

# The cognitive underpinnings of policy process studies: Introduction to a special issue of *Cognitive Systems Research*

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## Abstract

This article introduces the special issue of *Cognitive Systems Research* on public policy processes. We begin with a discussion of the cognitive foundations of public policy that stem from the complexity of human cognition and emotion. Next, we provide an overview of the articles in the special issue, which occur at the edge of a public policy-cognitive systems boundary. We then turn to a discussion of promising new work in the study of public policy that explores—or may benefit from—the cognitive systems perspective.

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## 1. Introduction

With the support of *Cognitive Systems Research* Editor Peter Erdi, we developed this special issue on public policy processes to summarize and extend the existing literature on the cognitive foundations of policymaking systems. The seven articles included in the special issue—as well as a response by Baumgartner—present a sampling of some of the major work linking a general cognitive systems approach to public policy studies.<sup>1</sup> While the articles connect systems of human action focused on policymaking to the dynamic and diverse cognitive systems perspective, they only scratch the surface of both the realities and the potentials of this approach. In this introduction, we outline the cognitive foundations of public policy based in the complexity of human cognition and emotion, and then offer

an overview of each piece in the special issue. We conclude with a discussion of promising new studies in public policy and how they relate to the cognitive systems perspective.

## 2. Cognitive foundations of policymaking

As it concerns human cognition, policymaking takes place in a strange region. On the one hand, it is the ultimate of frontal cortex activities at the societal level: planning, judging outcomes based on the incentives of actors, and the calculation of costs versus benefits of a course of proposed action. On the other hand, because policymaking relies on collective action and because any course of action creates winners and losers, it arouses the strongest of emotions.

Any cognitive action by an individual involves emotion (Damasio, 1994). Yet the standard approach by many economists and political scientists of the neo-institutional persuasion is to hold to a rational-analytic framework in which costs and benefits are judged according to a probability calculus, and the best choice of action is the one that

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leads to the largest payoff. In the standard rational analysis, each individual has fixed preferences that are maximized according to the probabilistic framework. Where do those preferences come from? In social action, this matters a great deal. If the preferences are not based in facts (and there is no requirement that they be), then people holding such preferences are a version of what [Sen \(1977\)](#) called “rational fools.”

A major preoccupation of public choice economists and neo-institutional political scientists is how diverse individual preferences are combined to form a “social welfare function,” that is, collective decisions on public policies. These scholars ground their analyses in no normative model—all preferences are equal. Further, they fail for the most part to appreciate the dynamics involved in the prioritization of preferences, treating prioritization among various policy objectives and a position on any one objective as a package.

Policy scholars treat these two components of preferences as operating via different causal processes, at least partially. If that is the case, we expect far more instability in the social welfare function than public choice scholars do. How do cognitive and emotional facets of individual actors combine to construct public policies if we allow for the separation of priorities from positions?

If preferences are contingent on priorities and position, then is it not the case that the problems facing a political system are important? [Newell and Simon \(1972\)](#) distinguished between the problem-space and the solution-space in their studies of human problem-solving, finding that individuals had more difficulties in re-evaluating the problem-space than in the solution-space. This is likely to be true in collectives as well. In any case, the notion of distinct problem and solution spaces influenced by different causal processes has become central to policy process studies since the work of [Cohen, March, and Olsen \(1972\)](#) who treat the connection between the two as subject to the activation of attention.

Unlike the analytical framework deployed by most economists and neo-institutionalists in political science, most policy process scholars admit the complexity of human cognitive and emotional architectures into their models. [Simon \(1947\)](#) pioneered that approach, and the field has maintained its commitment to it over the years. Simon insisted that public administration and later public policy be grounded in a psychological theory of decision-making. He first termed that notion “bounded rationality,” to capture the limits of a rational framework in explaining human behavior in organizations. Later he and others contributed to developing a more robust and positive model of human action in policymaking, which he termed “behavioral rationality.” Its major premise is that humans do have priorities and goals, but they are not generally effective in judging the connections between those goals and the complex reality they face. For the most part, that remains the cognitive foundation of policy process studies in political science and elsewhere.

### 3. An overview of the special issue

In constructing the special issue, we concentrated on areas we think are at the edge of the public policy-cognitive systems boundary. Each included article uniquely explores this disciplinary boundary between policy studies and cognitive systems. For example, the authors examine the difficulties in connecting the micro-level analyses of cognitive studies to the systems level activity in policymaking ([Jones](#)); the contagion and diffusion that occurs among individual actors within policy systems ([Thomas](#)); the performance of different organizational forms in adapting to changing circumstances in a complex world with cognitively-limited decision-makers ([Epp](#)); the evolutionary basis of cooperative behavior that is necessary to achieve collective action ([Leech and Cronk](#)); information processing in policymaking systems ([Workman, Shafran, and Bark](#)); the role of cognitive load and complex problems in the search processes of policymaking systems ([Shaffer](#)); and, organizational learning and neural networks ([Hegelich](#)).

In “Behavioral Rationality as a Foundation for Public Policy Studies,” [Jones](#) discusses links between individual behavior and aggregate patterns in collective organizations—noting progress in the integration of the cognitive sciences into behavioral models. He suggests that our understanding of these microfoundations in political institutions is at a “turning point” wherein the rational model of human choice is replaced with the behavioral model. In doing so, Jones provides a foundation on which scholars can further develop a cognitive systems approach to policy studies.

Drawing heavily on the behavioral model of choice, [Thomas](#) explores how cue-taking behavior among policymakers contributes to rapid shifts in their aggregate attention to policy issues over time. In “Modeling Contagion in Policy Systems,” [Thomas](#) uses an agent-based modeling approach to examine how the presence of cue-taking behavior, dense communication networks, and sub-divisions among actors affect patterns in the activity of a simulated policy system. With a simple model of individual-level attention, he shows how cue-taking behavior can generate disjointed patterns that are akin to those widely documented in policy systems at various levels of governance.

[Epp](#), in “Public Policy and the Wisdom of Crowds,” examines differences between government organizations and group systems—such as markets—from the collective intelligence perspective. Given the limited cognitive capacity of any one decision-maker, Epp tests hypotheses about the extent to which group systems or organizations can overcome limitations in the processing of information. Across the empirical cases he studies, Epp shows that organizational systems are less responsive and informationally efficient than group systems. These findings contribute to our understanding of disjointed change in public policymaking by mapping how the collective intelligence of groups systems may be superior to the organized hierarchies of government.

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