

**MODELING OPERATIONAL
DECISION MAKING IN
PUBLIC ORGANIZATIONS**
An Integration of Two Institutional Theories

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Institutional theories, which explain how rules, norms, and shared strategies shape human behavior, have been used to examine why public and private organizations look different structurally, why actors decide to coordinate the provision of goods and services, or how characteristics of a political system shape public management strategies. Many institutional scholars have recognized the importance of developing accurate institutional theories and models to explain policy and management decision making, yet the authors find that few scholars have attempted to bridge institutional theories coming from the political science and organization theory disciplines. In this article, they present a model of operational decision making in public organizations that integrates concepts from these two institutional schools of thought. The authors then apply this model to two distinct cases—one in the field of water resource management and the other in the field of mental health provision—to demonstrate the usefulness of this integrated approach to institutional analysis.

Keywords: institutions; decision making; public management; water resources; health care

Institutional theories from sociology, political science, and economics are used to explain many aspects of public policy and management. Institutional theories address topics such as why public and private organizations look different structurally, why actors decide to coordinate the provision of goods and services, or how characteristics of a political system shape public management strategies. The importance of developing accurate institutional theories and models is becoming an increasingly common theme in the public policy and organization theory literatures.

Various scholars have compared and contrasted the different approaches to institutional theory, typically distinguishing the "rational choice" institutionalism coming out of political science and economics from the branch of institutionalism coming out of sociology (see DiMaggio & Powell, 1991; Hall & Taylor, 1996; Peters, 1999; Ross, 1995). A common distinction made among the different institutional literatures is that sociologists emphasize how socially accepted norms and standardized practices shape behavior, whereas rational choice institutionalists in political science and economics emphasize how rules and structures,

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based on individual preferences, limit or authorize certain actions (Hall & Taylor, 1996; Koelble, 1995). Thus, the rational choice literature focuses on institutions as incentive structures that shape individual choices, whereas the sociological perspective explains how unconscious cognitive processes guide behavior, which may work contrary to formal incentive structures.¹

Some authors have viewed these contending institutional theories as incompatible. However, more recent scholarship has discarded this extreme view, finding that some of the seemingly disparate streams of institutional theory can complement each other. As Peters (1999) notes:

There may well be a need in many instances to blend together several of the versions of the new institutionalism if researchers want a more complete perspective on the structural characteristics of the political system and the influence of structure on public policies and the conduct of government, (p. 2)

Hall and Taylor (1996) echo Peters in summarizing the distinct forms of "new institutionalism," stating: "We favour taking this interchange as far as possible, most fundamentally because each of these literatures seems to reveal different and genuine dimensions of human behavior and of the effects institutions can have on behavior" (p. 955).

Despite this call for synthesis, we find few explicit attempts to integrate points of convergence among the different institutional disciplines. In this article we develop a model that describes the effects of institutions on operational-level choices in public organizations drawing on complementary theoretical insights from political science and sociological notions of institutions. To emphasize how the two literatures can be integrated in the same model, we focus our literature discussion primarily on the institutional analysis and development (IAD) framework, largely based on rational choice theories in political science and economics, and on an institutional research program coming out of organization theory and sociology known as new institutional theory (NIT).

The second half of this article compares case studies from two distinct policy areas—mental health care and water resource management—to offer empirical support for the model. The data from these two case studies came from two separate grant-funded studies conducted at the University of Arizona between 1998 and 2000. The mental health care example focuses on how a network of health and human service providers became cooperative partners in developing their network and service niches to provide an adequate continuum of care to their clients. The water example focuses on the pressures faced by water providers to adopt new water management techniques in the face of various rule and regulation changes over a decade. Using the case studies, we examine how the model and the integration of the two literatures help explain more fully the various institutional factors that have led to different outcomes across the organizations under study.

THEORETICAL OVERVIEW

The purpose of integrating two seemingly disparate institutional literatures into the model we propose is not to explain *why* actors in public organizations make new choices but *how* they come to make new choices and how other actors accept and conform to these choices in a collective setting. In explaining this process, the model presented in the following section emphasizes the relationship between exogenous and endogenous institutional factors in the

decision-making process, as well as the manner in which choice incentives and normative pressures lead to collective conformance with decisions. Here we provide a brief overview of the theories that contribute to the model's development, emphasizing the differences and points of overlap in the two literatures.

On a very basic level, the institutional literature coming from the rational choice tradition and the institutional literature coming from the sociological tradition both emphasize that institutions are causal in decision making, and that decision making cannot be explained accurately without considering institutional contexts. The IAD and NIT literatures, which we use for comparison in this article, generally share the common view of institutions that has crossed political science, sociology, and economics: Institutions are the mechanisms that guide behavior when selecting among alternative choices of action. These mechanisms may include rules, norms, strategies, and heuristics. The main difference across the two literatures examined here is that one views institutions largely from an exogenous perspective, whereas the other views institutions as factors that are endogenous to actors.

The IAD framework draws upon rational choice theories to identify general relationships among institutional, situational, and environmental variables in explaining collective choice situations (Ostrom, 1999; Ostrom, Gardner, & Walker, 1994). Collective choice outcomes differ depending on how these categories of variables shape the incentives and choices available to actors. In this framework, institutions focus on "rules in use," which are derived from shared understandings among a group of actors about what actions are allowed, required, or restricted (Crawford & Ostrom, 1995; Ostrom, 1999). Thus, the emphasis of the IAD literature is on how exogenous categories of variables, those external to the decision maker, affect collective outcomes. Despite its primary focus on exogenous factors, the IAD literature does identify preferences and cognitive abilities as critical components of actors' responses to institutional influences (Ostrom et al., 1994). In understanding decision making, the emphasis of this rational choice-based framework is how rules create incentives for individuals, given their preferences and cognitive abilities, and how such incentives shape collective outcomes.

The IAD has been used to evaluate empirically how institutions shape various policy and management situations. The research within this framework has led to theories that posit specific relationships among institutional variables and collective outcomes in a particular choice situation (Ostrom, 1999, 2000). For instance, IAD research offers explanations of how different interorganizational relationships are related to performance among metropolitan service providers (Oakerson, 1999) as well as what types of institutional arrangements are most likely to be successful for managing natural resources and what types of communities or physical resources are most amenable to devising successful institutional arrangements (Blomquist, 1992; Ostrom et al., 1994; Schlager, 1990). Thus, the empirical research emphasizes the role of formal, rule-based institutions and their effects on outcomes among actors in public organizations or collective groups.

The NIT from sociology and organization theory, by contrast, predominantly focuses on influences endogenous or internal to decision makers. The NIT literature describes institutions as taken-for-granted actions that are reinforced subconsciously by rewards and sanctions (DiMaggio & Powell, 1983; Meyer & Rowan, 1983; Zucker, 1991). The taken-for-granted nature of norms reflects realistic human behavior but emphasizes hidden motivations for acting. Acknowledgement of normative and heuristic influences can shed light on decision outcomes that may not account for the exogenous incentive structures imposed on the actor.

Institutions, in the organizational theory sense, are created through environmental pressures to conform to socially accepted practices or standards. The NIT/sociology literature examines how institutions influence the ways in which an organization structures and adjusts practices in order to retain viability among its peers (Meyer & Rowan, 1983). Much of this literature describes how institutions create coercive, mimetic, or normative "isomorphic" pressures on organizations (DiMaggio & Powell, 1983).² Responding to these institutional pressures, according to the NIT, ultimately provides a way for organizations to attain legitimacy as a status tool (Suchman, 1995). The NIT literature thus recognizes that an institution "produces expectations about the properties, orientations, and behavior of individuals, as constraining 'others' in the social environment" (Jepperson, 1991, p. 151). However, Zucker (1991) notes that the institutionalization logic is somewhat circular in that it is

the process by which individual actors transmit what is socially defined as real, and at the same time, at any point in the process the meaning of the act can be defined as a more or less a taken-for-granted part of this social reality, (p. 85)

From an empirical standpoint, the NIT has been particularly powerful in helping scholars to understand how institutions shape choices by organizations that do not conform to efficiency maximizing choice outcomes and for explaining the role of institutions among organizations with indeterminate technologies (i.e., those organizations within which their products have unknown transformation and production functions such as mental health treatment; Hall, 2002; Scott, 2001). Recent scholarship has particularly focused on the institutional impetus for collaborative relationships among organizations (e.g., Human & Provan, 2000; Powell, Koput, & Smith-Doerr, 1996) and for the diffusion of practices across organizations or professional subfields (Greenwood, Suddaby, & Hinings, 2002; Scott, 2001).

Neither of the literatures alone provides an adequate framework for developing the model of institutional choice we propose. For instance, the NIT's presentation of institutional development as a legitimacy-seeking process lacks an explanation of the decision-making processes and the variables involved in these processes that lead individuals in a group to consider such institutions as "legitimate" (Suchman, 1995). The IAD literature offers a much clearer explanation of the combination of external factors and variables that affect institutional choices (Ostrom et al., 1994). This literature suggests that institutional choices are clearly *calculated*—individuals choose certain actions that can resolve collective problems when the benefits undoubtedly outweigh the costs. Although the literature recognizes that exogenous factors such as informational constraints, heterogeneous actors, and large groups can make such decisions difficult, it is less lucid in explaining how endogenous institutional conditions that affect individual decision makers can inhibit change or lead to less-than-efficient outcomes. What the sociological perspective contributes is an understanding of how institutions influence individuals when they process information through subconscious norms and heuristics defined by their communities or organizations. Norms and heuristics influence the potential set of collective action options that individuals perceive as viable for resolving shared problems through attaching social valence to possible choices. Thus, the NIT literature offers insights on the way in which individuals adhere to norms and seek social legitimacy that can enhance rational choice-based institutional theories.

The potential for bridging the complementary insights from these two institutional literatures comes not only from their shared emphasis on the role of institutions as guides for assessing different choices. Both bodies of literature also overlap in recognizing that humans are "boundedly" rational in decision making. The idea of bounded rationality comes most

notably from work by Simon (1945) and Cyert and March (1963).³ Bounded rationality acknowledges that humans have limited cognitive abilities and information-processing skills, yet are goal oriented. In other words, individuals engage in purposeful or rational behavior, but they often make decisions based on shortcuts or heuristics because they are cognitively limited;⁴ and over time, actors learn that these shortcuts allow them to attain a best approximation of their desired goal with less effort. To logically bridge concepts from these two literatures into a common model, it is important to acknowledge this point of overlap, particularly given that rationality is typically a contentious point among authors who have compared institutional theories (Hall & Taylor, 1996; Koelble, 1995).

IAD studies clearly acknowledge that individuals act purposefully to achieve desired goals, but they are bounded or limited in their information-processing capabilities and preferences (Ostrom et al., 1994, p. 321). Thus, decision makers may be unable to fully decipher what choices are optimal in a given situation or may be uncertain about what which outcomes they prefer. Given these limitations, Ostrom (1998) has explained how individuals often use informal institutions, such as heuristics, in decision making:

In field situations individuals tend to use heuristics—rules of thumb—that they have learned overtime regarding responses that tend to give them good outcomes in particular kinds of situations. . . . In frequently encountered, repetitive situations, individuals learn better and better heuristics that are tailored to particular situations, (p. 9)

The role of bounded rationality is also present in the sociological NIT perspective. Here, purposeful behavior toward stability or legitimacy is valuable and rational, in the sense that it is goal oriented. However, in relying on institutional norms and standards (such as Ostrom's heuristics) to achieve legitimacy or stability, actors may in fact produce outcomes that do not appear to be fully rational. For instance, DiMaggio and Powell (1983) note that "highly structured organizational fields provide a context in which individual efforts to deal rationally with uncertainty and constraint often lead, in the aggregate, to homogeneity in structure, culture, and output" (p. 147).

The shared recognition of the role of institutions and the assumptions about individual rationality provide common ground from which to build a model of institutional decision making in public organizations that captures both the endogenous dynamics of the sociological perspective and the exogenous constraints of the rational choice perspective. In the following discussion of the model and empirical case studies, we show that integrating theoretical insights from the IAD and NIT literatures provides a more comprehensive explanation of the decision-making process in public organizations than either body of literature offers on its own.

AN INTEGRATED INSTITUTIONAL MODEL OF DECISION MAKING

The model commences with an institutional choice situation where actors are faced with a new policy or management problem that affects day-to-day operational choices (see Figure 1). A new choice situation may be spurred by a change in the rules governing the system or by other exogenous shocks to the status quo. An unlimited number of factors may precipitate this new choice situation. When a group of actors faces a new problem, this model supports the notion that key decision makers or institutional "entrepreneurs" (see Blomquist, 1992)

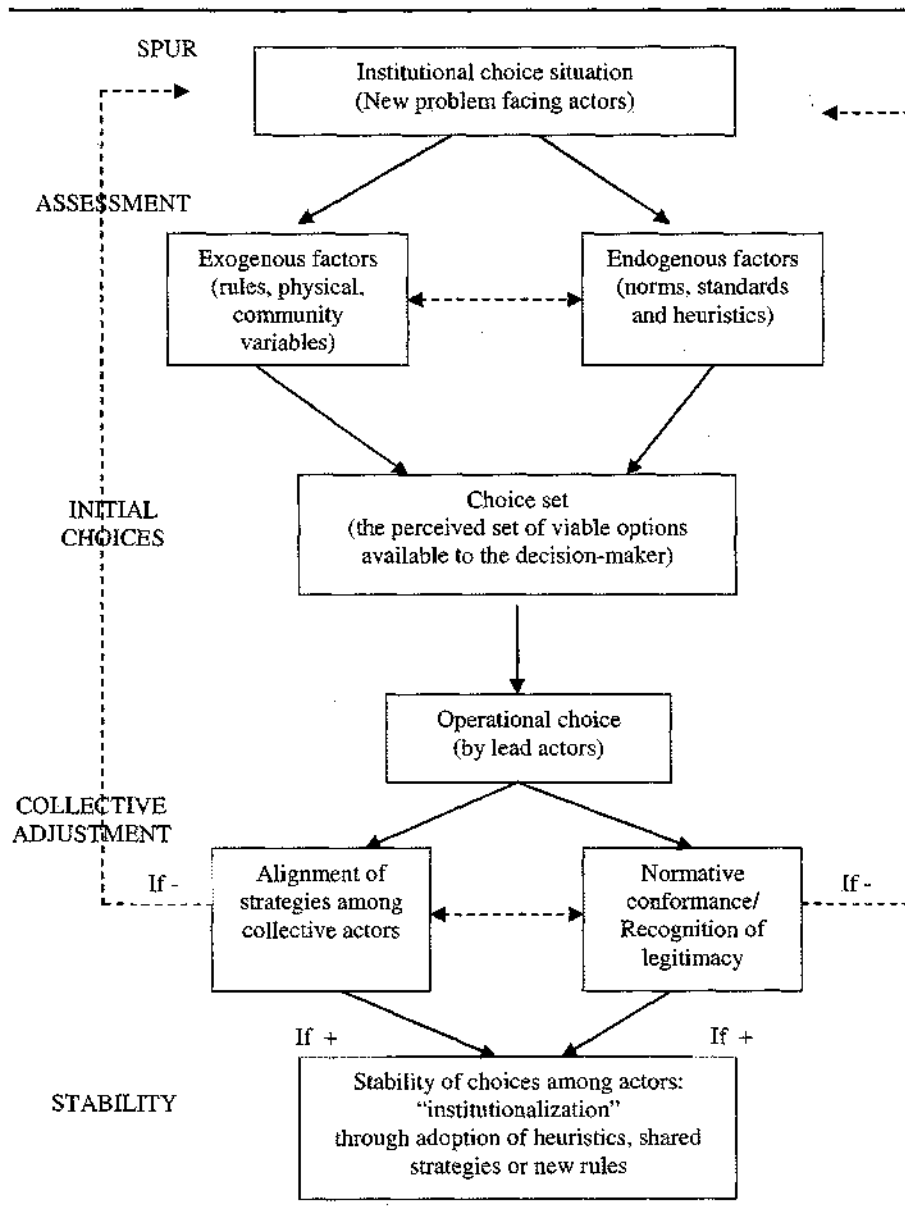


Figure 1: Institutional Model of Operational-Level Decision Making

are likely to initiate choices. This choice opportunity is called the SPUR phase because it prompts institutional entrepreneurs to initiate assessment of options and the commencement of the choice mechanism. It is important to note that actors in this model can be individuals, collectivities, or organizations.

When faced with an institutional choice situation, actors must choose to retain the status quo or to make new operational choices. To make this decision, actors take into account both exogenous and endogenous factors, represented in the ASSESSMENT phase of the model. The information actors have about the world and their preferences are bounded or limited, however, and thus, they may not be able to fully integrate the exogenous factors shaping choices into their assessment. However, the interaction with endogenous institutional variables will supplement or complement the decision-making calculus for a boundedly rational actor.

The exogenous factors in the model are those elements that are concerned with the decision situation such as rules, laws, physical environment, and community variables, which are explicitly laid out in the IAD framework. The factors of the physical environment might include the nature of a good or service, whether public or private, about which a decision is being made, whereas community attributes can involve factors such as the homogeneity of actors who are affected by a decision or the resources available to actors in that community (Ostrom et al., 1994). The framework of institutional choice from this perspective, building on the rational choice tradition, "predicts that individuals will select strategies whose expected benefits will exceed expected costs" (Ostrom, 1990, p. 193). External rules and community and physical variables shape actors' perceived benefits and costs. Although norms come into play in shaping choices and strategies under the IAD framework, they do so as attributes of the external community that an individual actor might consider in calculating decisions. To capture those endogenous factors that influence the assessment phase of operational decision making, we therefore turn to the sociological literature.

The endogenous factors of the assessment phase are those factors that take place within the decision maker's internal cognitive processes (both conscious and subconscious). Endogenous variables are standards of operation, norms, and heuristics that the institutional actor uses on a day-to-day basis, which this model derives from the sociological literature. The behaviors are embedded in the way society, or an identifiable subgroup of society, operates. Institutions, therefore, are social agreements that behavior should take certain forms through functional necessity or self-interest (Zucker, 1991) and relies on the widespread adherence to the behavior by an entire social class or group who understands and values the behavior. Thus, nonadherence to the norm can reap social sanction.

Both exogenous and endogenous factors are useful in aiding the assessment of viable options to address the institutional choice and the possibility for change. As noted by the dotted line connecting the exogenous and endogenous choice sets in the model, these factors may affect one another. For instance, the internal norms of a decision maker may be inconsistent with an external rule, and therefore a decision maker may ignore the formal rule over the norm when establishing her choice set. Alternatively, the presence of new information on an issue from one's community or new knowledge about the technical nature of an issue may interact with a given heuristic or standard operating procedure, further shaping the assessment process by expanding the choice set. The decision maker's assessment of these variables and the interactions between them leads to a truncated choice set from which boundedly rational actors select or devise acceptable alternatives for action.

Based on the results of the assessment stage, the INITIAL CHOICES phase involves decision makers, whether as individuals or as organizations, choosing which option is best suited to addressing the choice situation or problem at hand. The choice set that actors derive from the assessment stage focuses on the set of options perceived to be viable after being filtered through both normative and rule-based systems or lenses. All decision options that are contrary to prevailing norms or that are not compatible with the external environment (as deciphered by the boundedly rational actor) have been excluded from consideration at this point.

Again, during the assessment process, the interaction of the exogenous and endogenous variables can either reduce or increase the number of options in this choice set. If an organizational or collective decision is being made, some lead decision makers in the group typically initiate the operational choice at this phase. It is at this stage that decision makers make an actual choice with which to address the institutional choice situation.

The institutional choice by decision-makers leads to the COLLECTIVE ADJUSTMENT phase among the other actors in the system. The adjustment entails creating strategies designed to ensure that other actors in the collective group benefit from and, if possible, conform to the institutional choice. Concurrently, actors proceed through a slower adaptation process, based on their normative conformance, that can lead to collective reinforcement of the choice as an appropriate response to the problem situation. Normative change is necessarily slower than the strategy change because norms are more subconscious than overt strategies. In addition to concurrent change, the two adjustment dimensions, strategy and norms, interact with one another to guide the change that is taking place in both areas. It is important to note that norms, because of their subconscious nature, may not change at all, and the adjustment period may be one-sided, with only strategies changing. The amount of normative change will depend directly upon the magnitude of the institutional change and the strength and embeddedness of the norm itself.

Attaining alignment of norms and strategies is crucial to the STABILITY phase in the model. Collective adoption of heuristics, shared operational strategies, or the collective adoption of new rules becomes possible when norms and strategies converge to conform to the choices of key decision makers. The model assumes that new rules or strategies of operation need to be compatible with existing norms and heuristics. Otherwise, compliance with these rules may be lessened due to the tensions between rules and norms. A lack of conformance among the strategic alignment efforts or normative concerns of the actors within the collectivity is likely to prevent stability and lead to new choice situations. The repetition that can occur in this process, however, should push actors eventually to work toward stability of choices, because heuristic-based decision making or conformance with rules is likely to be more efficient over the long run.

The institutional choice model is not necessarily linear. Progress through the model will depend upon the interaction of the institutional actors and the choices that they face. The stages are sequential, but the process may move repeatedly up and down the stages, with multiple stages being addressed at once, until stability is reached. This iterative process further suggests that institutional entrepreneurs can take a role in promoting stability by identifying strategies that may be more congruent with the norms and strategies of others in a choice situation. Finally, once stability is reached, it is not necessarily static. Stability is only achieved for the period between its attainment and the time when another spur occurs.

BENEFITS OF THE MODEL: EVIDENCE FROM THE FIELD

We argue that an institutional model of decision making that accounts for exogenous factors that both influence conscious calculations about the costs and benefits of different decisions or strategies, and the endogenous institutional factors that may limit or enhance the ability of individuals and groups to make certain choices provides a more accurate picture of real-world choices.⁵ From this standpoint, we further argue that such integration of theoretical insights can help explain more fully the process through which a collective group engages

in institutional choice. The process through which actors come to agree, implicitly or explicitly, on a collective choice does not merely involve weighing the costs and benefits of a choice, or just conforming to some system-level isomorphic pressure. In most cases, a collective choice is likely to involve both forces, requiring explicit agreement among a group on a calculated choice and a process of informal social acceptance and legitimacy. Below, we examine the appropriateness of the model more concretely by examining the effects of institutions on public management decisions in two distinct empirical fields: health care management and water management.⁶ These two examples will illustrate the added value of using an integrated theory of institutional processes.

The Case of Mental Health Care in Arizona⁷

In 1995 the State of Arizona awarded the Community Partnership of Southern Arizona (CPSA) a contract to provide behavioral health services to the adult seriously mentally ill (SMI) population in the five most southern counties in Arizona. CPSA's regime, founded on the principles of managed care and cost savings, was prompted by past failures of former regional authorities using a traditional fee-for-service reimbursement system (Provan, Milward, & Isett, 2002). The new regional system sought to find a model of service delivery that was both fiscally and clinically responsible.

CPSA set up a system where networks of providers were responsible for supplying a comprehensive set of services to the SMI population. Four lead providers were chosen to be at-risk financially and must either produce or purchase all categories of services that are relevant for mental health treatment to this population of clients.⁸ The responsibility to offer a comprehensive set of services forced the lead providers to contract with other agencies to supply complementary services they did not produce internally. Because no single agency had a sufficiently broad scope or the available resources to provide an entire range of services, each lead agency created individual networks of service provision.

The context described here for the southern Arizona mental health system corresponds to the SPUR stage of the choice model presented in this article. An exogenous shock to the system through the appointment of a new regional authority, CPSA, was coupled with a change in the rules by which providers were now forced to adhere, namely, moving from a fee-for-service system to one based on managed care principles. These two stimuli established an opportunity for individual agencies either to conform to or reject the new system management. The assumption derived from previous studies of health care networks is that competitive tendencies within managed care (Enthoven, 1995; Pauly & Nicholson, 1999) will create mutually exclusive networks of service provision or fragment existing networks of care (Johnsen et al., 1998). The lead provider networks will self-select into homogeneous groups based on some relevant characteristic (e.g., treatment philosophy, geographic location; Smith-Lovin & McPherson, 1993). These homogeneous networks should remain distinct with regard to total health care services because in highly competitive health care environments, contract and referral patterns among organizations are expected to closely follow one another (Isett, 2001). Distinct networks foster effective relationships because they reduce the amount of "turf battles" (Dill & Rochefort, 1989; Epstein, 1999; Morrissey, Tausig, & Lindsey, 1986; Williamson, 1985) over treatment philosophies and clinical approaches. However, the homogeneity of network members causes the network structure to become fragmented globally (across the entire field of agencies) but heavily integrated within clusters (the self-selected groups). For that reason, we expected to see distinct networks of

providers formed around the lead providers in the CPSA system (Provan, Milward, & Roussin, 1998).

However, the results found in the empirical analysis of this network suggest that during the ASSESSMENT and INITIAL CHOICES stages, providers changed existing operating procedures to conform to the decisions made by the state and the regional authority. Longitudinal empirical analysis did not yield results consistent with the predictions of the existing literature on network structure (see Isett, 2001, or Provan et al., 2002, for an in-depth look at the empirical analysis of this network). Instead, the overall connectivity (integration) in the network increased over a 4-year period. The increase was global (across all members of the field of agencies) without the expected fragmentation caused by the mutually exclusive provider networks.

The NIT literature would suggest that normative pressures played a large role in determining the network structure in southern Arizona. Health care professionals are trained to believe that cooperation and integration among agencies is beneficial to client outcomes (Dill & Rochefort, 1989). Coordination and cooperation are thought to be so beneficial to clients that providers often believe that there are no diminishing returns to these efforts for their clients. This normative conviction of cooperation is the driving force for network structure under CPSA. However, these normative pressures for cooperation have been in place for decades among health and human service providers. This new level of cooperation is especially perplexing with the knowledge that the CPSA system was faced with competitive managed care pressures, when the previous systems were not.

The institutional literature coming out of the rational choice/IAD discipline can offer some insights into why the CPSA system was more cooperative than previous systems in southern Arizona despite its explicitly competitive incentives. The IAD framework, for example, shows that understanding operational-level dynamics is crucial to explaining collective outcomes. As stated above, the managed care/CPSA regime was implemented in southern Arizona out of dissatisfaction with the performance of the previous two regional entities (see Milward, Provan, & Smith, 1994, and Provan & Milward, 1995, for a discussion of the previous southern Arizona systems). The State of Arizona was also considering allowing national for-profit firms to enter the bidding process for the next contract period if local regional authorities continued to perform poorly. The possibility of being driven out of business by a national firm created fear among local providers. National firms have larger economies of scale and could offset losses in Arizona with profits from other sites while still providing low-cost services to the state. These environmental factors created a strong incentive for the local providers to cooperate and to find avenues to provide appropriate levels of care to their clients in the CPSA system.

The environmental factors of change and threatened survival, coupled with the strong normative service ethic of cooperation, created the opportunity in which local agencies had convergence of both incentives and norms by which to alter their behavior to conform to decisions at the regional-system level. However, incentives and norms are sometimes not enough to effect operational changes without the appropriate strategies in place to capitalize on the convergence.

CPSA played an active role in shaping strategies through which COLLECTIVE ADJUSTMENT could occur. In the pre-CPSA regional regimes, providers agreed on the surface to cooperate with one another in the provision of adequate services but acted to maximize their individual benefits instead by lobbying the state directly for funds for themselves (Milward et al., 1994), subverting the collective goals of the community. Individual agencies did not trust other agencies to adhere to their agreements and support the collective goals of the network.

However, when the CPSA managed care system was implemented, new incentives were employed that aligned the goals of the regional entity with providers, building trust among the members of the system. One way that they achieved cooperation was to include a large number of service provider representatives on its board of directors (co-optation). Another way they achieved goal alignment was to invite local providers to buy in to the regional authority by providing financial resources to meet the required state bond reserve for the regional system. So CPSA implemented appropriate strategies to facilitate collective adjustment through both financial and political means. Therefore, service providers had motivation to make the new managed care system work because they had both monetary and time resources sunk into the new regional entity.

Trust, and thus STABILITY of choices, was built when lead actors engaged in strategies that created assurances of the benefits of cooperation to local providers, resulting in increased coordination and integration among the participating agencies. Professional norms to cooperate were an important aspect of making the CPSA system work effectively. The alignment of norms and strategies that took place under CPSA was crucial to the positive outcomes of the system. This structural aspect of the system is not immediately obvious until the structure of the decision situation is explicitly assessed, which involves both endogenous forces and exogenous factors, such as the community and rule-based incentives to which lead actors responded.

The case of mental health care management in Arizona shows that various exogenous incentives helped align the goals of the regional entity with lead providers to institutionalize new operational management choices among mental health providers. These incentives involved changing the political and financial strategies of the regional mental health system. In other words, the external institutional arrangements that affected decisions among the actors in the system were altered to facilitate cooperation within the network. At the same time, this process led actors to become more trusting and develop new internal institutional norms, ultimately leading to more cooperation among actors than under previous systems.

This example provides direct support for the path of institutional choice proposed in Figure 1. The new institutional choice situation developed when the State of Arizona awarded a contract to a new provider for mental health services in southern Arizona. The emergent cooperation among the network involved various iterations of the operational choice stage among actors in the system. The choices of lead providers in the system were shaped by new external incentives, which led to changing norms and eventual institutionalization of new operating procedures for mental health provision.

The Case of Water Management in Arizona⁹

Another empirical example that supports the usefulness of the integrated model of institutional choice comes from a study of "conjunctive" water management programs in Arizona. Conjunctive water management is a relatively new tool that has become increasingly implemented by municipal and agricultural water providers in Arizona since the early 1990s. It involves the coordinated management of ground and surface water supplies through storage of surface water in natural underground basins. Arguably, this method can provide increased water supply reliability at lower costs compared to managing ground and surface water supplies separately (Blomquist, Heikkila, & Schlager, 2001). Yet it can involve significant inter-organizational coordination to acquire surface water resources, develop underground storage sites, deliver water to storage facilities, and recover stored water.

Changes enacted in the Arizona legislature reducing the costs associated with coordinating the management of ground and surface water supplies (Heikkila, 2001) serve as a SPUR to the individual choices made by municipal and agricultural water providers about whether to use conjunctive water management. Prior to the 1980s there was clearly a need for more efficient water management options in Arizona, but conjunctive management was not used. By the early 1980s most of Arizona's native surface water supplies had become overappropriated, and groundwater overdraft had become a serious problem, leading to land subsidence, lower well yields, and water quality degradation (Arizona Department of Water Resources, 1999a, 1999b, 1999c). As one response to these problems, the Arizona legislature passed the 1980 Groundwater Management Act, which quantified groundwater rights in areas of the state with the highest agricultural and urban groundwater demands. The Arizona legislature then passed the Groundwater Storage and Recovery Projects Act in 1986, which established rights to recover surface water that is stored in underground aquifers through conjunctive management.

These new rules creating the spur did not, however, immediately facilitate conjunctive water management practices as the standard operational choices among water providers. Between 1989 and 1992, only six conjunctive management programs operated in Arizona. In 1992, the state began to develop rules requiring developers and municipal water users to demonstrate that they have a 100-year supply of water available. One way to comply with these rules was for water providers to acquire excess surface water from a newly created state-sponsored replenishment district and to store water underground for future use—thus engaging in conjunctive water management. By 1994, 21 conjunctive management projects operated in Arizona. The most recent institutional change in the state of Arizona that has encouraged conjunctive water management efforts was the creation of the Arizona Water Banking Authority in 1996. This state-sponsored special district is authorized to use Arizona's surplus Colorado River water in groundwater recharge projects or to sell Colorado River water at reduced rates to irrigators as an alternative to groundwater pumping. By 1998 the authority was storing water in 12 conjunctive management programs in Arizona.

From a rational choice perspective, these various institutional arrangements would be considered during the ASSESSMENT and INITIAL CHOICES phases of our model to essentially reduce the transaction costs associated with engaging in conjunctive water management by making it easier to acquire surface water supplies and assuring that once supplies are stored underground, entities have the authority to recover those supplies (Blomquist et al., 2001). Although these institutional changes provide the legal assurances that water providers in Arizona can develop conjunctive management projects and thereby reduce their reliance on groundwater and store surface water for future use (Arizona Department of Water Resources, 1999a, 1999b, 1999c; Arizona Water Banking Authority, 2000), they do not *require* municipal and agricultural water providers to engage in conjunctive management. Still, by the late 1990s more than 30 organizations were operating more than 40 conjunctive management projects in Arizona (Heikkila, 2001). Of those organizations participating in conjunctive water management, some are much more active than others. Three organizations have stored nearly 70% of the total water going into conjunctive management projects in the state, yet these organizations often must cooperate with other entities that provide storage facilities for this water (Blomquist et al., 2001; Heikkila, 2001). In fact, in over half of the projects operating in Arizona, multiple organizations are involved in producing conjunctive management programs (Heikkila, 2001). However, not all water providers in Arizona engage in conjunctive water management, nor does conjunctive water management occur outside of the areas where the state has quantified groundwater pumping and assigned rights to water

stored underground. Given the way in which conjunctive management has emerged among water providers in Arizona, it is clearly possible that other factors besides the formal institutional arrangements governing water use facilitate these water management decisions during the assessment phase of decision-making.

In this case, exogenous changes (laws or rules) were not initially coupled with norms that encouraged the use of conjunctive water management. Instead, during the 1980s and early 1990s the institutional inertia among water providers encouraged appropriators to continue managing water supplies as they always had—the new conjunctive water system was not widely practiced in Arizona on passage of the new legislation. Instead, a slow, evolutionary process began to take place to realign norms and standard practices with the new rules.

The NIT literature suggests that system-level pressures to adopt standard practices across water providers can help explain the types of water management decisions made in Arizona. In other words, INITIAL CHOICES of water providers are likely to be influenced by various norms or strategies across the water industry. In fact, the need to change water management practices in the American West has been a prominent issue since the 1970s, particularly due to large population growth in arid states along with diminishing political acceptance of federally funded water diversion projects built in the mid-20th century (Reisner, 1986; Reisner & Bates, 1990). California took the lead in the West in creating flexible water management tools to solve some of their most vexing public policy water issues. California's history of conjunctive water management practices dates back to the 1920s (Blomquist, 1992). The NIT literature implies that once the successes of California's new conjunctive management tools were demonstrated, adoption of this type of management was legitimated, or institutionalized in a collective adjustment period as an appropriate way to manage water supplies. Thus, because California had success in implementing conjunctive water management, it became easier for actors in Arizona to adopt these practices as well. Moreover, once some of the largest water providers in Arizona began to engage in conjunctive water management practices, the use of this method began to increase among smaller water providers.

The NIT literature explains that endogenous institutional forces (e.g., standards of operation) allow certain types of decision making to become legitimized across organizations involved in water resource management. These forces may pressure water providers to pursue conjunctive management if such practices become accepted as standard and thus entrenched across water provision organizations. The IAD literature does recognize that shared patterns of interaction and trust across individuals are part of the community conditions that can facilitate coordination because it reduces transaction costs of collective action. Where the NIT literature differs is that it explains that once mimetic or normative institutions are in place, the conscious calculation of transaction costs may not be relevant to decision making because boundedly rational actors can rely on accepted practices to make decisions. Thus, across organizations in a field such as water provision, decisions to utilize a particular water management technique could also be prompted by interorganizational standards (DiMaggio, 1991).

The Arizona water case provides evidence that the change in external institutional factors combined with a change in normative institutions created a substantial change in behavior among water providers at the operational level. The institutional changes at the legislative level (providing legal assurances to use conjunctive water management in Arizona) were not necessarily the only factors that led to changes at the operational level—as not all water providers engage in conjunctive water management. In fact, in the initial choices stage, only a few lead actors began to engage in conjunctive water management. The STABILITY of these choices across numerous actors, however, depended on both the exogenous institutional

setting and endogenous changes in standard practices across the field. In other words, actors sought to mimic others that are leaders in the field in order to achieve legitimacy during the collective adjustment stage, which then affects the assessment phase of other actors. Such mimicking in the Arizona case could arise both from the practices in neighboring California and the efforts of early adopting large-scale water providers in Arizona.

In summary, the case of water resource management decisions in Arizona follow the model's path in Figure 1, where actors faced anew problem situation and assessed choices based on both the exogenous formal rules of water management and the accepted standard practices adopted by other organizations in the field. Over time, the operational choice to engage in conjunctive water management became more widely accepted and stabilized across a wider number of water providers in the state, demonstrating the importance of the collective adjustment phase of the model of operational choice. Notably, the ASSESSMENT period in this case and the COLLECTIVE ADJUSTMENT stage of the model operated interactively, rather than in a linear fashion. Once the endogenous assessment took place, where the option of conjunctive water management was viable, the recognition of legitimacy and interorganizational conformance also ensued. This highlights the value of the model's recognition of the iterative process that decision makers are likely to follow before stability of new operational choices is reached.

CONCLUSION

In the above empirical examples, we see outcomes in the management of systems where the explicit incentives for these outcomes were not mandated by formal institutions. Instead, cooperation in the delivery of mental health services emerged despite the competitive incentives inherent in a managed care regime, and a new water resource management choice evolved when it was permitted but not required. As noted, neither body of institutional literature discussed earlier provided adequate explanations of the public management choices that ensued in these cases. The model of institutional choices that integrates concepts from both literatures, however, does reflect the decision-making processes examined in these cases.

The institutional model of operational choices we present points to the importance of the role of exogenous and endogenous factors in shaping decision making, as well as the integration of individual choices with conformance of those choices in collective settings. This model, we argue, is beneficial to policy and management scholars because it helps integrate points of overlap in divergent institutional theories, particularly those based on sociological and those based on rational choice explanations of decision making. As previously noted, although scholars recognize the value of integrating different streams of institutionalism, few scholars have explicitly attempted to do so. We therefore use examples of literature from each of these streams to demonstrate how our proposed model helps identify complementary aspects of the theories and address their respective weaknesses in explaining institutional choice.

Using concepts from NIT and the IAD framework, this model offers policy and management analysts a clearer picture of how and why public agencies may engage in certain collective decisions. We find this model to be generalizable to both the internal decision-making processes of an organization, which involve multiple individual actors, and to the collective choices of multiple organizations as suggested by the empirical examples discussed earlier.

To summarize the model, the dynamic adjustments of the IAD and the evolutionary pace of the NIT lead boundedly rational actors toward a state of equilibrium that can maintain the

stability of a set of institutional choices. Although NIT is evolutionary, it is not dynamic; the institutional process is a state of being (Zucker, 1991). The IAD framework is dynamic and choices are calculated, thus facilitating slow evolution of norms within a dynamic framework of changing strategies, recognizing that actors use strategies to move toward equilibrium (of course, this may not be conscious movement). Therefore, we have a long-term view of slow institutional adaptation, with processes that are dynamic to make adjustments toward stability. Although these choices may not lead to perfectly efficient outcomes, these choices may become legitimate over time if they are successful, as evidenced by the empirical cases. Legitimacy will cause more widespread adoption and stability, whereby an institutional choice may become a heuristic or formally adopted rule. Institutional choices will be likely to remain stable until norms change or there is an exogenous shock to the environment.

The integrated approach to institutional analysis that we propose can help explain decision making within and across public organizations more accurately than either approach on its own. In the field of mental health care, this article shows that a strict institutional explanation from the organization theory field does not adequately explain the choices toward an integrated network approach to mental health provision in Arizona. Reliance on such theory, then, potentially limits our understanding of what policy options might be appropriate in a similar setting. Likewise, an analysis of water management decisions in Arizona based solely on the external rules that shape organizational outcomes may leave us with the assumption that effective resource management can be achieved by merely changing the set of formal rules governing resource users. Understanding the internal dynamics of organizational actors can help explain why certain operational policy choices are made. Thus, we find that an integration of key concepts from the IAD and NIT literatures can help broaden theories of institutional processes in the policy and management sciences, where institutional literature is rich yet sometimes beholden to traditional disciplinary lines.

NOTES

1. We would like to thank an anonymous reviewer for suggesting this distinction.
2. Isomorphism refers to the structural convergence of organizations into similar forms.
3. Both sociologists and political scientists have borrowed from the work of Simon, March, and colleagues in explaining individual and collective decision making. Therefore, we argue that the different perspectives of rationality presented by institutional sociologists and political scientists should not be considered as problematic as some contend.
4. Rationality is the act of engaging in purposeful behavior. Behavior that moves an actor toward a desired end is rational in any sense of the word. Some scholars consider rationality to mean that the desired end is efficiency. Indeed, this is true in many economics perspectives. However, if rationality is merely purposeful, as in the boundedly rational sense, then purposeful behavior toward a non-efficiency goal, such as legitimacy, also can be viewed as rational.
5. Bryan Jones (2001) similarly has argued that institutional theories require a more complex model of individual decision making that accounts for the use of heuristics. Building off the work of Herbert Simon (1945), Jones proposes that institutional processes and policy outcomes can be explained more accurately if using a boundedly rational model of decision making that integrates biological explanations of short-term memory limitations and prepared learning. This biological explanation of human cognition can account for the use of heuristics and "canalized" behavior—as this behavior saves time and energy for boundedly rational actors who must acquire and process information. The internal cognitive architecture of humans, Jones explains, shapes decision making in conjunction with incentives from the external environment.
6. Data on conjunctive water management in Arizona came from a study funded by the National Science Foundation/Environmental Protection Agency Water and Watersheds Grant (No. R824781), Edella Schlager and William Blomquist; principal investigators. Data for the Arizona mental health care study came from the Aspen Institute Nonprofit Sector Research Fund (No. 99-NSRF-19), Keith Provan, principal investigator.

7. For an extensive overview of the Community Partnership of Southern Arizona (CPSA) system and the empirical study referred to here, please see Isett (2001) or Provan, Milward, and Isett (2002).

8. Financial risk means that the providers must provide any and all necessary services for their clients for the allotted sum of money. If costs for the client exceed that sum, then the provider must find other sources of revenue to pay for those services.

9. For an in-depth discussion of the broader empirical study from which this section is derived, see Heikkila (2001) and Schlager & Blomquist (1999).

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