

Does organizational adaptation really matter? How mission change affects the survival of U.S. federal independent agencies, 1933–2011

Arjen Boin¹ | Celesta Kofman² | Jeroen Kuilman³ |
Sanneke Kuipers¹ | Arjen van Witteloostuijn^{3,4,5}

¹Leiden University

²Independent researcher

³Tilburg University

⁴Antwerp University

⁵Cardiff University

Abstract

Public administration scholars tend to take for granted that organizational adaptation is important. This common notion that public organizations must adapt to stay alive has not been put to the test in the field of public administration, however. Intriguingly, organization ecologists find that adaptation does not matter and might even be counterproductive for individual organizations. They argue that the absence of adaptation—which they refer to as structural inertia—actually enhances the likelihood of survival. But organization ecologists focus mostly on nonpublic organizations. This prompts the question whether adaptation in public organizations really matters. In this article, we test these contrasting claims (while controlling for design features) on a population of U.S. federal independent public agencies ($n = 142$). Our findings suggest a subtle narrative. We conclude that proactive adaptation increases termination hazards. But inertia does not seem to significantly enhance survival chances.

1 | THE PREMISE AND PROMISE OF ADAPTATION

Adaptation features in many treatises on both public and private organizations. It is often presented, both explicitly and implicitly, as an organizational capacity that is key to both the performance and survival of organizations (Hood, 1991, p. 11; Kaufman, 1976, p. 69; Kettl, 2016; MacCarthaigh, 2014; Thompson, 1967). As John Gardner (1995, p. xi) put it: “Failure to face the realities of change brings heavy penalties. Individuals become imprisoned in their own rigidities. Great institutions deteriorate. Civilizations fall.”

Anthony Downs (1967, p. 7) postulates that “no bureau can survive unless it is continually able to demonstrate that its services are worthwhile to some group with influence over sufficient sources to keep it alive.” And bureaus can only accomplish this “if they are agile enough to undertake new and

more viable functions before it is too late” (p. 22). In his standard work on organizations, Aldrich (1999, p. 194) observes that “an organization that cannot change in fundamental ways will constantly be at risk.” In the literature on resilience, the ideal organization has the “capacity to change before the case for change becomes desperately obvious” (Hamel & Välikangas, 2003, p. 513; cf. Boin & Van Eeten, 2013; Duit, 2016). The assumed importance of adaptation has a Darwinian undertone: An organization needs to adapt constantly to preserve a life-sustaining fit with its environment (Fukuyama, 2014; Kettl, 2016; Wilson, 2002).

The necessity of adaptation is rarely questioned, either in academia or in practice. In fact, it is the *absence* of adaptation that invites criticism. The classic critique on the bureaucratic organization points to its “unadaptive” or “rigid” character (Perrow, 1986, p. 5; cf. Crozier, 1964; Merton, 1949). Jim March (1991) coins the term “competency traps” in describing a failure to renew. This line of criticism extends into the hubris thesis, which states that successful organizations are loath to change, become rigid, lose touch with their environment, and fall deeply (Collins, 2009).

The criticism, in turn, gives rise to proposals that aim to make rigid, change-resisting bureaucracies more adaptive. In his theory of institutional design, Goodin (1996, p. 40) advises “to design our institutions in such a way as to be flexible, to admit of ‘learning by doing’ and to evolve over time. Thus we might say *revisability* is one important principle of institutional design.” Reform movements have emerged that seek to somehow “break” bureaucracy by “reinventing” it (e.g., Osborne & Gaebler, 1992). Their manifestos typically include references to delegating, redesigning, introducing, and devising new processes or ways of working to create an “innovative and flexible” organization (Wolf, 1997).

But does adaptation really work? Is it really critical to the survival of public organizations? There is little empirical research to answer this question. It is clear that organizations change constantly (Blau, 1955; Moore & Kraatz, 2011; Perrow, 1986, p. 166; Thompson, 1967). But it is not clear whether this adaptation is effective (and, if so, how). There is some research on the relation between adaptation and performance (Boyne, 2006), but the findings are far from conclusive (Baum & Oliver, 1991, p. 194). Wolf (1997) finds that “adaptability contributes modestly to the effectiveness of agencies.” But in their study of Texas school districts, Boyne and Meier (2009a) report that organizational adaptation had a negative impact on performance.

There is some evidence that adaptation enhances organizational survival (Bertelli, 2008; Greasley & Hanretty, 2015). For instance, De Geus (1997) identifies adaptability as one of the factors that drives corporate longevity. In their study of British agency responses to termination threats, Dommett and Skelcher (2014) find that defense strategies mattered. In their study of New Deal agencies, Boin, Kuipers, and Steenbergen (2010) conclude that adaptation explained, at least partially, why some New Deal agencies lasted for decades, whereas others died young.

There is also evidence to the contrary. Organizational ecologists have shown that adaptation has *negative* effects, making survival *less* likely (Bogaert, Boone, Negro, & van Witteloostuijn, 2016; Hannan & Freeman, 1977, 1984, 1989; Wezel & van Witteloostuijn, 2006). Their research suggests that inertia is a better way to weather turbulence than adaptation (cf. Boyne & Meier, 2009b).

In this article, we study the effects of organizational adaptation in the public sector. More specifically, we study how adaptation affected organizational survival in a set of 142 U.S. federal independent agencies in the period 1933–2011.¹ Our findings do not support the sweeping notion that adaptation increases the survival chances of public organizations. In fact, our findings suggest that proactive adaptation (prior to changes imposed by the legislator) *undermines* an organization’s survival chances. But our findings do not support the notion that inertia is a safer strategy. Rather, it appears that “Wilsonian” responsiveness to legislative change is the best survival strategy.

2 | ADAPTATION VERSUS INERTIA

In this section, we discuss two competing theories about the effects of adaptation. We articulate the mechanisms underlying these theories to explain why they yield opposing empirical predictions. We start with the idea that organizational adaptation should be rewarded with greater agency survival. We then present the idea that such adaptation is risky and increases the chances of demise.

2.1 | The logic of adaptation

We define adaptation as the organizational capacity to implement changes that restore or maintain a fit with the ever-changing expectations and values of key stakeholders. We thus define adaptation as a goal-oriented activity, and not as the random outcome of small changes.

Many studies in organizational sociology and public administration suggest, if not assume, that only those organizations that continuously adapt in response to changes in their environment can stay alive (Child, 1972; Drazin & van de Ven, 1985; Goodsell, 2011; Moore & Kraatz, 2011). The underlying assumption is that organizations require a minimal degree of explicit and implicit support from key stakeholders; without the support of such stakeholders, organizations cannot attract the resources required to survive.

An emerging mismatch between the expectations of stakeholders and the perceived performance of an organization is thought to have negative consequences for a public organization. Such a mismatch may trigger intense discussion about the organization's way of operating, inviting change (Alink, Boin, & 't Hart, 2001; Ansell & Vogel, 2006; Crozier, 1964).

While many scholars consider adaptation important, they do not claim it is easy. Robert Merton (1949) famously described how public organizations attract a certain type of personality that resists change. Downs (1967, p. 9) argues that older organizations tend to be less flexible, "reducing the bureau's ability to adjust to new circumstances." It is hard to change the institutionalized features of an organization, especially when these embody proven success formulas.

In fact, it may be easier for public organizations not to change and to "rely on a certain amount of inertia" (Downs, 1967, p. 8). Public organizations can resist change by building autonomy (Hargrove & Glidewell, 1990; Selznick, 1957; Wilson, 1989), creating a buffer between organizational routines and external influences (cf. Meyer & Rowan, 1977; Thompson, 1967). But "few bureaus ever achieve such perfect autonomy" (Downs, 1967, p. 9).

Adaptation comes in different forms. It can be either proactive (anticipating the perceived need to change) or reactive (after a crisis or following the direct orders of stakeholders) (Ansell, Boin, & Farjoun, 2015; Schön, 1973). Proactive change seems riskier, as there is no apparent need to instigate change. Leaders will have to work harder to convince employees of the need for change than is the case after an institutional crisis.

Adaptation can come in small steps (incremental change) or in a comprehensive radical reform program leading to paradigmatic change (Baumgartner & Jones, 1993; Hall, 1993). Many scholars recognize a hierarchy of adaptation, assuming that small changes are easier to accomplish than large-scale, paradigmatic changes (e.g., Genschel, 1997; Hannan & Freeman, 1984; Lindner & Rittberger, 2003; Tushman, Newman, & Romanelli, 1986). Yet, scholars also note that large-scale change is possible when crises provide so-called "windows of opportunity" (Alink et al., 2001; Cortell & Peterson, 1999; Kingdon, 1984).

2.2 | The logic of inertia

The ecology school in the field of organization theory offers a contrasting perspective on the effects of organization-level adaptation. These scholars argue that organizational adaptation is both risky and

hard to achieve. Their research suggests that the absence of adaptation enhances an organization's survival chances. For an individual organization, weathering turbulence is therefore much wiser than changing to accommodate it (cf. Boyne & Meier, 2009b).

Ecologists try to "understand the forces that shape organizational structures over long time spans" (Freeman & Hannan, 1989, p. 426). Organizational adaptation is not one of those forces, these scholars contend. Rather, "most of the variability in organizational structures comes about through the creation of new organizations and organizational forms and the replacement of old ones" (Hannan & Freeman, 1984, p. 150).

These scholars do not deny that organizations change. In fact, "organizational changes of some kinds occur frequently and organizations sometimes even manage to make radical changes in strategies and structures" (Hannan & Freeman, 1984, p. 149). But such adaptations do not affect their survival chances. Effective adaptation happens at the (macro) population level rather than the (micro) organizational level: New forms emerge, rendering existing ones obsolete in the competition over scarce resources.

Ecology scholars do not believe that individual organizations are capable of adapting in an effective and timely manner to dynamic environments. Organizations are not "rational, flexible and speedy adapters to changing environmental circumstances" (Freeman & Hannan, 1989, p. 426). Their research appears to confirm that individual organizations are "structurally inert" or "relatively inert"—meaning that they rarely have the capacity to make meaningful or timely adaptations (Aldrich, 1999, pp. 43–48).

There are at least three reasons why adaptation at the level of individual organizations is unlikely to be effective. First, the process of developing and implementing change always incurs a wide range of transaction costs (Barnett & Carroll, 1995; Gingrich, 2015). Change proposals usually generate resistance, which "tend to generate short-run costs that are high enough that organizational leaders will forego the planned reorganization" (Hannan & Freeman, 1977, p. 931). Organizational ecologists expect that the costs rise as one proceeds up the hierarchy from peripheral to core change. But it is these latter, more fundamental changes that are usually needed to stay afloat in dynamic environments.

A second reason is that organizational leaders do not have the information or cognitive capacities required to design the changes that are needed to fit a rapidly changing and complex environment—an assessment ecologists share with many public administration scholars. As Hannan and Freeman (1977, p. 931) remind us, "leaders do not obtain anything close to full information on activities within the organization and environmental contingencies facing the subunits." But even if there was an all-seeing leader, she would likely not have the intellectual capacities required to map out effective changes that keep organization and environment in a tight fit. Freeman and Hannan (1989, p. 426) thus reject what they call the "heroic images of managers" that we often encounter in the reform literature.

A third reason is timing. Even if organizations would manage to design and implement sensible changes, environmental dynamics tend to outpace these changes (Kelly & Amburgey, 1991; Péli, 1997). Organizational leaders may be smart, but they cannot outsmart their environment. Organizations may change, but it is usually too little, too late (Sorge & van Witteloostuijn, 2004). As Moore and Kraatz (2011, p. 850) argued in their study of the U.S. savings and loan industry, "the ability to change itself is no guarantee to adaptive success."²

From an ecological perspective, it is risky for an organization to change in response to environmental shifts. Ecological scholars stress the benefits of stability, which they consider a valuable organizational characteristic. Stakeholders, from customers to politicians, expect organizations (private and public) to be accountable, reliable, and consistent. Hannan and Freeman (1984, p. 153) argue that "the modern world favors collective actors that can demonstrate or at least reasonably claim a capacity for reliable performance and can account rationally for their actions" (cf. Meyer & Rowan, 1977).

Adaptation undermines the legitimacy derived from accountability, reliability, and consistency. Organizations should therefore not change their identity or their legally sanctioned *modus operandi*.

Ecologists find that inert organizations—corporations that shun adaptation—are more likely to survive than their ever-adapting counterparts. It logically follows that organizational inertia—the *absence* of adaptation—is the prescribed survival strategy (Amburgey, Kelly, & Barnett, 1993; Hannan & Freeman, 1984; Wezel & van Witteloostuijn, 2006).

The question is whether these findings hold for individual public organizations. We should keep in mind that the ecological perspective aims to explain “why there are so many (or few) kinds of organization” (Freeman & Hannan, 1989, p. 430); they are less interested in the effects of adaptation (which is just one possible answer to their question; cf. Elston, 2014). Moreover, they are interested in *populations*—that is, in “aggregates of organizations rather than members” (Hannan & Freeman, 1977, p. 934). A population—think of construction firms, educational organizations, voluntary associations, semiconductor manufacturers, or daily newspapers—is marked by a common form. Population ecology seeks to explain why certain organizational forms fit certain environments. Certain “fixed repertoires of action” work in certain environments. Shifting environments are nicer to some than to others. “The diversity of organizational forms is isomorphic to the diversity of the environments” (Hannan & Freeman, 1977, p. 939).

3 | TOWARD HYPOTHESES

We are interested in studying the effects of adaptation on the survival chances of public organizations. We discuss two very different schools of thought. One assumes the critical importance of organizational adaptation: An organization must change to survive. The other school points out that individual adaptation is unlikely to be successful, and more likely to further the gap between performance and expectations. These scholarly traditions provide us with two possible, and opposing, effects:

Hypothesis 1: A public organization's adaptation is positively associated with its likelihood of survival.

Hypothesis 1alt: A public organization's adaptation is negatively associated with its likelihood of survival.

In our theoretical discussion, we speculated that the *timing* of an organization's adaptive efforts may matter. *Proactive* change is unforced and agency driven; it is not imposed on the organization by its political or regulatory environment. *Reactive* change is a direct reaction to an external (legal) intervention. Based on the public administration logic of adaptation, we may argue that proactive change is more likely to be effective than reactive change, as the former allows for a certain degree of latitude in shaping the way change is implemented (Ansell et al., 2015). The organizational ecology logic of inertia, in contrast, argues that proactive change is best avoided: Change should only be initiated, if at all, when enforced on the organization. This gives rise to the following hypotheses:

Hypothesis 2: Proactive change by a public organization is positively associated with its likelihood of survival.

Hypothesis 2alt: Proactive change by a public organization is negatively associated with its likelihood of survival.

Hypothesis 3: Reactive change by a public organization is positively associated with its likelihood of survival.

Hypothesis 3alt: Reactive change by a public organization is negatively associated with its likelihood of survival.

4 | RESEARCH DESIGN

4.1 | Case selection

We test our hypotheses on a set of 142 U.S. federal public agencies (see the Appendix for a complete list).³ We constructed a detailed data set of the federal public agencies that are listed in the U.S. Government Manual (USGM) during the period 1935–2011 as “independent agency” for at least 1 year of their existence. All these agencies have their own “entry” (section) in the USGM, which logs fairly detailed information that allows us to collect, code, and compare data on those agencies.⁴ The USGM contains information on “creation and authority,” “purpose,” and “organization.” The information is annually supplied by the agency (by filling out detailed forms).

4.2 | Independent variable: Adaptation

In our empirical analysis, we conceptualize organizational adaptation as an intended effort to implement changes to minimize the gap between external expectations and the professed rationale of the organization’s goals and actions. Such changes may be implemented because the organization is forced to do so by external pressure or because organizational leaders choose to do so.

As organizations change all the time, the question is what we should count as adaptive behavior. We consider mission change as an indicator of adaptive behavior. A mission indicates how an organization brings incompatible goals together. Following Selznick (1957), we assume that an organization’s mission statement reflects its formal commitments (as viewed by that organization). We further assume that mission statements are not easily changed (Perrow, 1986; Selznick, 1957; Wilson, 1989). We assume that when an organization changes its mission statement, it reflects a shift in leadership perception of core values and goals (Aldrich, 1999; Goodsell, 2011; Selznick, 1957; Suddaby & Greenwood, 2005; Wilson, 1989). Mission change thus reflects organization-level adaptive capacity.

For each year after 1933, we used USGM information on each U.S. federal independent agency to trace and register annual mission changes. We looked for *additions to mission statement* and *removals from mission statement*. Each USGM entry was examined for newly stated purposes in its distinctly itemized mission statement (either stated separately or under the subcategory “purpose”). Each new purpose was counted as an addition to the mission statement on its first appearance in a USGM entry for that agency in a given year. We coded additions in absolute numbers. Similarly, we coded the number of purposes that were removed from the mission statement when compared to the agency’s mission statement of the previous year (again, in absolute numbers). We differentiate between “minor” mission change (one change in the mission statement) and “major” mission change (two or more changes).

As expected, it appears harder to make more fundamental changes: We counted 153 major changes and 1,029 minor changes. On average, agencies saw one minor mission change in 5 years and one major change in 20 years. Intriguingly, there is quite some variance in adaptive behavior. Forty-two agencies never changed their mission (6 did it once, and 12 agencies did it twice). This seems to confirm the idea that organizations tend to be inert. Yet, 13 agencies changed their mission at least 20 times.

We are also interested to see if the *timing* of adaptation matters. Does unprompted change (*before* a legislative intervention) or prompted change (*in reaction to*, and hence *after*, a legislative intervention) have a different effect on survival? We registered the number of legislative interventions introduced to the organization. This information can be found in the USGM.⁵ We then make a distinction between proactive change (1- or 2-year lead), contemporaneous change (in the year of legislative intervention) and reactive change (1- or 2-year lag) vis-à-vis legislative interventions targeting the focal agency.

4.3 | Dependent variable: Survival

To study the effects of adaptation, we focus on survival chances or durability of U.S. federal independent public agencies. We define durability as the likelihood of an agency being terminated in a given year. Defining termination (and creation) of organizations is no easy task. We kept our definitions as closely as possible to those of scholars who struggled with this challenge before us (e.g., Carroll & Delacroix, 1982; Greasley & Hanretty, 2015; Lewis, 2002, 2003; MacCarthaigh, 2014; Meyer, 1985; Rolland & Roness, 2011).

We consider organizations terminated when they are explicitly mentioned as terminated or abolished in the USGM (and without any indication of continuity beyond this official termination), split into two or more new organizations (secession), absorbed into another office, or merged with another office. We took the date specified by law or executive order (if available) as end date, and otherwise coded the termination date according to the USGM.⁶

Seventy-four of the 142 agencies (52%) that were present in the USGM since 1933 had ceased to exist on December 31, 2011.⁷ The presence of survivors implies right censorship, which means that the outcome in terms of survival is unknown. The 20 cases (14%) that were established before 1933 are left-censored. Fifteen percent of the population ($n = 22$) did not “live” longer than 5 years. Most terminated agencies ($n = 41$; 55% of all terminated agencies) were abolished within 12 years after their creation. Eight of the terminated agencies were merged, replaced, or otherwise changed formally and structurally. Three were replaced by a different agency with similar functions ($n = 3$; 4%), 4 were absorbed into a larger agency ($n = 4$; 5%), and just 1 merged with an agency of equal size and responsibilities ($n = 1$; <1%).

4.4 | Control variables

There are, of course, other explanations for survival. The most prominent alternative explanation is offered by Lewis (2002, p. 103; see also Lewis, 2003, 2004), who shows that “brute public authority to insulate agencies from the influence of other actors” enhanced survival chances in his population of American federal government organizations. According to Lewis (2004), organizations that are properly “hardwired” at birth live longer. His findings suggest that institutional birth features matter more than performance or adaptation later in life. If we want to study the effects of adaptation, we must control for this alternative explanation.

On creation, many agencies are equipped with a commission or board structure, as opposed to a single administrator, with the intention of insulating them from political interference (Lewis, 2004). To control for these differences in governing structures, we differentiated between agencies that at time of birth were endowed with a *board* or commission structure (coded 1), and those agencies that are not (coded 0). Each agency description in the USGM commences with a listing of job titles in which board and commission members are mentioned in a separate section.

Another design variable for which we control is the presence or absence of a *sunset clause*, which is a provision that specifies when an organization will cease to exist. A sunset clause, assigned a 1

code, limits the expected lifespan of an agency. We scored any formal manifestation of transient intentions for the agency as the presence of a sunset clause. These include stipulations about a fixed budget for the entire lifespan, attainment of a specific goal, or an official cutoff date. If none of these preconditions are mentioned in the first listing of USGM, we coded a 0.

Following Lewis (2003), we also control for *legislative origin*. Agencies that are created after lengthy legislative procedures, involving heavy scrutiny and majority requirements, are thought to be less susceptible to termination than those agencies created by executive actions. To determine to which extent the legislature was involved in the creation process of agencies in our population, we traced the inception mandates of each agency in the USGM and in the USGM's History of Agency Organizational Changes (2011). We coded agencies initiated by act with a 1 as having a "strong legislative origin," those that had a reorganization plan at their basis with a 2, those established by an executive order with a 3, and those initiated by departmental or military order, which arguably could be classified as having the weakest legislative origin, with a code 4.

To control for agency size, we used the Budget of the United States Government (1933–2011) to retrieve the budgets of all agencies for each year during their existence. After calculating the budget median of our population, we ranked the agencies from smallest to largest budget. The agencies in the first quartile are categorized as a *small budget agency* (coded 1), and agencies in the second, third, and fourth quartiles are considered to be *large budget agencies* (coded 0).

In times of war, federal budget routines tend to be disturbed. Hence, the years of the following wars are coded as *war years* (coded 1): World War II (1941–1945), Korean War (1950–1953), Vietnam War (1965–1975), Gulf War (1990–1991), Afghanistan War (2001–2011), and the Iraq War (2003–2011).

4.5 | The model

We used event-history analysis (Tuma & Hannan, 1984) to empirically estimate the termination or mortality hazard of each agency in our population. We formally define mortality hazard as:

$$\mu(u) = \lim_{\Delta u \rightarrow 0} \frac{\Pr(\text{term}(u + \Delta u) | \text{no term}(u))}{\Delta u},$$

which reads as the likelihood that an agency ceases to exist between its age u and $u + \Delta u$, provided that it did not exit at or prior to u . We use a semiparametric Cox proportional hazard rate specification (Cox, 1972) in modeling the mortality hazard, which is a product of an unspecified baseline hazard, $\mu_0(t)$, and a vector \mathbf{x}_t specifying the influences of covariates:

$$\mu(t) = \mu_0(t) \exp(\boldsymbol{\beta}' \mathbf{x}_t)$$

Results not reported here indicate that qualitatively similar results are obtained when employing piecewise exponential models (results available on request).

5 | FINDINGS

We present our findings in a set of tables. Table 1 provides means, standard deviations, minimum and maximum values, and correlations. Table 2 presents the results of our event-history analysis. We use four models. Model 1 shows the effects of the control variables. Model 2 takes into account the pair of adaptation variables relating to additions and removals in mission statements. Models 3 and 4 include the variables related to the timing of mission change vis-à-vis legislative intervention. We report odds ratios. A coefficient below 1 implies a positive effect on the likelihood of survival; a coefficient above 1 indicates a negative impact.

TABLE 1 Descriptive statistics and correlations

	Mean	S.D.	Min	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Exit	0.015	0.121	0.000	1.000														
2. War years	0.409	0.492	0.000	1.000	−0.03													
3. Federal revenues	726.759	785.660	3.600	2,568.000	−0.06	0.20												
4. Board	0.546	0.498	0.000	1.000	−0.01	0.01	0.01											
5. Sunset clause	0.088	0.283	0.000	1.000	0.04	−0.00	−0.04	−0.04										
6. Legislative origin	1.344	0.707	1.000	4.000	0.06	−0.01	−0.05	−0.03	0.18									
7. Small agency	0.260	0.438	0.000	1.000	0.07	0.00	−0.02	0.19	−0.13	−0.10								
8. No change	0.927	0.261	0.000	1.000	0.02	−0.03	0.04	0.01	−0.04	0.01	0.02							
9. Mission stmt add.	0.115	0.602	0.000	9.000	−0.02	0.02	−0.05	−0.02	0.03	−0.01	−0.04	−0.68						
10. Mission stmt rem.	0.094	0.552	0.000	11.000	−0.01	0.02	−0.01	−0.01	0.03	−0.01	−0.03	−0.61	0.35					
11. Same year change	0.007	0.086	0.000	1.000	0.05	0.03	−0.06	−0.01	0.06	0.02	−0.02	−0.05	0.02	0.04				

TABLE 1 (Continued)

	Mean	S.D.	Min	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14
12. Reactive change (1 year)	0.008	0.091	0.000	1.000	0.03	0.04	-0.06	-0.03	0.07	0.05	-0.03	-0.05	0.03	0.02	0.41			
13. Proactive change (1 year)	0.010	0.100	0.000	1.000	0.07	0.02	-0.02	0.03	0.04	0.02	-0.00	0.00	-0.01	-0.00	0.35	0.33		
14. Reactive change (2 year)	0.012	0.111	0.000	1.000	0.00	0.01	-0.07	-0.02	0.04	0.01	-0.02	-0.02	-0.00	0.01	0.46	0.33	0.27	
15. Proactive change (2 year)	0.011	0.106	0.000	1.000	0.07	0.04	0.03	0.02	0.02	0.01	-0.01	-0.01	0.01	0.03	0.33	0.20	0.48	0.25

Note. Correlations above |0.03| are significant at the .05 level.

TABLE 2 Cox proportional hazards models

	(1)	(2)	(3)	(4)
War years	0.91 (0.24)	0.91 (0.24)	0.90 (0.24)	0.90 (0.24)
Federal revenues	1.00 (0.00)	1.00 (0.00)	1.00 (0.00)	1.00 (0.00)
Board	0.68 (0.17)	0.68 (0.16)	0.65† (0.16)	0.67 (0.16)
Sunset clause	2.81** (1.02)	2.78** (1.00)	2.49* (0.93)	2.67** (0.99)
Weak legislative origin	1.57** (0.19)	1.57** (0.19)	1.56** (0.19)	1.56** (0.19)
Small (budget) agency	3.29** (0.83)	3.24** (0.81)	3.13** (0.79)	3.15** (0.80)
No change	2.95 (2.08)	1.65 (2.07)	1.70 (2.13)	2.41 (3.10)
Magnitude of change				
Mission statement add.		0.40 (0.37)	0.39 (0.33)	0.43 (0.33)
Mission statement rem.		1.14 (0.30)	1.13 (0.32)	1.19 (0.31)
Relative timing of change				
Same-year change			3.58† (2.33)	8.75** (5.33)
Reactive change (1-year lag)			0.23 (0.22)	
Proactive change (1-year lead)			7.43** (3.23)	
Reactive change (2-year lag)				0.12* (0.13)
Proactive change (2-year lead)				4.06** (1.90)
Log likelihood	−309.07	−308.29	−302.50	−301.72
Chi ²	45.75	68.88	85.88	94.51
AIC value	632.14	634.58	629.00	627.44
Observations	4,885	4,885	4,885	4,885

Note. Hazard ratios are reported; robust standard errors in parentheses.

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

Surprisingly, we do not find any evidence that adaptation matters, either by enhancing or limiting the chances of survival (Hypotheses 1 and 1alt). Although additions to the mission statement appear to be consistently negatively related to the likelihood of termination, and removals from the mission statement seem to positively affect the hazard, both effects are not statistically significant. We must therefore conclude that mission change does not affect the likelihood of survival. At the same time, we do not find any effects for inertia.

When we take into account the *timing* of mission change (Hypotheses 2 and 3), we must conclude that *proactive change is very risky*. Model 3 shows that changing the mission statement a year *prior* to a legislative change significantly elevates the mortality hazard by over 7 times. Even the co-occurrence of mission change and legislative intervention in the same year significantly undermines survival chances.⁸ Reactive change with a 1-year lag, in contrast, lowers the mortality hazard (marginally significant at $p < .10$). This supports Hypothesis 2alt.

When we extend the lead and lagged effects from 1 year to 2 years (Model 4), we find similar results. This extension should deal better with concerns about autocorrelation and multicollinearity, and turns out to have substantially better model fit (-302.5 vs. -301.7 , with identical degrees of freedom). Changing an agency's mission statement 2 years *a priori* again proves to be extremely risky. Mission statement changes in the same year as a legislative intervention are still statistically significant and positive, suggesting a greater mortality hazard when the two coincide. Reactive change with a lag of 2 years in turn appears again to lower mortality, providing evidence for Hypothesis 3. All this suggests that responsive agencies are much less likely to be sanctioned via termination than proactive agencies (we return to this in the Discussion).

The control variables do not produce surprises. Small agencies (those in the smallest quartile in terms of budget) are most vulnerable to termination. The agencies that were started with a sunset clause and those with a weak legislative origin ran a higher risk of being terminated.⁹ The other control variables are nonsignificant in all four model specifications.

We ran a series of robustness checks, reported in Table A1 in the Appendix. Basically, our results are not affected by: (a) including a public corporation dummy (Model 5), (b) adding a control for young agencies (a dummy for agencies that exited before turning 5; Model 6), (c) using different size quartiles (Model 7), (d) removing agencies established with sunset clauses (Model 8), and (e) entering two proxies for political turnover (as captured by dummies for unfriendly president and unfriendly majority; Model 9).

6 | DISCUSSION: ORGANIZATIONAL ADAPTATION AND INSTITUTIONAL DYNAMICS

This article's central question is whether adaptation matters for public sector organizations. We started out with the common assumption in the public administration literature that adaptation is important if public organizations are to survive and prosper. We contrasted this assumption with the organizational ecology argument that organizational adaptation will *harm* rather than enhance a public organization's survival chance. We examined both perspectives on adaptation in the population of 142 U.S. federal independent agencies in the period 1933–2011, focusing on mission change as a solid indicator of an organization's capacity to adapt. In addition, we looked into the impact of the *timing* of adaptation.

Our findings are quite surprising. It turns out that reactive change vis-à-vis legislative intervention enhances the odds of survival; but proactive mission change (1 or 2 years before the legislative intervention) and contemporaneous change (in the year of the intervention) substantially increase the likelihood of termination. Intriguingly, this would imply that public

agencies should *not* engage in proactive change (cf. Ansell et al., 2015). It is better to react to legislative intervention by adapting the mission accordingly, preferably after some time has passed.

This finding goes against the grain of many studies that prescribe an active role for bureaucratic leaders, casting them as “entrepreneurs” (Boin, 2001; Hargrove & Glidewell, 1990; Ricucci, 1995). Our findings suggest that bureaucratic rule following—bureaucratic responsiveness to political decisions—better serves the interest of a public organization.

Why is proactive change so risky? There are at least two possible explanations. First, agencies that adapt proactively take a calculated risk. They change a mission that has not been subjected to political scrutiny and that has not been delegitimized. Such change is therefore likely to attract political attention, possibly nurturing a perception that the organization has problems. It feeds on the idea that only underperforming agencies would change their mission (Andrews, Boyne, & Enticott, 2006; Boyne, 2006). A second reason lies in the costs of reorganization (a well-documented impediment to reform); smart organizations only do this when they absolutely must.

It is possible that we did not adequately measure organizational adaptation. We looked at changes to the mission of an organization, assuming that this type of change is an indicator of “core” adaptation. But organizations may well adapt constantly, and much more effectively, by a series of small, incremental changes in policies and tools (second-order or peripheral changes that are much harder to measure).

Also, we need to be cautious about the divergence between “talk” and “action” in organizations (Brunsson, 1989). It may well be that the mission, and the adaptation thereof, masks what the organization really does. We need in-depth qualitative case studies to probe into such dynamics (see, for fascinating examples, Doig, 2001; Hargrove, 1994).

Our study did not explicitly measure levels of political support for public organizations. Some organizations could be at risk for termination because they have weaker support whereas other organizations can be inert because they enjoy high levels of support. An in-depth qualitative approach is needed to find out if external support or interest group pressure provide alternative explanations for both adaptation and survival.

Finally, it is possible that the extent of environmental change is not fully captured by equating it to legislative interventions. Our notion of preemptive change does take into account the possibility that agencies respond to other environmental prompts such as funding change, presidential unilateral action, and court cases. We assumed that changes in the external environment eventually translate into legislative changes, but the relative inactivity of Congress in recent years casts some doubt on this assumption.

These limitations point to promising avenues of future research. One way to make progress is to code the perceptions of an agency’s performance (cf. Baumgartner & Jones, 1993). It would also be interesting to code for different types of organizational adaptation strategies, both “deep” or fundamental and “superficial” or incremental, to explore whether the nature of change and the temporal patterns of change types may matter. Future research could also compare our findings with studies of similar populations in other countries (Laegreid, Rolland, Roness, & Agotnes, 2010; MacCarthaigh, 2014; Yesilkagit & Christensen, 2011), and of other types of public organizations.

Our findings offer inconclusive support for the insights derived from organizational ecology. We find no evidence that inertia has an effect on survival chances. These insights have been much applied in the business and sociology literatures, but not so much in the study of public organizations. Future work should extend the ecological analysis of public organizations by further exploring alternative mechanisms, a prominent example being the density dependence conception of organizational

selection, which organizational ecology argues is a much more powerful force than organizational adaptation (Hannan & Freeman, 1977, 1989).

This article is one of the first to investigate the effects of adaptation on survival. Our findings cast doubt on the widespread belief in the benefits of organizational adaptation. It may well be that future research rescues the belief in adaptation from the forces of inertia. In the absence of more positive findings, we must caution against perspectives that sing the praise of proactive adaptation. Waiting for a clear order—Wilsonian responsiveness—may be most beneficial to an agency's survival prospects.

ACKNOWLEDGMENT

We thank Alasdair Roberts for selecting four critical yet thoughtful reviewers whose comments were greatly helpful in improving this article. Rachel Ashworth, Peter Mortensen, and participants at the Structure of Government conference in Jerusalem (2014) and the 30th EGOS Colloquium (2014) provided us with valuable comments on previous drafts.

NOTES

- ¹ To be sure, we are not seeking to explain organizational survival. We want to study whether adaptation has effects, and we study these effects in terms of survival.
- ² Moore and Kraatz (2011) argue that adaptation is likely to be more effective when organizations change slowly in response to their environment, and stay close to their organizational competences (p. 861).
- ³ We excluded cabinet bureaus because the USGM contains little or inconsistent information on them. One might also argue that their dependence on the whims of executives is itself an explanatory factor for survival. Neither agency components nor suboffices were included, as by their very nature they perish much more easily and frequently than the independent agencies they are part of.
- ⁴ For reasons of size, organizational unity, and distinctiveness, we excluded: (a) bilateral or multilateral organizations; (b) monuments and celebrations (e.g., bicentennials) commissions; (c) foreign claims commissions; (d) committees, advisory councils, or boards consisting of only ex officio members (such as the Secretary of Defense and State together advising the president as "Council X or Y") or functionaries or representatives of other organizations, which do not form a standing organization; and (e) agencies with only a single state purpose (e.g., Delaware River Basin Commission, Virginia State Boundary Commission, and Alaska Power Administration).
- ⁵ Legislative intervention can be introduced by executive authority (executive or departmental order; reorganization plans) or legislative authority (the act of law). Following Lewis (2003), we take intervention by act of law as an indicator of important shifts in an agency's environment.
- ⁶ We took a sample of 20 cases from our population (representing both "short-lived" and durable agencies) and checked intercoder reliability between the two researchers who did all the coding work. Out of 12,800 observations, we found 665 differences, which results in intercoder reliability of 94.8%. Each difference in observation (even if this pertained to only a fraction difference on a code scale) was interpreted most strictly, as full difference.
- ⁷ Due to unavailability of data for 2012/2013, we decided to take December 31, 2011 as an artificial end point.
- ⁸ Co-concurrence may actually indicate a form of proactive change, due to the lag time between legislative change and the materialization of mission changes in the USGM.
- ⁹ As innovation and reinvention might be less likely in temporary organizations, we estimated the same set of models on agencies that did not have an expiration date. More specifically, we tested the models on the population without sunset clauses (excluding 17 cases). We did not find a difference in effects.

REFERENCES

- Aldrich, H. E. (1999). *Organizations evolving*. London, UK: Sage.
- Alink, F., Boin, A., & 't Hart, P. (2001). Institutional crises and reform in policy sectors. *Journal of European Public Policy*, 8, 286–306.
- Amburgey, T. L., Kelly, D., & Barnett, W. P. (1993). Resetting the clock: The dynamics of organizational change and failure. *Administrative Science Quarterly*, 38, 51–73.
- Andrews, R., Boyne, G. A., & Enticott, G. (2006). Performance failure in the public sector: Misfortune or mismanagement? *Public Management Review*, 8, 273–296.
- Ansell, C., Boin, A., & Farjoun, M. (2015). Dynamic conservatism: How institutions change to remain the same. In M. Kraatz (Ed.), *Research in the sociology of organizations: Special issue. Institutions and ideals—Philip Selznick's legacy for organizations studies* (Vol. 44, Issue 1, pp. 89–119). Bingley, UK: Emerald.
- Ansell, C., & Vogel D. (Eds.). (2006). *What's the beef? The contested governance of European food safety*. Cambridge, MA: MIT Press.
- Barnett, W. P., & Carroll, G. R. (1995). Modeling internal organizational change. *Annual Review of Sociology*, 21, 217–236.
- Baum, J. A. C., & Oliver, C. (1991). Institutional linkages and organizational mortality. *Administrative Science Quarterly*, 36, 187–218.
- Baumgartner, F., & Jones, B. D. (1993). *Agendas and instability in American politics*. Chicago, IL: University of Chicago Press.
- Bertelli, A. M. (2008). Credible governance? Transparency, political control, the personal vote and British Quangos. *Political Studies*, 56, 807–829.
- Blau, P. (1955). *The dynamics of bureaucracy*. Chicago, IL: University of Chicago Press.
- Bogaert, S., Boone, C., Negro, G., & van Witteloostuijn, A. (2016). Organizational form emergence: A meta-analysis of organizational ecology's theory of legitimation. *Journal of Management*, 42, 1344–1373.
- Boin, A. (2001). *Crafting public institutions: Leadership in two prison systems*. Boulder, CO: Rienner.
- Boin, A., Kuipers, S., & Steenbergen, M. (2010). The life and death of public organizations: A question of design? *Governance*, 23, 385–410.
- Boin, A., & Van Eeten, M. (2013). The resilient organization. *Public Management Review*, 15, 429–445.
- Boyne, G. A. (2006). Strategies for public service turnaround: Lessons from the private sector. *Administration and Society*, 38, 365–388.
- Boyne, G. A., & Meier, K. J. (2009a). Environmental change, human resources and organizational turnaround. *Journal of Management Studies*, 46, 835–863.
- Boyne, G. A., & Meier, K. J. (2009b). Environmental turbulence, organizational stability and public service performance. *Administration & Society*, 40, 799–824.
- Brunsson, N. (1989). *The organization of hypocrisy: Talk, decisions and action in organizations*. New York, NY: Wiley.
- Carroll, G. R., & Delacroix, J. (1982). Organizational mortality in the newspaper industries of Argentina and Ireland: An ecological approach. *Administrative Science Quarterly*, 27, 169–198.
- Child, J. (1972). Organizational structure, environment and performance: The role of strategic choice. *Sociology*, 6, 1–22.
- Collins, J. (2009). *How the mighty fall*. New York, NY: HarperCollins.
- Cortell, A. P., & Peterson, S. (1999). Altered states: Explaining domestic institutional change. *British Journal of Political Science*, 29, 177–203.

- Cox, D. (1972). Regression models and life tables. *Journal of the Royal Statistical Society, Serial B*, 34, 187–220.
- Crozier, M. (1964). *The bureaucratic phenomenon*. Chicago, IL: University of Chicago Press.
- De Geus, A. (1997). *The living company*. Cambridge, MA: Harvard Business School Press.
- Doig, J. W. (2001). *Empire on the Hudson*. New York, NY: Columbia University Press.
- Dommett, K., & Skelcher, C. (2014). Opening the black box of administrative reform: A strategic-relational analysis of agency responses to termination threats. *International Public Management Journal*, 17, 540–563.
- Downs, A. (1967). *Inside bureaucracy*. Boston, MA: Little, Brown.
- Drazin, R., & van de Ven, A. (1985). Alternative forms of fit in contingency theory. *Administrative Science Quarterly*, 30, 514–539.
- Duit, A. (2016). Resilience thinking: Lessons for public administration. *Public Administration*, 94, 364–380.
- Elston, T. (2014). Not so “arm’s length”: Reinterpreting agencies in UK central government. *Public Administration*, 92, 458–476.
- Fukuyama, F. (2014). America in decay: The sources of political dysfunction. *Foreign Affairs*, 93, 3–26.
- Freeman, J., & Hannan, M. T. (1989). Setting the record straight on organizational ecology: Rebuttal to young. *American Journal of Sociology*, 95, 425–439.
- Gardner, J. W. (1995). *Self-renewal: The individual and the innovative society*. New York, NY: Norton.
- Genschel, P. (1997). The dynamics of inertia: Institutional persistence and change in telecommunications and health care. *Governance*, 10, 43–66.
- Gingrich, J. (2015). Varying costs to change? Institutional change in the public sector. *Governance*, 28, 41–60.
- Goodin, R. E. (1996). Institutions and their design. In R. E. Goodin (Ed.), *The theory of institutional design* (pp. 1–53). Cambridge, UK: Cambridge University Press.
- Goodsell, C. T. (2011). *Mission Mystique: Belief systems in public agencies*. Bloomington: Indiana University Press.
- Greasley, S., & Hanretty, C. (2015). Credibility and agency termination under parliamentarism. *Journal of Public Administration Research and Theory*, 26, 159–173.
- Hall, P. A. (1993). Policy paradigms, social learning, and the state: The case of economic policy-making in Britain. *Comparative Politics*, 25, 275–296.
- Hamel, G., & Välikangas, L. (2003). The quest for resilience. In W. W. Burke, D. G. Lake, & J. W. Paine (Eds.), *Organization change, a comprehensive reader* (pp. 512–532). San Francisco, CA: Jossey-Bass.
- Hannan, M. T., & Freeman, J. (1977). The population ecology of organizations. *American Journal of Sociology*, 82, 929–964.
- Hannan, M. T., & Freeman, J. (1984). Structural inertia and organizational change. *American Sociological Review*, 49, 149–164.
- Hannan, M. T., & Freeman, J. (1989). *Organizational ecology*. Cambridge, MA: Harvard University Press.
- Hargrove, E. (1994). *Prisoners of myth: The leadership of the Tennessee Valley Authority, 1933-1990*. Princeton, NJ: Princeton University Press.
- Hargrove E. C., & Glidewell, J. C. (Eds.). (1990). *Impossible jobs in public management*. Lawrence: University Press of Kansas.
- Hood C. (1991). A public management for all seasons? *Public Administration*, 69, 3–19.
- Kaufman, H. (1976). *Are government organizations immortal?* Washington, DC: Brookings Institution Press.
- Kelly, D., & Amburgey, T. (1991). Organizational inertia and momentum—A dynamic model of strategic change. *Academy of Management Journal*, 34, 591–612.

- Kettl, D. F. (2016). *Escaping Jurassic government: How to recover America's lost commitment to competence*. Washington, DC: Brookings Institution Press.
- Kingdon, J. (1984). *Agendas, alternatives, and public policies*. Ann Arbor: University of Michigan Press.
- Laegreid, P., Rolland, V. W., Roness, P. G., & Agotnes, J.-E. (2010). The structural anatomy of the Norwegian State 1985-2007. In P. Laegreid & K. Verhoest (Ed.), *Governance of public sector organizations* (pp. 21–43). Basingstoke, UK: Palgrave Macmillan.
- Lewis, D. E. (2002). The politics of agency termination: Confronting the myth of agency immortality. *Journal of Politics*, 64, 89–107.
- Lewis, D. E. (2003). *Presidents and the politics of agency design*. Palo Alto, CA: Stanford University Press.
- Lewis, D. E. (2004). The adverse consequences of the politics of agency design for presidential management in the United States. *British Journal of Political Science*, 34, 377–404.
- Lindner, J., & Rittberger, B. (2003). The creation, interpretation and contestation of institutions—Revisiting historical institutionalism. *Journal of Common Market Studies*, 41, 457–473.
- MacCarthaigh, M. (2014). Agency termination in Ireland: Culls and bonfires, or life after death? *Public Administration*, 92, 1017–1037.
- March, J. G. (1991). Exploration and exploitation in organizational learning. *Organization Science*, 2, 71–87.
- Merton, R. K. (1949). Bureaucratic structure and personality. In R. K. Merton (Ed.), *Social theory and social structure* (pp. 196–206). New York, NY: Free Press.
- Meyer, J. W., & Rowan, B. (1977). Institutionalized organizations: Formal structure as myth and ceremony. *American Journal of Sociology*, 83, 340–363.
- Meyer, M. W. (1985). *Limits to bureaucratic growth*. New York, NY: De Gruyter.
- Moore, J. H., & Kraatz, M. S. (2011). Governance form and organizational adaptation: Lessons from the savings and loan industry in the 1980s. *Organization Science*, 22, 850–868.
- Osborne, D., & Gaebler, T. (1992). *Reinventing government*. Reading, MA: Addison-Wesley.
- Péli, G. (1997). The niche hiker's guide to population ecology: A logical reconstruction of organization ecology's niche theory. *Sociological Methodology*, 27, 1–46.
- Perrow, C. B. (1986). *Complex organizations*. New York, NY: Random House.
- Ricucci N. (1995). *Unsung heroes: Federal executives making a difference*. Washington, DC: Georgetown University Press.
- Rolland, V., & Roness, P. G. (2011). Mapping organizational change in the state. *International Review of Public Administration*, 34, 399–409.
- Schön, D. (1973). *Beyond the stable state*. Harmondsworth, UK: Penguin.
- Selznick, P. (1957). *Leadership in administration*. Berkeley: University of California Press.
- Sorge, A., & van Witteloostuijn, A. (2004). The (non)sense of organizational change: An essay about universal management hypes, sick consultancy metaphors, and healthy organization theories. *Organization Studies*, 25, 1205–1231.
- Suddaby, R., & Greenwood, R. (2005). Rhetorical strategies of legitimacy. *Administrative Science Quarterly*, 50, 35–67.
- Thompson, J.D. (1967). *Organizations in action: Social science bases of administrative theory*. New Brunswick, NJ: Transaction.
- Tuma, N. B., & Hannan, M. T. (1984). *Social dynamics: Models and methods*. Orlando, FL: Academic Press.
- Tushman, M. L., Newman, W. H., & Romanelli, E. (1986). Convergence and upheaval: Managing the unsteady pace of organizational evolution. *California Management Review*, 29, 1–16.

- Wezel, F. C., & van Witteloostuijn, A. (2006). From scooters to choppers: Product portfolio change and organizational failure, evidence from the UK motorcycle industry 1895-1993. *Long Range Planning*, 39, 11–28.
- Wilson, D. S. (2002). *Darwin's cathedral*. Chicago, IL: University of Chicago Press.
- Wilson, J. Q. (1989). *Bureaucracy*. New York, NY: Basic Books.
- Wolf, P. J. (1997). Why must we reinvent the federal government? Putting historical development claims to the test. *Journal of Public Administration Research and Theory*, 7, 353–388.
- Yesilkagit, K., & Christensen, J. (2011). Institutional design and formal autonomy. *Journal of Public Administration Research and Theory*, 20, 53–74.

APPENDIX

TABLE A1 Robustness checks

	(5) (With corporation control)	(6) (With control firms < 5 years)	(7) (With other size quartiles)	(8) (Without sunset clause)	(9) (Unfriendly context)
War years	0.89 (0.23)	0.82 (0.22)	0.90 (0.24)	0.89 (0.24)	0.80 (0.22)
Federal revenues	1.00 (0.00)	1.00 (0.00)	1.00 (0.00)	1.00 (0.00)	1.00 (0.00)
Board	0.73 (0.18)	0.68 (0.17)	0.68 (0.16)	0.71 (0.17)	0.66† (0.15)
Sunset clause	3.10** (1.17)	2.90** (1.13)	2.74** (1.00)		2.42* (0.87)
Weak legislative origin	1.60** (0.19)	1.57** (0.19)	1.56** (0.19)	1.60** (0.19)	1.54** (0.19)
Small agency (up to 25th percen- tile)	3.00** (0.77)	3.19** (0.82)	3.20** (0.98)	2.87** (0.70)	3.34** (0.86)
Medium agency (25th to 50th percentile)			0.87 (0.33)		
Medium agency (50th to 75th percentile)			1.12 (0.42)		
Mission state- ment add.	2.51 (3.17)	2.25 (2.92)	2.25 (3.13)	2.21 (2.74)	2.68 (3.54)
Mission state- ment rem.	0.46 (0.35)	0.41 (0.31)	0.43 (0.33)	0.47 (0.37)	0.44 (0.33)

TABLE A1 (Continued)

	(5) (With corporation control)	(6) (With control firms < 5 years)	(7) (With other size quartiles)	(8) (Without sunset clause)	(9) (Unfriendly context)
No change	1.18	1.18	1.19	1.21	1.15
	(0.30)	(0.30)	(0.31)	(0.27)	(0.31)
Same-year change	9.17**	9.17**	8.90**	7.35**	10.35**
	(5.51)	(5.58)	(5.36)	(4.51)	(6.85)
Reactive change (2-year lag)	0.13*	0.11*	0.12*	0.15†	0.11*
	(0.13)	(0.12)	(0.13)	(0.15)	(0.12)
Proactive change (2-year lead)	3.82**	3.82**	4.05**	4.86**	3.15*
	(1.77)	(1.75)	(1.89)	(2.33)	(1.61)
Corporation	0.56				
	(0.27)				
Young agencies		2.71†			
		(1.39)			
Unfriendly president					0.42**
					(0.12)
Unfriendly majority					0.96
					(0.29)
Same-year change					
Reactive change (1-year lag)					
Proactive change (1-year lead)					
Reactive change (2-year lag)					
Proactive change (2-year lead)					
Log likelihood	−300.75	−300.09	−301.53	−305.50	−296.56
Chi ²	93.50	98.80	94.78	84.78	93.85
AIC value	627.50	626.18	630.06	633.00	621.12
Observations	4,885	4,885	4,885	4,885	4,885

Note. Hazard ratios are reported; robust standard errors in parentheses.

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

TABLE A2 List of agencies in the population

Name of agency	Established	Terminated ^a
Action	1-Jul-1971	31-Mar-1995
Administrative Conference of the U.S. I	13-Apr-1961	31-Oct-1995
Administrative Conference of the U.S. II	3-Mar-2010	Still exists
Aeronautical Board	11-Okt-1916	27-Jul-1948
African Development Foundation	20-Nov-1980	Still exists
Agricultural Adjustment Administration	12-Jun-1933	26-Jul-1945
Atomic Energy Commission	1-Aug-1946	11-Oct-1974
Board of Surveys and Maps of the Federal Government	30-Dec-1919	10-Mar-1942
Board of War Communications	24-Sep-1940	24-Feb-1947
Broadcasting Board of Governors	1-Oct-1999	Still exists
Canal Zone Government	24-Aug-1912	27-Sep-1979
Central Intelligence Agency	26-Jul-1947	Still exists
Central Statistical Board	9-Aug-1933	25-Jul-1940
Civil Aeronautics Board (former Civil Aeronautics Authority)	23-Jun-1938	4-Oct-1984
Civil Defense Coordinating Board	11-May-1955	1-Jul-1958
Civilian Conservation Corps (former Emergency Conservation Work)	5-Apr-1933	2-Jul-1942
Commodity Credit Corporation	16-Oct-1933	Still exists
Commodity Futures Trading Commission	23-Oct-1974	Still exists
Community Services Administration	4-Jan-1975	13-Aug-1981
Consumer Product Safety Commission	27-Oct-1972	Still exists
Corporation for National and Community Service	1-Oct-1993	Still exists
Defense Nuclear Facilities Safety Board	29-Sep-1988	Still exists
Development Loan Fund	14-Aug-1957	4-Sep-1961
Displaced Persons Commission	25-Jun-1948	31-Aug-1952
Economic Cooperation Administration	3-Apr-1948	10-Oct-1951
Electric Home and Farm Authority	12-Aug-1935	13-Oct-1942
Energy Research and Development Administration	11-Oct-1974	4-Aug-1977
Environmental Protection Agency	2-Dec-1970	Still exists
Equal Employment Opportunity Commission	2-Jul-1964	Still exists
Export Import Bank	2-Feb-1934	Still exists
Farm Credit Administration	27-Mar-1933	Still exists
Federal Aviation Agency	28-Aug-1958	Still exists
Federal Board of Hospitalization	1-Nov-1921	30-Jun-1948
Federal Civil Defense Administration	1-Dec-1950	1-Jun-1958
Federal Coal Mine Safety Board of Review	16-Jul-1952	30-Mar-1970

TABLE A2 (Continued)

Name of agency	Established	Terminated^a
Federal Communications Commission	19-Jun-1934	Still exists
Federal Coordinator of Transportation	16-Jun-1933	16-Jun-1936
Federal Deposit Insurance Corporation	16-Jun-1933	Still exists
Federal Election Commission	15-Oct-1974	Still exists
Federal Emergency Management Agency	31-Mar-1979	Still exists
Federal Emergency Relief Administration	12-May-1933	30-Jun-1938
Federal Energy Administration	7-May-1974	4-Aug-1977
Federal Home Loan Bank Board	22-Jul-1932	9-Aug-1989
Federal Housing Administration	27-Jun-1934	9-Sep-1965
Federal Housing Finance Agency	30-Jul-2008	Still exists
Federal Housing Finance Board	9-Aug-1989	30-Jul-2008
Federal Labor Relations Authority	1-Jan-1979	Still exists
Federal Land Bank Commissioner	17-Jul-1916	6-Aug-1953
Federal Loan Agency	1-Jul-1939	30-Jun-1947
Federal Maritime Commission	12-Aug-1961	Still exists
Federal Mediation and Conciliation Service	23-Jun-1947	Still exists
Federal Mine Safety and Health Review Commission	9-Nov-1977	Still exists
Federal Power Commission	23-Jun-1930	4-Aug-1977
Federal Prison Industries Incorporated	11-Dec-1934	Still exists
Federal Reserve	23-Dec-1913	Still exists
Federal Retirement Thrift Investment Board	6-Jun-1986	Still exists
Federal Security Agency	1-Jul-1939	11-Apr-1953
Federal Surplus Commodities Corporation	16-Jun-1933	30-Jun-1940
Federal Trade Commission	26-Sep-1914	Still exists
Foreign Claims Settlement Commission	1-Jul-1954	Still exists
Foreign Operations Administration	1-Aug-1953	9-May-1955
General Accounting Office (former Government Accountability Office)	10-Jun-1921	Still exists
General Services Administration	1-Jul-1949	Still exists
Government Patents Board	23-Jan-1950	24-Mar-1961
Government Printing Office	03-Apr-1861	Still exists
Housing and Home Finance Agency	27-Jul-1947	9-Sep-1965
Interstate Commerce Commission	7-Feb-1887	29-Dec-1995
Maritime Labor Board	23-Jun-38	22-Jun-1942
Merit System Protection Board (former Civil Service Commission)	16-Jan-1883	Still exists
Motor Carrier Claims Commission	2-Jun-1948	31-Dec-1952

TABLE A2 (Continued)

Name of agency	Established	Terminated ^a
National Aeronautics and Space Administration	29-Jul-1958	Still exists
National Archives and Records Administration	19-Jun-1934	Still exists
National Bituminous Coal Commission	30-Aug-1935	1-Jul-1939
National Capital Housing Authority (former Alley Dwelling Authority)	12-Jun-1934	1-Jul-1974
National Capital Planning Commission (former National Capital Park and Planning Commission)	6-Jun-1924	Still exists
National Credit Union Administration	10-Mar-1970	Still exists
National Emergency Council	17-Nov-1933	1-Jul-1939
National Forest Reservation Commission	1-Mar-1911	22-Oct-1976
National Foundation for the Arts and the Humanities	29-Sep-1965	Still exists
National Historical Publications Commission	19-Jun-1934	Still exists
National Housing Agency	24-Feb-1942	27-Jul-1947
National Labor Relations Board	5-Jul-1935	Still exists
National Mediation Board	21-Jul-1934	Still exists
National Railroad Passenger Corporation (Amtrak)	30-Oct-1970	Still exists
National Recovery Administration	16-Jun-1933	21-Dec-1935
National Science Foundation	10-May-1950	Still exists
National Security Training Commission	19-Jun-1951	25-Mar-1957
National Transportation Safety Board	15-Oct-1966	Still exists
National Youth Administration	26-Jun-1935	12-Jul-1943
Nuclear Regulatory Commission	15-Jan-1975	Still exists
Occupational Safety and Health Review Commission	28-Apr-1971	Still exists
Office of Censorship	19-Dec-1941	28-Sep-1945
Office of Government Ethics	26-Oct-1978	Still exists
Office of Management and Budget (former Bureau of the Budget)	10-Jun-1921	Still exists
Office of Personnel Management	28-Dec-1978	Still exists
Office of Price Administration	11-Apr-1941	12-Dec-1946
Office of Special Counsel	1-Jan-1979	Still exists
Office of the Director of National Intelligence	22-Apr-2005	Still exists
Office of the Housing Expediter	22-May-1946	31-Jul-1951
Office of War Mobilization and Reconversion	3-Oct-1944	12-Dec-1946
Overseas Private Investment Corporation	19-Jan-1971	Still exists
Panama Canal Commission	29-Jun-1948	30-Sep-2004
Peace Corps	1-Mar-1961	Still exists
Pennsylvania Avenue Development Corporation	27-Oct-1972	1-Apr-1996

TABLE A2 (Continued)

Name of agency	Established	Terminated^a
Pension Benefit Guaranty Corporation	2-Sep-1974	Still exists
Petroleum Administration for War	2-Dec-1942	3-May-1946
Petroleum Administrative Board (former Petroleum Administration)	11-Sep-1933	31-Mar-1936
Postal Regulatory Commission (former Postal Rate Commission)	12-Aug-1970	Still exists
President's War Relief Control Board	25-Jul-1942	14-May-1946
Prison Industries Reorganization Commission/Administration	26-Sep-1935	30-Jun-1938
Railroad Retirement Board	29-Aug-1935	Still exists
Reconstruction Finance Corporation	22-Jan-1932	30-Jun-1957
Renegotiation Board	25-Mar-1951	10-Oct-1978
Resettlement Administration	30-Apr-1935	1-Jan-1946
Resolution Trust Corporation	9-Aug-1989	31-Dec-1995
Rubber Producing Facilities Disposal Commission	7-Aug-1953	20-Sep-1956
Rural Electrification Administration	11-May-1935	20-Oct-1994
Saint Lawrence Seaway Development Corporation	13-May-1954	Still exists
Securities and Exchange Commission	2-Jul-1934	Still exists
Selective Service System	16-Sep-1940	Still exists
Small Business Administration	30-Jun-1953	Still exists
Social Security Administration	14-Aug-1935	Still exists
Subversive Activities Control Board	23-Sep-1950	30-Jun-1973
Tennessee Valley Authority	18-May-1933	Still exists
Thrift Depositor Protection Oversight Board (former Oversight Board for the Resolution Trust Corporation)	9-Aug-1989	29-Jul-1998
Trade and Development Agency	1-Jul-1980	Still exists
United States Agency for International Development	3-Nov-1961	Still exists
United States Arms Control and Disarmament Agency	26-Sep-1961	21-Oct-1998
United States Board of Tax Appeals	2-Jun-1924	Still exists
United States Commission on Civil Rights (former Commission on Civil Rights)	9-Sep-1957	Still exists
United States Employees Compensation Commission	7-Sep-1916	16-Jul-1946
United States Information Agency I	1-Aug-1953	1-Apr-1978
United States Information Agency II	1-Apr-1978	1-Oct-1999
United States International Trade Commission (former US Tariff Commission)	8-Sep-1916	Still exists
United States Maritime Commission	29-Jun-1936	24-May-1950
United States Metric Board	23-Dec-1975	1-Oct-1982
United States Postal Service	22-09-1789	Still exists

TABLE A2 (Continued)

Name of agency	Established	Terminated ^a
United States Railroad Administration	29-Aug-1916	1-Jul-1939
Veterans Administration	3-Jul-1930	Still exists
Veterans Education Appeals Board	13-Jul-1950	28-Aug-1957
Virgin Islands Corporation	30-Jun-1949	1-Jul-1966
War Finance Corporation	5-Aug-1918	1-Jul-1939

^a“Still exists” refers to the end date of our study (31-Dec-2011).