Revisiting organizational age, inertia, and adaptability: developing and testing a multi-stage model in the nonprofit sector

Chen, Chung-An

2014

Chen, C.-A. (2014). Revisiting organizational age, inertia, and adaptability: Developing and testing a multi-stage model in the nonprofit sector. *Journal of Organizational Change Management*, 27(2), 251-272.

<https://hdl.handle.net/10356/80602>

<https://doi.org/10.1108/JOCM-10-2012-0166>

© 2014 Emerald. This is the author created version of a work that has been peer reviewed and accepted for publication by *Journal of Organizational Change Management*, Emerald. It incorporates referee's comments but changes resulting from the publishing process, such as copyediting, structural formatting, may not be reflected in this document. The published version is available at: [<http://dx.doi.org/10.1108/JOCM-10-2012-0166>].

Downloaded on 26 Apr 2023 18:18:31 SGT

Emerald

Journal of Organizational
Change Management

**Revisiting organizational age, inertia, and adaptability:
developing and testing a multi-stage model in the nonprofit
sector**

Journal:	<i>Journal of Organizational Change Management</i>
Manuscript ID:	JOCM-10-2012-0166.R2
Manuscript Type:	Research Paper
Keywords:	inertia, adaptability, organizational age, multi-stage model, nonlinear relationship

SCHOLARONE™
Manuscripts

Revisiting Organizational Age, Inertia, and Adaptability:
Developing and Testing a Multi-Stage Model in the Nonprofit Sector

Introduction

Regarding the literature of organizational age dynamics, organizational ecology suggests that old organizations generally have a higher level of reproducibility. They possess a more formal and hierarchical structure, and a bigger size, implying that organizational inertia monotonically increases with age (Hannan & Freeman, 1984). However, scholars remind us that organizations as organisms and self-directed entities (Morgan, 2006) are able to adapt to the environment and adjust their strategies to counteract inertia stemming from age (Chakravarthy, 1982; Jennings & Seaman, 1994). Old organizations with the use of teamwork and a matrix structure may “return to a leaner time” (Miller & Friesen, 1984) when they evoke their adaptability. In other words, both inertia and adaptability, two internal forces, drive organizational change.. In conventional wisdom, they counterbalance each other.

However, in the 1990s, scholars proposed alternative views, telling us that inertia and adaptability are not only counterbalancing but also interdependent. For example, according to March (1991), an adaptive process by refining exploitation is likely to be effective in the short run but destructive in the long run, implying that short-term adaptations accompanied by the accumulation of knowledge and resource can eventually increase inertia. Levinthal (1991) reinforced this view. He argued that organizations learn to adapt to the environment and retain prior solutions, accordingly contributing to inertia. However, prior solutions as an inertial force facilitate further intelligent adaptation to counterbalance the negative side of inertia in the long term. These early insights enlighten that organizational survival requires the balance between

1
2
3 inertia and adaptability (Levinthal & March, 1993) as they mutually reinforce. Recently, a series
4
5 of research about ambidexterity (e.g. Raisch & Birkinshaw, 2008) shows the difficulty and
6
7 challenge in balancing inertia (exploitation) and adaptability (exploration). The challenge in
8
9 reconciling inertia and adaptability implies that the balance is not static but a continuing process
10
11 in which inertia and adaptability take turns to dominate organizational change.
12
13
14

15 Although we have knowledge that the inertia-adaptability balance could be nonlinear and
16
17 fluctuate over time, several things are left underexplored or unexplored. First, scholars never
18
19 clearly address how these two forces counterbalance and reinforce each other in different stages
20
21 over time. Second, scholars seldom statistically examine organizational age dynamics. When
22
23 they do, the age-adaptability or age-inertia relationship is thought to be linear (e.g. Sørensen &
24
25 Stuart, 2000). Third, research that explicitly or implicitly addresses nonlinear age dynamics
26
27 neglects the discussion of the external environment, particularly legitimacy as mentioned in
28
29 institutional theory (DiMaggio & Powell, 1983; Zucker, 1987). In fact, the change of inertia and
30
31 adaptability is never independent from the environmental pressure. Finally, whether a general
32
33 theory of age dynamics can be applied to a specific organizational context, such as the nonprofit
34
35 sector, is unknown. This is particularly the case if we consider, according to property rights
36
37 theory (e.g. Alchian and Demsetz, 1972, 1973), that business ownership introduces market and
38
39 guarantees people's optimal effort, implying stronger external pressure and a stronger demand
40
41 for adaptability.
42
43
44
45
46
47

48 To fill these knowledge gaps, in the present study, I first propose a conceptual model that
49
50 delineates how inertia and adaptability mutually counterbalance and reinforce in different stages
51
52 over time. I integrate legitimacy, the central idea in institutional theory, into this conceptual
53
54 model to further readers understanding about the role played by legitimacy in an everlasting
55
56
57
58
59
60

inertia-adaptability balance process. Next, data originating from 430 nonprofit organizations in the United States are used to test organizational age dynamics. Because the adaptability–inertia balance is often reflected in an organization’s innovative culture, leadership, and structure, I statistically test whether the following three variables vary with organizational age in a nonlinear manner: organizational innovativeness (culture), top management’s risk aversion (leadership), and organizational red tape (structure).

The findings in the present study will first contribute to the literature of organizational change, particularly organizational age dynamics. An integrative model that incorporates inertia, adaptability, and legitimacy helps readers more clearly understand that rational adaptation, natural selection, or institutional theory alone would not be able to determine organizational change. It also explains why the change of innovativeness, managerial risk propensity, and red tape over time resembles a nonlinear wave shape. Most importantly, it provides statistical evidence regarding this matter. Another notable contribution pertains to the level of analysis. Most existing research of age dynamics is conducted at the level organizational field or organizational population, and the research focus centers on how socio-economic factors (e.g. social demands, political chaos, and economic growth) and governmental policies (e.g. regulations and deregulations) influence organizational death rates in an organizational field (Wu & Lin, 2002a, 2002b). Different from the conventional approach with an aim of organizational death rates, the present study investigates how *individual organizations* change over time with a focus on a single organization’s inertia-adaptability balance. In other words, the level of analysis is organization. The present study complements the conventional approach by looking into factors internal to organizations such as the misuse of organizational memory (organization), groupthink and group cohesiveness (group), and people feeling complacent (individual).

Bringing down the level of analysis from organizational population to individual organization enables researchers to more closely observe different organizational, instead of environmental, sources leading to the continuously changing inertia-adaptability balance.

The remainder of the paper is organized as follows: The first section is the literature review of the classic literature of organizational age dynamics. The reviewed literature mainly concerns organizational ecology, rational adaptation, and their reconciliation. According to the review in the second section, I develop a multi-stage conceptual model of organizational change that elaborates on the nonlinear nature of inertia-adaptability balance in the long term. Legitimacy, the central component in institutional theory, is integrated into the model. This section is followed by statistical analysis and conclusion.

Literature Review: Organizational Ecology, Rational Adaptation, and Reconciliation

The most popularly cited theory regarding organizational age dynamics is organizational ecology (Carroll & Hannan, 1989; Hannan & Freeman, 1984; Singh & Lumsden, 1990). In light of this theory, inertia dominates organizational change. Organizational ecologists argue that organizational inertia will be stronger in older organizations. Their grounding theory is organizational life cycle, a theory that separates the life of organizations into several stages from birth, growth, maturity and revival, to decline (Lester, Parnell, & Carraher, 2003; Smith & Miner, 2006). To the extent that each subsequent stage demonstrates an increase of structural complexity and formalization, organizational inertia should “grow monotonically with age” (Hannan & Freeman, 1984, p. 157).

Various additional perspectives also support the view that aging leads to the growth of inertia. For example, sunk costs invested in existing equipment, function and specialized personnel constitute assets not easily transferable (Hannan & Freeman, 1977) create a burden

that hinders the creation of new methods and products. Moreover, aging frequently accompanies a large size. As Downs (1967) asserted, the increasing size of bureau often causes a gradual ossification of its action, a factor associated with diminishing flexibility. Formalized rules, standardized routines, and hierarchical control emanating from self-reproduction in large organizations (Hannan & Freeman, 1984; Stinchcombe, 1965) frequently generate organizational inertia.

However, organizational ecology overlooks the force of adaptability. Proponents of the rational adaptation approach (Jennings & Seaman, 1994) assume that organizations are comprised of rational individuals (Simon, 1948). so organizations are autonomous and self-directed enough to actively adjust their strategies and structures to fit the environment (Boeker, 1989). For example, the theory of resource dependence (Pfeffer & Salancik, 2003) indicates that most organizations are not able to generate all necessary resources, so they take actions such as alliances and resource exchanges to reduce environmental uncertainties (Thompson, 2003). The theory of strategic making (Mintzberg, Ahlstrand, & Lampel, 2005) focuses on the strategic apex that contributes to structural, cultural, and managerial changes to reduce inertia. Apparently, rational adaptation is seemingly incompatible with organizational ecology—one assumes that adaptability dominates change, whereas the other one assumes that inertia is the only dominant force.

Later development shows the possibility of reconciling these two views. In the 1980s, scholars already proposed that both inertia and adaptability are independent forces that concurrently influence organizational evolution (Hrebiniak & Joyce, 1985; Romanelli & Tushman, 1986), implying the simultaneous presence of inertia and adaptability in organizations. In recent years, the research of ambidexterity (Gibson & Birkinshaw, 2004; He & Wong, 2004;

Raisch & Birkinshaw, 2008; Raisch, Birkinshaw, Probst, & Tushman, 2009) further demonstrates that organizations need both inertia (using exploitation for the present need) and adaptability (using exploration for the future need) to sustain high performance. Although several antecedents, outcomes, mediators, and moderators for ambidexterity have been identified, scholars also admit that tensions and paradoxes exist between these two forces (Andriopoulos & Lewis, 2009), and the precise mix of inertia and adaptability is hard to specify.

Some inferences can be derived from the early effort made to ambidexterity. First, both adaptability and inertia influence organizational change. Second, the presence of these two forces is relative. Inertia declines when adaptability surges, whereas adaptability dims with growing inertia. They *counterbalance* with each other. Third, since the presence is relative and maintaining a harmonious balance is challenging, it is reasonable to infer that the relative presence between inertia and adaptability over time is not static, but instead, fluctuated. Recent studies of knowledge management also indicate that adaptability and inertia dominate knowledge creation in different stages (e.g. Chen, 2008). In fact, the implication of the nonlinear nature of age dynamics can be found in an early work by Levinthal's (1991). In this article, he indicates that adaptability and inertia not only mutually counterbalance but also *mutually reinforce*. Organizations tend to retain elements of solutions after several rounds of adaptation, accordingly accumulating inertia in the long term and jeopardizing organizational survival. However, prior solutions as inertial forces allow for clearer inferences and facilitate intelligent adaptation (Holland, 1992) to confront survival crisis. For Levinthal (1991), the inertia-adaptability relationship resembles chicken-and-egg.

In sum, the literature of organizational age dynamics reviewed in this section implies that the relative presence between inertia and adaptability over time is ever-changing. However,

1
2
3 scholars have never clearly articulated how these two forces take turns to override each other in
4
5 different stages. They have also failed to explain how legitimacy, a critical external factor that
6
7 affects organizational change (Scott, 1995), influences the balancing process. This is especially
8
9 unfortunate as the concept of legitimacy complements the interpretation of organizational
10
11 survival in organizational ecology. The multi-stage conceptual model in the next section is
12
13 expected to compensate for these two insufficiencies.
14
15

16
17
18 **A Multi-Stage Conceptual Model**
19

20 In an open system, one should concurrently consider internal and external conditions
21
22 within organizations for precise portrayal of the organizational age and dynamics. While internal
23
24 forces include both inertia and adaptability, the external environment has not been investigated.
25
26 The present study considers the requirement of legitimacy, a core concept in the institutional
27
28 theory (Aldrich & Fiol, 1994; DiMaggio & Powell, 1983). Organizations that fail to stay
29
30 legitimate may face survival problems in the long term.
31
32

33
34 Legitimacy as an External Demand
35

36 Legitimacy, a feature referring to the congruency between the values and norms in the
37
38 environment and the activities of an organization (Dowling & Pfeffer, 1975) implies the
39
40 appropriateness and acceptance of organizations (Stinchcombe, 1965; Zimmerman & Zeitz,
41
42 2002). The basic rationale of institutional theory is that organizational conformity to the
43
44 institutional environment, or isomorphism, increases resource flows, legitimacy, and survival
45
46 chances (Meyer & Scott, 1983; Singh, House, & Tucker, 1986). Two points concerning
47
48 legitimacy and survival require further clarification. First, it is inadequate to evaluate an
49
50 organization's legitimacy with the use of a simple dichotomy because legitimacy is not only
51
52 "existent or nonexistent." Instead, legitimacy should be considered as a variable ranging
53
54
55
56
57
58
59
60

continuously in value from low to high, and organizations can take deliberate action to increase the amount of legitimacy (Zimmerman & Zeitz, 2002). Second, there does exist a threshold of legitimacy, and the loss of legitimacy implies failure and threatens organizational survival. However, losing legitimacy does not lead to immediate organizational demise (Zimmerman & Zeitz, 2002). Organizations can survive below the threshold of legitimacy for a certain timeframe before they perish. Some organizations operating below this threshold may be able to retrieve legitimacy or enhance legitimacy through the use of multiple strategies (Bernstein, 2004; Suchman, 1995; Tsang, 1996).

Coupling Internal Forces and External Demands

The threshold of legitimacy may not remain static, as risk-taking “renegades” (Kondra & Hinings, 1998) and strategic “entrepreneurs” (Beckert, 1999) may deviate from institutional norms and perform above the threshold, creating a new definition of legitimacy. Therefore, strategic action and effective learning help organizations gain, maintain, and repair legitimacy (Dutta & Crossan, 2005; Suchman, 1995). This means that a high level of adaptability serves as a guarantee for organizations to meet the basic standard of legitimacy or operate above the legitimacy threshold. The present study assumes that organizations are able to operate above the basic threshold of legitimacy when adaptability prevails over inertia. By contrast, organizations fail to meet this standard when inertia is stronger than adaptability.

The coupling of internal forces and external demands serves as a theoretical basis for the multi-stage organizational change conceptual model as Figure 1 shows. Each stage in this model differs in its equilibrium of inertia and adaptability, implying that inertia and adaptability constantly change over time.

[Insert Figure 1 Here]

Stage I: Growth. When burgeoning markets give managers the confidence to pursue new opportunities, organizations have “incentives to act” (Miller & Chen, 1994), a motivational component of action (Graham, 1971; Schelling, 1971) that represents a low level of inertia (Miller, 1993; Miller & Chen, 1994). Because new organizations frequently face severe survival challenges due to a lack of resources, experience, and credibility (Freeman, Carroll, & Hannan, 1983; Stinchcombe, 1965), they are more likely to be institutional entrepreneurs than established organizations. They challenge the existing institutions and create new game rules tailored for their interests and survival (Beckert, 1999; DiMaggio, 1988). Therefore, adaptability increases and outweighs inertia in the first stage. This stage reflects a successful exploration strategy in the theory of ambidexterity (Raisch et al., 2009). Organizations not only pursue legitimacy but also challenge the definition of legitimacy by breaking existing rules. The experiences of success and failure accumulated via trial-and-error are stored for smarter adaptation for the next stage.

Stage II: Minor Adaptation. In the second stage, adaptability still overpowers inertia, so organizations are able to maintain their legitimacy and perhaps maximize their performance by using existing knowledge. However, adaptability then starts to decline and inertia starts to grow, a feature that separates this stage from the previous one. Success stemming from dominant adaptability can cause the simplicity of organizations. This implies that organizations become more monolithic with their managers’ feelings of complacency, members and subunits having similar preoccupations, and systems becoming more specialized (Miller, 1993; Miller & Chen, 1994; Tushman & Romanelli, 1985).

Several reasons account for the increase of inertia in this stage. First, organizations slow down the pace of exploring new possibilities and start exploiting old certainties (March, 1991) in

order to rapidly improve performance in the short run (Miller & Chen, 1994). In addition, exploiting existing knowledge also helps organizations avoid potential risks from happening during trial-and-error. Finally, incumbents have reasons to remain in power and become heroes (Mintzberg, 1983; Pfeffer, 1981, 1994), while dissidents are likely to be “disenfranchised” (Miller & Chen, 1994). As a result, strategies adopted in this stage may help organizations achieve excellence, but in the meantime, induce reluctance to a large-scale change. In sum, this stage reflects a successful exploitation strategy in the theory of ambidexterity (Raisch et al., 2009).

Stage III: Failure and Disorientation. Because of some unique symptoms such as the misuse of organizational memory and groupthink, increasing inertia continues to undermine adaptability, accordingly leading to an organization’s loss of legitimacy. The first symptom, the misuse of organizational memory, is the continuum of using existing knowledge in the previous stage. Organizational memory is a double-edged blade, beneficial to innovation in the short run but self-destructive in the long run (March, 1991; Moorman & Miner, 1997). The long-run detrimental effect takes place when organizations focus on overly specialized knowledge, manifest inattention, and stop updating their knowledge base (Miller, 1994; Miller & Chen, 1994), finally contributing to obsolete knowledge. In addition, the misuse of memory often results in convergent values and “groupthink” (Janis, 1982), directing managers to pursue a narrow goal in a specific domain (Morgan, 2006).

Another critical symptom is red tape. Successful organizations tend to grow in functions, number of subunits, and size. The increase of standardized routines, formalized rules, and intensive control frequently accompany structural growth. Although routines can ensure the basic quality of products or services, routines may sometimes be overstressed and subsequently

become red tape (Kaufman, 1977). Red tape destroys employees' autonomy, impedes innovative thinking, and discourages endurance to risks that necessarily occurs during the development of new services and products (Chen & Bozeman, 2012). This stage reflects a self-destructive exploitation strategy in the theory of ambidexterity (Raisch et al., 2009), and the overall levels of inertia are the highest in the balancing process.

Connecting Stage III and Stage IV: Avoiding Demise. Losing legitimacy is a warning sign to organizations. Many organizations fall into a threat-rigidity vicious circle (Staw, Sandelands, & Dutton, 1981) and finally perish by the end of the third stage. On the organization level, rigidity stems from information overload that restricts employees' ability to process information. On the group level, failures lead to a rise of pressures toward uniformity and a collective goal. On the individual level, stress and anxiety bias one's ability to process information so that individuals tend to rely on prior experiences, pay attention to dominant values, and neglect peripheral cues.

Although prevailing inertia is a primary antecedent of impaired performance and organizational mortality (Gresov, Haveman, & Oliva, 1993), reorientation may be perceived by top management as necessary to maintain or regain viability when an organization finds itself in a precarious situation (Burgelman, 1991). The theory of prospect (Kahneman & Tversky, 1979) hints that individuals are likely to be risk-seeking when conditions are unfavorable to them. That being said; managers are prone to the risk of reorganization when constant failures jeopardize organizational survival. Losing legitimacy does not necessarily lead to organizational demise, but instead, alerts managers to start activating reorganization and double-loop learning (Argyris & Schon, 1978) so as to evoke the resurgence of adaptability. As Burgelman (1991) indicates, "threat-rigidity may lead top management to reaffirm familiar approaches in the beginning...

eventually, however, confronted with chronic low performance, top management is more likely to take major risks by making extreme and vacillating changes in the strategy” (p.253).

Stage IV: Reorganization. In this stage, inertia starts to wane whereas adaptability starts to resurge. Organizations breaking the threat-rigid circle are those successfully evoking double-loop learning, a costly and painful process that requires organizations to reevaluate existing goals, values and measures (Argyris & Schon, 1978). A recovering organization displays a desire to return to a leaner time (Miller & Friesen, 1984), implying that adaptability is increasing even though inertia is still dominant. In other words, organizations employing strategic change are those that are proactive and willing to take necessary risks. Reorganization manifests itself in the following dimensions.

First, organizations tend to use teamwork and some flexible structures to remedy the inherent flaws of bureaucracy. The function of self-reproduction (Hannan & Freeman, 1984) causes survivors from the third stage to have an enormous size, high functional complexity, strong hierarchical control and red tape, resulting in poor communication and slow information flow. In this situation, teamwork reduces communication costs and fosters innovation. Frequently, facilitation of self-directed teams (Janz, 1999) are working in reengineering, empowerment, and a matrix structure (Lester et al., 2003). That being said, while organizations are still large and bureaucratic, members can work under less bureaucratic interference in a well-designed organization.

In addition, organizations with a large size have the potential and resources to create a loosely-coupled structure (Weick, 1976) comprised of both core and periphery (Hannan & Freeman, 1984; Singh et al., 1986). To the extent that drastic strategic change involves a high level of risk (Levinthal, 1991), loosely-coupled organizations can reduce such risk by conducting

experiments in the periphery rather than making minor adjustments in the core. In other words, “peripheral rather than core changes provide a more promising opportunity for intelligent learning” (Levinthal, 1991, p. 144). Empirical evidence also supports this view. Singh and Lumsden (1990) indicate that the rate of change in the core declines with age whereas the rate of change in the periphery increases with age. Scott (1998) also claims that strategic adaptation more faithfully explains the change in the periphery.

In sum, organizational inertia is “a prerequisite for intelligent adaptation,” as Holland (1992) proposes. Organizations surviving from the stage of failure and disorientation successfully convert structural burdens such as a large size, bureaucracy, and functional complexity to their assets. Both teamwork and a loosely-coupled structure provide a solid basis for innovation and risky experiments.

Stage V: Revitalization. Although uprising adaptability and declining inertia are common features for the stage of reorganization and the stage of revitalization, the dominance of adaptability as a distinctive factor in the stage of revitalization denotes an organization’s retrieval of legitimacy. However, one must not assume that revitalization is the final stage of organizational evolution over time. Revitalized organizations may once again experience minor adaptation, disorientation, reorganization, and revitalization. Their success, accompanied by the innovation and risk taking may be followed by single-loop learning, exploitation of existing knowledge, misuse of knowledge, red tape, groupthink, and many post-success symptoms (Miller, 1994). They may as well die from disorientation before reorganization occurs. This stage reflects another successful exploration strategy in ambidexterity (Raisch et al., 2009).

Summary

The present study assumes that organizations are driven by the synergy of adaptability and inertia, and that they constantly face the challenge of legitimacy and the pressure of survival. The multi-stage conceptual model grounded in these two assumptions suggest that the balance between adaptability and inertia resembles a wave shape—it grows (Stage I), recedes (Stage II and III), and resurges (Stage IV and V).

Hypothesis: The relationship between the inertia-adaptability balance and organizational age resembles a nonlinear wave shape.

Data and Variables

Survey data from managerial-level respondents in nonprofit organizations¹ a subsample of the National Administrative Studies Project (NASP-III), were used to test the conceptual model. Using a nonprofit sample to test a general theory of organizational age dynamics allows the theory to be applied to a nonprofit context. The population of NASP-III covers both the state of Georgia and Illinois in the United States. The NASP-III research group purchased a list from Infocus Marketing, Inc. This list includes members of the American Society of Association Executives (ASAE) with titles of Administration/Operations Manager, Executive Director/VP, Company President/Owner, Development Manager/Director, Education Manager/Director, Government Relations, Marketing, Personnel, Public Relations/Public Affairs, Sales/Marketing, Financial/bookkeeping, Information systems, Legal Counsel-internal, and Chief executive officer. This list provides 280 nonprofit managers from Georgia and 1048 from Illinois. At the end of this survey, the NASP-III research group obtained 430 out of 1307 reduced N with a response rate of 33% (39% in Georgia and 31% in Illinois) for the nonprofit sector respondents.²

The main independent variable (IV), organizational age is the gap between 2006 and the organization's established year as the data were collected 2006. The youngest organization is

only 1-year-old, whereas the oldest organization is 166-years-old, revealing a sizeable variance in the data. The main dependent variables include the following three Likert-scale items: (1) “Innovation is one of the most important values in this organization”; (2) “Top management in this organization is afraid to take risks (inverse)”; (3) “Respondents’ perceived red tape, defined as ‘burdensome administrative rules and procedures that have negative effects on the organization’s effectiveness’ (inverse).” The three items measure organizational adaptability in three different aspects respectively: an organization’s innovative culture (culture), top management’s risk aversion (leadership), and red tape as proliferated formal rules (structure).³ In addition, in the literature, the three concepts represent different dimensions of entrepreneurial orientation and they are mutually correlated (Green, Covin, & Slevin, 2008; Jantunen, Puumalainen, Saarenketo, & Kyläheiko, 2005). These three items included in this study have been used in various organization studies (Bozeman & Murdock, 2007; Chen, 2012; Chen & Bozeman, 2012). Due to the concern for statistical parsimony, I combined the three items by first using a principal component factor analysis (Eigenvalue = 1.97, factor scores = 0.81, 0.79, and 0.83 respectively) and subsequently saving the factor score. The saved factor score originally ranged between -2.73 and 1.60. In order to avoid confusion, I recoded this variable by adding 2.73 to each observation, so the factor score ranges between 0 and 4.33, and 0 represents the strongest inertia. Ordinal logit regression results for each dependent variable are placed in the Appendix.

Several control variables (CVs) are included. The first one is organizational size. Size should predict an organization’s rigidity, as larger size is accompanied by more sunk costs, hierarchical control, and bureaucracy as indicated by organizational ecologists (Hannan & Freeman, 1984, 1989). Second, task clarity is usually a result of a clear mission. Thompson

(2003) contends that managers feel insecure and enhance internal control when they perceive vague missions and tasks. In other words, they would be more willing to endure risky behaviors and perceive less rigidity when goals and tasks are clear (Bozeman & Kingsley, 1998). On the individual level, respondent's age, gender, and work history as demographic differences may bias a respondent's perceptions of organizational risk and innovation. Females and older people may prefer a stable work environment and accordingly perceive that their organizations are less rigid (MacCrimmon & Wehrung, 1990). One's current job as a promotional position is controlled for because a success in the career ladder helps one form confidence in an organization's performance in different aspects (Feeney & Boardman, 2011), including organizational rigidity. Individuals whose previous job was in the public sector may overestimate real levels of rigidity due to the influence of contrast effect (Louis, 1980; Sherif & Hovland, 1961), so "switching from the public sector" is included as one of the controls. Self-determination at work (Ryan & Deci, 2000) represents the combination of a person's autonomous motivation, controlled motivation, and motivation. A person's self-determination predicts work attitudes and perceived impediments, so presumably it may bias one's perceived organizational rigidity. Following Chen and Bozeman (2013), I calculated the self-determination index (SDI) by using 12 ordinal items asking respondents' reasons for choosing the current job. SDI is controlled for.

Finally, the data were collected in the states of Georgia and Illinois. Considering the recent trend of nonprofit-government cooperation (Milward, 1994) and possible isomorphic effect (DiMaggio & Powell, 1983), nonprofits in Georgia should exhibit lower levels of rigidity because Georgia civil service reform in 1996 has resulted in a huge progress in deregulation

(Battaglio Jr & Condrey, 2006). Please refer to Table 1 for variable measurement and Table 2 for correlation matrix with descriptive statistics.

[Insert Table 1 and Table 2 Here]

Findings

From the data, the youngest organization is 1-year-old, whereas the oldest organization is 166-years-old. Theories hint that an organization’s relative presence of adaptability may grow, recede, and resurge over time, but the time duration of each respective phase is unknown. As a result, there is little information about how many turning points exist between the age of 1 and the age of 166. Therefore, I employed polynomial regression to examine how an organization’s innovativeness, managerial risk propensity, and red tape vary over time and discover the number of turning points. Polynomial regression helps researchers examine whether a given DV is related to a given IV in a nonlinear form. Polynomial regression fits data to this equation (Kleinbaum, Kupper, Muller, & Nizam, 2008):

$$y = a_0 + a_1x + a_2x^2 + a_3x^3 + \cdots + a_nx^n + \varepsilon.$$

One can include any number of terms. Assuming one stops at the term a_1 , it is called a first-order polynomial equation, which is identical to the equation for a straight line. If one stops after the term a_2 , it is called a second-order, or quadratic, equation. If one stops after the term a_3 , it is called a third-order, or cubic, equation. In a quadratic equation, the fitted values resemble a U-shaped or reverse-U-shaped nonlinear curve with one turning point. In a cubic equation, the fitted values resemble a nonlinear curve with two turning points. Pursuant to this logic, a quartic equation (x powered by 4) model has three turning points and a quintic (x powered by 5) equation model has four turning points.

This study hypothesizes that the age-adaptability or age-inertia relationship is nonlinear. However, because a definite number of turning points is unknown, I proceed to model the relationship between the main DV and the main IV from the first-order as well as the second-order polynomial equation. If the coefficients of age are not statistically significant in the second-order equation, I add age cubic into the equation and model the relationship again. If the coefficients of age are still not statistically significant in the third-order equation, I add age quartic into the equation and proceed with remodeling. I repeat this procedure until I find statistically significant coefficients of age. Findings are reported in Table 3.

[Insert Table 3 Here]

Results in Table 3 imply that the age-adaptability relationship should be understood as nonlinear. While none of the coefficients related to age is statistically significant in the first-, second-, third-, and fourth-order equation, all age-related coefficients are statistically significant in the quintic/fifth-order equation (Model 5), implying that the main DV is correlated with age in a nonlinear manner—an organization's adaptability-inertia balance may grow, recede, resurge, decline, and re-resurge within the range of 1~166 years. This nonlinear relationship remains with the existence of several controls in the model, indicating that the impact of aging on the main DV in the fifth-order equation model is independent of the impacts of other controls. Regarding controls, most of them are predictive to the main DV at the 95% confidence level except for gender and switching from the public sector. Figure 2 shows the regression line for the quintic model.

[Insert Figure 2 Here]

I also examine the turning points in the quintic/fifth-order equation. I predict 166 values of the DV by inserting age = 1, 2, 3...166 into Model 5 (without control variables). The results

show that four turning points appear when age equals 22, 60, 101, and 146 respectively. The dependent variable surges three times. The duration of the first two increases is 22 and 41 years respectively, but the third one is unknown. The duration of each recession is 38 and 45 years respectively. In addition, the resurgence between age = 60 and age = 101 is less significant.

Theoretical Implications

The present study revisits organizational age dynamics with a special focus on the fluctuated inertia-adaptability balance over time. Indeed, classic literature of organizational change already implies that the balancing process is nonlinear (Levinthal, 1991; Levinthal & March, 1993). However, the approach employed to investigate age dynamics in this study has a unique contribution to the existing literature of organizational change. First of all, previous research never carefully looks into how inertia and adaptability counterbalance and reinforce each other over time through a micro lens. The multi-stage model proposed in the present study divides the inertia-adaptability balancing process into five sequential stages, providing a clearer depiction of organizational activities in each stage. In addition, the micro multi-stage model differs from traditional age dynamics research conducted at the level of organizational population with a macro focus on survival/death rates. By bringing down the level to individual organizations, this multi-stage model allows readers to observe how different mechanisms (e.g. organizational memory, double-loop learning, core-periphery differentiation, etc.) alter the adaptability-inertia balance in each stage.

Second, the discussion of adaptability-inertia balance often omits the external demand from legitimacy. In fact, any change of the internal forces such as inertia and adaptability can

never be independent of the external demand (DiMaggio & Powell, 1983; Zucker, 1987). By incorporating legitimacy (as well as survival) into the multi-stage model, the present study makes up the insufficiency left by classic literature of organizational age dynamics. From another perspective, the multi-stage model provides a platform that allows three macro theories of organizational change—rational adaptation, natural selection, and institutional theory—to complement each other.

Third, although some quantitative studies of age dynamics have been carried out, the age-adaptability or age-inertia relationship in these studies are assumed to be linear (e.g. Sørensen & Stuart, 2000). In other words, scholars seldom statistically examine age dynamics regarding adaptability-inertia balance. The present study provides statistical evidence, showing that aging is accompanied by a nonlinear change of innovativeness, managerial risk taking propensity, and organizational red tape.

Finally, the data collected from the nonprofit sector helps examine whether the multi-stage model is supported in a specific context, namely nonprofits. Considering that nonprofits do, in most instances, have a precarious existence (Wollebaek, 2009), and “it is entrepreneurial behavior which explains why, nonprofits are founded and their engagement in the provision of services” (Badelt, 1997, p. 164), contextual differences in terms of survival pressure between the nonprofit and for-profit sector seem to be minor and ignorable. However, according to property rights theorists (e.g. Alchian and Demsetz, 1972, 1973), business ownership guarantees that the person in charge of monitoring has an incentive to maximize profit and thus will put optimal monitoring effort to ensure that individuals are not shirking (Rowthorn & Chang, 1993). In this regard, nonprofit and business organizations may differ in their external pressure and accordingly the internal inertia-adaptability balance. Statistical findings demonstrate that a

general theory of organizational change, the multi-stage model, can be readily applied to the nonprofit context with little conflict.

In sum, by revisiting organizational age dynamics and assuming that adaptability and inertia mutually reinforce and counterbalance each other, this study provides a framework in which seemingly incompatible organizational theories such as organizational ecology, rational adaptation, and institutional theory can converge. Conceptual integration of different theories in the current study implies that each theory has its advantages and limitations. We may not be able to see the entire scenario of aging dynamics if we allow a single theory to dominate the thinking process and bias our views.

Practical Implications

In practice, managers can benefit from findings in the current study. According to the theory of social comparison (Festinger, 1954), the only way to evaluate whether an organization’s innovativeness, managerial risk propensity, and red tape is through comparison with other organizations in cases where objective nonsocial means are not available. However, such comparative information is difficult to obtain, and even when it can be obtained, managers are still poorly informed with regard to the current trend of adaptability-inertia balance: Is the adaptability increasing or decreasing? Is it below the basic standard of legitimacy? Similar to the story of the boiling frog, where a frog is unaware of the upcoming danger and is slowly being boiled alive, managers in a declining organization with below-the-standard adaptability may not realize this potential hazard because groupthink and heroic mythology bias their judgments. By using the concept of organizational age as a frame of reference, managers might be able to better understand their organizations’ current status, diagnose possible pathology, and take action accordingly.

Suggestions for Future Research

The limitations of the study suggest some avenues for future research. First, although this study reveals a wave-shape organizational age dynamics, the findings are based on cross-sectional survey data that limit the ability to draw a causal age-inertia or age-adaptability connection. It is likely that some idiosyncratic environmental factors associated with the birth of each age group lead to fluctuations in innovativeness, risk taking, and red tape. Future research should collect longitudinal data in order to control for the possible confounding effects and detect the lagged effect of organizational age. Second, the inertia-adaptability balance is reflected in a variety of aspects, in addition to red tape, innovativeness, and managerial risk propensity. For example, power centrality, goal ambiguity, and communication barrier serve as adequate alternatives, but they do not exist in the NASP-III dataset. Future research can measure inertia-adaptability balance in a broader scope.

Finally, data used to test the multi-stage model were collected from nonprofits in the United States. Any study grounded in a single cultural context should not be understood as universally generalizable especially when we consider that lacking innovativeness, risk aversion, and red tape could be culturally dependent concepts and people having different cultural backgrounds may demonstrate disparate levels of tolerance for these problems (Hofstede, 1980). Of course, one may argue that the average score of perceived inertia in one cultural context is obviously higher/lower than that in another cultural context, but a higher/lower average score should not influence regression results as organizational age, the main independent variable, is an objective measure. Despite this, I encourage international scholars to use caution in generalizing the statistical findings obtained in this study to other cultural contexts, and if possible, they can collect data in different regions to test this multi-stage model.

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

For Review Only

References

- Aldrich, H. E., & Fiol, C. M. (1994). Fools Rush in? The Institutional Context of Industry Creation. *The Academy of Management Review*, 19(4), 645-670.
- Andriopoulos, C., & Lewis, M. W. (2009). Exploitation-Exploration Tensions and Organizational Ambidexterity: Managing Paradoxes of Innovation. *Organization Science*, 20(4), 696-717.
- Argyris, C., & Schon, D. A. (1978). *Organizational Learning: A Theory of Action Perspective*. Reading, MA: Addison-Wesley.
- Badelt, C. (1997). Entrepreneurship Theories of the Non-Profit Sector. *Voluntas: International Journal of Voluntary and Nonprofit Organizations*, 8(2), 162-178.
- Battaglio Jr, R. P., & Condrey, S. E. (2006). Civil Service Reform: Examining State and Local Government Cases. *Review of Public Personnel Administration*, 26(2), 118-138.
- Beckert, J. (1999). Agency, Entrepreneurs, and Institutional Change. The Role of Strategic Choice and Institutionalized Practices in Organizations. *Organization Studies*, 20(5), 777-799.
- Bernstein, S. (2004). Legitimacy in Global Environmental Governance. *Journal of international Law and International Relations*, 1(1-2), 139-166.
- Boeker, W. (1989). Strategic Change: The Effects of Founding and History. *Academy of Management Journal*, 32(3), 489-515.
- Bozeman, B., & Feeney, M. K. (2009). Public Management Mentoring: What Affects Outcomes? *Journal of Public Administration Research and Theory*, 19(2), 427-452.
- Bozeman, B., & Kingsley, G. (1998). Risk Culture in Public and Private Organizations. *Public Administration Review*, 58(2), 109-118.
- Bozeman, B., & Murdock, A. (2007). Public Managers' Religiosity: Impacts on Work Attitudes and Perceptions of Co-Workers. *International Public Management Journal*, 10(3), 287-306.
- Bozeman, B., & Scott, P. G. (1996). Bureaucratic Red Tape and Formalization: Untangling Conceptual Knots. *The American Review of Public Administration*, 26(1), 1-17.
- Burgelman, R. A. (1991). Intraorganizational Ecology of Strategy Making and Organizational Adaptation: Theory and Field Research. *Organization Science*, 2(3), 239-262.
- Carroll, G. R., & Hannan, M. T. (1989). Density Dependence in the Evolution of Populations of Newspaper Organizations. *American Sociological Review*, 54(4), 524-541.
- Chakravarthy, B. S. (1982). Adaptation: A Promising Metaphor for Strategic Management. *Academy of Management review*, 7(1), 35-44.
- Chen, C.-A. (2008). Linking the Knowledge Creation process to Organizational Theories. *Journal of Organizational Change Management*, 21(3), 259-279.
- Chen, C.-A. (2012). Sector Imprinting: Exploring its Impacts on Managers' Perceived Formalized Personnel Rules, Perceived Red Tape, and Current Job Tenure. *American Review of Public Administration*, 42(3), 320-340.
- Chen, C.-A., & Bozeman, B. (2012). Organizational Risk Aversion: Comparing The Public and Non-Profit Sectors. *Public Management Review*, 14(3), 377-402.
- Chen, C.-A., & Bozeman, B. (2013). Understanding Public and Nonprofit Managers' Motivation Through the Lens of Self-Determination Theory. *Public Management Review*, DOI:10.1080/14719037.14712012.14698853.

DiMaggio, P. J. (1988). Interest and Agency in Institutional Theory. In L. G. Zucker (Ed.), *Institutional Patterns and Organizations: Culture and Environment* (pp. 3-22). Cambridge, MA: Ballinger.

DiMaggio, P. J., & Powell, W. W. (1983). The Iron Cage Revisited: Institutional Isomorphism and Collective Rationality in Organizational Fields. *American Sociological Review*, 48(2), 147-160.

Dowling, J., & Pfeffer, J. (1975). Organizational Legitimacy: Social Values and Organizational Behavior. *The Pacific Sociological Review*, 18(1), 122-136.

Downs, A. (1967). *Inside Bureaucracy*. New York: Little, Brown.

Dutta, D. K., & Crossan, M. M. (2005). The Nature of Entrepreneurial Opportunities: Understanding the Process Using the 4I Organizational Learning Framework. *Entrepreneurship Theory and Practice*, 29(4), 425-449.

Feeney, M. K., & Boardman, C. (2011). Organizational Confidence: An Empirical Assessment of Highly Positive Public Managers. *Journal of Public Administration Research and Theory*, 21(4), 673-697.

Festinger, L. (1954). A Theory of Social Comparison Processes. *Human Relations*, 7(2), 117-140.

Freeman, J., Carroll, G. R., & Hannan, M. T. (1983). The Liability of Newness: Age Dependence in Organizational Death Rates. *American Sociological Review*, 48(5), 692-710.

Gibson, C. B., & Birkinshaw, J. (2004). The Antecedents, Consequences, and Mediating Role of Organizational Ambidexterity. *Academy of Management Journal*, 47(2), 209-226.

Graham, A. (1971). *The Essence of Decision*. New York: Wiley.

Green, K. M., Covin, J. G., & Slevin, D. P. (2008). Exploring the Relationship between Strategic Reactiveness and Entrepreneurial Orientation: The Role of Structure-Style Fit. *Journal of Business Venturing*, 23(3), 356-383.

Gresov, C., Haveman, H. A., & Oliva, T. A. (1993). Organizational Design, Inertia and the Dynamics of Competitive Response. *Organization Science*, 4(2), 181-208.

Hannan, M. T., & Freeman, J. (1977). The Population Ecology of Organizations. *The American Journal of Sociology*, 82(5), 929-964.

Hannan, M. T., & Freeman, J. (1984). Structural Inertia and Organizational Change. *American Sociological Review*, 49(2), 149-164.

Hannan, M. T., & Freeman, J. (1989). *Organizational Ecology*. Cambridge, MA: Harvard University Press.

He, Z.-L., & Wong, P.-K. (2004). Exploration vs. Exploitation: An Empirical Test of the Ambidexterity Hypothesis. *Organization Science*, 15(4), 481-494.

Hofstede, G. (1980). *Culture's Consequences: International Differences in Work-Related Values*. Beverly Hills, CA: Sage.

Holland, J. H. (1992). *Adaptation in Natural and Artificial Systems*. Cambridge, MA: MIT press.

Hrebiniak, L. G., & Joyce, W. F. (1985). Organizational Adaptation: Strategic Choice and Environmental Determinism. *Administrative Science Quarterly*, 30(3), 336-349.

Janis, I. L. (1982). *Groupthink: Psychological Studies of Policy Decisions and Fiascoes*. Boston, MA: Houghton Mifflin.

Jantunen, A., Puumalainen, K., Saarenketo, S., & Kyläheiko, K. (2005). Entrepreneurial Orientation, Dynamic Capabilities and International Performance. *Journal of International Entrepreneurship*, 3(3), 223-243.

Janz, B. D. (1999). Self-Directed Teams in IS: Correlates for Improved Systems Development Work Outcomes. *Information & Management*, 35(3), 171-192.

- Jennings, D. F., & Seaman, S. L. (1994). High and Low Levels of Organizational Adaptation: An Empirical Analysis of Strategy, Structure, and Performance. *Strategic Management Journal*, 15(6), 459-475.
- Kahneman, D., & Tversky, A. (1979). Prospect Theory: An Analysis of Decision under Risk. *Econometrica: Journal of the Econometric Society*, 47(2), 263-291.
- Kaufman, H. (1977). *Red Tape: Its Origins, Uses, and Abuses*. Washington, DC: Brookings Institution Press.
- Kleinbaum, D. G., Kupper, L. L., Muller, K. E., & Nizam, A. (2008). *Applied Regression Analysis and Other Multivariable Methods (4rd edition)*. Belmont, CA: Thomson Learning, Inc.
- Kondra, A. Z., & Hinings, C. R. (1998). Organizational Diversity and Change in Institutional Theory. *Organization Studies*, 19(5), 743-767.
- Laine, P.-M., & Vaara, E. (2007). Struggling over Subjectivity: A Discursive Analysis of Strategic Development in an Engineering Group. *Human Relations*, 60(1), 29-58.
- Lester, D. L., Parnell, J. A., & Carraher, S. (2003). Organizational Life Cycle: A Five-Stage Empirical Scale. *International Journal of Organizational Analysis*, 11(4), 339-354.
- Levinthal, D. A. (1991). Organizational Adaptation and Environmental Selection-Interrelated Processes of Change. *Organization Science*, 2(1), 140-145.
- Levinthal, D. A., & March, J. G. (1993). The Myopia of Learning. *Strategic Management Journal*, 14(S2), 95-112.
- Louis, M. R. (1980). Surprise and Sense Making: What Newcomers Experience in Entering Unfamiliar Organizational Settings. *Administrative Science Quarterly*, 25(2), 226-251.
- MacCrimmon, K. R., & Wehrung, D. A. (1990). Characteristics of Risk Taking Executives. *Management science*, 36(4), 422-435.
- March, J. G. (1991). Exploration and Exploitation in Organizational Learning. *Organization Science*, 2(1), 71-87.
- Meyer, J. W., & Scott, W. R. (1983). *Organizational Environments: Ritual and Rationality*. Beverly Hills, CA: Sage.
- Miller, D. (1993). The Architecture of Simplicity. *Academy of Management review*, 18(1), 116-138.
- Miller, D. (1994). What Happens after Success: The Perils of Excellence. *Journal of Management Studies*, 31(3), 325-358.
- Miller, D., & Chen, M.-J. (1994). Sources and Consequences of Competitive Inertia: A Study of the U.S. Airline Industry. *Administrative Science Quarterly*, 39(1), 1-23.
- Miller, D., & Friesen, P. H. (1984). A Longitudinal Study of the Corporate Life Cycle. *Management science*, 30(10), 1161-1183.
- Milward, H. B. (1994). Nonprofit Contracting and the Hollow State. *Public Administration Review*, 54(1), 73-77.
- Mintzberg, H. (1983). *Power In and Around Organizations*. Englewood Cliffs, NJ: Prentice-Hall.
- Mintzberg, H., Ahlstrand, B. W., & Lampel, J. (2005). *Strategy Safari: A Guided Tour through the Wilds of Strategic Management*. New York: Free Press.
- Moorman, C., & Miner, A. S. (1997). The Impact of Organizational Memory on New Product Performance and Creativity. *Journal of Marketing Research*, 34(1), 91-106.
- Morgan, G. (2006). *Images of Organization*. Thousand Oaks, CA: Sage Pubns.

- 1
 - 2
 - 3
 - 4
 - 5
 - 6
 - 7
 - 8
 - 9
 - 10
 - 11
 - 12
 - 13
 - 14
 - 15
 - 16
 - 17
 - 18
 - 19
 - 20
 - 21
 - 22
 - 23
 - 24
 - 25
 - 26
 - 27
 - 28
 - 29
 - 30
 - 31
 - 32
 - 33
 - 34
 - 35
 - 36
 - 37
 - 38
 - 39
 - 40
 - 41
 - 42
 - 43
 - 44
 - 45
 - 46
 - 47
 - 48
 - 49
 - 50
 - 51
 - 52
 - 53
 - 54
 - 55
 - 56
 - 57
 - 58
 - 59
 - 60
- Moynihan, D. P., & Pandey, S. K. (2005). Testing How Management Matters in an Era of Government by Performance Management. *Journal of Public Administration Research and Theory*, 15(3), 421-439.
- Pfeffer, J. (1981). *Power in Organizations*. Cambridge, MA: Ballinger.
- Pfeffer, J. (1994). *Managing with Power: Politics and Influence in Organizations*. Boston, MA: Harvard Business Press.
- Pfeffer, J., & Salancik, G. R. (2003). *The External Control of Organizations: A Resource Dependence Perspective*. Stanford, CA: Stanford University Press.
- Raisch, S., & Birkinshaw, J. (2008). Organizational Ambidexterity: Antecedents, Outcomes, and Moderators. *Journal of Management*, 34(3), 375-409.
- Raisch, S., Birkinshaw, J., Probst, G., & Tushman, M. L. (2009). Organizational Ambidexterity: Balancing Exploitation and Exploration for Sustained Performance. *Organization Science*, 20(4), 685-695.
- Romanelli, E., & Tushman, M. L. (1986). Inertia, Environments, and Strategic Choice: A Quasi-Experimental Design for Comparative-Longitudinal Research. *Management Science*, 32(5), 608-621.
- Rowthorn, B., & Chang, H.-J. (1993). Public Ownership and the Theory of the State. In C. Pitelis & T. Clarke (Eds.), *The Political Economy of Privatization* (pp. 54-69). London: Routledge.
- Ryan, R. M., & Deci, E. L. (2000). Intrinsic and Extrinsic Motivations: Classic Definitions and New Directions. *Contemporary Educational Psychology*, 25(1), 54-67.
- Schelling, T. C. (1971). *The Strategy of Conflict*. Cambridge, MA: Harvard University Press.
- Scott, W. R. (1995). *Institutions and Organizations*. Thousand Oaks, CA: Sage.
- Scott, W. R. (1998). *Organizations: Rational, Natural, and Open Systems*. Upper Saddle River, NJ: Prentice Hall.
- Sherif, M., & Hovland, C. I. (1961). *Social Judgment: Assimilation and Contrast Effects in Communication and Attitude Change*. New Haven: Yale University Press.
- Simon, H. A. (1948). *Administrative Behavior: A Study of Decision-Making Processes in Administrative Organization*. New York: Free Press.
- Singh, J. V., House, R. J., & Tucker, D. J. (1986). Organizational Change and Organizational Mortality. *Administrative Science Quarterly*, 31(4), 587-611.
- Singh, J. V., & Lumsden, C. J. (1990). Theory and Research in Organizational Ecology. *Annual Review of Sociology*, 16(1), 161-195.
- Smith, N. R., & Miner, J. B. (2006). Type of Entrepreneur, Type of Firm, and Managerial Motivation: Implications for Organizational Life Cycle Theory. *Strategic Management Journal*, 4(4), 325-340.
- Sørensen, J. B., & Stuart, T. E. (2000). Aging, Obsolescence, and Organizational Innovation. *Administrative Science Quarterly*, 45(1), 81-112.
- Staw, B. M., Sandelands, L. E., & Dutton, J. E. (1981). Threat Rigidity Effects in Organizational Behavior: A Multilevel Analysis. *Administrative Science Quarterly*, 26(4), 501-524.
- Stinchcombe, A. L. (1965). Social Structure and Organizations. In J. G. March (Ed.), *Handbook of Organizations* (pp. 153-193). Chicago: Rand McNally.
- Suchman, M. C. (1995). Managing Legitimacy: Strategic and Institutional Approaches. *The Academy of Management Review*, 20(3), 571-610.
- Thompson, J. D. (2003). *Organizations in Action: Social Science Bases of Administrative Theory*. New Brunswick, NJ: Transaction Publishers.

- 1
2
3 Tsang, E. W. K. (1996). In Search of Legitimacy: The Private Entrepreneur in China.
4 *Entrepreneurship: Theory and Practice*, 21(1), 21-30.
- 5 Tushman, M. L., & Romanelli, E. (1985). Organizational Evolution: A Metamorphosis Model of
6 Convergence and Reorientation. In B. M. Staw (Ed.), *Research in Organizational*
7 *Behavior* (pp. 171-222). Greenwich, CT: JAP Press.
- 8 Weick, K. E. (1976). Educational Organizations as Loosely Coupled Systems. *Administrative*
9 *Science Quarterly*, 21(1), 1-19.
- 10 Wollebaek, D. (2009). Survival in Local Voluntary Associations. *Nonprofit Management and*
11 *Leadership*, 19(3), 267-284.
- 12 Wu, M.-L., & Lin, Y.-Y. (2002a). Organizational Mortality and Industrial Evolution: An
13 Ecological Study of the Stone Industry. *Journal of Management (Guanli Xuebao)*, 19(2),
14 327-353 (in Chinese).
- 15 Wu, M.-L., & Lin, Y.-Y. (2002b). Organizational Mortality of Bicycle Industry in Taiwan.
16 *Management Review (Guanli Pinglun)*, 21(3), 115-136 (in Chinese).
- 17 Zimmerman, M. A., & Zeitz, G. J. (2002). Beyond Survival: Achieving New Venture Growth by
18 Building Legitimacy. *Academy of Management Review*, 27(3), 414-431.
- 19 Zucker, L. G. (1987). Institutional Theories of Organization: Culture and Environment. *Annual*
20 *Review of Sociology*, 13, 443-464.
- 21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Endnotes

¹ The present study uses managers’ perceptions to measure an organization’s adaptability and inertia. Considering that different groups in an organization may perceive things differently (Laine & Vaara, 2007), managers’ perceptions may suffer from cognitive biases and may not entirely reflect the real situations. In the present study, I try to reduce the biases by controlling for several demographics (e.g. age and gender), personal features (e.g. self-determination, sector switching, and promotion), institutional variables (e.g. GA/IL), and organizational features (e.g. size). Another method often used to correct the problem of “using individual perceptions to measure organizational phenomena” is collecting data from different individuals in an organization and obtain the mean values. Apparently, data collection of NASP-III ended in 2006, so correcting this problem is unlikely. This should be treated as a research limitation. However, if relying on one person’s perceptions to measure an organizational phenomenon is necessary, perceptions of managers would be more desirable than perceptions of those in non-managerial positions. Managers, especially those high in organization levels, have a birds-eye view and are more likely to make an assessment closer to the real world.

² The response rate raises some concerns, of course, about possible response bias. While it is inadequate to assert that response bias threats to validity have been avoided, it is worth noting that several tests performed on these samples have given some support to that view. Previous studies using these data (see particularly Bozeman & Feeney, 2009) have employed a variety of analyses that suggest that missing data and response bias effects are not too problematic. While the results of these analyses provide some basis for assuming the validity of the analysis, the fact remains that a low response rate is a significant limitation and the results must be treated with caution. Due to possible bias related to missing data, I argue that the findings are suggestive and await further research.

³ In fact, subjective measures could be as effective as (and sometimes more effective than) objective measures. Let’s consider the case of red tape. As red tape is generally defined as “formal rules that create no social value but instead cause delay and vexation” (Bozeman & Scott, 1996), it is inadequate to measure red tape with the (increased) number of rules or the length of rules (objective measures) because some new rules and long rules are protective in nature and they enhance performance. Giving respondents the definition of red tape and asking their perceptions may be more appropriate. Similarly, we can use the number of new programs to measure a nonprofit organization’s innovativeness. However, some new programs are the old wine in a new bottle without a high quality. In sum, an organization’s performance on the three dimensions included in this study could be multi-dimensional. If we intend to measure them with limited objective indicators, we fail to capture the whole scenario and a broader assessment is unlikely (Moynihan & Pandey, 2005).

Tables and Figures

Table 1 Variable Measurement

Variable	Question	Measurement-scale & Index analysis
Dependent variables	<ul style="list-style-type: none"> • Innovation is one of the most important values in this organization • Top management in this organization is afraid to take risks (rev) • Perceived red tape (rev) 	Interval (Eigenvalue = 1.97; factor scores = 0.81, 0.79, and 0.83 respectively)
Organizational age	2006 – The organization's established year	Interval
Organizational size (log)	The number of full time employees (log)	Interval
Task clarity	Employees here are clear about the tasks they are expected to perform	Ordinal (4 = highest)
Respondents' age	2006 – The year of birth	Interval
Female	Male/Female	Dummy (yes = 1; no = 0)
A promotional job	The respondent's current job is a promotional position	Dummy (yes = 1; no = 0)
Switching from GOV	The respondent's previous job was in the public sector	Dummy (yes = 1; no = 0)
Self-determination index	An index variable by 12 items asking respondents the reasons of choosing the current job	Interval
State of GA	Georgia/Illinois	Dummy (yes = 1; no = 0)

Table 2 Descriptive Statistics and Correlations

	Mean	SD	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Overall levels of rigidity (1)	2.73	1.00	1.00									
Organizational age (2)	62.74	35.93	-0.12	1.00								
Organizational size (log) (3)	3.70	1.72	<u>-0.24</u>	<u>0.24</u>	1.00							
Task clarity (4)	3.21	0.73	<u>0.28</u>	0.03	-0.02	1.00						
Respondents' age (5)	50.20	9.50	<u>0.24</u>	-0.03	<u>-0.15</u>	<u>0.16</u>	1.00					
Female (6)	0.48	0.50	-0.13	0.06	0.01	-0.08	<u>-0.24</u>	1.00				
A promotional job (7)	0.69	0.46	<u>0.12</u>	0.01	-0.01	-0.06	-0.10	0.03	1.00			
Switching from GOV (8)	0.09	0.28	<u>0.17</u>	-0.06	-0.17	0.07	0.13	-0.07	-0.04	1.00		
Self-determination index (9)	2.89	3.45	<u>0.15</u>	-0.05	0.03	0.09	0.05	0.02	0.01	0.08	1.00	
State of GA (10)	0.25	0.43	<u>0.19</u>	<u>-0.15</u>	<u>-0.13</u>	0.08	0.10	-0.10	0.00	0.09	0.03	1.00

Underlined coefficients: $p < .01$

Table 3 Polynomial Regression

	Model 1		Model 2		Model 3		Model 4		Model 5	
	Coef	p	Coef	p	Coef	p	Coef	p	Coef	p
Organizational age / 100	-0.12	0.36	0.09	0.85	-0.15	0.90	2.07	0.38	13.63	0.00**
Organizational age ² /1000			-0.01	0.64	0.02	0.90	-0.58	0.32	-5.33	0.00**
Organizational age ³ /100000					-0.02	0.83	0.58	0.29	8.38	0.00**
Organizational age ⁴ /1000000							-0.19	0.28	-5.68	0.00**
Organizational age ⁵ /1000000000									1.38	0.00**
Organizational size (log)	-0.10	0.00**	-0.10	0.00**	-0.10	0.00**	-0.10	0.00**	-0.10	0.00**
Task clarity	0.31	0.00**	0.31	0.00**	0.31	0.00**	0.31	0.00**	0.30	0.00**
Respondents' age	0.02	0.00**	0.01	0.00**	0.02	0.00**	0.01	0.01*	0.01	0.01*
Female	-0.18	0.06†	-0.18	0.06†	-0.18	0.06†	-0.18	0.06†	-0.17	0.08†
A promotional job	0.33	0.00**	0.32	0.00**	0.33	0.00**	0.32	0.00**	0.32	0.00**
Switching from GOV	0.25	0.13	0.25	0.13	0.25	0.13	0.26	0.12	0.28	0.09†
Self-determination index (SDI)	0.03	0.01*	0.03	0.01*	0.03	0.01*	0.03	0.02*	0.03	0.02*
State of GA	0.24	0.03*	0.25	0.03*	0.25	0.03*	0.25	0.03*	0.28	0.01*
Constant	1.12	0.00**	1.07	0.01*	1.10	0.01*	0.91	0.04*	0.12	0.81
N	370		370		370		370		370	
Adjusted R square	0.21		0.21		0.21		0.21		0.23	

** $p < .01$; * $p < .05$; † $p < .10$

Figure 1 A Multi-Stage Conceptual Model

Stage	Legitimacy	Dominant force	Adaptability	Inertia
I. Growth	Building/challenging legitimacy	Adaptability	Increase	Decrease
II. Minor adaptation	Maintaining legitimacy	Adaptability	Decrease	Increase
III. Failure and disorientation	Losing legitimacy	Inertia	Decrease	Increase
IV. Reorganization	Retrieving legitimacy	Inertia	Increase	Decrease
V. Revitalization	Recontrolling legitimacy	Adaptability	Increase	Decrease

Figure 2 The Fifth-Order Regression Line

Appendix: Ordinal Logit Regression

	Innovativeness		Managerial risk aversion (rev)		Red tape (rev)	
	Coef	p	Coef	p	Coef	p
Organizational age / 100	21.53	0.01*	20.05	0.02*	22.45	0.01*
Organizational age ² /1000	-7.99	0.01*	-7.76	0.01*	-9.35	0.00**
Organizational age ³ /100000	12.27	0.01*	12.44	0.01*	14.91	0.00**
Organizational age ⁴ /1000000	-8.18	0.01*	-8.70	0.01*	-10.08	0.00**
Organizational age ⁵ /1000000000	1.96	0.02*	2.19	0.01*	2.43	0.00**
Organizational size (log)	-0.14	0.02*	0.06	0.31	0.27	0.00**
Task clarity	0.41	0.00**	-0.45	0.00**	-0.68	0.00**
Respondents' age	0.03	0.00**	-0.03	0.03*	-0.01	0.23
Female	-0.10	0.62	0.34	0.09†	0.44	0.02*
A promotional job	0.44	0.04*	-0.78	0.00**	-0.46	0.03*
Switching from GOV	0.13	0.72	-0.66	0.07†	-0.67	0.05*
Self-determination index (SDI)	0.08	0.01*	-0.07	0.02*	0.00	0.98
State of GA	0.22	0.36	-0.57	0.02*	-0.64	0.00**
N	372		373		371	
Pseudo R square	0.06		0.07		0.07	