	794	0.18	0.02	0.02	0.00	0.22
24.Utility billing	1599	818	0.16	0.02	0.02	0.00	0.20
Public Safety							
25.Crime prevention/patrol	1599	1206	0.00	0.00	0.00	0.00	0.01
26.Police/fire communications	1599	1157	0.01	0.02	0.00	0.00	0.03
27.Fire prevention/suppression	1599	1044	0.01	0.02	0.00	0.00	0.04
28.Emergency medical service	1599	940	0.17	0.02	0.01	0.01	0.21
29.Ambulance service	1599	860	0.22	0.10	0.02	0.01	0.35
30.Traffic control/parking enforcement	1599	1028	0.04	0.00	0.00	0.00	0.05
31.Vehicle towing and storage	1599	422	0.65	0.05	0.03	0.00	0.74
Health and Human Services							
32.Sanitary inspection	1599	731	0.05	0.01	0.00	0.00	0.06
33.Insect/rodent control	1599	597	0.21	0.03	0.00	0.00	0.25
34.Animal control	1599	1022	0.05	0.08	0.01	0.01	0.14
35.Operation of animal shelters	1599	772	0.09	0.22	0.01	0.02	0.33
36.Operation of daycare facilities	1599	320	0.54	0.33	0.02	0.03	0.92
37.Child welfare programs	1599	411	0.10	0.15	0.00	0.05	0.30
38.Programs for the elderly	1599	799	0.07	0.29	0.01	0.05	0.42
39.Operation/management of hospitals	1599	253	0.40	0.38	0.00	0.03	0.80
40.Public health programs	1599	512	0.06	0.13	0.00	0.03	0.22
41.Drug and alcohol treatment programs	1599	395	0.20	0.36	0.01	0.05	0.62
42.Operation of mental health/mental retardation programs and facilities	1599	369	0.14	0.32	0.00	0.05	0.52
43.Prisons/jails	1599	648	0.02	0.01	0.00	0.00	0.03
44.Operation of homeless shelters	1599	288	0.05	0.56	0.00	0.08	0.68
45.Workforce development/ job training programs	1599	409	0.07	0.25	0.00	0.03	0.34
46.Intake/eligibility determination for welfare programs	1599	388	0.02	0.08	0.00	0.01	0.10

Services provided	Number replying survey	Number reporting service provided	Private for profit	Private non profit	Franchises/ concessions	Subsidies	Total PSD delivery percentage
Parks and Recreation							
47.Operation and maintenance of recreation facilities	1599	1130	0.08	0.04	0.01	0.00	0.13
48.Parks landscaping and maintenance	1599	1141	0.15	0.01	0.00	0.00	0.17
49.Operation of convention centers and auditoriums	1599	381	0.15	0.06	0.02	0.02	0.25
Cultural and Arts Programs							
50.Operation of cultural and arts programs	1599	567	0.07	0.35	0.01	0.08	0.51
51.Operation of libraries	1599	792	0.01	0.06	0.01	0.03	0.12
52.Operation of museums	1599	433	0.04	0.38	0.00	0.06	0.49
Support Services							
53.Buildings and grounds maintenance	1599	1222	0.21	0.01	0.00	0.00	0.23
54.Building security	1599	958	0.19	0.01	0.00	0.00	0.20
55.Fleet mgmt/vehicle maintenance: Heavy equipment	1599	1140	0.26	0.01	0.00	0.00	0.27
56.Fleet mgmt/vehicle maintenance: Emergency vehicles	1599	1085	0.29	0.02	0.00	0.00	0.32
57.Fleet mgmt/vehicle maintenance: All other vehicles	1599	1152	0.26	0.01	0.00	0.00	0.28
58.Payroll	1599	1228	0.07	0.00	0.00	0.00	0.07
59.Tax bill processing	1599	903	0.08	0.01	0.00	0.00	0.09
60.Tax assessing	1599	821	0.08	0.01	0.00	0.00	0.09
61.Data processing	1599	1090	0.11	0.01	0.00	0.00	0.12
62.Collection of delinquent taxes	1599	890	0.15	0.01	0.00	0.00	0.16
63.Title records/plat map maintenance	1599	797	0.08	0.01	0.00	0.00	0.09
64.Legal services	1599	1042	0.52	0.03	0.00	0.00	0.55
65.Secretarial services	1599	1107	0.04	0.00	0.00	0.00	0.04
66.Personnel services	1599	898	0.06	0.01	0.00	0.00	0.06
67.Public relations/public information	1599	1116	0.09	0.01	0.00	0.00	0.10

Appendix 7: Summary of PSD ratio by year

Time period	Number of observations	The extent of Private Service Delivery
1982	1776	0.26
1988	1648	0.22
1992	1472	0.20
1997	1473	0.24
2002	1133	0.23
2007	1475	0.24

Appendix 8: Variables and Sources

Variable	Measure	Relevant study	Data Source
Innovation adoption	The outsourcing of a public service	Study one, DV	ICMA surveys
Prior diffusion	the percentage of governments outsourcing a specific service	Study one, IV	ICMA surveys
Experienced practices	Total number of outsourced services over time	Study one, IV	ICMA surveys
Routinized practices	Total number of constantly outsourced services over time	Study one, IV	ICMA surveys
Operational relatedness	Dummy variable indicating whether a service candidate shares the same broad category as other routinized services	Study one, IV	ICMA surveys
Skill relatedness	Value calculated from a formula based on Brown and Potoski (2003a)'scale	Study one, IV	Brown and Potoski (2003a)
Local population	Logged value of local population	Study one, Control	Census of governments
Debt ratio	Long term debt to the total revenue of a local government	Study one, Control	Census of governments
Slack	Revenue per capita minus expenditure per capita	Study one, Control	Census of governments
Total provision	Total number of public services offered by a local government (logged).	Study one, Control	ICMA surveys
Trend	From 0 (to represent 8288) to 4 (to represent 0207).	Study one, Control	ICMA surveys
Innovation adoption	The absolute number of newly outsourced public services	Study two, DV	ICMA surveys
Slack	General revenue minus total expenditure	Study two, IV	Census of governments
Negative debt ratio	Value calculated using the ratio of long	Study two, IV	Census of government

	term debt to general revenue multiplied with -1.		
Employment ratio	Value calculated using the ratio of total number of government employees to total number of local population	Study two, IV	Census of government
Accumulated practices	Total number of already outsourced services at a prior time	Study two, IV	ICMA surveys
Trend	From 0 (to represent 8288) to 4 (to represent 0207).	Study two, Control	ICMA surveys
Local population	Logged value of local population	Study two, Control	Census of governments
State political ideology	Percentages of republican voters in presidential elections at the state level	Study two, Control	Dave Leip's Atlas of U.S. Presidential Elections
County political ideology	Percentages of republican voters in presidential elections at the county level	Study two, Control	Dave Leip's Atlas of U.S. Presidential Elections
Potential changes	Total number of public services not outsourced yet	Study two, Control	ICMA surveys
Local prosperity	County-level Per Capita Personal income	Study two, Control	U.S. bureau of economic analysis
Isomorphic state	Standardized similarity of two local governments in outsourcing public services	Study three, DV, also for regression	ICMA surveys
Isomorphic change	Standardized similarity of two local governments on "newly outsourced services"	Study three, DV	ICMA surveys
Identity based structural matching	Categorical variable indicating the same government structure, the same metro status and the same level of population.	Study three, IV	ICMA surveys & Census of governments
Geography based structural matching	The extent of proximity calculated from geographic affiliation	Study three, IV	ICMA surveys
Accumulation of experiences	The number of new services outsourced by the focal organization at an earlier	Study three, IV	ICMA surveys

	time		
Time	Dummy variable with 1 representing a later time	Study three, Control	ICMA surveys
Local population	Logged value of local population	Study three, Control	Census of governments
State political ideology	Percentages of republican voters in presidential elections at the state level	Study three, Control	Dave Leip's Atlas of U.S. Presidential Elections
County political ideology	Percentages of republican voters in presidential elections at the county level	Study three, Control	Dave Leip's Atlas of U.S. Presidential Elections
Outsourcing potential	The maximum number of common public services that can be outsourced a pair of governments	Study three, Control	ICMA surveys
Local prosperity	County-level Per Capita Personal income	Study three, Control	U.S. bureau of economic analysis
Debt ratio	Long term debt to the total revenue of a local government	Study three, Control	Census of governments
Employment ratio	Total number of government employees to total number of local population	Study three, Control	Census of governments
Slack	General revenue minus total expenditure	Study three, Control	Census of governments

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1981	Born on December, 12th in Xining, Qinghai, China
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2000-2004	Renmin University of China, Beijing
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Publications (in Chinese)

Jun Li. 2005. A comparative study of two performance measurement models. *Journal of Eastern China Economic Management*, 19: 93-97.

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