

Introduction

Social Network Analysis Applications in Complex Governance Networks

Naim Kapucu

School of Public Administration, University of Central Florida
E-mail: kapucu@ucf.edu

The growth in studying complexity, governance, and networks is a noticeable fact. Complex public policy problems require productive collaborations among multiple actors from different sectors. Public, private, and not-for-profit organizations work through governance networks and collaborative governance to solve complex public policy problems. There is a strong interest in both the practice and theory of networks in public governance. This interest has given boost to the use of social network analysis (SNA) in studies on complex governance networks.

This special issue of *Complexity, Governance, & Networks*, includes theoretically, conceptually, and analytically rigorous papers with social network analysis applications. The papers help our understanding in studying complex governance networks.

1. Governance Networks

Networks are composed from interdependent actors (Kapucu, 2014) who can create various structures and serve wide range of purposes. In contrast to the policy networks whose focus is on decision-making, and the collaborative networks which emphasize working together in the service delivery process, the governance networks “combine aspects of policy making and service delivery” (Lecy, Mergel, & Schmitz, 2014, p. 648). Therefore, governance networks should be distinguished from collaborative networks, policy networks and public management networks due to their emphasis of “the governance process to achieve cross-sector and inter-organizational goals in the public sector” (Kapucu, 2014, p. 30). The governance networks acknowledge that the public sector acting alone cannot solve complex problems and it has to work with other actors. These networks are characterized with interdependence among their members and dynamic relationships. Importantly, the governance networks are also self-organizing and they challenge the paradigm of markets being the sole nonhierarchical efficient structures.



2. Complexity of Governance Networks

In addition to the complex and wicked public policy problems, the governance networks could also take a complex structure. As the number of actors involved in the network rises, the complexity of the network increases. Moreover, the complexity of the network also increases with the increased functions of the network and increased interdependence among the actors. In addition, existing uncertainties add to the complexity of the governance networks (Kapucu, 2014).

3. Social Network Analysis Applications

In the last decade the research on social network has tripled (Borgatti, Mehra, Brass, & Labianca, 2009) and the public administration research focusing on networks has exploded (Kapucu, Hu, & Khosa, 2014; Lecy et al., 2014). Although in the 1980s the “social network analysis had become an established field within the social sciences “(Borgatti et al., 2009, p. 893) a significant portion of the existing public administration literature on networks do not provide proper definition of the term network and has more of a conceptual and theoretical focus (Kapucu et al., 2014). In that sense, methodologies used have been “remarkably static” (Robinson, 2006, p. 596) and there is evident lack of empirically oriented research (Kapucu, 2014). The use of “formal quantitative social network analysis techniques” (Lecy et al., 2014, p. 654) and social network analysis (SNA) have been limited (Kapucu et al., 2014).

The social network structure has multiple levels: “single nodes, dyadic ties, and whole networks” (Carpenter, Li, & Jiang, 2012, p. 1336) and SNA is sophisticated tool that permits examination of the formal and informal relationships between actors (nodes) within a network. In that light, SNA is suitable for analysis of dynamic intra-organizational and inter-organizational relationships (Kapucu et al., 2014), as well as measurement of “structural position power” (Lecy et al., 2014, p. 644) and its dynamics (Isett, Mergel, LeRoux, Mischen, & Rethemeyer, 2011).

Social network analysis has been widely used in the field of national security as well as organized crime (Borgatti et al., 2009). SNA has also been utilized in the field of emergency management, education performance, regional economic development, environmental management, transportation policy, health and social service delivery, urban planning and nonprofit management (Kapucu et al., 2014).

Papers included in this special issue, based on a call for papers and rigorous review processes, cover important theoretical and methodological issues in examining complex governance networks. I will provide brief overview of each paper in the following section.

The first article, balancing the quantitative and qualitative aspects of social network analysis to study complex social systems by Danny Schipper and Wouter Spekkink, highlights the potential use of SNA in investigating complex social systems. The article provides a balanced demonstration of the use of qualitative and quantitative SNA approaches.

The authors claim that combination of qualitative and quantitative SNA use is most useful for revealing system-level patterns, and a deeper understanding of the mechanisms that produce these patterns.

The second article, network features and processes as determinants of organizational interaction during extreme events by Michael D. Siciliano & Clayton Wukich, attempts to statistically model the processes by which governance networks form. The authors explore a range of network features and processes and measure their influence on network formation by using the case of Hurricane Katrina employing exponential random graph models to identify the drivers of network formation in response to extreme events and disasters.

The third article, measuring risks of organizational failure in contract exchange structures by Julia L. Carboni, uses affiliation network concepts from network analysis to develop a structural index of interdependent relationship between government and other stakeholders or actors in service delivery networks without joint service delivery. Network analysis has been criticized in terms linkages between networks and performance. This index developed in the article can be incorporated into statistical models to analyze contract performance of networked action.

The fourth article, the shape of watershed governance: Locating network boundaries within multiplex networks by Steve Scheinert, Sarah Coleman, Christopher Koliba, Asim Zia, & Stephanie Hurley, approaches governance networks as both nested and interconnected systems and identifies internal boundaries within these networks to differentiate between multiple functional subnetworks using a case study of Lake Champlain Basin (watershed governance networks). The article compares structure of subnetworks and network macrostructure using the quadratic assignment procedure (QAP).

The fifth and final article, conducting content analysis of documents in network research: A review of recent scholarship by Qian Hu, examines how researchers have conducted content analysis of different documents including government documents and newspaper news reports to collect and analyze network data in public administration. The article provide useful hints to researchers to gather data from existing documents in conducting network research in analyzing complex intergovernmental and inter-organizational research.

4. Conclusion

Notwithstanding the increased number of research on governance networks, the methodological progress lags behind the needs of the field of public administration (Kapucu, 2014). Acknowledging the development of the network research in the public administration, future research could benefit from conceptual clarity (Lecy et al., 2014), methodological rigor and empirical evidence. There is need for large sample size studies which would enable growth of the knowledge on complex governance networks (Robinson, 2006). I hope that the special issue will address this important need and contribute to the study of complex governance networks.

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