

Bureaucratic Job Mobility and The Diffusion of Innovations

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In studies of innovation, policy entrepreneurs recognize latent demand for new policies and then expend resources to promote them. But studies of policy entrepreneurs have generally focused on the demand for innovation, while neglecting the supply side of policy entrepreneurship. This article argues that bureaucratic labor markets affect the emergence of policy entrepreneurs, and so affect the diffusion of policy innovations across local governments in the United States. Analysis of a survey of municipal police chiefs and water utility managers relates governments' hiring and promotion policies to their adoption of professionally fashionable innovations. Agency heads who advanced to their current positions diagonally (arriving from another organization) are more likely to initiate these innovations than are agency heads who were promoted from within. Bureaucratic policy entrepreneurs emerge where government demand for innovation meets a supply of mobile administrators, who carry the priorities of their professions into the agencies that they serve.

Political scientists have sought to understand the diffusion process of policy innovations since Walker's (1969) seminal article on the spread of policies from state to state. In these studies, *innovation* means the introduction of a policy new to the government adopting it. Studies of innovation have isolated a number of social and institutional correlates of policy diffusion, and so have identified conditions that promote or inhibit the spread of innovative policies from one government to another. Several studies identify *policy entrepreneurs* as important drivers of innovation (Balla 2001; Mintrom 1997; Mintrom and Vergari 1998; Schneider, Teske, and Mintrom 1995; Shipan and Volden 2006). Like their commercial counterparts, policy entrepreneurs recognize latent demand for innovations and then expend resources and take risks to make policy. But studies of policy entrepreneurs have generally focused on the *demand* for innovation, while neglecting the *supply* side of policy entrepreneurship.

This article argues that a theory of innovation-by-entrepreneurs should consider both the need for policy changes (demand) and the incentives for individuals to become policy entrepreneurs (supply). I focus on a particular group of political actors who frequently emerge as policy entrepreneurs: public agency administrators (Bernier and Hafsi 2007; Bulkeley and Betsill 2003;

Kingdon 1984; Rabe 1999, 2004; Roberts 2005). I argue that bureaucratic labor markets affect the emergence of policy entrepreneurs, and so affect the spread of innovations from one local government to another in the United States.

Entrepreneurial policy leadership in the bureaucracy is particularly pronounced at the local level in the United States (Oakerson and Parks 1988; Schneider, Teske, and Mintrom 1995). The bureaucrats who serve American local governments are now, by and large, career professionals (Green 1989; Mosher 1968; Wirt 1985). To the extent that they are professionals, they may cause the diffusion of policy innovations from their professional communities to their agencies (Balla 2001; Gray 1994; Mintrom and Vergari 1998; Rabe 1999). Little is known, however, about why some bureaucrats are more likely than others to drive policy innovations. What causes some administrators to innovate, advancing policies from their professions into the agencies they serve, when others do not? When is a bureaucrat likely to push an innovation favored by her profession? These questions point to the *supply side* as a complement to the familiar demand-driven policy entrepreneur model.

This article places government agency heads in the context of a professional labor market. I argue that a bureaucrat's policymaking behavior is explained to a great

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degree by her career path. The subjects of this inquiry are chief administrative heads of local government agencies in the United States. Local governments' hiring and promotional practices determine the paths by which bureaucrats may advance. Agencies and professions that feature diagonal advancement (via movement from one organization to another) select executives based on their reputations for policy innovation. Agencies that promote leaders vertically from within do not so heavily rely on professional reputation, but rather select bureaucrats based on familiarity and adherence to standing organizational norms. Governments demanding innovation look to hire executives from outside, and public administration professions fulfill that demand by supplying mobile, innovative bureaucrats. Consequently, agency heads with job mobility act as suppliers of policy innovations from their professions to the governments that they serve. Bureaucratic policy entrepreneurs emerge where government demand for innovation meets a supply of mobile, professional administrators.

This article begins with a review of studies of policy innovation, paying special attention to the ways that their findings demonstrate supply-side and demand-side mechanisms. I then describe how hiring practices and career paths operate to favor more or less professional innovation through the selection of candidates for bureaucratic jobs. Drawing data from an original survey of American chiefs of police and water utility managers, a series of statistical models demonstrates the ways that agencies' hiring practices affect policy outcomes (the demand side). The analysis then shifts from governments to individuals as the unit of analysis. Bureaucrats' career paths are shown to affect their initiation of policy innovations (the supply side). Along the way a familiar alternative hypothesis is evaluated: that bureaucrats' socialized professional identities, not labor market factors, explain their promotion of professional policy innovations. Results of these analyses provide insights for scholars studying policy diffusion, bureaucratic politics, and the role of public sector professions in American governance.

Policy Innovation, Entrepreneurs, and Professions

Substantial research on the diffusion of policy innovations has grown in the wake of Walker's (1969) article. Studies in this tradition generally identify "internal" and "external" factors driving innovation. Internal variables include institutional form, administrative capacity, socioeconomic conditions, popular political ideology,

religiosity, electoral cycles, and legislative professionalism (Berry and Berry 1990, 1992; Boehmke 2006; Boehmke and Witmer 2004; Daley 2007; Daley and Garand 2005; Gray 1973; Sapat 2004; Shipan and Volden 2006; Turner and Cassell 2007; Walker 1969). External variables linked to policy diffusion include neighboring state adoption, social learning, and economic competition between governments (Berry and Berry 1990, 1992; Boehmke and Witmer 2004; Walker 1969). Shipan and Volden (2006) explore processes by which policies diffuse from local to state governments in bottom-up fashion. These studies have identified a number of important correlates of policy diffusion, but their data generally do not allow isolation of the mechanisms by which diffusion occurs. That is, these studies of policy diffusion help explain why innovation happens, but not how or by whom.

Entrepreneurs. Walker recognized this theoretical gap in his 1969 article, and a handful of subsequent studies have sought to fill it by identifying the specific individuals and processes that cause innovation. Several studies identify policy entrepreneurs as important drivers of innovation in education (Mintrom 1997, 2000) and environmental protection (Bulkeley and Betsill 2003; May and Koski 2007; Rabe 1999), for example. Akin to their counterparts in business, policy entrepreneurs recognize latent demand for some innovation, and then expend resources to achieve the innovation in anticipation of some return (Kingdon 1984). Mintrom and Vergari (1998) find that individuals' involvement in policy networks is related to their emergence as policy entrepreneurs. Balla (2001) finds that state commissioners' participation in national organizations facilitates policy diffusion from state to state. In these studies, entrepreneurs draw upon professional networks as resources to aid their pursuit of innovations.

Putting policy entrepreneurs at the heart of a diffusion model suggests that the most meaningful division between correlates of innovation is not *internal-external*, but rather *demand-supply*. Economic competition, fiscal conditions, public ideology, urbanization, interest group lobbying, and other forces outside government create demand for innovation. Resources for entrepreneurial suppliers of innovation include organizational capacity, legislative professionalism, and policy networks. Neighboring state adoption of a policy is sometimes depicted as a source of demand for innovation (when states compete with each other), and sometimes as a source of innovation (when states learn from and emulate neighboring states' policies; Boehmke and Witmer 2004).

Left unanswered is why policy entrepreneurs bother pursuing innovation in the first place. For business entrepreneurs, the answer is clear: commercial suppliers of

innovation emerge in a market to capture profits. The “profits” available to a bureaucratic policy entrepreneur are less clear. Invoking Mohr’s (1969) theory of organizational innovation, Berry and Berry (1990) identify two factors that increase the probability of innovation in an organization: “(1) the *motivation to innovate*, and (2) the availability of resources for overcoming obstacles” to innovation (399, italics added). Studies that link policy networks and organizational capacity to policy entrepreneurship tell us much about the latter, but little about the former. Officials may participate in professional networks to gain resources pursuant to innovation, but why do they bear the individual costs of participation in the name of innovation? Like a befuddled actor, a would-be policy entrepreneur must ask, “What’s my motivation?”

Berry and Berry (1990) conceptualize the motivation to innovate as a problem that demands a policy solution. Since the policy they study is adoption of state lotteries, Berry and Berry use a state’s fiscal condition as an indicator of its motivation to innovate. Similarly, Boehmke and Witmer (2004) study interstate economic competition as a cause of the introduction and expansion of Indian casino gaming, and so use state fiscal conditions and geographic proximity as indicators of motivation to innovate. These methods are appropriate when the unit of analysis is an entire state and the objective of the study is to find correlates of policy diffusion. But to conceptualize “motivation to innovate” as a public need or government-versus-government economic competition is to conflate individual goals with organizational goals. An entrepreneurial model of policy diffusion must abandon such unitary actor assumptions. As organization theorists have long recognized, individuals do not necessarily share the goals of the organizations in which they work (Simon 1997). It is one thing for a city to suffer a fiscal crisis; it is another for an agency bureaucrat to step forward and assume the costs and risks of innovation in response to the crisis.

Shipan and Volden (2006) and Turner and Cassell (2007) analyze legislative professionalism as a factor that might promote the emergence of policy entrepreneurs, reasoning that full-time elected legislators have greater motivation to meet constituents’ policy demands. Berry and Berry (1990, 1992) and Mintrom and Vergari (1998) analyze the timing of the electoral cycle as a driver of innovation. These analyses approach the supply side of the entrepreneur model, as they posit specific goals (reelection) and institutional mechanisms (legislative professionalism and elections) that create motivation for policy entrepreneurs. However, policy entrepreneurs are by definition individuals, and the data underlying these studies are aggregated at the level of state governments. Thus

these studies offer little purchase on the decisions of *individuals* to become policy entrepreneurs. Schneider, Teske, and Mintrom (1995) show that institutional structure affects the probability of policy entrepreneurs emerging in local governments, but their research does not identify systematic motivations for individual bureaucratic entrepreneurs.

Bureaucratic policy entrepreneurs. Bureaucrats abound in accounts of policy entrepreneurship (Bernier and Hafsi 2007; Bulkeley and Betsill 2003; Carpenter 2001; Kingdon 1984; Rabe 1999, 2004; Roberts 2005). Schneider, Teske, and Mintrom (1995) identify a number of political, economic, and social conditions that create “*demand for dynamic political or policy change*” by bureaucratic leaders (153, italics added). Schneider, Teske, and Mintrom do not model or empirically investigate the *supply* of bureaucratic policy entrepreneurs, but they note that “many of the innovations managers introduce are defined by their professional networks and guided by prevailing norms” (160).

Recognizing that American government agencies are now largely professionalized, several studies of bureaucratic politics find that administrators’ professional norms and values tend to shape their behavior (Brehm and Gates 1997; Jones-Correa 2004; Lipsky 1980; Mosher 1968). With a play on words, Brehm and Gates (1997) call their bureaucrats “principled agents,” suggesting that professional socialization motivates administrators to pursue their professions’ favored policies. Clearly bureaucratic professionalism matters, but professional identity is theoretically problematic as an explanation for bureaucratic policy entrepreneurs because it fails to explain variation in administrators’ pursuit of professionally sanctioned goals. Why do some administrators work doggedly to put their professions’ favored policies into practice, while others give up or stand silent?

Theory

This study seeks to explain policy diffusion from professions to and across local governments by focusing on bureaucrats as professionals working in a labor market. Like most jobs in a market economy, public administration jobs are temporary matches of individuals with employers. But individuals and agencies do not latch on to one another at random, like atoms in Brownian motion. Rather, bureaucratic jobs form as a consequence of government selection processes. Some agencies may have standing practices of promoting bureaucratic executives from within the organization, while others tend to hire

their executives from outside. Professions or agencies with vertical advancement may be thought of as featuring vertical career “ladders” for administrators, as in the United States Forest Service (Kaufman 2006). Professions where advancement to high-status positions frequently entails changing employers feature diagonal career “ramps” for administrators, as with school superintendents and city managers in the United States (Carlson 1961; Green 1989; March and March 1977). Career mobility for professional public administrators in the United States varies across professions (e.g., military officers versus school superintendents) and across agencies (e.g., the Los Angeles Police Department versus the New York Police Department).

Selection. When elected officials hire professional administrators, they are usually laypersons hiring experts. So as in most hiring situations, qualifications and reputation are important factors for elected officials selecting agency heads. But the procedures and criteria applied in hiring are different in different governments and depend on whether recruitment is from within or from outside.

Professional credentials and reputation are prominent selection criteria for governments hiring bureaucrats from outside (Carlson 1961; Rosenthal and Crain 1968; Wilson 1989). Elected officials rely heavily on the advice of other professionals when vetting and selecting candidates. Local governments hiring agency heads from outside typically retain executive search firms or consultants specializing in the professions at hand (Ammons and Glass 1988). These search consultants are usually themselves former administrative professionals, and their advice is central to the search and hiring processes: they help identify and vet candidates. Moreover, the consultants are influential in framing issues and establishing evaluative criteria (Schall 1997b). Without direct knowledge of or experience working with the candidates, elected officials rely heavily on the advice of their search consultants and the candidates’ credentials and reputations. While it is certainly possible that an individual may be promoted from within a government with the expectation of initiating changes, external hiring explicitly or implicitly suggests a desire for innovation (Carlson 1961), and so local governments scrutinize applicants through the prism of professionalism when they hire from outside.

Few or none of these selection factors apply when organizations promote from within as a matter of course. Governments promoting from within the organization are familiar with their candidates, and select agency heads with whom they are comfortable. Organizations with a standing practice of hiring executives from within almost certainly have fewer candidates for the job—perhaps only one (Wilson 1989). In some organizations, hiring an agency head is a virtually automatic process: the next

school superintendent is simply whoever the deputy superintendent is today (Carlson 1961). No search consultants or professional vetting is necessary when organizations hire from within. Administrators selected through such internal promotional processes generally arrive at the agency head position through adherence to agency norms and local sensibilities; professional reputation is not so important (Schall 1997a).

Adaptation. A simultaneous *adaptation* process occurs among bureaucrats. Bureaucrats ambitious for career advancement observe the behavior of those who successfully “get ahead” in a profession or an organization, and then mimic this winning behavior (March and March 1977). For the diagonally ambitious, adaptation means building a reputation for innovation pursuant to higher-status jobs, since professional credentials and professional reputation are important selection criteria for higher-status agency heads (DiMaggio and Powell 1983). On a diagonal career path, then, a bureaucrat seeks to introduce professionally fashionable policy innovations to her agency. In this sense, diagonally mobile, professional bureaucrats are potential suppliers of policy innovation. For vertical climbers, adaptation means building a reputation for adhering to local norms. Sitting atop an agency with vertical advancement, the bureaucrat is not so interested in pursuing professional innovations.

Consequently, agencies’ policies depend in part on their bureaucratic selection processes, and bureaucrats’ policy plans reflect their career concerns. In a government that hires its agency heads from outside, the bureaucrat is retained to provide not only expertise, but innovation. Policy innovation does not follow from the mere presence of qualified professional bureaucrats, but from *mobile* bureaucrats.

Hypotheses. These differences in bureaucrats’ career mobility and hiring processes lead to differences in policy-making. The following hypotheses relate administrators’ career paths to the diffusion of policy innovations:

- *H1 (Selection):* Governments that routinely hire agency heads from outside the organization are more likely to adopt professional policy innovations than are governments that routinely promote agency heads from within.
- *H2 (Adaptation):* Bureaucrats on diagonal career paths (who arrived at their current positions from outside) are more likely to initiate professional policy innovations than are bureaucrats atop vertical career paths (who were promoted to their current positions from within).

These two hypotheses focus on two different units of analysis, but predict a common political phenomenon:

the diffusion of professional policy innovations to local agencies. The independent variable of interest in H1 is institutional and approaches the theory from the *demand side*; the unit of analysis in H1 is policy *i* in government *j*. The independent variable in H2 is behavioral, approaching the theory from the *supply side*; the unit of analysis in H2 is policy *i* initiated by administrator *k*. Both of these hypotheses posit a specific mechanism—bureaucratic job mobility—by which policy diffusion occurs. In a sense, H1 and H2 are two sides of the same theoretical coin. But significantly, H2 focuses on *individual* behavior and so offers direct traction on the supply of policy entrepreneurship.

Professional identity and socialization? As noted above, some accounts of bureaucratic behavior suggest that the process of professional accreditation (through formal education, apprenticeship, and so forth) imbues individuals with the ethics of their professions (Brehm and Gates 1997; Jones-Correa 2004; Lipsky 1980; Mosher 1968; Wilson 1989). Steeped in the cultures of their professions, administrators come to understand good and bad policy according to the conventions of their professional peers, goes the argument. This socialization process causes administrative professionals to be, as Brehm and Gates put it, “principled.” So professionalism-by-socialization is an important rival hypothesis:

- *A1 (Socialization)*: The likelihood of a bureaucrat initiating professional policy innovations increases as his or her professional involvement increases.

If professional socialization causes administrators to initiate professionally innovative policies, high levels of professional education and professional involvement would be associated with introduction of professional innovations. The effects of career path might also be expected to diminish or disappear when indicators of professional identity are added to the analysis.

Data

Data on administrators’ career paths and governments’ hiring practices are drawn from an original survey of police chiefs and water utility managers heading American municipal agencies. Police departments and water utilities are excellent subjects for this empirical investigation for several reasons. First, local law enforcement and public water utilities are ubiquitous in the United States. Second, police departments and water utilities occupy very different substantive policy areas and sit at opposite ends of the issue salience spectrum. Crime and law enforcement

routinely receive ample media coverage. Meanwhile, although water utilities are vital, they are mostly invisible, except in times of crisis (Hughes 2007). Together, these two disparate professions offer generalizability to a wide variety of issue areas. Third, police and water utilities both are mature professions, with large national professional organizations, established credentialing systems, and well-defined career paths.

The survey employed a sample of 150 agency heads in each profession, stratified by agency size to draw representative data. Police agencies were drawn from the 2000 Census of State and Local Law Enforcement Agencies, compiled by the U.S. Department of Justice Bureau of Justice Statistics; water utilities were drawn from the U.S. Environmental Protection Agency 2004 Safe Drinking Water Information System. A great majority of agencies are very small and serve small proportions of the total U.S. population. A simple random sample would likely offer little data on large and medium-sized governments due to the very high proportion of small local governments in the United States. As large and medium-sized governments serve the majority of the U.S. population, stratifying to ensure their inclusion in the sample is important for drawing broadly generalizable conclusions (Dziegielewski and Opitz 2004). Stratification also ensures that data are gathered from agencies occupying every stratum of these professions. The smallest police departments (fewer than three full-time officers) and water agencies (fewer than 3,300 population served) were excluded from the frame because they serve very small proportions of the U.S. population and require limited administrative and policymaking responsibilities of their agency heads. The survey was administered via an Internet-based Web questionnaire, with a supplementary telephone interview for chiefs of police. The response rate was 58.7% for police chiefs and 50.4% for water utility managers.

The key independent variables investigated here are governments’ hiring patterns and bureaucrats’ career paths. The dependent variables are innovative policies adopted by government agencies and innovative policies initiated by bureaucratic agency heads. Key controls include institutional variables and personal information. Descriptive summaries of the data are reported at the end of this article.¹

Career path and hiring patterns. Respondents were asked about their education and employment history, including whether they arrived at their current jobs via internal promotion or external recruitment from a management position in another government. Respondents

¹Questionnaire items are available from the author upon request.

TABLE 1 Professional Innovations

Unweighted Percentages	Policy 1	Policy 2	Policy 3
<i>Police Agencies</i> (N = 73)	<i>Community policing</i>	<i>XML database</i>	<i>CALEA accreditation</i>
Policy in place	83.6	23.5	43.8
Respondent initiated policy	32.8	19.2	41.1
<i>Water Utilities</i> (N = 70)	<i>Counterterrorism security measures</i>	<i>Public outreach</i>	<i>Workforce succession plan</i>
Policy in place	92.9	87.1	55.7
Respondent initiated policy	78.6	62.9	48.6

also reported their agencies' hiring practices for the top executive position, depicting their organizations' hiring for their positions as

1. Always promoted from within;
2. Usually promoted from within;
3. Sometimes promoted from within, sometimes hired from outside;
4. Usually hired from outside; or
5. Always hired from outside.

Advancement in the sampled police agencies is more vertical than in water utilities, with 48.0% of police agencies "always" or "usually" promoting their chiefs from within the organization, compared with 35.8% for water utilities.

Policy innovations in place. The dependent variable in hypothesis H1 is the adoption of professionally sanctioned policy innovations. The unit of analysis for this first dependent variable is a government. Respondents were asked whether three specific policy innovations were in place or planned for their organizations. A different set of three policies, shown in Table 1, is used for each profession. Each of these policies is optional (i.e., not required by state or federal mandates) and would require the involvement of senior administration in its adoption and implementation. Each of these policies has received a great deal of attention in its profession's publications and in the public remarks of their professional societies' presidents. These innovations are chosen for study principally because of their professional fashionability and universal applicability, not because they are necessarily the most important possible innovations. Analyzing a set of professionally fashionable innovations is useful, because the hypotheses investigated here focus on the diffusion of policies championed by bureaucratic professions.

For police agencies, the professional indicator policies were community policing, participation in national databases using Extensible Markup Language (XML, a flexible database technology), and accreditation through the Center for Accreditation of Law Enforcement Agen-

cies (CALEA). Community policing and XML database participation were selected based on remarks of the president of the International Association of Chiefs of Police (IACP), who called for promotion of these policies (Estey 2005). CALEA characterizes its accreditation program this way:

The overall purpose of the Commission's accreditation program is to improve delivery of law enforcement service by offering a body of standards, developed by law enforcement practitioners, covering a wide range of up-to-date law enforcement topics. It recognizes professional achievements by offering an orderly process for addressing and complying with applicable standards. Successful completion of the accreditation program requires commitment from all levels of the organization, *starting with the chief executive officer.* (2006, italics added)

Thus CALEA accreditation represents an array of professionally innovative policies. For water utility managers, the three policies are counterterrorism security measures to protect infrastructure, public education campaigns on the value of water, and long-term workforce succession planning. These policies were selected based on the American Water Works Association (AWWA) president's 2005 conference keynote address, which called for adoption of these policies (McCain 2005).

Institutional variables. Three institutional controls are included with the analyses presented here. *Agency size* is controlled using the natural log of an agency size metric for each profession: full-time sworn officers for police departments and customer connections for water utilities. Dummies are included for *full-time elected officials* (effectively legislative professionalism) and *council-city manager* governance form. Agency heads might be more entrepreneurial where elected officials are part-time amateurs, and less entrepreneurial where elected officials work full-time, if administrators fill a void left by the absence of party organizations in reformed governments

(Lowi 1967). Research on council-manager governments and policy innovation has demonstrated that governance structure affects the character of policies that local governments adopt (Clingermayer and Feiock 2001; Feiock, Jeong, and Kim 2003; Feiock and West 1993). However, research on council-manager governments and policy adoption focuses on the relationship between elected officials and the city manager, not the effect of institutional form on the behavior of bureaucratic agency heads. A council-manager structure might reduce the probability of a police chief or utility manager initiating policy innovations, since city managers may dominate the legislative process from the bureaucratic side, and so reduce opportunities for entrepreneurial department heads. Governments' agency head hiring practices (vertical promotion vs. outside hiring) are not significantly correlated with agency size or council-manager governance form.² A dummy for partisan government was not included due to low numbers of partisan governments in the sample (seven police departments, three water utilities).

Personal and demographic variables. Because they focus on individual behavior, the statistical models used to evaluate H2 and A1 include controls for respondents' personal lives. Respondents were asked if they planned to retire within the next five years. Respondents *planning retirement* in the near future are likely to perceive little benefit in honing a professional reputation pursuant to advancement, and so might be less interested in promoting innovative policies. Alternatively, bureaucrats approaching retirement might advocate for innovations as a means of securing a "legacy." Models also included dummies to indicate whether administrators were *married* or had minor *children*. Analyses of bureaucrats' gender, race, and ethnicity also are potentially important variables, but demographic controls were not included in the statistical models due to lack of variation: both professions are overwhelmingly male, white, and non-Hispanic.³

²Pair-wise correlations of *agency size* and *vertical promotion* demonstrate very weak relationships ($p = .45$ for police departments, $p = .91$ for water utilities). Chi-square tests of association show that *city manager* governance is similarly uncorrelated with *vertical promotion* ($p = .45$ for police departments, $p = .87$ for water utilities). Police departments with *full-time elected officials* are significantly more likely to use *vertical promotion* than are departments with part-time elected officials ($p = .03$). Similar tests of water utilities show no significant correlation between *full-time elected officials* and *vertical promotion* ($p = .52$).

³The very low frequency of women in the sample may indicate that, as Nancy Burns has put it, "gender has already done much of its work" in police and utility careers before executives advanced to a position where they might be studied (2002, 467). The same might be said of race and ethnicity.

The Demand Side: Hiring Practices and Policy Innovation

Hypothesis H1 draws a connection between governments' agency executive hiring practices and their policy outcomes. The policy outcomes measured here are the three professional innovations for each profession as described above (see Table 1). If vertical promotion of agency heads leads to less innovation than diagonal hiring, agencies that typically promote executives from within would be expected to have fewer of these policy innovations in place than do agencies that hire from outside. Because there are four possible outcomes for this dependent variable, an ordered logistic regression model for each profession is used to estimate the probability of an agency having none, one, two, or all three of the innovations in place.⁴ The ordered logistic model is well suited to these dependent variables, which are ordinal, rather than continuous or discrete event counts. Analyzing the adoption of the three policies simultaneously offers traction on the theoretical issue at hand, which is the role of external hiring in the diffusion of professional policy innovations, or the demand side of the policy entrepreneur theory. In essence, these models predict the impact of professional priorities on the policies adopted by different agencies. Table 2 shows the coefficients and standard errors generated by these models.⁵

According to these models, governments that hire agency heads from outside are more likely to have adopted the professional innovations than are governments that promote agency heads from within. With other variables held at their means, police agencies with vertical promotional practices have an estimated 67% chance of having adopted none or only one of the indicator policies, a 25% chance of having two of the policies, and just an 8% chance of having all three policies. Police agencies with diagonal hiring practices present a near-mirror image: an estimated 62% chance of having adopted two or three of the indicator policies, a 31% chance of having just one, and only a 6% chance of having none of the policies in

⁴Brant tests of the models presented in Tables 3 and 4 indicate that these models satisfy the proportional odds/parallel regression assumption of the ordered logistic model. Alternative specifications that excluded *full-time elected officials* and/or *city manager* were tested in order to guard against distortions of coefficients and standard errors due to multicollinearity. All specifications generated substantively and statistically similar results, and so the full models are reported in Tables 3 and 4.

⁵Combining data for police chiefs and water utility managers into a single model was impracticable because the distributions of the dependent variable and several of the independent variables were substantially different for the two professions.

TABLE 2 The Demand Side: Agency Adoption of Professional Policy Innovations

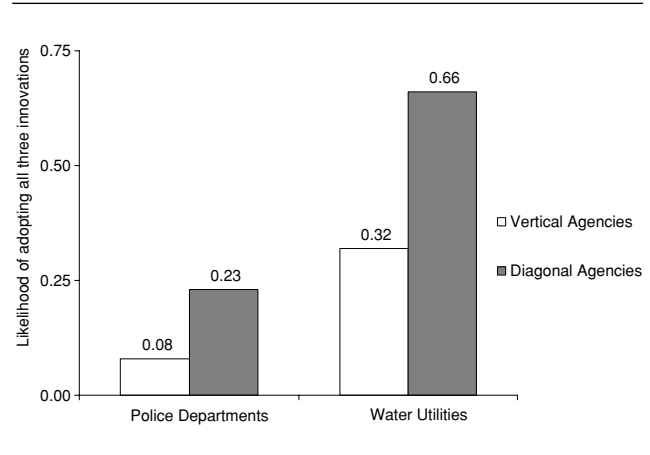
Ordered Logistic Regression	Number of Professional Policy Innovations in Place (0–3)	
	Coefficient (Standard Error)	
	* $p < .10$, ** $p < .05$, *** $p < .01$, Two-tailed Test	
Variable	Police Departments	Water Utilities
Vertical promotion	-1.28*** (.48)	-1.41** (.62)
Log agency size	.52*** (.17)	.96*** (.27)
Full-time elected officials	.02 (.73)	-2.79*** (.85)
City manager	-.62 (.56)	-1.62** (.70)
Cut point one	-1.09 (.69)	†
Cut point two	1.12 (.67)	2.85 (2.17)
Cut point three	2.83 (.74)	6.79 (2.30)
Log likelihood	-85.4	-42.2
Likelihood ratio X^2	18.4	28.5
$p > X^2$.001	.000
N	72	67

See Table 1 for policies used in dependent variable. *Vertical promotion* means agencies that “always” or “usually” promote from within.
 †No estimate; zero values fully determined in the model.

place. Water utilities show a similar pattern. To relate these findings in intuitively meaningful terms, Figure 1 presents the estimated likelihoods of agencies having adopted all three of the professional innovations for agencies with vertical and diagonal hiring patterns, with other variables held at their means. The white bars in Figure 1 show estimates for agencies that always or usually promote from within (*vertical agencies*); the shaded bars show estimates for agencies that sometimes, usually, or always hire from outside (*diagonal agencies*). These results affirm the first hypothesis for both professions:

H1: Agencies that hire executives from outside are likely to have more professional policy innovations in place than are agencies that promote administrators from within.

FIGURE 1 Estimated Likelihood of Agency Adoption of All Three Professional Policy Innovations



Estimates calculated with other variables evaluated at their means. See Table 1 for policies used in dependent variable; see Table 2 for model coefficients and standard errors. *Vertical* means agencies that always or usually promote a department head from within; *diagonal* means agencies that always, usually, or sometimes hire a department head from outside the agency.

Community and institutional characteristics. A few noteworthy relationships between community characteristics, institutional variables, and administrators’ policy plans emerge from these models. The likelihood of innovation increases with agency size in both professions, with substantively and statistically significant effects. These effects likely reflect the divergent needs of smaller and larger organizations. Smaller police agencies that make fewer arrests and investigate fewer serious crimes are less likely than large agencies to participate in XML-based databases, for example. Likewise, smaller water utilities are less likely to need counterterrorism security.

The relationships between institutional form and adoption of professionally sanctioned policies are inconsistent. Full-time elected officials have no appreciable effect on innovation in police agencies, but a strong negative effect in water utilities. Council-manager form of government is negatively correlated with adoption of policy innovations for both police departments and water utilities, with strong substantive and statistical effects for water utilities.

The Supply Side: Career Path and Policy Innovation

Hypothesis H2 deals with individual bureaucrats’ decisions to initiate innovations, and so the unit of analysis is an individual agency head. If career mobility

strengthens adherence to professional norms, bureaucrats who advance diagonally to their positions would be expected to initiate more professional innovations than those who were promoted from within.

The dependent variable for this analysis is the number of professional innovations that individual bureaucrats *actually initiated or plan to introduce*. Referring again to the three indicator policies discussed above (Table 1), respondents were asked if each of the policies was in place in their agencies. If the policies were in place, respondents were asked if each policy was initiated under their own administration, or during the administration of a prior executive. If the policies were not in place, respondents were asked if they planned to introduce the policy in the future. A variable was calculated for each respondent, *policies initiated*, capturing the number of innovations that the bureaucrat initiated or planned for, if the policies were not in place at the time she took her current position. In other words, the innovations must have been initiated or planned by the respondent, not by a predecessor, in order to be counted under the variable *policies initiated*. This measurement offers direct purchase on policy entrepreneurship, as it captures specific bureaucratic behavior on specific policy decisions. The measurement of *policies initiated* is adjusted to account for policies initiated by a predecessor. Mathematically, *policies initiated* is

$$\frac{(\text{Professional innovations initiated or planned for})}{(3 - \text{professional innovations initiated by predecessor})}$$

With three professional innovations for each profession, *policies initiated* may take on five possible values: .00, .33, .50, .67, or 1.00.⁶

Career path is measured as the dummy variable *diagonal advancement*, with a value of one if the respondent arrived at her current position from a management job in another government, and a value of zero if she was promoted to her current position from within the government in which she currently works. In other words, the respondent is coded as having advanced diagonally only if she was hired for her current agency head job from outside, not if she was hired from outside for a lower-level position in her current government.⁷ This measure of career path helps ensure that the respondent's reputation as

⁶For two water utility managers the denominator was zero because the respondent's predecessor had already initiated all three of the innovations; those two cases are excluded from the supply-side analysis here. None of the sampled police chiefs produced a zero denominator.

⁷Analyses of respondents' length of tenure in their current jobs and at their current agencies showed no effect on the initiation of professional policy innovations.

an administrator in a prior government was part of the hiring decision.

As with the analysis of hypothesis H1, the dependent variable in this case is ordinal. So again I use ordered logistic regression models to estimate the likelihood of a bureaucrat initiating or planning professional innovations.⁸ Table 3 shows the coefficients and standard errors generated by these models for chiefs of police (Model P1) and water utility managers (Model W1). In order to illustrate these models' results more intuitively, Table 4 reports estimated likelihoods of different *policies initiated* outcomes with other variables held at their means. With all other variables at their means, the expected value of *policies initiated* for police chiefs hired from outside is .48 versus .29 for those promoted from within; for water utility managers the *policies initiated* values are .87 for diagonal climbers and .73 for vertical climbers. In more substantive terms, these models predict that in both professions, with all other variables held at their means, agency heads hired from outside are about twice as likely as those promoted from within to have initiated all of the professional innovations evaluated here (.20 diagonal vs. .09 vertical for police chiefs; .68 diagonal vs. .38 vertical for water utility managers). As the second hypothesis predicts,

H2: in both police departments and water utilities, diagonal climbers are much more likely than vertical climbers to initiate professional policy innovations in their governments.⁹

⁸Brant tests of the models presented in Table 3 suggest that several of these models violate the proportional odds/parallel regression assumption of the ordered logistic model. The violation is probably due to an unusual characteristic of the dependent variable; namely, that it is a combination of unrelated and independent policy innovations initiated or planned by the respondent. Though it can take on only five possible values, the dependent variable is really quasi-continuous, since the phenomenon of interest is "how much professional innovation" a bureaucrat brings to his agency. In order to ensure that violations of the proportional odds assumption did not distort these models in ways that bear on the hypotheses, I developed OLS regression models and continuation ratio models in parallel with the models presented in Table 3. These alternative models yielded results that were substantively consistent with the ordered logistic models shown in the tables. Logistic regressions for each of the six innovations underlying the dependent variables in Table 3 also yielded substantively consistent results. In sum, the violation of the proportional odds assumption should not misestimate these models' parameters in ways that bear on the hypotheses investigated here. The ordered logistic models are retained in the article in order to maintain consistent presentation.

⁹The results reported for police chiefs in Table 3 are from direct analyses of data. The numbers of cases in these models are reduced because a handful of cases are missing data for retirement plans, which depresses the models' log likelihood and likelihood ratio X^2 values somewhat. Imputing values for the missing retirement

TABLE 3 The Supply Side: Agency Head Initiation of Professional Policy Innovations

Variable	Professional Policy Innovations Initiated by Respondent Coefficient (Standard Error)					
	Police Chiefs			Water Utility Managers		
	Model P1	Model P2	Model P3	Model W1	Model W2	Model W3
Diagonal advancement	.99** (.51)		.97* (.54)	1.25** (.53)		1.11** (.57)
Retirement plans	-.39 (.52)		-.27 (.54)	-.58 (.60)		-.56 (.61)
Professional involvement		.23** (.11)	.14 (.12)		.27** (.13)	.20 (.14)
Education		-.12 (.13)	-.15 (.14)		.02 (.13)	-.04 (.14)
Married	-.45 (.87)	-.67 (.77)	-.55 (.89)	1.13 (.89)	1.08 (.83)	1.07 (.88)
Children	-.47 (.53)	-.61 (.46)	-.42 (.53)	-.39 (.66)	.20 (.56)	-.33 (.66)
Log agency size	.33** (.16)	.40** (.17)	.43** (.20)	.60*** (.23)	.49** (.23)	.62*** (.25)
Cut point one	.47 (.99)	-.56 (2.03)	-.88 (2.09)	3.72 (2.08)	4.10 (2.41)	4.06 (2.51)
Cut point two	1.08 (.99)	.09 (2.03)	-.26 (2.09)	3.97 (2.07)	4.35 (2.40)	4.32 (2.50)
Cut point three	2.09 (1.02)	1.03 (2.03)	.79 (2.09)	4.67 (2.06)	5.09 (2.40)	5.05 (2.50)
Cut point four	2.89 (1.06)	1.86 (2.04)	1.60 (2.09)	6.76 (2.17)	7.12 (2.49)	7.20 (2.61)
Log likelihood	-95.5	-101.6	-94.4	-65.6	-67.1	-64.5
Likelihood ratio X^2	11.9	13.7	14.2	17.3	14.3	19.4
$p > X^2$.036	.018	.048	.004	.014	.007
N	67	71	67	68	68	68

See Table 1 for policies used in dependent variable. *Diagonal advancement* means that the respondent arrived at his or her current position from a management position outside his or her current organization.

Personal trade-offs. Controls for marital status and parenting reveal little evidence that these personal considerations affect bureaucrats' initiation of professional innovations. As expected, married police chiefs and those with children under 18 years old are less likely to initiate innovations in all of the models, but standard errors indicate that this result is statistically dubious. Meanwhile, married water utility managers appear *more* likely than

plan data greatly improves these fit values, while barely changing the coefficients and standard errors. With imputed data, Table 3's Model P1 log likelihood = -101.0, likelihood ratio X^2 = 14.8, N = 71; Model P3 log likelihood = -99.4, likelihood ratio X^2 = 17.9, N = 71.

their unmarried peers to initiate innovations, though these results also offer little statistical confidence. Parenting responsibility essentially has no effect on initiation of innovations for water utility managers. The models indicate that plans to retire within five years reduce the likelihood that bureaucrats initiate innovations, but also offer little statistical confidence in that finding.

Professional socialization. A pair of similar ordered logistic models that included aggregate measures of involvement in professional societies was used to test hypothesis A1. These alternative specifications are included in Table 3 as Models P2 and P3 for police chiefs

TABLE 4 Estimated Likelihoods of Bureaucrat Initiating Professional Policy Innovations

<i>Ordered Logistic Regression</i>	Est. Likelihood of Respondent Initiating Professional Policy Innovations			
	Police Chiefs (Model P1)		Water Utility Managers (Model W1)	
Professional Policy Innovations Initiated in Current Agency	Vertical Climbers	Diagonal Climbers	Vertical Climbers	Diagonal Climbers
None (0.00)	.49	.26	.07	.02
One of three (0.33)	.15	.13	.02	.01
One of two (0.50)	.19	.25	.08	.03
Two of three (0.67)	.09	.16	.45	.26
One of One, Two of Two, or Three of three (1.00)	.09	.20	.38	.68
Expected value	.29	.48	.73	.87

All other variables evaluated at their means. See Table 1 for policies used in dependent variable. See Table 3 for coefficients and standard errors. Columns may total to slightly more or less than 1.00 due to rounding.

and Models W2 and W3 for water utility managers. Professional involvement is measured with an index that includes the following indicators:

- The number of professional society memberships that the administrator holds;
- Whether the administrator serves on any committees of the professional society;
- The number of professional conferences attended in the past year;
- Frequency and depth of reading of professional journals; and
- Whether the administrator consulted with professional peers when addressing a policy issue in the past 12 months.

These components are summarized in Appendix B. The indicators are compiled into a 10-point scale of professional involvement (Cronbach’s $\alpha = 0.874$).¹⁰ This approach is indirect, since it uses a behavioral metric (professional involvement) to capture a sociopsychological phenomenon (professional identity). It seems reasonable, however, to assume that those who identify strongly as professionals are active in professional societies, and that such activity reinforces professional identity; certainly that assumption underlies theories of bureau-

cratic behavior resting on professional socialization. Administrators’ level of education also is included in these models.

When analyzed in Models P2 and W2 without *career path* and *retirement plans*, *professional involvement* is a significant predictor of bureaucrats initiating professional innovations in both professions (Table 3). The likelihood of administrators initiating innovations in their agencies increases as their professional involvement increases. With all variables evaluated at their means, a 1-point increase in the 10-point professionalism scale increases the likelihood that an agency head initiates all of the innovations evaluated here from .15 to .18 for police chiefs and from .54 to .61 for water utility managers. This result affirms hypothesis A1 and is consistent with professional socialization as a driver of administrators’ behavior.

But professional involvement and level of education have much less effect on administrators’ initiation of innovations when included in a model with *career path*, as in Models P3 and W3. Coefficients and standard errors for *career path* and *retirement plans* in both professions remain essentially unchanged from their corresponding values in Models P1 and W1. Meanwhile, for both professions the effects of *professional involvement* are markedly weaker in Models P3 and W3 than in Models P2 and W2. Inclusion of professional involvement and education also does not substantially improve the explanatory power of the models. These results cast doubt on the professional socialization hypothesis A1 and suggest that professional involvement is tied to job mobility in an important way.¹¹

¹⁰The professional involvement index for bureaucrat *i* is the average of the following: *i*’s professional memberships relative to the highest number reported in the sample; 1 if *i* is a member of a professional committee, 0 if *i* is not; the number of conferences *i* attended over the past 12 months divided by the highest number reported in the sample; reported reading of professional journals on a scale of 1–5, normalized from 0 to 1; and 1 if *i* consulted a professional peer in another agency regarding a policy issue in the past year, 0 if *i* did not. The result is a decimal value between zero and one, which is multiplied by 10 to produce a 0–10 scale.

¹¹The effect of professional involvement for administrators who are promoted from within might be different from the effect for

Discussion

These analyses demonstrate both the demand and supply sides of the policy entrepreneur model. The diffusion of policy innovations is strongly and positively associated with job mobility in the professional public administration labor market, whether analyzed from the demand side (H1) or the supply side (H2). The magnitude of the effect of job mobility is striking by its similarity across two dissimilar administrative professions. These results affirm Carlson's (1961) finding that governments hiring agency heads from outside are explicitly deciding to "buy" professional innovation on the labor market. In turn, diagonally mobile administrators build professional reputations and "sell" innovation to their government-clients. When an agency head arrives from outside the government she serves, she carries a mandate (demand) and reputation (supply) for innovation.

Professional involvement predicts bureaucratic policy entrepreneurship in these analyses, but its effect dissipates when job mobility is included in the same models. This result indicates that professions matter in predicting bureaucratic political behavior, though perhaps principally as market mechanisms, not as socializing forces. Professions are suppliers of innovation to governments, and they offer both incentives and resources for bureaucratic policy entrepreneurs.

The negative effects of council-manager structure on adoption of professional innovations are consistent with somewhat surprising earlier findings that council-manager structures reduce the likelihood of adoption of specialized policies (Feiock, Jeong, and Kim 2003; Feiock and West 1993). The present analysis focuses on department heads rather than city managers, indicating that city managers make it more difficult for entrepreneurial department heads to pursue the kinds of specialized innovations that their professions favor. City managers may act as barriers between department heads and elected officials, raising the cost of innovation for the would-be policy entrepreneur sitting atop a department.

Important questions about bureaucratic career mobility and the diffusion of policy innovations remain outstanding. This study has demonstrated a link between public administration career paths and the diffusion of policy innovations in municipal police departments and water utilities. Similar studies could show whether the same patterns hold for other professions (e.g., social work, public health, or firefighting). The cross-sectional data used in this article limit the analysis to the policies that

administrators hired from outside. Models that included professional involvement-career path interactions proved inconclusive due to the relatively small sample size.

were professionally fashionable at the time of the survey and to bureaucratic political behavior proximate to the time of the survey. The limitations of cross-sectional research design on studies of policy diffusion are well understood (Berry and Berry 1990); a study of administrative careers over time would further enhance our understanding of bureaucratic politics and policy diffusion. This article's use of cross-section data avoids some common pitfalls because the data used to analyze hypotheses H2 and A1 are behavioral and refer to specific decisions. Nonetheless, an analysis that traced administrators' career paths over time, as well as their policy initiatives in each of their posts, would provide more direct evidence on the role of job mobility in bureaucratic politics and policy diffusion. Finally, the link between bureaucratic mobility and policy innovation provides just one illustration of the policy entrepreneur model's supply side. Similar studies of individual behavior could illuminate the supply side of entrepreneurship among legislators, lobbyists, citizen activists, and other actors in the policy arena whose career paths might provide incentives for entrepreneurship (see, for example, Wawro 2000).

Conclusion. The *policy entrepreneur* is an intuitively appealing construct, for it fits well much of the individual behavior that students of the policy process observe. Excellent studies of policy entrepreneurs have shown how entrepreneurs recognize demand for a policy innovation, and then expend resources to drive important policy changes across a variety of domains. But the usefulness of "policy entrepreneurship" as a theory of the diffusion of innovations has been limited because research on the supply side of the model has not been as thorough as on its demand side. This study illustrates the demand side of the model, but also contributes to scholarship on the supply side, at least for one class of entrepreneurs. Identifying entrepreneurial suppliers of innovation is meant to complement, not replace, demand-driven accounts of policy entrepreneurship.

Policies diffuse from professions to governments where a government's demand for innovation prompts it to hire a supplier of innovation from a specialized profession. Career mobility thus affects the probability that administrators will emerge as policy entrepreneurs in different governments and also shapes the character of the policies that entrepreneurial administrators pursue. Schneider, Teske, and Mintrom (1995, 165–67) hint at such a dynamic in their study of bureaucratic policy entrepreneurs. Unlike many other markets, public administration career paths are not organic phenomena, but rather are constructed by government organizations and/or professional societies. By accident or by design, governments create and define public administration careers. Through government agency hiring and

promotional policies, it is possible to affect the diffusion of innovations from professions to governments, and so to affect the character of the policies that emerge from agencies.

But when a government hires a professional agency head from outside in pursuit of innovation, it also adopts a policy agenda set to a great degree by a profession, and so surrenders a measure of control over policymaking to that profession. In an essay arguing for professionalism in law enforcement careers, Gordon Misner writes that

[A] measure of professionalism is the degree to which the individual is mobile, is free to practice his chosen field unrestricted by geographical or political considerations. . . If a person entering the police field could be assured that there was a wide field of career opportunities, he could dedicate himself to the development of his greatest potential. He could feel confident that he would be restricted only by the limitation of his

own abilities, not by arbitrary considerations. . . . (1963, 539)

In “political considerations” and “arbitrary considerations,” Misner refers to pressure from elected officials and the community to conform to their priorities, not those of the profession. Misner highlights the connection between job mobility and professionalism, implying that professionalism comes at the expense of responsiveness to local preferences. A demand for innovation and subsequent hiring of a mobile professional may encourage bureaucratic policy entrepreneurship. As this study has shown, mobile bureaucrats are something like professional policy pollinators, bringing innovative policies to each stop on their diagonal career paths. But as James Q. Wilson has observed, “Innovation is not inevitably good; there are at least as many bad changes as good” (1989, 227). The innovative policies that entrepreneurial bureaucrats introduce are likely to be those lauded by their professions, not necessarily those favored by their elected officials. *Caveat emptor*.

Appendix A: Descriptive Statistics

Dummy Variables		Unweighted Counts, Percentages							
		Police				Water			
Variable	Description	1	Pct	0	Pct	1	Pct	0	Pct
Vertical hiring	Agency head selection practice: 1 = always or usually promoted from within; 0 = always, usually, or sometimes hired from outside.	36	48.0	39	52.0	24	35.8	43	64.2
Diagonal career path	How respondent arrived at current agency head job: 1 = hired from outside, 0 = promoted from within.	42	56.0	33	44.0	42	60.0	28	40.0
Retirement plans	1 if respondent plans to retire within five years; 0 if respondent does not plan to retire within five years.	23	32.4	48	67.6	27	38.6	43	61.4
Full-time elected officials	1 if elected officials in respondent’s local government serve full-time; 0 if elected officials serve part-time.	18	22.2	63	78.8	15	21.4	55	78.6
City manager	1 if respondent’s local government employs a council-manager form of government; 0 if no city manager.	50	61.7	31	38.3	42	60.0	28	40.0
Marital status	1 if married; 0 if unmarried.	70	88.6	9	11.4	64	91.4	6	8.6
Children	1 if respondent has minor children; 0 if no minor children.	33	42.3	45	57.7	21	30.0	49	70.0

Continuous Variables		Police			Water		
Variable	Description	N	Mean	St.Dev.	N	Mean	St.Dev.
Agency size	Size of respondent’s current agency: full-time sworn officers for police departments, customer connections for water utilities.	81	153	270.1	70	24,111	32,531
Log agency size	Size of respondent’s current agency, in a natural logarithmic transformation.	81	3.9	1.6	70	9.3	1.3

Appendix B: Measures of Professional Involvement

Unweighted Counts and Parameters	Chiefs of Police	Water Utility Managers
Professional society memberships		
Mean	5.32	4.72
St. Dev.	2.21	1.86
Service on professional society committees or offices		
Percent serving	48.6	50.8
Professional conferences attended, past 12 months		
Mean	6.40	5.75
St. Dev.	3.52	3.09
Reading of professional journals		
Read all cover-to-cover	0	3
Read some articles in every issue	45	32
Skim every issue	22	24
Rarely read	5	7
Never read	0	0
Consulted peer(s) in other agency on policy issue?		
Percent consulting peer(s)	76.4	60.0
Aggregate index of professional involvement		
Mean	6.05	5.14
St. Dev.	2.06	2.09
N	72	66

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