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Epistemic communities and regional governance: policy development in municipal finance reform

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DEDICATION

TO LORD IYYAPPA

SWAMIYE SARANAM IYYAPPA
ACKNOWLEDGMENTS

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All my successes in life are dedicated to Dad, Mom, Mani and Jered,

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CHAPTER I

Confronting the Challenges of Regional Governance

In the face of function-specific and fragmented approaches to regional governance in America, how might regionalism be re-created so that it can deal more effectively with the social and economic challenges of contemporary metropolitan life? (Bollens, 1997: 14)

Regional governance is the deliberate effort of multiple actors to achieve common goals in interjurisdictional settings (Foster and Barnes, 2011). It is an intersectoral and interfunctional endeavor intended to solve a regional problem or seize a regional opportunity (Foster and Barnes, 2011). This endeavor, involving both governmental and nongovernmental entities, requires that a diverse group of actors interact with each other despite the differences in their motivations. Regional collaborative efforts are typically justified as necessary to achieve economies of scale, address externalities, redraw urban sprawl, manage adverse environmental impacts, reduce income disparity, and minimize duplication of policies and services (Lee, Feiock and Lee, 2011). Unfortunately, regional collaboration is not easy to achieve. A host of political, economic and ideological factors obstruct regional collective action. These include concerns for local autonomy, distrust among governing units, clash of interests among various stakeholder groups consisting of governmental and nongovernmental actors, and power and resource asymmetries between pro-sprawl and anti-sprawl forces (Norris, 2001; Visser, 2002). Despite these impediments, local jurisdictions continue to pursue regional collaboration.

In the past few decades, several approaches to regional collaboration have emerged. These approaches can be broadly grouped as the metropolitan government, public choice and new regionalism (NR) approaches. ¹ Approaches to regional
collaboration can also be more elaborately classified as done by David Walker (1987) in his classic 17-level typology of regional service delivery approaches. Walker’s typology (1987) includes relatively easy interventions (informal cooperation, private contracting), modestly difficult interventions (functional transfers, annexation, multipurpose special districts), and very difficult interventions (structural change through consolidations or two-tier federations). For several decades now, the literature on regional governance has been informed by the debate on the relative advantages/disadvantages of employing various approaches to addressing regional issues. Given the political and practical difficulties in adopting metropolitan government based approaches, attention has shifted to public choice and new regionalism approaches. In particular, new regionalism approaches have been widely explored in the past two decades (Foster and Barnes, 2011).

One of the prime advantages of new regionalism approaches is that they permit voluntary participants to achieve their common goals in a self-organizing manner. Participants can themselves create and amend rules for collaborative action. They can also “design levels of flexibility and enforcement that are appropriate for the concerns of the participants” (Lee, Feiock and Lee, 2011: 2). These characteristics in turn help enhance the legitimacy of proposed policy actions among participants. However, the consensus and flexibility, characteristic of new regionalism approaches, tend to increase decision costs (Feiock, 2004). This may be why cooperation is often limited to less contentious issues such as provision of infrastructure and utility services. Meanwhile, issues that are seen as threats to community lifestyle such as affordable housing, balanced distribution of fiscal resources and development benefits across the region, public welfare and health, and equitable access to education and other social and economic opportunities
have remained unresolved (Williams, 1971; Bollens, 1997; Visser, 2002; LeRoux and Carr, 2010). More simply put, existing approaches are conducive to accomplish “things” regionalism, rather than “people” regionalism (Bollens, 1997).

Perhaps the greatest challenge to new regionalism efforts has been persuading local governments and their residents to accept changes in governance that may alter existing patterns of power and resource distribution in the regions. Critics of new regionalism see NR approaches as severely limited in their ability to achieve such acceptance (Frisken and Norris, 2001). NR approaches do not deal with processes for achieving policy consensus. Instead, they simply present tools or instruments suitable for services or planning cooperation that are easy to achieve. That is, whether it is agreements for interlocal cooperation, or regional partnerships like planning councils, planning organizations, councils of governments, or special purpose districts, what a new regionalism approach provides is a mechanism for functional cooperation. These kinds of mechanisms are best suited to address tame problems involving distributive services. But such approaches struggle when it comes to achieving policy consensus in defining and resolving highly contentious, redistributive, or “wicked” (Rittel and Webber, 1973) regional problems.

Political fragmentation essentially perpetuates a narrow self interest that undermines collective regional interest. Consequently, policy development and coordination, in the case of highly contentious regional problems, are extremely difficult to achieve. For example, even if it is the case that central cities and suburbs are economically interdependent, and that the economic health of the suburbs is dependent upon the economic health of central cities (Rusk, 1995), few policy actors, if any, believe
or act on these premises (Norris and Stenberg, 2001). Unfortunately, most regional problems turn out to involve redistributive issues—either related to power or resources. “In fragmented governmental settings, the dice are institutionally loaded against policies designed to enhance desegregated housing location, the matching of fiscal resources and fiscal needs, and the effective management of growth and economic development” (Lowery, 2000: 73). These issues typically tend to generate substantial opposition from stakeholder groups (Norris, 2001). Furthermore, because cooperation on these issues is voluntary, “[a]ny single unit can scuttle decisions made and policies adopted for the good of the overall territory” (Norris, 2001: 567). If policy consensus is extremely difficult to establish in regional redistributive issues, it is largely unattainable in the case of wicked problems.

A wicked problem is so complex and intricate that even defining and understanding it become a challenge. When there is no consensus on the nature of the problem, automatically there is no consensus on solutions for addressing it (Rittel and Webber, 1973). To make matters worse, wicked problems typically involve multiple stakeholder groups that suffer from conflicting preferences and values, contradictory risk perceptions, and inadequate information. For example, let us consider the problem of crime. Is it due to insufficient police personnel, inadequate funds for providing quality service, rise in the number of criminals, rise in crime rate in neighboring jurisdictions, inadequate laws, increased freedom to own guns, rise in unemployment, improper parenting, unregulated/under regulated media, some combination of these factors, or all of them? Each of these problem definitions offers a different kind of policy solution for attacking crime. Each of those solutions has a different implication for different groups of
actors. Provision of most regional societal goods possesses the characteristics of a zero-sum game wherein the gains of one participant are balanced by the losses of other participants (Rittel and Weber, 1973). As a result, when the stakeholder population of a problem becomes increasingly pluralistic, inter-group differences translate into inter-group rivalry, making it extremely hard to reach consensus (Rittel and Weber, 1973).

What is required to address chronic redistributive and wicked regional problems is a procedure or practice that will initiate and sustain meaningful dialogues on the problem at hand. These dialogues should mature into legitimate policy discourses that can eventually develop consensus in terms of understanding the true meaning and scope of that problem. This consensus should in turn be used to assess various courses of policy action and eventually, to identify potential solutions to the said problem. What existing self-organizing NR approaches lack is a prescription for developing this kind of hard-to-achieve policy consensus; a deliberative-analytical process involving multiple stakeholders that will, in due course, lead to policy development and coordination. In that case, how can we address this critical limitation inherent in these self-organizing regional solutions?

**Significance/Objectives of this Research**

An epistemic community is a network of recognized experts with authoritative claim to policy relevant knowledge within a specific domain. Members of the network will include professionals from a variety of disciplines and backgrounds in governmental and nongovernmental organizations. These professionals have a shared set of normative and principled beliefs, shared causal beliefs, shared notions of validity and a common
policy enterprise (Haas, 1992a). Typically, such epistemic communities (ECs) contribute to debates related to issues within the policy domain of their expertise. They recommend policies, identify potential points for possible negotiation, diffuse new ideas and strategies, and help in the implementation of selected alternatives (e.g., Haas, 1989; 1992a; 1992b; Adler and Haas, 1992; Thomas, 1997; Mani, 2006, Kutchesfahani, 2010).

Epistemic or knowledge communities have been shown to achieve policy consensus as well as facilitate policy development and implementation across complex and contentious public problems in international settings characterized by autonomous actors. Problems confronting US local governments are not vastly different from problems confronting nation states. Externalities, environmental impacts, selective access to goods and services due to income disparity, and duplication of policies and services are all common issues in global and regional governance. Moreover, like global governance, regional governance is also characterized by autonomous actors from both governmental and nongovernmental organizations. And in both settings, efforts to solve collective problems take place in the presence of significant political fragmentation. Given these similarities, I believe that if epistemic communities have been useful in resolving complicated problems at the transnational level, they certainly can do the same in regional settings. So I propose that at the regional level, epistemic communities are a means for policy development on technically complex and politically difficult issues in situations of substantial governmental fragmentation. I supplement my proposal with empirical analysis that assesses how the epistemic communities concept works at the regional level to facilitate policy development in a highly sensitive and complex policy domain. First, I identify the existence of epistemic community/communities in the state of Michigan, in
the particularly difficult policy area of municipal finance reform. I then proceed to examine the composition, the interaction patterns, the motivations for interactions, the policy beliefs, the policy promotion forums, and the liaisons of the epistemic communities I have identified.

Importantly, this research contributes directly to arguments about the utility of new regionalism approaches to metropolitan governance, particularly to the notion that regional solutions to difficult problems are unlikely to emerge through self-organizing approaches. The knowledge producing activities and the consensus driven processes of epistemic communities have the potential to overcome the problems that impede existing self-organizing NR approaches. That is, the involvement of epistemic communities can facilitate the development of consensus on policy solutions to problems that are highly complex, contentious and inextricably interrelated with other issues.

Epistemic communities are perhaps the most important actors in policy development in highly complex and technical policy areas (Haas, 1992a). Nowadays, decision makers find it extremely difficult to keep pace with the steadily swelling river of information pertaining to different issue areas (Sundström, 2000). They need help in condensing available information into manageable portions. They also need help in decoding technical jargon into language a nonexpert can understand. These requirements open up new avenues of influence and the experts who are involved in the processes of editing and data interpretation tend to impact policy decisions and choices made.

Viewing man as an information-seeker, means that information-providers can have a significant influence on his attitudes and, ultimately, on his behaviour. Because of his active nature, he will try to procure the best, i.e. most trustworthy and relevant, information, which he can then evaluate. He will therefore lend his ear to various experts [who] can help him make educated assessments of the decision-specific situation at hand (Sundström, 2000: 3, 4).
In addition to issue complexity and technicity, issue uncertainty and crisis situations also tend to accentuate the importance of epistemic communities (Haas, 1992a).

The concept of uncertainty is [very] important…for two reasons. First, in the face of uncertainty, and more so in the wake of a shock or crisis, many of the conditions facilitating a focus on power are absent. It is difficult for leaders to identify their potential political allies and to be sure of what strategies are most likely to help them retain power. And, second, poorly understood conditions may create enough turbulence that established operating procedures may break down, making institutions unworkable. Neither power nor institutional cues to behavior will be available, and new patterns of action may ensue. Under conditions of uncertainty, then, decision makers have a variety of incentives and reasons for consulting epistemic communities (Haas, 1992a: 14-15).

Epistemic communities have played important roles in framing the collective debate and in fostering transnational cooperation in conditions and policy areas characterized by autonomous policy actors, contentious/sensitive policy issues, knowledge deficits and bounded rationality (e.g., Haas, 1989; Adler and Haas, 1992). “Without the help of experts, [governments] risk making choices that not only ignore the interlinkages with other issues, but also highly discount the uncertain future” (Haas, 1992a: 13). Both national and transnational networks of experts have fostered institutional and policy learning by promoting new principled and causal beliefs which eventually produced new values and strategic prescriptions. Without these communities, policy cooperation among autonomous nation-states across several contentious policy domains such as nuclear arms nonproliferation, banning chlorofluorocarbons, cleaning up the Mediterranean Sea, etc. may not have been accomplished (Adler, 1992; Haas, 1989; 1992b).
The epistemic communities concept, originally developed in the international relations literature, is generally credited to Peter Haas (1989; 1992a). Mathew Holden Jr. (1964) and H. George Frederickson (1999) have utilized the epistemic communities concept to explain cooperation in metropolitan areas. However, both these scholars have been focused on explaining how bureaucrats develop interjurisdictional ties among themselves to facilitate regional, functional cooperation. Consequently, neither of them fully explains nor utilizes the potential of the epistemic communities framework (ECF). This dissertation, while building on the initial efforts of these scholars, imports the framework in its entirety from the IR field and explains how it could be effectively applied to solve a variety of longstanding regional problems.

At this juncture, it is vital to note that the concept of professionalism is not new to the field of urban politics. Awareness about the background, experience and training of municipal officials was first created by the Progressive era reformers. The quest for scientific management, administrative efficiency, politically neutral administration and higher service ethics have helped professionalize urban bureaucracies. Today, decades later, the utility of professional expertise for managing public problems is widely recognized. Professionalization of urban bureaucracies is believed to have both upgraded the quality of administration and raised the standards of administrative performance (Ross and Levine, 2006). Moreover, professionalization of urban administration is seen as key to solving problems of corruption, partisanship and administrative incompetence. Such views have been often manifested in demands for structural reforms in many municipalities across the country (Frederickson, Johnson and Wood, 2004; Carr and Karuppusamy, 2009). What then is the value added by the introduction of the epistemic
communities framework to the field of urban politics? While urban scholars and policy makers have recognized the utility of professional experts as public administrators in individual agencies, they are not fully aware of the benefits of systematically mobilizing professional experts both inside and outside of the government machinery and engaging them in public policy making processes. The epistemic communities framework shows how to utilize the intellectual resources possessed by knowledge experts for purposes of developing consensus on defining, understanding and solving complex public problems.

Through the empirical analysis in this dissertation, I examine the presence of epistemic communities, in the state of Michigan, within the policy area of municipal finance--more specifically, within the three key issue areas of local government revenues, expenditures on municipal employees and public service provision. The policy domain of municipal finance was selected because it contains key elements favorable for the emergence and proliferation of epistemic communities--issue complexity and technical specificity, issue uncertainty, and perceived crisis. Municipal finance is inherently highly complex and technical. Besides, a considerable amount of uncertainty surrounds this policy area as a result of prolonged national recession. Additionally, the threat of fiscal instability affects large numbers of governments in the state and is seen by many state and local officials as constituting a crisis.

The presence of municipal finance epistemic communities is identified through the use of purposive and snowball sampling. The purposive sample includes names from 248 newspaper articles published between November 2010 and April 2011 in two important newspapers published in Michigan, the Detroit News and the Detroit Free Press. These 248 articles about Michigan’s crisis in municipal finance were reviewed and
fifty relevant persons were identified. Then these fifty individuals or their staff were contacted for interviews. Those who consented to the interview were asked to name two people with whom they communicated most often on each of the three issue areas of municipal finance--local government revenues, expenditures on municipal employees, and public service provision. The contacts identified by the initial sample became additional potential interviewees. Members of the secondary group were contacted and they identified more subjects. This technique, known as snowball sampling, helped identify municipal finance experts involved in Michigan’s finance reform effort. More details on the sampling techniques and data collection methods are provided in chapter three.

Once I ascertained the presence/existence of municipal finance epistemic communities, I proceeded to study their composition, interaction patterns and motivations for interactions. I then assessed the policy performance of these communities, i.e., the forums they use to promote their epistemes, and the liaisons they developed with decision makers to impact policy making processes. In order to examine these different elements, I used a combination of social network analysis (SNA) and various descriptive statistics. Notably, a social network approach to examining the composition and role of epistemic communities is new; analysts in the past have typically approached this topic in terms of case studies. Epistemic communities, in simple terms, are knowledge networks. So fundamentally, no other analytical procedure can be more appropriate than SNA for studying these entities. Network membership, network boundaries, interaction patterns among network participants, roles and positions of members in the production and dissemination of knowledge, ties of network members outside the network, causes for
network formation, and consequences of network formation are all critical variables in studies on epistemic communities. These variables are perhaps best captured by the methodological resources provided by social network analysis.

To sum up, a research design involving the use of deductive hypotheses, social network analysis and rigorous quantitative methods is new to the epistemic communities literature. Though new, the design demonstrates that this study is theoretically driven and empirically challenging. Notably, the design will provide for a nuanced and thorough investigation of epistemic communities emerging in Michigan around the three key issue areas of municipal finance: local government revenues, expenditures on municipal employees and public service provision.

**Policy Development for Complex and Wicked Public Problems**

**Administrative Conjunctions**

Nearly 50 years ago, Mathew Holden Jr. (1964) posited that despite the absence of a centralized authority within the metropolis, systems or networks of cooperation will evolve. He proposed that these self-organizing networks, akin to the practices of diplomacy between nation-states, help coordinate the actions of different policy actors and ensure the effective functioning of the public sector. That is, these networks lead to agreements and mutual understandings that coordinate governmental activities across jurisdictions, permitting the smooth functioning of policy and public service provision (Frederickson and Smith, 2003).
Drawing on these insights, H. George Frederickson (1999) developed the administrative conjunction framework, in which local professional administrators working to achieve metropolitan functional cooperation are described as epistemic communities. According to him, a group of police chiefs gathering informally to identify patterns of criminal activity in the metropolitan area constitute an epistemic community. Similarly, a group of city administrators participating regularly via e-mail to discuss common problems and to develop joint strategies to resolve those problems also constitute an epistemic community (Matkin and Frederickson, 2009). Frederickson remarks:

[w]hile Haas was describing professionals in different nation-states working out agreements for cleaning up the Mediterranean, his description of epistemic communities is essentially the same thing as matters of multijurisdictional cooperation and agreement between professionals described in metropolitan administrative conjunction (Frederickson, 1999: 707).

However, administrative conjunctions are only one of the many networks that constitute an EC. An epistemic community is typically a network of networks; a network that is integrated by a complex group of networks (Haas, 1992a). The conjunctions that bureaucrats develop among them are therefore best described as a component or a subset of an epistemic community. In short, Frederickson used the epistemic communities concept in its most narrow sense and never really developed it adequately. I pick up the dialogue on this topic from where he left at, more fully develop it theoretically and subject it to empirical tests.
Epistemic Communities

It is rather unlikely that fragmented settings will ever cease to be the norm of American metropolitan areas; therefore, scholars must address how policy development can occur in these settings. Through the use of ECs in regional governance processes, it is possible to accomplish what political consolidation achieves without such formal consolidation occurring. Knowledge is a key resource in policy making processes and those who possess it can influence the policy game in a number of ways. They can frame the context of the game, stipulate or modify the rules of the game, determine the participants of the game, and perhaps even specify the goals of the game. Where to play the game, how to play the game, who should play the game and why should the game be played, are all key governance elements which are crucial for achieving meaningful regional cooperation and policy coordination.

In the international relations literature, many scholars have examined several diverse policy situations in which ECs have played an important role in achieving policy consensus and in developing policy solutions to longstanding global problems (e.g., Haas, 1989; 1992a; 1992b; Adler and Haas, 1992; Hopkins, 1992; Mani, 2006, Kutchesfahani, 2010). Importantly, there are equivalents of these policy situations in American regional governance systems as well--whether it is in terms of political authority, policy actors or public problems. As discussed earlier, in both global and regional governance systems (1) political authority is decentralized; (2) policy actors include a range of individuals and entities from public, nonprofit and private sectors; and (3) public problems often arise from misuse/abuse of common pool resources, policy
spillovers, unequal access to goods and services due to power and resource asymmetries, and overlapping policies.

In the rest of this section, I briefly describe three policy situations in which epistemic communities have acted to facilitate international policy coordination and development. This description is included to introduce readers to the functional performance of ECs and thereby to the potential of these entities to help resolve public problems. Following this, I will explain how the problem-solving capabilities of existing self-organizing regional governance solutions can be enhanced through the use of ECs.

**Protecting Common Pool Resources**

Pollution of the Mediterranean Sea is considered as a collective goods problem as pollutants from one country could wash up to the shores of another. The extensive pollution of the Mediterranean is caused by intense coastal population pressures along with largely unregulated industrial, municipal, and agricultural emission practices (Haas, 1989). The issue of free ridership is typical of all problems requiring collective action and this problem in no exception. For example, if Spain were the only country to build sewage treatment plants and demand its coastal industries to reduce their emissions, the quality of the coast can be improved, but only in part. Further, this would suggest that only the Spanish industries are hampered by additional production costs, while other coastal neighbors like France and Italy are free riding. This behavior of adjoining nations would trouble Spain and eventually, it would default. In addition to the issue of free ridership, the pollution problem stood unresolved for a long time due to an intense conflict of policy interests among Mediterranean nation states. While developed countries
wanted to control all sources of marine pollution, less developed countries (LDCs) viewed pollution control as an indirect attempt to control their industrialization practices. Consequently, the LDCs consented to the control of only municipal and tanker wastes (Haas, 1989). An international political coalition, for the purposes of overcoming these collective action problems and facilitating the development of convergent national policies for controlling Mediterranean marine pollution, mobilized the “Med Plan EC” (Haas, 1989).

In what is perhaps the most often cited study on the epistemic communities concept, Peter Haas (1989) examines the role of this “Med Plan EC.” The “Med Plan EC” is a transnational group of experts consisting of ecologists and marine scientists from the United Nations Environment Programme, secretariat members from agencies such as the Food and Agriculture Organization and the World Health Organization, and government officials from various countries sharing similar views. During the process of policy development, this ecological EC was “often granted formal decision-making authority in national administrations” (Haas, 1989: 380). It was also “given responsibility for enforcing and supervising pollution control measures” (Haas, 1989: 380). In 1972, there were very few measures for pollution control in the Mediterranean states. But by 1985, due to the intervention of the Med Plan EC, almost all of the governments of Mediterranean nation states had created environmental ministries or agencies, and many had developed measures to control oil spills and dumping (Haas, 1989).

Haas reports that through the “capture” of regulatory environmental ministries and agencies in different countries, the “Med Plan EC” managed to consolidate its control over environmental policy and became successful in encouraging national governments
toward convergent policy actions. The significance of this EC’s contribution has been confirmed by scientists who “concur that the quality of the Mediterranean is better than it would have been without the Med Plan, and preliminary studies suggest that the pollution level has at least stabilized and is now about the same as it was in the early 1970s” (Haas, 1989: 384). Given the rapid coastal population growth and industrialization practices that occurred during the 1970s and the 1980s, even maintaining the Mediterranean Sea at a constant level of pollution is quite an accomplishment (Haas, 1989). This study by Haas clearly establishes that in decentralized political settings, ECs have the potential to influence governmental behavior by facilitating meaningful policy dialogues and shared learning, thereby developing policy consensus in persisting public problems.

**Controlling Negative Externalities**

The nuclear arms race problem can be characterized mostly as a negative externalities problem. When one country strengthens its arsenal of nuclear weapons, the military balance in the region is disrupted; other countries feel threatened and are compelled to act. These other countries, which would have normally not considered investing more resources in nuclear arms, may feel compelled to do so. At the very least, they may start reevaluating their military strength. The concept of nuclear arms control, when first introduced in the 1950s, was simply a policy idea that could neither be taken for granted nor ruled out completely (Adler, 1992). However, an American “arms control EC” (Adler, 1992) recognized the vulnerability of US nuclear weapons and became concerned about surprise attacks. Due to its interest in the national security of the United
States and in the prevention of a nuclear war, this EC was motivated to facilitate the collaboration of superpowers to stabilize nuclear balance via nuclear arms control.

Emanuel Adler (1992) has assessed the role of this “arms control EC” in the conception and practice of nuclear deterrence. According to him, the American “arms control EC” consisted of personnel in government bureaus, research organizations, and laboratories; for-profit and nonprofit organizations; university research centers; and think tanks. Notably, members of this EC knew each other very well. “Energized by their shared epistemic criteria about the causes of war, the effects of technological change on the arms race, and the need for nuclear adversaries to cooperate,” members of the EC reached out to decision makers, “thereby turning their [epistemic] ideas into widespread national security policy and practice” (Adler, 1992: 102). Importantly, this EC did not stop with disseminating its core policy beliefs to American decision makers; it reached out to the Soviets as well. In fact, this knowledge diffusion on security practices convinced the Soviets of the need to negotiate with their American counterparts. Besides, the ideas of this domestic EC were chosen by the US government as the basis for negotiations with the Soviets which eventually led to the 1972 Antiballistic Missile (ABM) arms control treaty.

The greatest significance of the “nuclear arms control EC” is that a national group of experts managed to push domestically developed policy expectations to the international security agenda. Though many of the initial expectations were renegotiated and the US took a more political approach to arms control, still the episteme of this EC served as the conceptual basis for the US and the Soviet Union to sign the 1972 ABM treaty and establish an arms control regime (Adler, 1992). Adler’s study shows that
through the selection, retention and diffusion of new conceptual understandings, epistemic communities can achieve reconciliation even among archrivals. These communities can initiate and sustain crucial policy dialogues among political adversaries and later on, even enable them to reach policy consensus on highly sensitive issues. Yet again, a confirmation that ECs can help solve highly contentious public problems.

**Streamlining Overlapping Policies/Institutions**

The issue of international trade in services can be described as a problem of multiple and overlapping policies/institutions. By the middle of 1970s, many powerful US-based transnational corporations (TNCs) desired to have greater freedom to sell “services” abroad wherein the markets were heavily regulated (Drake and Nicolaïdis, 1992). Each country had its own regulations, and within each country regulations differed from one industry to another. In general, overlapping policies/institutions lead to governance and compliance complexities that inflate transaction costs. Additionally, governance and compliance complexities increase expertise requirements for policy implementation. Consequently, the TNCs wanted to liberalize the policies/institutions for selling services globally. In economic trade, the term "services" covers a broad range of activities such as transportation, shipping, banking and finance, management consulting, advertising, education, construction, telecommunications, entertainment and health related activities (Drake and Nicolaïdis, 1992). A service is a value enhancing activity--it has the capacity to change the condition of a good or person receiving that service (Drake and Nicolaïdis, 1992). However, most services are invisible--you can buy or sell them, yet they are not visible objects that can be held in the hand or dropped on the floor (Drake
and Nicolaïdis, 1992). Given that a large number of “services” are invisible streams of activity, their outputs and values are difficult to assess and accurate national accounting measures cannot be devised (Drake and Nicolaïdis, 1992). Until the 1980s, most governments treated everything that was not agriculture and manufacturing as a broad tertiary service sector. Without systematic data and information on the nature and volume of services, comprehensive policies were precluded. Instead, each service activity was treated as discrete, involving different regulatory issues and subject to different civil codes and bureaucratic authorities (Drake and Nicolaïdis, 1992). Between 1972 and 1982, the following episteme emerged in the “international trade in services EC” (Drake and Nicolaïdis, 1992): services transactions are important; they have trade-like properties similar to goods and are subject to regulatory barriers; and the provision of such services would be enhanced if international trade rules were modified (Drake and Nicolaïdis, 1992). Within the global trade policy agenda, this episteme played a significant role in transforming international services from “invisible transactions” to “trade in services” (Drake and Nicolaïdis, 1992).

Drake and Nicolaïdis (1992) assessed the crucial role the “international trade in services EC” played in clarifying and framing the complex issue of trade in services and placing it on the global agenda. Their analysis is as follows. The “international trade in services EC” consisted of two tiers of members. The first tier included personnel from governments, international agencies, and private firms, while the second included academics, lawyers, industry specialists, and journalists. When the question of whether international trade in services should be governed by the rules of GATT first arose, most national governments did not understand the issues or know whether a multilateral
agreement would be in their interest. Their existing national interests and institutions seemed contrary to the goal of liberalizing trade in services. However, through their analyses of the services issues and their interactions with policymakers, members of the “international trade in services EC” convinced decision makers in nation states. These experts showed various stakeholder nations that diverse cross-border transactions in telecommunications, finance, management consulting, construction, etc., had common trade properties and that the liberalization of services through removal of nontariff barriers was potentially beneficial to developing as well as developed countries (Drake and Nicolaïdis, 1992). They facilitated international negotiations within the GATT forum and helped nation states reassess their interests. They changed how governments thought about the nature of services, their movement across borders, their roles in society, and the objectives and principles according to which they should be governed. Community members were also instrumental in specifying a range of policy options to be considered. Once governments understood their interests and domestic constituencies were mobilized, their policy choices were influenced more by power and bargaining dynamics than by continuing, direct epistemic community influence. Due to the community’s intervention, member governments of GATT agreed to pursue a new regime for international trade in services as part of the Uruguay Round negotiations begun in 1986. The talks produced a draft agreement called the General Agreement on Trade in Services (GATS) which, if ratified, would have important implications for the world economy (Drake and Nicolaïdis, 1992).

Almost two decades after this study was conducted, where does this draft agreement stand? The GATS, conceived at the Uruguay Round negotiations, entered into
force in January 1995. All members of the World Trade Organization (WTO) are signatories to the GATS. The GATS treaty provides a multilateral trading system to the service sector just as GATT provides a multilateral trading system for merchandise trade (Wikipedia, 2012a). In 2003, the ‘GATSwatch’ network published a critical statement and over 500 organizations in 60 different countries extended their support to this statement (Wikipedia, 2012a). Drake and Nicolaïdis’ study clearly shows the power of epistemic communities in constructing social reality. ECs can frame issues and issue contexts for collective debates, thereby influencing subsequent negotiations and bringing in preferred outcomes to the exclusion of others. An EC’s values and beliefs, when used to construct social reality, have the potential to influence the behavior of decision makers long after the community is originally consulted with. That is, ECs have the ability to institutionalize their policy ideas and by doing so can grant those ideas the status of orthodoxy. How is this significant in the context of resolving complex and wicked regional problems? Well, the “international trade in services EC” has shown that it can change the policy focus of participating actors from “why not cooperate or defect?” to “why not collaborate?” Isn’t this kind of attitude change fundamental for resolving complex and wicked regional problems?

In sum, through the three different policy situations discussed above, I show that ECs can help: (1) define complex public problems, (2) articulate cause-and-effect relationships of these problems, (3) identify the policy interests of a governmental unit(s), (4) frame the issues for collective debate (5) propose specific policies (6) identify salient points for negotiation and (7) implement selected policy solutions (Haas, 1992a). These policy situations demonstrate that mobilizing multi-faceted expertise and knowledge is a
useful path for engaging collective debates on difficult and wicked public problems and subsequently for identifying potential solutions to these problems and understanding the long term implications of these solutions. These policy situations also reveal that mobilizing knowledge communities can facilitate behavior changes and attitudes toward development and compliance of policy actions in collective action problems.

**Reconceptualizing Self Organizing Solutions**

Problems arising from common pool resources, policy spillovers, unequal access to goods and services, and overlapping policies/institutions abound in metropolitan areas and regions in the United States. In fact, management of common natural resources like watersheds and fisheries; controlling negative externalities that arise from activities such as disease and drug trafficking; dealing with unequal access to housing, education, and employment opportunities between urbanites and suburbanites; and mitigating problems arising from overlapping tax structures and duplication of services are all everyday issues in these areas. A variety of flexible, voluntary, and dynamic arrangements that intersect and overlap traditional jurisdictional boundaries have been proposed by new regionalists as avenues to dealing with these continuing problems (Strange, 1996; Frederickson, 1999; Agranoff and McGuire, 2003; Feiock, 2004; Paquet, 2005). However, the competition to capture and sustain economic development and the “race to the bottom” in levels of welfare and social service benefits render cooperation on critical regional issues difficult (Olberding, 2002). Whenever policy choices in one community impose costs on another, regional self-organizing solutions tend to be less successful. In particular, in
several contentious issue areas, even third party coercion and incentives are inadequate to overcome collective action problems (Feiock, 2004).

In such situations, what is needed is increased trust among stakeholders in public, private and nonprofit organizations; reinforcement of cooperative norms; redefinition of problems to achieve a common understanding of their scope and nature; reorientation of the policy interests of stakeholder groups; and development of a collective identity focused on securing collective benefits. Given that regional self-organizing solutions by themselves cannot achieve these changes, regional governance scholars have been repeatedly calling for “new regional processes, structures, or institutions that can identify regional problems, formulate regional solutions, implement those solutions, and coordinate regional actions” (Briffault, 2000: 6). This dissertation is an answer to these calls. It draws attention to an informal institution that may be able to successfully carry out all of these tasks--the epistemic communities.

The use of epistemic communities is increasingly recognized in transnational policy environments as illustrated in the above case studies. However, their existence and implications are almost unknown in the American regional context. Through this dissertation, I establish the existence of these communities and their implication for regional governance processes. In this study, I propose that the problem solving capabilities of existing self-organizing governance solutions can be enhanced through the use of epistemic communities. Policy consensus is prerequisite to policy development and implementation, and though self-organizing NR approaches are ingenious in the design of tools/instruments for the implementation of collaborative action, they tend to be less resourceful when it comes to explaining the processes for bringing together
contentious actors and convincing them to collaborate. By mobilizing epistemic communities, this critical gap in policy making can be resolved. While the knowledge communities can work on achieving policy consensus in defining problems, setting up the agenda and choosing policy alternatives, NR approaches could focus on implementing these alternatives through the collaborative mechanisms they have devised.

I believe ECs are crucial for achieving consensus over the definition and resolution of highly contentious regional problems. Often, local level governments lack the financial and technical resources required to conduct research and policy analysis on these kinds of complex problems. In such conditions, the professional legitimacy and normative authority of ECs allows them to play the role of an honest broker (Yu, 2008). These knowledge based mediators can invite all interested parties to sit down to address a particular problem or proposal including those issues that may be deemed too sensitive for governments to grapple with.

Fundamental to understanding and addressing complex and wicked regional problems like economic growth, pollution, urban sprawl, housing, transportation, etc., is the development of a common definition of the particular problem and subsequently comprehending the true causes of that problem. These difficult tasks can be accomplished via the intellectual superiority and the consensus driven knowledge producing activities of epistemic communities. Epistemic community members are recognized experts who have specialist knowledge within a given policy area; their academic background and professional experiences make them credible in the eyes of their target audience (Yu, 2008). Their audience who consist of politicians, bureaucrats, citizens, special interests, businesses, nonprofits and other stakeholders view these experts as upholders of
professional values and best practices. This credibility will in turn provide these actors with sufficient influence to initiate meaningful and interactive dialogues in terms of defining public problems and identifying the true causes of these problems.

Once a problem is defined and its true causes are identified, the next stage is deliberating on the policy goals to be achieved and the various ways to achieving these goals. ECs can employ their functional expertise to directly or indirectly point out salient aspects of the issue in question and thereby help define decision makers’ policy interests. They are capable of providing fresh approaches to dealing with problems that seem to be at an impasse in deliberations among officials (Yu, 2008). They can also redefine issues such that policy makers may see new ways of resolution (Haas, 1992a; Yu, 2008). ECs may even go as far as setting the policy-makers’ agenda by providing new ideas or norms. More importantly, ECs also play a role of norm socialization. That is, they do not just create norms, but also effectively spread these norms via various professional and political forums. Equipped with convincing and legitimate data, ECs can intensify communication and coordination among diverse policy actors.

ECs can influence the policy making apparatus not just by employing their cognitive resources, but also by developing liaisons with policy makers. In general, ECs are not content with creatively initiating policy dialogues; they also seek to function as active participants in these dialogues. It is likely that some EC members will be renowned scholars/professional experts in their policy domain who may have provided advices to governments at some point in their career (Yu, 2008). This suggests that these experts and policy makers will know each other and can carry on informal dialogues among them. Besides these informal communication links, EC members and policy
makers will also commonly participate in scholarly interactions via collaborative research projects, skill building sessions, joint conferences and professional associations. These scholarly interactions serve as a solid base and perpetuate a diversified series of networks that establish familiarity and some loyalty among participants (Yu, 2008). Notably, these interactions set up the foundations for a habit of dialogue and on-going consultations (Yu, 2008). In due course, by virtue of these and other interactions, community members (at least some of them) will tend to develop strong links with decision makers. At some point they may also become significant actors in governance processes when decision makers solicit information from them and subsequently delegate responsibility to them (Haas, 1992a).

**Overview of the Dissertation**

The rest of this dissertation is organized as follows. In chapter two, I more fully review the epistemic communities literature and explain the roles that ECs have played in solving complex problems. Following the review, I develop a three-part framework focused on addressing the following questions: What are epistemic communities? When do these communities emerge? How can these communities impact public policy making? This three-part framework is developed through an assessment and integration of the lessons gleaned from various studies conducted on epistemic communities. ECF helps organize insights gained from the epistemic communities literature; it efficiently presents ideas/propositions about the key characteristics, causal logic and policy performance of epistemic communities. Next, I explain the contribution of this study to
the NR and EC literatures—which is to show how epistemic communities can be used to overcome the limitations in self-organizing NR approaches to achieve policy cooperation and coordination across complex and wicked regional problems. Finally, I present the major research foci of this dissertation. The research questions that are analyzed in the empirical chapters in this dissertation are laid out in this third and last section of this chapter.

In chapter three, I discuss the research design used in this study. In this chapter, I explain the process by which the initial sample was developed, and the snowball sampling technique used to identify other potential respondents. I proceed to explain how I developed the interview questionnaire that I used to collect the data. The structure and content of the questionnaire are also described in this section. Following this, I explain the interview method. Lastly, I conclude this chapter with a discussion on the measurement of my key theoretical variables. The analytical methods used to analyze these data are discussed in chapters four and five.

In chapter four, I examine the existence of municipal finance ECs and the composition of these ECs (i.e., network membership). I begin the chapter with a broad overview of Michigan’s fiscal crisis. I then proceed to discuss the various constraints imposed on Michigan’s municipalities which have severely limited the ability of these governments to raise revenues. I follow up this discussion with a brief description of the various strategies that have evolved in the state as responses to the growing financial problems. In the second section, I propose research hypothesis about the potential existence of epistemic communities in Michigan within the domain of municipal finance. Next, I present the various analytical procedures carried out to test the proposed
In this same section, I propose a second set of research hypotheses focused on the composition of municipal finance epistemic communities. Following this, I proceed to present the various analytical procedures carried out to test this second set of hypotheses and the findings of these tests. Finally, I conclude this chapter with a discussion of the implications of my findings. The empirical analysis in this chapter is based on social network mapping and descriptive statistics.

In chapter five, I analyze the interaction patterns that exist among members of the epistemic communities identified in chapter four. In chapter five, I also analyze the factors that motivate these actors to interact with each other. Lastly, I examine the policy performance of these actors. This includes an assessment of the policy promotion forums they use and the liaisons they develop with decision makers. The empirical analysis in this chapter is based on a combination of p*/exponential random graph models, quadratic assignment procedures analysis, network mapping, and descriptive statistics.

In the sixth and last chapter, I discuss the contributions and significance of this study and present my suggestions for future research.
Notes

1 The metropolitan government approach emphasizes the use of single consolidated or dual-tier government structures to govern urban regions (Barnes and Ledebur, 1992; 1994a; 1994b; Pierce, Johnson, and Hall, 1993; Rusk, 1995). In contrast to the metropolitan government approach, the public choice approach stresses voluntarily negotiated, ad hoc arrangements for governing urban regions (Keating, 1995). These arrangements include service agreements between autonomous local governments; limited functional transfers to county governments (DeSantis, 1989; Desantis and Renner, 1994); and the creation of limited-purpose, multiunit special districts and authorities (Foster, 1997). On the other hand, new regionalism approaches prescribe voluntary arrangements promoted by the public choice approach as well as complex and overlapping service sharing networks (Savitch and Vogel, 2000) for governing urban regions.

2 In this dissertation, the concept of New Regionalism is used only within the regional governance context and as developed by H.V. Savitch and Ronald Vogel.

3 The concept of “wicked problems” was first formally described by Horst Rittel and Melvin Webber in 1973. Within the context of social planning, these scholars specified ten characteristics of wicked problems that help differentiate them from relatively tame problems that can be solved. These ten characteristics are listed below.

   1. There is no definitive formulation of a wicked problem, different framings of the problem will lead to different definitions.
   2. Wicked problems have no stopping rule, or point at which the problem is effectively solved.
   3. Solutions to wicked problems are not true-or-false, but better or worse.
   4. There is no immediate and no ultimate test of a solution to a wicked problem.
   5. Every solution to a wicked problem is a "one-shot operation"; because there is no opportunity to learn by trial and error, every attempt counts significantly.
   6. Wicked problems do not have an enumerable (or an exhaustively describable) set of potential solutions, nor is there a well-described set of permissible operations that may be incorporated into the plan.
   7. Every wicked problem is essentially unique.
   8. Every wicked problem can be considered to be a symptom of another problem.
   9. The existence of a discrepancy representing a wicked problem can be explained in numerous ways. The choice of explanation determines the nature of the problem's resolution.
  10. The planner has no right to be wrong (planners are liable for the consequences of the actions they generate) (Rittel and Webber, 1973).

4 In the early 1970s, many Mediterranean countries established coordinative environmental ministries/agencies. Notably, these ministries were staffed by members of the “Med Plan EC” and by the marine scientists who were allied with UNEP, since they were the only ones with a strong reputation for expertise in pollution control (Haas, 1989).
CHAPTER II
The Epistemic Communities

The epistemic communities approach demonstrates how shared learning as a process can be used to facilitate better politics and subsequently better policy making. Shared learning is one of the fundamental components of collaborative efforts and interorganizational collaborative processes are simply joint learning systems where discussions create shared meaning, bring out added knowledge, and enable participants to formulate ideas and processes for joint action (Agranoff and McGuire, 2003). Through shared learning, epistemic communities help transform the political process from a question about who gets what, when and how (Lasswell, 1950) to a question about who learns what, when, for whose benefit and why (Adler and Haas, 1992). Besides facilitating shared learning, epistemic communities also serve as an extremely useful prerequisite to rational choice, one of the most commonly employed causal logics in the study of regional governance. In general, all organizations engage in some form of ‘satisficing’ or procedural rationality in their consideration of policy alternatives (Simon, 1983); “[i]f rationality is bounded, epistemic communities may be responsible for circumscribing the boundaries and delimiting the options” (Haas, 1992a: 16). “The definition of alternatives is the supreme instrument of power” (Schattschneider, 1975) and by pointing out which alternatives are viable, an epistemic community can determine the playing field of the policy game.

Up until now, self organizing NR approaches have been deficient in addressing issues of democratic accountability (DeHoog, Lowery and Lyons, 1990; Perlman, 1993; Lowery, 2000); political efficacy and participation (Oliver, 2001); class/race segregation of residences and school districts (Neiman, 1976; Weiher, 1991; Downs, 1994; Barnes
and Ledebur, 1998; Gainsborough, 2001); and housing, environmental, and transportation problems associated with urban sprawl (Downs, 1994; Rusk, 1995). In chapter one, I proposed that by using knowledge based epistemic communities, it is possible to enhance the ability of NR approaches to prevail over the politico-economic obstacles that deter overall regional cooperation. In this chapter, I provide more details on this proposal through an elaborate review of the lineage, organizational characteristics and functional performance of ECs. I begin this review with an introduction to policy networks. I briefly define these entities and explain their functional utility to public governance processes. Next, I provide an overview of the policy networks literature. In this overview, I identify epistemic communities as a subform of policy networks. I then proceed to review the EC literature. I begin this review with detailed discussions on five case studies, each drawn from a different policy domain. Subsequent to these discussions, I analyze the contributions of these studies to the public policy making literature. In the second section, drawing from the insights provided by these and other studies on epistemic communities, I propose a framework focused on addressing the following questions: What are epistemic communities? When do these communities emerge? How do they impact public policy making? Following the presentation of the epistemic communities framework, in the third section, I explain the key contributions of this dissertation. In particular, I show how the framework can be used to overcome the limitations in self-organizing NR solutions to achieve policy consensus across complex and wicked regional problems. In the fourth and last section of this chapter, I discuss the research questions that are analyzed in the subsequent chapters of this dissertation.
Policy Networks

The term “network” is generally used to describe clusters of actors who are linked together in political, social or economic life. Via network participation, these actors can spread information and resources or engage in collective action. Modern society is increasingly becoming a product of relations involving mutuality and interdependence as opposed to hierarchy and independence (Peterson, 2003). Consequently, linkages among organizations, rather than organizations themselves, have become the central focus of many social scientists. Today, akin to market structures, the public sector is also becoming more and more about power relationships that are informally and socially constructed and about the opportunistic behavior that these relationships allow (Rhodes, 1997). As public governance moves farther away from the traditional hierarchical mode, policy networks and policy network relationships have become one of the crucial frameworks for explaining why some issues reach the policy agenda and others do not.

In general, the term policy network connotes “a cluster of actors, each of which has an interest, or ‘stake’ in a given…policy sector and the capacity to help determine policy success or failure” (Peterson and Bomberg, 1999: 8). Typically, within policy networks, there are few actors with close working relations and general agreement over the scope, aims, and general institutional processes leading to policy output. Policy network scholars use a variety of classification methods to differentiate between these structures. These methods are usually based on different combinations of the following dimensions of network structures: types of participants, membership rules, network structure, power relationships, resource distribution, functional scope and strategies of
participants (Benson, 1982; Rhodes, 1986; 1997; Atkinson and Coleman, 1989; Jordan and Schubert, 1992; Kriesi, 1994). Today, regardless of their specific forms, policy networks have become an important part of the political landscape and “it is difficult to understand the prominent policy continuities in some areas and the equally prominent policy changes in other areas without focusing on these networks” (Blom-Hansen, 1997: 670).

Policy networks are involved in the development as well as in the implementation of policy. They function as forums for voluntary bargaining for policy actors in an increasingly interdependent society where hierarchical coordination and control are becoming less likely (Börzel, 1997; 1998). Policy networks help to overcome the structural dilemma of traditional bargaining systems because they provide additional avenues for interaction and communication in inter- and intra-organizational decision making settings. In fact, these networks have the potential to counterbalance power asymmetries by providing additional channels of influence beyond formal structures (Benz, 1992). Policy networks shape policy formulation and implementation not only through information exchanges, but also through exchanges that consist of financial, personnel and technical resources.

Policy networks also serve to reduce transaction costs and uncertainty. By providing information about the behaviors of actors embedded in them, network structures reduce the search and information costs associated with identifying and screening suitable and credible partners (Granovetter, 1985; Gulati, 1995). By permitting repeated face-to-face interactions among actors, these structures facilitate the development of norms of trust and reciprocity (Axelrod, 1984). Trust and reciprocity are
key to reducing coordination costs. Reciprocity in exchange can make transacting parties hostage to one another, thereby restricting opportunistic behaviors (Williamson, 1996). Reciprocity in exchange can also create social capital by developing mutual trust among collaborating partners. Consequently, partners’ behaviors become more predictable for existing and subsequent exchanges (Gulati and Gargiulo, 1999). Finally, network structures also serve to reduce the costs of enforcing and monitoring mutual agreements. Fears of sanction by other network members and the desire to maintain a good reputation will mitigate the threat of opportunistic behavior, especially in dense (closed) networks (Granovetter, 1985).

The Policy Networks Literature

Scholarly treatment of policy networks typically takes two forms, as a typology of interest intermediation, and as a specific form of governance. The interest intermediation school is concerned with how networks affect power structures and how the resultant power relationships favor certain interests over others in policy formulation and implementation. The governance school seeks to understand the extent to which the state has lost its governing capacity and whether we now have governance without government (Rhodes, 1997). In this dissertation, policy networks are treated as a typology of interest intermediation.

The Interest Intermediation School

All governments confront a variety of interests and the aggregation of those interests is a functional necessity. “Intermediation is therefore a fact of everyday life in
government” (Rhodes, 1997: 9). There are a variety of policy networks, each articulating its own interests in the process of governing. Government itself is receptive to these varied interests as inclusiveness often enhances the effectiveness of the policy option adopted. A key outcome of the interest intermediation perspective is the development of analytical devices to map the configurations of these policy networks. These mapping exercises spawned a number of network typologies, several of which have proven to be very helpful in specifying power relations within specific policy fields.

For example, Grant Jordan and Klaus Schubert’s (1992) typology is based on three main criteria, the level of institutionalization (stable/unstable), the scope of the policy-making arrangement (sectoral/trans-sectoral), and the number of participants (restricted/open). In contrast, Frans van Waarden (1992) uses seven criteria in his typology: actors, function, structure, institutionalization, rules of conduct, power relations, and actors’ strategies. However, he identifies three of these as most important for distinguishing among existing types of networks. These are the number and type of societal actors involved, the major function of the network, and the balance of power among network actors. Rod Rhodes (1988) distinguishes five types of networks based on the degree to which network members are integrated, the type of network members, and the distribution of resources among them. He places his network types on a continuum ranging from highly integrated policy communities at one end and loosely integrated issue networks at the other, with professional networks, inter-governmental networks, and producer networks in-between (Rhodes, 1988). While policy communities are characterized by stability of relationships, continuity of a highly restrictive membership, a high degree of vertical interdependence and limited horizontal articulation, issue
networks are distinguished by their large number of participants and limited degree of interdependence (Rhodes, 1988).

A more fundamental, but often overlooked, distinction among policy networks is the diversity of interests and resources of network participants. Heterogeneous policy networks are those networks in which network participants have different interests and resources. Such heterogeneity is thought to create a state of interdependence among the actors linking them together in a policy network wherein they mediate their interests and exchange their resources (Börzel, 1998). On the other hand, homogeneous networks are those in which participants have similar interests and resources. These include professional networks (Burley and Mattli, 1993), epistemic communities (e.g., Haas, 1992a; Adler and Haas, 1992; Frederickson, 1999), and principled issue-networks (Sikkink, 1993). Interestingly, homogeneous networks are among the least studied groups in the interest intermediation school (Börzel, 1998).

The Epistemic Communities Literature

Though the term epistemic community has been used in a wide variety of ways, it is most commonly used to refer to communities of scientific experts (Foucault, 1970; Holzner, 1972; Ruggie, 1975; Haas, 1989; Antoniades, 2003). Etymologically derived from the Greek word “ἐπιστήμη” (episteme), the term refers to knowledge or science (Kutchesfahani, 2010). However, over the years, the concept of episteme has evolved substantially. From referring to a shared faith in the scientific method as a way of generating truth (Holzner, 1972; Holzner and Marx, 1979), the term has evolved as a dominant way of looking at social reality (Foucault, 1970; Ruggie, 1975), as a way to
explore the global governance system (Haas, 1989; 1992b), and as a way to dominate social discourse and practice (Antoniades, 2003).

As a framework, the concept was introduced to the field of international relations (IR) by Peter M. Haas (1989; 1992b). Haas applied the framework to international policy coordination studies to assess the role and impact of knowledge/ideas in transnational relations and institutions. He (1992a) defined an epistemic community as a network of professionals from a variety of disciplines and backgrounds who have a shared set of normative and principled beliefs, shared causal beliefs, shared notions of validity and a common policy enterprise. Though there are several versions of the EC concept, Haas’ model is the most widely accepted one. This dissertation is also focused on Haas’ model and the literature reviewed here includes only those studies employing Haas’ model to examine the roles of epistemic communities in public policy making.

A review of the EC literature provides answers to three questions. First, what exactly is an epistemic community? What are its most important characteristics? Which actors constitute this community? Second, what is the causal logic of ECs? An EC is a complex network of networks consisting of people who are on the same epistemological wavelength, but not necessarily employed in the same organization. What factors or conditions bring together experts who are geographically dispersed? That is, what factors or conditions favor the emergence/proliferation of an epistemic community? Third, what impacts do ECs have and how are those impacts manifested? How does an epistemic community matter for public policy making? Does it influence policy makers and policy making processes? Do members of the community acquire influence through liaisons with powerful political and bureaucratic actors and groups? If so, how do these members,
located in different organizations/jurisdictions, gain access to these decision makers? Do they use advisory positions, contract-based consultancies, and other informal networks to impact policy makers and the choices they make? The answers to these questions are fundamental to understanding the concept of epistemic communities. Using these questions as a roadmap, I review several case studies that explore the roles of ECs in public policy making. Each study belongs to a different policy domain and each of the domains requires a different level of technical expertise. Figure 2.1 classifies the cases reviewed in order of their technical complexity and appearance in the discussion.

**Figure 2.1: Technical Complexity of Cases Reviewed**

<table>
<thead>
<tr>
<th>High</th>
<th>Low</th>
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<tbody>
<tr>
<td>National Innovation Systems</td>
<td>Local Democratic Participation</td>
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<tr>
<td>Global Environmental Protection</td>
<td>Local Fiscal Accounting</td>
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<tr>
<td>International Labor Politics</td>
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**National Innovation Systems**

Sunil Mani (2006) has studied Singapore’s “innovation systems EC” which played a critical role in making the country an important generator of new technologies. This EC, consisting of scientists, engineers, research analysts, government officials and international technological experts with expertise knowledge on innovation systems, was consciously mobilized by the Singapore government. Starting in the 1980s, the country created a variety of institutions, initiatives, programs, and funding to bring together a critical mass of qualified life sciences experts to help in the design, development and implementation of national innovation policies. These include establishing a molecular biology research centre; increasing funding for biomedical research at hospitals and
universities; developing a training program for life sciences researchers; creating many new funds for supporting innovation and commercialization in the biotechnology and life sciences industries; and promoting Singapore as the preferred location for biotechnology and pharmaceutical companies in Asia.

Since 1991, the National Science and Technology Board (NSTB), the main component of the “innovation systems EC,” has established 13 research institutes and centers (RICs). Each of these RICs focuses on a specific area. These RICs not only generate technologies themselves, but they also serve as a vital source of personnel for industry. The very existence of RICs has encouraged local industries to collaborate with them in research and development (R&D) projects. These RIC–industry collaborations have resulted in the development of more than 70 new products and processes, 20 of which have been commercialized, and have provided training for more than 580 researchers (Mani, 2006). Observing this, the Singapore government started to provide grants for these R&D projects. The government also encouraged multinational corporations to adopt a group of local small and medium enterprises and transfer technology and skills to them. According to Mani, these achievements are not simply due to the availability of finance for conducting technology-generating activities. Rather, they are the result of proper and sequenced policy design and implementation which led to proper financial maintenance and optimal outcomes. The “innovation systems EC” played a critical role in designing logically sequenced policy instruments and in implementing them. This EC helped develop efficient and effective technological policies which in turn contributed to the country’s national and local fiscal growth.
Peter Haas (1992b) has analyzed an “ecological EC” that helped to reduce global emission of ozone depleting chemical substances. This “ecological EC,” which was instrumental in the control of chlorofluorocarbon (CFC) emissions, was transnational in nature and consisted of officials of the United Nations Environment Programme (UNEP), the US Environmental Protection Agency (EPA), and the US State Department’s Bureau of Oceans and International Environmental and Scientific Affairs (OES). Atmospheric scientists in the international scientific community were also members of this EC. Within the US administration, the ecological EC was strongly represented by EPA Administrator Lee Thomas and officials from the offices of air programs and international activities.

International concern about the depletion of the ozone layer first surfaced in 1970 and lasted for a brief period. In 1974, Sherwood Rowland and Mario Molina, two American chemists, revived the discussion. They contended that the chlorine in CFC emissions reacts with and breaks down ozone molecules in the thin layer of stratospheric ozone and thus hinders the ozone layer's ability to prevent harmful ultraviolet rays from reaching the earth (Haas, 1992b). Following the Rowland-Molina hypothesis of 1974, atmospheric modeling became more sophisticated and it became possible to make clearer predictions about how various rates of CFC production would affect the ozone layer. Seriously concerned about the risk of ozone depletion, the UNEP convened an international conference in Washington in March 1977. At the conference, the UNEP released the World Plan of Action on the Ozone Layer, a document that called for a treaty for ozone protection. The negotiation points for the treaty were framed by the “ecological EC” which aimed at preserving the ozone layer. This EC also had access to a variety of
other channels to decision making. Through UNEP, it drafted documents and reports, gathered data, organized scientific panels, pressured delegates, and stressed issues that it deemed important. On 22 March 1985, a framework agreement called the Vienna Convention for the Protection of the Ozone Layer was signed by 20 countries. Unfortunately, the agreement lacked specific control measures. At this point, the discovery of the ozone hole alarmed the public and the UNEP quickly called for negotiations to be reconvened in December 1986. After several negotiation sessions, the Montreal Protocol on Substances That Deplete the Ozone Layer was adopted in September 1987. The “ecological EC” played a significant role in institutionalizing the control on CFC emissions via the Montreal protocol. In all, 31 nations ratified the protocol which called for two staggered cuts in consumption that would lead to a 50 percent total reduction from 1986 levels. Since the treaty came into effect, atmospheric concentrations of the most important CFCs and related chlorinated hydrocarbons have either leveled off or decreased (Speth, 2004). As of January 12, 2012, the treaty has been ratified by 196 states and the European Union (United Nations Office of Legal Affairs, New York, 2012). It is believed that if the international agreement is adhered to, the ozone layer is likely to recover by 2050 (Speth, 2004).

Local Fiscal Accounting

In a 2011 study, Irvine, Cooper and Moerman examine the dual role of an Australian “financial EC” as an influencer of local government accounting policy and as an implementer of that policy. Traditional financial practices of Australian local governments led to inconsistent valuation and depreciation methods which rendered key
performance indicators inappropriate for determining whether local councils were viable. There was a nation-wide funding shortfall in Australia in the management of local government community infrastructure. The problem stemmed from the estimated cost for local councils to get infrastructure assets into satisfactory condition (Irvine et al., 2011).

In October 2005, the Local Government and Shires Associations announced an independent inquiry into the financial sustainability of local councils. In its final report, issued in May 2006, that inquiry identified ‘a huge backlog in infrastructure renewals’ of over $6 billion, which was ‘expected to grow to almost $21 billion within fifteen years’ (LGSA, 2006, p. 7). This ‘renewals gap’ or backlog, was defined as the difference between ‘the rate at which councils’ physical assets are depreciating and the rate at which they are being replaced’ (LGSA, 2006, p. 7) (Irvine et al., 2011: 251).

The widespread failure of local governments across the country and the perceived financial sustainability crisis of New South Wales (NSW) local councils motivated the NSW state Department of Local Government (DLG) to consult with experts. Faced with the need to formulate and implement a new set of accounting guidelines, the DLG mobilized a local level “financial EC.” The DLG reached out, identified and mobilized professional groups that shared a common understanding on the nature of the problem and had the potential to develop consensus on potential ways to resolving it. The mobilized EC was composed of finance and accounting staff from a variety of local councils, an auditor employed by several local councils and an external consultant. Not surprisingly, all thirteen members had at least one professional affiliation and six of them had more than one professional affiliation (Irvine et al., 2011).

The DLG valued the expertise of the “financial EC” and invited it to assist in the formulation of new accounting guidelines. However, members of this EC were already involved in this process through their participation in the Local Government Accounting Advisory Group. Through this group, they had a history of providing input and therefore,
the DLG’s decisions about accounting policy were decisions in which they had participated.

A significant example of [the community’s] influence… can be seen in [its] participation in the decision relating to the timing and sequence of adoption for various classes of infrastructure assets. Auditors were identified as being particularly influential. The Local Government Auditors’ Association, according to Interviewee A, ‘drive(s) the end product’ by influencing the DLG about what they ‘will or will not accept in the audit process ’…. The DLG [finally] instituted the policies that were developed in co-operation with the epistemic community, acknowledging their role and importance in the process. (Irvine et al., 2011: 257, 261).

The “financial EC” believed that fair value in financial statements was beneficial as it would give managers a better idea of council assets and what they were worth, and would assist local councils to develop an asset management plan. Through its affiliations in various professional finance and accounting bodies, its connections with the DLG, and bureaucratic positions held in local councils, this EC was able to diffuse and institutionalize its worldview in the form of DLG’s new accounting code. Additionally, this EC also facilitated the implementation of the newly developed code.

International Labor Politics

A 2005 study by Van Daele focused on “pre-World War I labor ECs” (hereafter “prewar ECs”) that institutionalized international labor politics. The main components of the “prewar ECs” were the International Association for Labour Legislation (IALL) and its numerous branches.

Stimulated by the simultaneous development of modern communication tools, the IALL functioned as a network for the exchange of knowledge and new ideas about labour regulations in various industrial countries. As its permanent secretariat, the International Labour Office in Basle, Switzerland, centralized relevant information and organized international congresses on a regular basis. The IALL targeted both international and national communities. Separate
divisions were set up in each member country…. [The IALL] was able to examine pressing social current events of the day in a scientific way. Its achievement lies in the impressive way it was able to combine the major intellectual tendencies of the time to form a powerful framework for addressing concrete issues. It targeted those areas that had a direct bearing on a worker’s daily life (unemployment, working hours, female labour, housing, and national insurance), albeit within the politico-ideological debate on the advisability of government intervention (Van Daele, 2005: 445, 446).

Though the IALL was a private initiative, it received governmental support in organizational and financial matters. West European governments, worried about the rising tide of Marxian socialism, saw the IALL as a way to address grievances and pre-empt socialism. Hence they cooperated with the research work of IALL and sent delegates to its various conferences. The IALL’s very first conference dealt with the prohibition on night work for women and the use of white phosphorus in the matchstick industry. These propositions were a successful start to additional periodic international deliberations.

During the first half of 1919, representatives from more than 30 allied and associated nation states gathered near Paris to outline a new world order following World War I. Prospects for cooperation across political and social crises seemed bright in the postwar world. During this time, Woodrow Wilson, President of the United States, sought collective security by establishing the League of Nations to deal with international crises. In addition, along with the British Prime Minister Lloyd George, and the French Premier Clemenceau, Wilson initiated the establishment of the Commission on International Labour Legislation entrusted with the task of devising a common labor program to serve as a blueprint for international postwar social politics. Through this commission, “prewar ECs,” that emerged in 1900, played a decisive role in drawing this blueprint. In fact, these ECs even managed to institutionalize international labor politics by creating the
International Labor Organization (ILO). The commission, consisting of internationally renowned scholars and social policy experts from a variety of disciplines and backgrounds, was invited by the plenipotentiaries to the Paris Peace Conference to advise official government leaders and diplomats on specific labor and industrial development questions. Importantly, a majority of the commission members knew each other “from various prewar networks in politics, science, and labour administration before they came together in Paris in 1919” (Van Daele, 2005: 436). The IALL, which had been developed by Ernest Mahaim, had functioned as an EC for at least two decades before the founding of the ILO. This EC was an avenue for scholars and labor experts to regularly analyze societal breakdowns. The Second International was the key political and ideological network for leaders of the socialist labor movement such as Emile Vandervelde. This network facilitated the exchange and development of ideas about international labor legislation across national political parties. It was mainly due to these experiences in prewar ECs and political networks that members of the Commission were able to establish the ILO so quickly in 1919--in contrast to the general peace negotiations, in which politicians debated, rather chaotically, on much less well-prepared issues.²

Local Democratic Participation

Salvador and Ramio, in their 2011 study, investigate Barcelona’s regional level “citizen participation EC” which helped promote polices enabling direct citizen participation in local public affairs. This EC consisted of three principal groups of actors. The first group consisted of a set of professionals attached to university centers, consultancies, and independent foundations focused on research about, and the promotion
of citizen participation. The second group consisted of professionals and technicians, specialists in citizen participation, who perform their functions in the actual participation units of the municipalities. The third and last group consisted of the administrative sphere, and included two bodies: Deputation of Barcelona’s Centre for Citizen Participation and the General Directorate of Citizen Participation of the Government of Catalonia. The objectives of both institutions were to strengthen citizen participation as a strategy of the administration, and to promote research, knowledge, and practical experience in citizen participation.

Based on repeated exchanges of ideas and joint reflection, these three groups of actors created their own corpus of knowledge on citizen participation. Training of specialists in the field of citizen participation and the plotting of the limits of what is regarded as valid knowledge in the field were important elements in the construction of this corpus. A clear example of training of specialists is found in the emergence of the Postgraduate Course in Citizen Participation. 60% of the 42 surveyed municipalities’ citizen participation officials had undergone this specific training and 23.8% attended additional participation courses. “Both kinds of evidence—the public promotion and diffusion of recognized practices, and shared specific training activities—illustrate…the generation of a current of solid opinion sustained by the epistemic community’s intellectual prestige and professional experience” (Salvador and Ramio, 2011: 11). The participatory EC successfully diffused best practices and experiences of citizen participation, and technical documents supporting the implementation of participation initiatives at the local level. Civil servants and participation officials of local governments were the principal target audience of this diffusion. The community did not
stop with policy diffusion; it proceeded to institutionalize the citizen participation units of municipalities. Importantly, the community managed to secure the support of mayors for these participation units by performing a task of “intensive symbolic “evangelization” concerning the advantages of incorporating democratic participation practices into the city councils” (Salvador and Ramio, 2011: 13).

**Contributions of the Case Studies to the Public Policy Making Literature**

The five cases discussed above clearly indicate that the role of knowledge and functional expertise is arguably one of the most important factors in policy formulation (Haas 1992a). In addition, these cases also illustrate the various ways in which knowledge and functional expertise tend to impact public policy making processes. Finally, the five cases also provide information about actors who possess these valuable resources.

The five cases clearly indicate that, at the very least, membership of epistemic communities consists of at least one group of experts who possess knowledge of and functional expertise in particular issue areas and of at least one group of relevant government officials who are responsible for making/implementing policies within those issue areas. In these five cases, EC members are typically found to apply their causal knowledge to a policy endeavor subject to their normative goals, and to use the bureaucratic advantage they possess to obtain access to decision makers.

The five cases illustrate that in the form of epistemic communities, knowledge and functional expertise have played significant roles in a variety of policy formulation situations. First, ECs become significant policy actors in issue areas characterized by high levels of technical complexity and uncertainty. Whether it is designing and implementing
innovation policies or preserving stratospheric ozone, epistemic communities have interpreted technically complex subject matter and have made sense of and provided predictions on uncertain scenarios (Mani, 2006; Haas, 1992b). Second, ECs tend to become crucial policy actors not only in cases involving issues of high technical complexity, but also in cases involving issues of low technical complexity. This is seen in the case of the Spanish “citizen participation EC” which emerged and undertook multiple activities to promote citizen participation in the Barcelona province (Salvador and Ramio, 2011). Third, ECs become indispensable policy actors in situations of shock or impending crisis. The “financial EC” helped NSW local governments to restructure their flawed accounting practices in the wake of a perceived fiscal sustainability crisis (Irvine et al., 2011). Similarly, the “ecological EC” helped stakeholders reach consensus on reducing CFC emissions in the wake of the shock created by the discovery of the ozone hole (Haas, 1992b). Fourth, ECs tend to play important policy roles whenever there are new political, social, economic, or scientific developments. This is evident in the efforts of “pre World War I labor ECs” that helped create a common labor program to serve as a blueprint for international postwar social politics (Van Daele, 2005). Another important lesson to take away from this case is the time-tested utility of epistemic communities in the policy making process. ECs are not a newly discovered fad in public governance systems; they have a long history of proven potential in achieving policy consensus in highly contentious issues occurring in decentralized political settings.

The five cases also illustrate the various avenues through which knowledge and functional expertise, in the form of epistemic communities, can impact public policy making. Haas’ (1992b) “ecological EC” influenced policy making through policy
innovation. This EC altered perceptions about CFCs and framed the context for collective responses to reduce the emission of these compounds. Mani’s (2006) “innovation systems EC” participated in policy selection and implementation and helped Singapore emerge as a generator of high-tech innovations. Similarly, Irvine et al.’s (2011) “financial EC” participated in policy selection and implementation and helped local governments in New South Wales to reform their fiscal accounting policies. Van Daele’s (2005) “prewar ECs,” through policy persistence, managed to institutionalize recommendations on international labor politics by creating the ILO. Similarly, Salvador and Ramio’s (2011) “citizen participation EC,” through policy persistence, managed to institutionalize citizen participation policies in Barcelona local governments. Finally, all of the ECs discussed in the five cases engaged in policy diffusion via a variety of mediums for the purposes of disseminating policy beliefs and reaching policy consensus.

Typically, EC studies tend to focus only on those elements relevant to the particular EC that they study. This can be observed in the five case studies where information on EC characteristics, emergence and policy performance is specifically focused on the particular EC examined in these studies. Therefore, in the next section, I bring together, integrate and develop this scattered information into a three-part framework.

**The Epistemic Communities Framework**

The epistemic communities framework described here seeks to provide a clear understanding of ways to identify, mobilize, and subsequently use epistemic communities
in governance processes. Importantly, this framework has been developed with the intention of providing a roadmap to academics and practitioners wishing to adopt this approach to different organizational settings.

What are Epistemic Communities?

Epistemic communities “are networks of recognized experts in a specific knowledge field; their tasks are directed toward contributing to the collective debate on subjects related to their field of knowledge, recommending policies, and identifying key points for possible negotiation” (Salvador and Ramio, 2011: 2). The chief aspects, the uniqueness and the knowledge producing activities of ECs are discussed below.

Key Characteristics of Epistemic Communities

According to Haas, an epistemic community has:

(1) a shared set of normative and principled beliefs, which provides a value-based rationale for the social action of community members;

(2) shared causal beliefs, which are derived from their analysis of practices leading or contributing to a central set of problems in their domain and which then serve as the basis for elucidating the multiple linkages between possible policy actions and desired outcomes;

(3) shared notions of validity—that is, intersubjective, internally defined criteria for weighing and validating knowledge in the domain of their expertise; and

(4) a common policy enterprise—that is, a set of common practices associated with a set of problems to which their professional competence is directed, presumably out of the conviction that human welfare will be enhanced as a consequence” (1992a: 3).

Structurally, an epistemic community is a network of networks; a network that is integrated by a complex group of networks (Maldonado-Maldonado, 2004). Most
commonly, and at a minimum, epistemic communities consist of at least one group of scientific or technical experts with knowledge and expertise in particular issue areas and at least one group of relevant government officials such as bureaucrats, diplomats, or administrators who are responsible for making and implementing policies within those issue areas (Kutchesfahani, 2010). For example, Haas’ (1989) “ecological EC” was comprised of ecologists, marine scientists, high-ranking officials from specialized agencies such as the UNEP, government officials, engineers, physicists, oceanographers, and microbiologists. Hopkins’ (1992) “food aid EC” was comprised of economic development specialists, agricultural economists, and government administrators. The presence of government officials within an epistemic community permits the community to gain access to decision makers. Given that epistemic community members are respected within their own disciplines, they have the ability to extend their influence to eventually reach major policy actors, culminating with decision makers (Haas, 1992a)

**Distinguishing Epistemic Communities from Other Policy Communities and Groups**

An epistemic community should not be confused with a profession or discipline. An EC is typically composed of individuals from several professions and disciplines. Even when it does consist of individuals from a single profession or discipline, an EC is not equivalent to that profession or discipline (Thomas, 1997). As Figure 2.2 indicates, it is the combination of possessing a shared set of causal and principled (analytic and normative) beliefs, a consensual knowledge base, and a common policy enterprise (common interests) that distinguishes epistemic communities from various other groups
Though the causal beliefs and knowledge base are shared in disciplines and professions, principled beliefs and interests are not.

Epistemic communities are also different from classic interest groups and social movements. ECs do not represent any particular group that might be affected by the policy issue/decision in question. Though their participation and contribution to policy debates will benefit some actors and harm others, still these effects are not the fundamental motivations for ECs to intervene (Salvador and Ramio, 2011). ECs do not act as lobbies which openly represent a particular sector, but instead they act to promote professional best practices and thereby the best interests of society as a whole (Salvador and Ramio, 2011). In interest groups and social movements, though principled beliefs and interests are shared, the casual beliefs and knowledge base are not shared.

Legislators and bureaucratic agencies are in stark contrast to epistemic communities. These entities do not share causal and principled beliefs, knowledge base, or interests. Bureaucratic Coalitions closely resemble legislators and bureaucratic agencies. The only difference is that, the coalitions share interests. Here, it is worth noting that though epistemic communities are composed of bureaucrats, they do not function under bureaucratic constraints. The actions of EC members are guided by normative and causal beliefs and cannot be explained by the principal-agent and rational choice theories that are used to forecast the behavior of bureaucrats (Dotterweich, 2009). ECs are not under the pressure of making recommendations that are consistent with the interests of policy makers or that may further their professional careers (Hechter, 1987).
Figure 2.2: Distinguishing Epistemic Communities from Other Groups

### Causal beliefs

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<thead>
<tr>
<th>Principled Beliefs</th>
<th>Shared</th>
<th>Unshared</th>
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<tr>
<td>Epistemic Communities</td>
<td>Interest Groups and Social Movements</td>
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<tr>
<td>Disciplines and Professions</td>
<td>Legislators, Bureaucratic Agencies and Bureaucratic Coalitions</td>
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### Knowledge Base

<table>
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<tr>
<th>Interests</th>
<th>Shared</th>
<th>Unshared</th>
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<tr>
<td>Epistemic Communities</td>
<td>Interest Groups, Social Movements, and Bureaucratic Coalitions</td>
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<tr>
<td>Disciplines and Professions</td>
<td>Legislators and Bureaucratic Agencies</td>
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Note: Adopted from Haas (1992a).
**Knowledge Transactions of Epistemic Communities**

An epistemic community diffuses its ideas through a variety of mediums, e.g., conferences, journals, research collaborations, and various modes of informal communication and contact (such as phone calls, emails, organizational or individual websites, blogspots and social networking websites like Facebook, Twitter, etc.). Some examples of knowledge diffusion practices of ECs are listed in Table 2.1.

**Table 2.1: Knowledge Diffusion Practices of Epistemic Communities**

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<tr>
<td>diffused ideas on arms control to the Soviets.</td>
<td>diffused best practices and experience of citizen participation in local public affairs via a series of publications. EC members also produced technical documents supporting the implementation of participation initiatives at the local level, and subsidies and annual prizes for the most noteworthy practices.</td>
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<tr>
<td>This EC’s members used direct diffusion avenues such as negotiation proposals, bargaining and negotiation positions, summit meetings, technical conferences and scientific forums (Adler, 1992).</td>
<td>This EC used the congresses of the International Observatory for Participatory Democracy as forums for the exchange of theoretical knowledge and international experience of participation at the local level (Salvador and Ramio, 2011).</td>
</tr>
<tr>
<td>In addition, EC members also used indirect avenues such as political statements and strategic debates, congressional hearings and debates, press reports, and academic books and articles (Adler, 1992).</td>
<td>In addition, EC members also developed a corpus of expert knowledge on democratic participation—which included the training of specialists in the Postgraduate Course in Citizen Participation and the plotting of the limits of what is considered as valid knowledge on the subject (Salvador and Ramio, 2011).</td>
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The ability to diffuse epistemic ideas and the availability of various means to diffuse these ideas are certainly important for the performance of ECs. However, the ability of an epistemic community to promote its episteme also depends on two other critical factors. First, the policy ideas furthered by a particular epistemic community have
to be more convincing to leading political decision makers than the assertions advanced by other epistemic communities that may have emerged around the same issue area (Haas, 1990). Second, an epistemic community must be able to forge alliances with decision makers (Haas, 1990). Influencing the interfaces of the corridors of power and authority is therefore critical for epistemic communities to succeed.

**When Do Epistemic Communities Emerge and Proliferate?**

Several factors explain the emergence and proliferation of epistemic communities in the public policy making domain. These include uncertainty and shock, the need for interpreting highly complex and technical information, and the availability of governance processes for institutionalization of policy ideas and beliefs (Haas, 1992a).

**Uncertainty and Shock**

Uncertainty is a crucial condition for the emergence of ECs. Uncertainty in public policy making is frequently due to two reasons, either the information about the situation at hand is insufficient or the available general knowledge is inadequate for purposes of assessing the expected outcomes of different courses of action (George, 1980). In politically fragmented settings, uncertainty in policy making may also stem from high levels of functional interdependency among autonomous policy actors. Typically, in these settings, policy coordination will depend heavily on the policy choices of these mutually dependent actors. All of these uncertainties typically tend to trigger the need for a specific type of information. This information constitutes neither guesses nor raw data; instead, it is the product of human interpretation of social and physical phenomena (Haas
1992a). “[I]t consists of depictions of social or physical processes, their interrelation with other processes, and the likely consequences of actions that require application of considerable scientific or technical expertise” (Haas, 1992a: 4). Epistemic communities, transnational, national and subnational, are one possible provider of such information (Haas, 1992a; Verdun, 1999). Whenever there are demands for interpretation and technology based information, networks of specialists capable of producing and providing such information will emerge and proliferate (Haas, 1992a; Verdun, 1999).

Like uncertainty, shock or crisis situations also favor the emergence of ECs (Haas, 1992a; Verdun, 1999). The growing complexity and technical nature of monetary, labor, environmental, health, public safety, population and various other issues, the increasing number of policy actors and the range of their interactions, the globalization of the economy, and the expansion of the administrative state are all rarely fully recognized by decision makers. This in turn means that decision makers are not aware that their decision making capacities are significantly limited. As a result, it often takes a shock or crisis to overcome the institutional inertia and habit of decision makers and force them to seek help from knowledge societies (Haas, 1992a).

**Need for Interpreting Highly Complex and Technical Information**

Interpretation of information is the basis of knowledge transfer and institutional learning which in turn get translated into political activities and policy choices. Different groups of policy actors interpret reality differently, thereby contributing to differences and inaccuracies in knowledge transfer and institutional learning. To reduce these differences and inaccuracies, and to streamline political processes and policy choices, it is
vital to interpret information accurately. Policy makers often find it difficult to keep pace with the technological and scientific advances that characterize many policy domains. They need assistance in deciphering the technical jargon and condensing information into understandable and manageable portions. Policy makers also must confront policy subjects that are obscure and difficult to grasp. Such changes in the policy making environment make it hard or even impossible for decision makers to solve problems by themselves. Consequently, they are forced to seek help from experts who can accurately interpret technical jargon and complex subject matter (Sundström, 2000).

Availability of Governance Processes for Institutionalizing Policy Ideas and Beliefs

Epistemic communities that dominate theory and/or experience in the relevant field tend to make sense of, and outline alternatives to, new or uncertain situations, fill gaps in information, and formulate a set of technically or scientifically based reasons and arguments to support a particular course of policy action (Salvador and Ramio, 2011). The epistemes of ECs, however, gain long term significance only when there are processes available for institutionalizing them. Fortunately for ECs, there are a number of ways through which members can institutionalize their values and beliefs. EC members can institutionalize their epistemes through a) the social construction of reality, b) the formation of coalitions in support of policies derived from their episteme, and c) the creation of organizational bodies informed by their episteme.

An EC can use its episteme to frame issues and issue contexts for collective debate, thereby influencing subsequent negotiations and bringing about its preferred outcome to the exclusion of others (Haas, 1992a). Here, the said episteme serves as the
dominant way of looking at social reality (Foucault, 1970) which helps define political behavior both now and in the future (Haas, 1992a). An EC can also form subnational, national and transnational coalitions in support of specific policies that emerge from its episteme. Additionally, an EC can help build and maintain social institutions that are informed by its episteme. An EC’s values and beliefs, when used to construct social reality, and when assimilated in coalitions and institutions, can guide the behavior of decision makers long after the community was consulted with (Adler and Haas, 1992).

However accomplished, institutionalization grants a given episteme the status of orthodoxy. But it has to be remembered that institutionalization itself depends largely on the ability of the community to consolidate formal bureaucratic power within it (Haas, 1989). The professional training, prestige, and reputation for expertise accord an epistemic community access to the political system and also legitimize its activities (Haas, 1992a). Further, the global practice of staffing bureaucracies with professionals has allowed networks of knowledge elites to consolidate formal power within them. In major industrialized countries in the Western world, a majority of public civil servants identify themselves as technicians, policy makers and brokers (Aberbach, Putnam and Rockman, 1981). The outlook and work ethics of these professionals are influenced by a number of different factors, including their specialized training. Some examples showing how uncertainty, interpretation and institutionalization have motivated the emergence of ECs are listed in Table 2.2.
Table 2.2: Factors that Favor the Emergence of Epistemic Communities

<table>
<thead>
<tr>
<th>UNCERTAINTY</th>
<th>INTERPRETATION</th>
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<td><strong>Issue Uncertainty</strong></td>
<td><strong>Technical Complexity</strong></td>
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<tr>
<td>Uncertainties about how to apply multilateralism to streamline international economic trade motivated decision makers to consult with the “international trade in services EC” (Drake and Nicolaïdis, 1992).</td>
<td>The issue of climate change is delineated by almost impenetrable technical terms and complicated scientific evidence. Further, many of the impacts are not immediate, but may take decades to occur which makes them highly intangible. So policy makers had to consult with the experts of the “climate change EC” (Gough and Shackley, 2002).³</td>
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<td>Uncertainties about how to avert nuclear destructions motivated the US and Soviet decision makers to consult with the “arms control EC” (Adler, 1992).</td>
<td>The issue of plant genetics resources is both complex and technically sophisticated. In order to explore, preserve, evaluate and make available plant genetic resources for plant breeding and other scientific purposes, shared assessments and standards for the most effective way of preserving plant germplasm are required. To facilitate these assessments and help set the necessary standards, decision makers had to consult with the “plant genetics resources EC” (Sauvé and Watts, 2003).</td>
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<th>Shock/Crisis</th>
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<td>A perceived financial sustainability crisis in local governments forced policy makers in the state of New South Wales in Australia to mobilize a “financial EC” that intervened and helped introduce fair value accounting in the state’s local councils (Irvine et al., 2011).</td>
<td>The limited scientific understanding and uncertainty about the nature of the ozone depletion problem forced decision makers to turn to the “ecological EC” to explain the variety of possible policies (Haas, 1992b).</td>
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<td>Repeated environmental crises alerted nation states to the urgent need for collective action for controlling CFCs. The limited scientific understanding and uncertainty about the nature of the ozone depletion problem forced decision makers to turn to the “ecological EC” to explain the variety of possible policies (Haas, 1992b).</td>
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<th>INSTITUTIONALIZATION</th>
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<td><strong>Social Construction of Reality</strong></td>
<td><strong>Formation of Coalitions</strong></td>
</tr>
<tr>
<td>The “food aid EC” played a significant role in redefining food aid. This EC helped the concept of food aid to evolve from “a remedy for food aid recipients’ immediate food shortages and an outlet for the donors’ disposal of surplus food commodities” into “a vehicle to foster development-oriented projects” (Hopkins, 1992).</td>
<td>An international “ecological EC” institutionalized its views on environmental harms of using CFCs via the 1987 Montreal protocol and its predecessor, the 1985 Vienna Convention. In all, 31 nations signed the Montreal Protocol (Haas, 1992b).</td>
</tr>
<tr>
<td>The “international trade in services EC” redefined how nation states thought about liberalizing international trade (Drake and Nicolaïdis, 1992).</td>
<td>The American “arms control EC” institutionalized its episteme via the 1972 Antiballistic missile treaty (Adler, 1992).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Building and Maintaining Social Institutions</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>“Pre World War I labor ECs” managed to institutionalize international labor law by creating the International Labor Organization in 1919 (Van Daele, 2005).</td>
<td>An international “ecological EC” institutionalized its views on environmental harms of using CFCs via the 1987 Montreal protocol and its predecessor, the 1985 Vienna Convention. In all, 31 nations signed the Montreal Protocol (Haas, 1992b).</td>
</tr>
<tr>
<td>A regional level “citizen participation EC” in Barcelona, Spain institutionalized its policy beliefs on participatory democracy by establishing formal citizen participation units and later consolidating these units into the organizational charters of the local authorities in that province (Salvador and Ramio, 2011).</td>
<td>The American “arms control EC” institutionalized its episteme via the 1972 Antiballistic missile treaty (Adler, 1992).</td>
</tr>
</tbody>
</table>
**How Do Epistemic Communities Impact Public Policy Making?**

Countries with sufficient internal expertise are thought to be in a better position to design and implement good policies than those countries that do not have such expertise (Mani, 2006). “This is because the availability of experts will enable the policy-making bodies to process information, especially the technical information that is required to develop policy instruments, more effectively” (Mani, 2006: 2). Such incentives encourage decision makers to mobilize ECs. Adler and Haas (1992) propose that once mobilized, ECs typically influence public governance through policy innovation, policy diffusion, policy selection and policy persistence. Below is a discussion of the policy evolution metaphor these scholars developed to capture the policy roles that ECs play in governance processes. Following this discussion, examples of ECs playing these various policy roles are listed in Table 2.3.

**Policy Innovation**

Policy innovation is the first avenue of epistemic community influence. Community members can frame the issue and issue-context in a collective debate. In doing so, they help determine the range of the policy discourse, the level or forum at which the issue should be solved, and the norms and institutions that will be used in solving the issue. These preliminary choices prepare the stage for defining policy interests. In short, “epistemic communities exert influence on policy innovation by framing the range of political controversy surrounding an issue, defining state interests and setting standards” (Adler and Haas, 1992: 375).
Policy Diffusion

The second avenue of epistemic community influence is policy diffusion. Policy diffusion is the mechanism through which community members disseminate their views to the world. Diffusion mechanisms include: conferences, symposia, workshops, scholarly publications, research collaborations, membership in scientific bodies and professional organizations, and a wide variety of informal modes of communication. The wide acceptance of epistemic ideas can be used to put pressure on governmental units to make specific policy choices.

Policy Selection

The third avenue of epistemic community influence is policy selection. Typically, when there are no existing policies and decision makers are unfamiliar with an issue that has not been dealt with in the past, an epistemic community can step in, frame the issue, and help define the decision makers’ interests. However, when decision makers are familiar with the issue, they will seek support from a known epistemic community that they know will support their policy choices. This allows decision makers to legitimize their policy choices by referring to a community of experts who approve of those choices. In this case, the epistemic community is more involved in justifying, elaborating and promoting policies rather than choosing among them.

Policy Persistence

The fourth avenue of epistemic community influence is policy persistence. Policy persistence involves the maintenance of consensus on ideas, beliefs and goals over time
among the members of the community. This persistence contributes to the credibility, and hence the authority, of the community. Persistence determines how long the community will remain influential. New ideas and policies, once institutionalized, likely gain the status of orthodoxy. The process of socialization and often, the persistence of epistemic communities, facilitate the achievement of such a status. If an epistemic community starts losing its consensus, its authority diminishes, and decision makers pay less attention to its advice.

Table 2.3: The Impacts of Epistemic Communities on Public Policy Making

<table>
<thead>
<tr>
<th>POLICY INNOVATION</th>
<th>POLICY DIFFUSION</th>
</tr>
</thead>
<tbody>
<tr>
<td>The “ecological EC” altered perceptions about CFCs and has helped frame collective responses to environmental pollution. Before 1972, CFCs were not universally regarded as pollutants. But today, even governments of LDCs have recognized CFCs as pollutants that contribute to the depletion of stratospheric ozone and have begun to coordinate their actions to prevent or ameliorate CFC emissions (Adler and Haas, 1992; Douglas, 1975).</td>
<td>American researchers in the fields of nuclear physics, energy conservation, and atmospheric research have diffused their epistemic knowledge on new techniques to their Soviet counterparts (Socolow, 1989). American and British experts have diffused ideas among each other and have contributed toward the development of a postwar economic order as well as internationally agreed banking regulations (Ikenberry, 1992).</td>
</tr>
<tr>
<td>A telecommunications regime was grounded on notions of natural monopoly and was strongly influenced by the views of economists. However, an EC of engineers, concerned about design and international coordination of telecommunications equipment and standards, intervened and influenced the regime to move in the direction of multilateral agreements (Cowhey, 1990).</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>POLICY SELECTION</th>
<th>POLICY PERSISTENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>The diffusion of ideas from the U.S. “arms control EC” to the Soviets was thought to have a certain hegemonic quality as it came from the U.S. community’s conception of America’s own security (Adler, 1992). In the case of food aid, EC members were not oblivious to domestic political factors that provided donor countries with an incentive/rationale for supporting food aid programs, perhaps even increasing the amount of aid available to recipients. For instance, recognizing US farmers’ need for export revenue, EC members wisely targeted their energies toward topics such as efficient use of funds budgeted for food aid, and away from issues that would call into question whether food aid should exist (Hopkins, 1992).</td>
<td>The emergence and involvement of many new epistemic communities caused the World Bank to shift its support from one series of development goals and policies to another—from building infrastructures to eliminating poverty to encouraging export-oriented growth (Ayers, 1983; Gran, 1986). In the case of the GATT, nation states continue to comply with its free trade principles, despite the incentives for free riding and despite increasing domestic pressures to pursue protectionist policies (Adler and Haas, 1992). Notably, in the US, continued involvement of economists trained in the Keynesian tradition in the executive branch has helped promote compliance with GATT in spite of a great degree of public outcry (Goldstein, 1986).</td>
</tr>
</tbody>
</table>
The Utility of ECF for Regional Governance

Currently, many municipalities across the US are seeking to merge services, particular agencies and even entire governments in an effort to cut costs. However, these efforts are slowed down due to the disagreements among public officials on the best ways to streamline governance activities, and residents’ worries that property values will be driven down and the quality of services may suffer. In some communities, citizens’ dissatisfaction has taken the form of protests and calls for public votes on any changes. While residents of smaller communities fear losing control over their way of life, their democratic voice, and eventually their identity, better-off communities are disinclined to bailing out neighboring jurisdictions that are in trouble (The Detroit Free Press, 2011).

Many residents resist governmental consolidation due to fears of inadequate political representation--they believe that the more elected officials you have, the greater the amount of democracy you have (Dougherty and Merrick, 2009). Additionally, they worry about changes in property tax rates and the ways in which their tax dollars will be used. Residents resist service consolidations as they believe their tax dollars may subsidy jurisdictions with poor service levels. Meanwhile, poorer units resist merger attempts due to fears of receiving step-motherly treatment at the hands of wealthier ones. Also, some residents argue that many officials in townships and small cities work part-time and are generally paid less (Dougherty and Merrick, 2009). When services are consolidated, these officials may have to be replaced with full-time professionals more highly paid (Dougherty and Merrick, 2009). Further, these officials may propose more ambitious and
costly projects, eventually erasing a good portion of the projected cost savings from merging.

The above are only a few among the long list of concerns that residents have whenever structural governance reforms are discussed. It is worth noting that public officials and residents are not the only stakeholders in problems arising from regional governance activities. Businesses, religious institutions, charitable organizations, subregional associations, professional bodies, and officials from higher levels of government also have vested interests in these activities.

While the interconnected nature of regional issues is creating substantial uncertainties about potential consequences of proposed actions, the fiscal crisis occasioned by the “Great Recession” is forcing new kinds of conversations and the search for new kinds of approaches to dealing with financial problems. When new kinds of approaches have to be developed and evaluated, new kinds of information have to be provided and interpreted. And to carry out these activities, experts have to step in.

Epistemic communities are one possible source of such information and assessment. ECs can also help in identifying potential policy interests, diffusing policy ideas, deducing salient points for negotiation, initiating negotiations, sustaining sensitive dialogues, reaching policy consensus, and possibly implementing policy choices. The epistemic communities framework is essentially a prescription for developing policy consensus; it facilitates a deliberative-analytical process involving multiple stakeholders that may, in due course, lead to policy changes.
Contributions of this Research

Contributions to the New Regionalism Literature

The most important contribution of this dissertation is its proposal to use epistemic communities to enhance the utility of self-organizing approaches for regional governance. As discussed earlier, in the US, proposals for formally structured regional governments have met with strong resistance from local public officials, citizens, businesses and other special interests that gain from local autonomy and regional fragmentation (Feiock, 2004). Given the opposition to establishing legal and political structures to centralize decision making in metropolitan areas, many local units have opted for regional self-organizing solutions via vertically or horizontally linked institutions (Frederickson, 1999).

Despite the increasing popularity of self-organizing approaches, the ability of voluntary mechanisms to integrate different public concerns and to keep up with the rapid changes that take place in metropolitan regions has often been questioned (Bollens, 1997; Frug, 2000). Given that ECs allow for the establishment of a deliberative-analytical process even in extremely divisive policy situations, they could be used as a precondition in self-organizing regional solutions. In this way, voluntary collaboration in policy development across complex, contentious and wicked regional problems can be facilitated, while still retaining the flexibility benefits of NR approaches.

The only way to reach policy consensus on difficult regional problems is by initiating a dialogue on the problem at hand. For instance, if the problem is metropolitan poverty, representatives of local governments, metropolitan residents, businesses, special interests, public charities and other stakeholders should be assembled and meaningful
Dialogues about metropolitan poverty should be facilitated. Dialogues should focus on causes for the decline of the inner city and the resulting sprawl, the positive and negative effects of sprawl, the long term implications of these effects, and ways to control inner city decline and combat adverse effects of sprawl. To bring together diverse groups of actors with conflicting interests is in itself a difficult task. To further proceed to initiate several meaningful dialogues among these actors to make them develop a common understanding on the causes and consequences of sprawl and to convince them to collaborate on solutions to contain sprawl are even more arduous tasks. Scholars like Gerald Frug (2000) call for the creation of regional institutions that can facilitate this kind of information exchange and dialogue among these actors.

Perhaps the efforts of ECs may achieve much the same end. ECs can help deal with the challenge of creating broader governance structures by bringing various stakeholders together and encouraging them to act collectively despite the differences in their values and interests. Whether it is designing a regional transportation system, controlling environmental pollution, establishing a regional partnership for economic development, regulating housing policies, reforming public education systems, stimulating democratic participation, or streamlining overlapping service provision policies, ECs possess the intellectual resources and professional credibility to initiate and sustain collaborative action. They can shift focus from “things” regionalism to “people” regionalism (Bollens, 1997). That is, they can reframe issues and redefine policy interests such that stakeholders’ focus moves past superficial distributive issues to longstanding redistributive concerns about lifestyle maintenance and access to socio-economic opportunities.
So what makes ECs different from the various other regional institutions established for collaborative purposes? Often, regional entities such as councils of governments, regional special purpose districts and interlocal functional partnerships are established for the purpose of economic competitiveness and are biased toward single-purpose goals. Moreover, and typically, only a small group of neighboring local governments participates in these entities. The organizational and membership requirements of these entities do not allow them to fully acknowledge the interconnectedness between various regional issues or to develop policy solutions that would target the root cause of problems. In contrast, epistemic communities can develop comprehensive and long-term vision and can devise tradeoffs across policy areas and political borders. They can see past narrow policy fields and single constituencies, and take into account, as a whole, the lifestyles of the communities within the region, and the interactions among these communities. Further, existing regional entities are biased toward inclusion of a particular group of stakeholders--local governments. But regional problems encompass a range of other stakeholders in both the public and nonpublic sectors, who fear that existing regional entities are not representative of their needs and interests. ECs may command the image of qualified and experienced experts who are seeking to uphold professional best practices. In the eyes of their target audience, they are neither lobbyists seeking to further someone else’s objectives, nor are they stakeholders who have a bias toward a particular set of policies. This credibility is an important feature that differentiates ECs from other entities. It is these distinctive characteristics of ECs that make them capable of facilitating policy cooperation on tough problems in fragmented settings.
Contributions to the Epistemic Communities Literature

This dissertation also makes significant contributions to the epistemic communities literature. I have built a flexible/adaptable framework for identifying and analyzing epistemic communities in a broad range of governance settings and policy domains. Though the framework draws heavily from existing EC studies, it is significant as it systematically brings together the scattered theoretical pieces of the EC concept such that it is fairly easy to generate testable hypotheses about the concept. Besides developing the three-part EC framework, I have, for the first time, developed a four-step process for identifying the existence of epistemic communities. The four-step process I have developed permits examination of an entire policy domain for identifying the various ECs that exist within it, regardless of their policy contributions. In prior efforts, there has been a skewed focus on ECs that have successfully impacted policy making processes. But my approach provides the advantage of studying a variety of ECs: ECs that have succeeded, ECs that have failed, ECs that are newly formed, and ECs that impact policy choices in small, incremental ways. Simultaneous study of multiple ECs facilitates comparative analysis which in turn provides a richer and fuller understanding of the policy performance of epistemic communities; when they succeed and when they fail. Finally, in this study, for the first time, I have used deductive hypotheses, rigorous quantitative methods and social network analysis to examine the composition and role of ECs. Scholars in the past have typically approached this topic in terms of qualitative methods and case study analysis.
Research Questions to be Addressed

Epistemic communities are social entities wherein knowledge resides, skills are applied, and articulation and knowledge creation take place (Håkanson, 2010). Individuals can belong simultaneously to more than one epistemic community, all of which influence their conceptions of identity, associated world views and policy performances. In this dissertation, I examine five sets of research questions that are focused on identifying how the epistemic communities concept works at the regional level to facilitate policy development in the highly sensitive and complex policy domain of municipal finance reform.

The first set of questions focuses on the existence of epistemic communities in the state of Michigan, within the policy domain of municipal finance. Are there epistemic communities emerging in Michigan in the area of municipal finance? If so how many of them are emerging? Is there a separate epistemic community emerging in each of the following issue areas: local government revenues, expenditures on municipal employees and public service provision?

The second set of research questions deals with the composition of municipal finance ECs. Which actors participate in these finance reform ECs? Are there participants from both governmental and nongovernmental sectors? Do both state and local level government officials participate in these knowledge networks? Do representatives of private and nonprofit organizations also participate in these networks? Are there academics and representatives from professional bodies in these networks? What is the
proportion of participants from various governmental and nongovernmental organizations?

The third set of questions is about the interaction patterns of actors of municipal finance ECs. What interaction patterns are observed among EC members? For example, to what extent are these interactions characterized by reciprocal ties and social bonding? Are there specific popular actors operating within the knowledge networks? Are there specific actors who play the role of knowledge brokers within these networks? What kind of ties do EC actors typically develop within their knowledge network--strong or weak?

Previous research on ECs has been entirely qualitative in nature. This study is the first to employ a rigorous quantitative methods as well as SNA to study ECs. Through the use of p*/exponential random graph models, this study will provide vital information on the interaction patterns of EC members within their knowledge networks. This kind of information has not been provided by previous EC studies.

The fourth set of questions is related to the factors that motivate EC actors to interact with each other. What conditions motivate EC actors to interact with each other? Are issue uncertainty, impending crisis, the need for interpreting highly complex and technical information, and the motivation for institutionalizing policy ideas among these factors? Through the use of QAP analysis, this study will explain the motivations EC members have to interact with each other. Prior efforts have not focused on this dimension of EC participants.

The fifth set of questions centers on the policy performance of municipal finance ECs. This set of questions can be subdivided into two groups--policy promotion forums and liaisons of municipal finance ECs. What are the policy forums that these
communities typically use to broadcast their episteme? Do they promote their episteme by publishing books, articles, technical reports, conference papers or other scholarly material? Do they use modern communication modes such as websites, blogs, Facebook, Twitter and other social networking sites for promoting their episteme? Do they make direct policy recommendations to state level decision makers? Do community members develop communication links with actual decision makers? If so, it is important to understand the nature of these linkages. Various structural parameters of policy networks such as degree centrality, betweenness centrality, closeness centrality, rank, prestige, etc., (Monge and Contractor, 2002) can be employed as required to understand how accessible decision makers are to EC members. Notably, a social network approach to examining the potential policy influence of ECs is new to the EC literature.
Notes

1 CFCs, as a class of chemicals, were first discovered in 1931 by General Motors. Soon CFCs became widely used for refrigeration, air conditioning, and insulation because of their inert, nontoxic, noncarcinogenic, and nonflammable properties. By 1986, about 2.5 million metric tons of CFC compounds were being produced, with the United States alone accounting for 35 percent of it.

2 But unfortunately, political opponents of international labor deliberations, the US in particular, thwarted every attempt at creating a supranational legislative parliament and managed to reduce the original intent of the ILO architects to a non-binding system of conventions and recommendations (Van Daele, 2005). The ILO to this day must still contend with the fact that it cannot impose any decisions.

3 Despite the involvement of experts, the issue of climate change is still shrouded in complexity due to its global origin, high distribution across society and the resulting inability to nail down specific culprits (Gough and Shackley, 2002).
CHAPTER III

Research Design and Methodology Used for Studying Municipal Finance Epistemic Communities

Typically, single issue case analyses have been the norm for studying epistemic communities. In this research, I depart from this customary practice and use social network analysis to identify and analyze the presence of epistemic communities in municipal finance reform in Michigan. Using a social network approach to study epistemic communities has many benefits. Through SNA it is possible to assess a number of important aspects about epistemic communities. These include network membership, network boundaries, interaction patterns among network participants, roles and positions of members in the production and dissemination of knowledge, ties of network members outside the network, causes for network formation, and consequences of network formation. To my knowledge, SNA has not previously been used as an avenue to study epistemic communities.

Interviews and document analysis are the most common methods used by researchers to collect data on epistemic communities. Information on network membership and the distribution of associated knowledge practices is typically identified through analysis of meeting minutes, organizational newsletters, legislative testimonies and policy agreements. Other sources have included: newspaper articles, scholarly material published by government officials and academicians, and information available on websites, blogs, and other internet resources (Haas, 1992a). Interviews, usually in-depth and structured, are often used to supplement and/or confirm the information collected through document analyses. Network composition, members’ interaction
patterns, knowledge producing activities, and impact on policy outcomes are the principal areas that interviews focus on (Maldonado-Maldonado, 2004).

In this chapter, I discuss the research design used in this study. The chapter is organized as follows. I begin by explaining the process by which the initial sample was developed, and the snowball sampling technique used to identify other potential respondents. I proceed to explain how I developed the interview questionnaire that I used to collect the data. The structure and content of the questionnaire are also described in this section. Following this, I explain the interview method. Lastly, I conclude this chapter with a discussion on the measurement of my key theoretical variables. The analytical methods used to analyze these data are discussed in chapters four and five.

Research Design and Methodology

Sampling Techniques

The Initial Sample

An initial group of potential participants in municipal finance epistemic communities was identified through a content analysis of newspaper articles published between November 2010 and April 2011 in two key Michigan newspapers, the Detroit News and the Detroit Free Press. These two papers serve the most populous region of the state, the Detroit metropolitan area, which contains 185 municipal governments serving a population of nearly five million people. The papers also provide extensive coverage of the state government. In the two papers, I selected articles relevant to the topic of Michigan’s crisis in municipal finance. Articles were selected using a list of
words/phrases associated with municipal fiscal crisis. These 24 search words/phrases are listed in Table 3.1. After a careful review, articles that dealt with stories closely related to the search terms were collected. In all, 248 articles were examined.

| Table 3.1: Search Words/Phrases for Municipal Fiscal Crisis |
|--------------------------------------|---------------------|-----------------------|
| Budget Deficit | Financial Problems | Privatization |
| Collective Bargaining | Governmental Consolidation | Restructuring |
| Consolidating Services | Joint Service Provision | Service Cuts |
| Contracting-out | Lay-offs | Shared Revenues |
| Downsizing | Mergers | Structural Reform |
| Emergency Financial Management | Municipal Debt | Taxes |
| Emergency Financial Manager | Municipal Finance | Unions |
| Fiscal Stress | Municipal Employment | User Fees |

After analyzing the contents of the 248 articles covering various dimensions of Michigan’s crisis in municipal finance, fifty individuals were identified from the articles based on their policy knowledge and involvement in Michigan’s finance reform effort. These fifty individuals served as my initial sample. I then used contacts identified by this initial group to identify additional potential respondents. In addition to using the content analysis to identify the initial sample, I used it to identify the various policy solutions for confronting fiscal stress in Michigan municipal governments and the epistemes promoting them.

Content Analysis

Content analysis is an analytical device used to establish the presence of certain words or concepts within texts or sets of texts. Through content analysis, researchers can analyze the presence, meanings and relationships of such words and concepts, then make
inferences about the messages within the texts, the writer(s), the audience, and even the culture and time of which these are a part (Colorado State University, 2012). Texts can be defined broadly as books, book chapters, essays, interviews, discussions, newspaper headlines and articles, historical documents, speeches, conversations, advertising, theater, informal conversation, or any kind of communicative language. To conduct a content analysis on any such text, the text is either coded or broken down into manageable categories on a variety of levels--word, word sense, phrase, sentence, or theme--and then examined (Colorado State University, 2012).

In order to analyze the contents of the articles, I use the qualitative data analysis (QDA) Miner software package created by Provalis Research.² QDA Miner can be used to analyze interview or focus-group transcripts, legal documents, journal articles, entire books, and also drawings, photographs, paintings, and other types of visual documents. My analysis showed the repeated occurrence of certain policy proposals and actions such as laying-off municipal employees, proposals for increasing property tax, clashes with public unions for reducing the wages and/or benefits paid to municipal employees, and discussions for merging provision of specific public services with other jurisdictions. On further analysis of these proposals and actions, I observed that there were close relationships among them. Importantly, these proposals and actions were intended to achieve certain specific objectives targeting either the revenue or the expenditure side of municipal budgets. Proposals and actions on the revenues side focused on increasing municipal revenues, while those on the expenditures side either focused on decreasing compensation for municipal employees or restructuring public service provision.
On observing this pattern, I first coded each individual proposal or action based solely on its functional content. I refer to these codes collectively as strategies for municipal finance reforms. Subsequent to coding the individual policy proposals and actions, I collapsed them into three broad groups based on the implication of the proposal or action for the municipal budget. These groups were: increasing local government revenues, decreasing spending on municipal employees, and decreasing spending on public service provision by altering service provision modes. The specific strategies identified from the content analysis are listed in Table 3.2.3

Table 3.2: Proposals and Actions for Confronting Municipal Fiscal Stress

<table>
<thead>
<tr>
<th>Group 1--Increasing Local Government Revenues</th>
<th>Group 2--Decreasing Spending on Municipal Employees</th>
<th>Group 3--Decreasing Spending on Public Service Provision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seeking additional state shared revenues</td>
<td>Reducing municipal employment through lay-offs</td>
<td>Consolidating one or more local governments</td>
</tr>
<tr>
<td>Increasing local property taxes</td>
<td>Reducing the wages and/or benefits of municipal employees</td>
<td>Transferring certain functions to a higher level of government</td>
</tr>
<tr>
<td>Adopting or increasing local income taxes</td>
<td>Reducing the benefits paid to municipal retirees</td>
<td>Consolidating services with other local governments</td>
</tr>
<tr>
<td>Adopting or increasing user fees for specific local public services</td>
<td>Restricting the ability of municipal employees to collectively bargain for compensation and work rules</td>
<td>Contracting for services from other local governments</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Contracting for services from nonprofit organizations</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Contracting for services from private organizations</td>
</tr>
</tbody>
</table>

It has to be noted that the categories are not mutually exclusive. For instance, contracting-out service provision is intended to cut service provision costs. However, this
action is also intended reduce expenditures on municipal employees. Similarly, consolidation of one or more local governments does not just imply decreased spending on service provision, but also decreased spending on municipal employees. In general, I placed a code/reform strategy under the group representing the most obvious objective that code/reform strategy was intended to achieve.

These three broad approaches to coping with municipal fiscal stress served as the basis for designing the interview questionnaire used in this study. This questionnaire is described below in detail. These three approaches also identify the potential epistemes that are being promoted by the municipal finance epistemic communities that are expected to exist in Michigan. In some cases, an EC’s members are known and data collection is focused on identifying their episteme/policy beliefs. But in most other cases, an EC’s members may not be known. So researchers tend to identify common themes or policy beliefs from a variety of documents (such as meeting minutes, organizational newsletters, legislative testimonies, policy agreements, newspaper articles and scholarly material published by government officials and academicians) and, using those themes or policy beliefs, trace the experts who embrace and seek to promote them (see for example, Maldonado-Maldonado, 2004). Similarly, in this study, I use the potential epistemes identified from the content analysis in the process of identifying municipal finance epistemic communities. The method used to identify the municipal finance ECs using the potential epistemes is discussed in the section on variable measures.
The Interview Questionnaire

The interview schedule contained 15 questions: 10 close-ended questions and 5 open-ended questions. These questions are organized into four sections. The first section is intended to investigate the communication networks used by the respondent to discuss issues related to the adequacy of local government revenues. These issues include state shared revenue, local property taxes, local income taxes, and fees for using local public services. This section also captures the respondent’s degree of policy knowledge on the subject of local government revenues and his/her involvement in promoting specific reform strategies for increasing local government revenues. The interview questions from this section are listed in Table 3.3A.

The second section focused on identifying the communication networks used by the respondent to discuss issues related to compensation policies for local government employees. These issues include workforce policies, compensation policies, and policies on collective bargaining for compensation and work rules. This section also captures the respondent’s degree of policy knowledge on the subject of compensation policies for local government employees and his/her involvement in promoting specific reform strategies for reducing the costs of compensating municipal employees or the size of municipal workforce. The interview questions that comprise this section are listed in Table 3.3B.

The third section of the interview sought to capture the communication networks used by the respondent to discuss issues related to local government service delivery arrangements. These issues include governmental consolidation, consolidation of local government services, and contracting for local government services. This section also
captures the respondent’s degree of policy knowledge on issues relating to existing local
government service delivery arrangements and his/her involvement in advancing specific
reform strategies for promoting increased reliance on alternative service provision modes.
The interview questions from this section are listed in Table 3.3C.

The fourth and last section of the instrument focused on examining respondents’
motivations for participating in the three municipal finance communication networks and
the various forums that they used to make policy recommendations about municipal
finance reform. This last section also captured several attributes for each respondent:
gender, age, education, and membership in professional or subregional organizations. The
interview questions from this section are listed in Table 3.3D.

Table 3.3A: Interview Questions--Section One

<table>
<thead>
<tr>
<th>1. On a scale of 1 to 10, what kind of knowledge do you think you bring to the general topic of local government revenues?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 = Basic General Knowledge (Layperson)</td>
</tr>
<tr>
<td>○</td>
</tr>
</tbody>
</table>

2. If you frequently discuss the topic of local government revenues with individuals outside of your organization, please identify the two individuals whom you have contacted most often about this topic in the past year. Please write the name, job title and organization of these two individuals in the space provided below.

3. During the past twelve months, to what extent have you publicly recommended changing laws at the state level to enable local government officials to more easily:

<table>
<thead>
<tr>
<th>Seek increased state shared revenues?</th>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
<th>Very Often</th>
</tr>
</thead>
<tbody>
<tr>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td></td>
</tr>
</tbody>
</table>

| Increase local property taxes? |
| ○ | ○ | ○ | ○ | ○ |

| Adopt or increase local income taxes? |
| ○ | ○ | ○ | ○ | ○ |

| Adopt or increase user fees for specific local public services? |
| ○ | ○ | ○ | ○ | ○ |
Table 3.3B: Interview Questions--Section Two

4. On a scale of 1 to 10, what kind of knowledge do you think you bring to the general topic of compensation policies for local government employees?

<table>
<thead>
<tr>
<th>1 = Basic General Knowledge (Layperson)</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10 = High Technical Knowledge (Expert)</th>
</tr>
</thead>
<tbody>
<tr>
<td>o</td>
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<td>o</td>
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<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
</tbody>
</table>

5. If you frequently discuss the topic of compensation policies for local government employees with individuals outside of your organization, please identify the two individuals whom you have contacted most often about this topic in the past year. Please write the name, job title and organization of these two individuals in the space provided below.

6. During the past twelve months, to what extent have you publicly recommended changing laws at the state level to enable local government officials to more easily:

<table>
<thead>
<tr>
<th>Reduce municipal employment through layoffs?</th>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
<th>Very Often</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Reduce current pay or benefits of municipal employees?</th>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
<th>Very Often</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Reduce benefits paid to municipal retirees?</th>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
<th>Very Often</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Restrict the ability of municipal employees to collectively bargain over compensation and work rules?</th>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
<th>Very Often</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
</tbody>
</table>

Table 3.3C: Interview Questions--Section Three

7. On a scale of 1 to 10 what kind of knowledge do you think you bring to the general topic of local government service delivery arrangements?

<table>
<thead>
<tr>
<th>1 = Basic General Knowledge (Layperson)</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10 = High Technical Knowledge (Expert)</th>
</tr>
</thead>
<tbody>
<tr>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
</tbody>
</table>

8. If you frequently discuss the topic of local government service delivery arrangements with individuals outside of your organization, please identify the two individuals whom you have contacted most often about this topic in the past year. Please write the name, job title and organization of these two individuals in the space provided below.

9. During the past twelve months, to what extent have you publicly recommended changing laws at the state level to enable local government officials to more easily:

<table>
<thead>
<tr>
<th>Consolidate one or more local governments?</th>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
<th>Very Often</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Transfer certain functions to a higher level of government?</th>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
<th>Very Often</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Consolidate services with other local governments?</th>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
<th>Very Often</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>o</td>
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<td>o</td>
<td>o</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Contract for services from other local governments?</th>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
<th>Very Often</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td>o</td>
<td>o</td>
<td>o</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Contract for services from nonprofit organizations?</th>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
<th>Very Often</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>o</td>
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<td>o</td>
<td>o</td>
<td>o</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Contract for services from for profit organizations?</th>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
<th>Very Often</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
</tbody>
</table>
Table 3.3D: Interview Questions--Section Four

10. In general, to what extent do you agree that the following reasons are motivations for you to discuss, seek advice or offer advice to your colleagues in other organizations on the topics we have covered in this survey?

<table>
<thead>
<tr>
<th>Reason</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neither Agree Nor Disagree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Your interest in achieving policy objectives/outcomes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Your search for best practices of fiscal governance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Your colleagues engage in similar exchanges and so you follow suit</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Your desire for more information about these topics</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>To deal with the uncertainty surrounding these issues</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In order to deal with the specific problems created by the current financial crisis</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The highly technical and complex nature of municipal finance reform</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

11. In general, if you have recommended for any of the strategies we asked about in this survey, how often have you used the following forms of recommendation?

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
<th>Very Often</th>
</tr>
</thead>
<tbody>
<tr>
<td>Propagating the topic through pamphlets, brochures, radio, television, email, etc.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Propagating the topic through blogs, websites, Facebook, Twitter, etc.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Individually or collaboratively publishing/producing articles, books, technical reports, conference papers or other scholarly material on the topic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Presenting ideas on the topic at a state legislative meeting</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Directly recommending to a state level policy maker</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Making state level political or administrative decisions in support of the topic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

12. What is your gender?

13. What was your age at your last birthday?

14. What is the highest level of education that you have achieved?

15. Do you belong to any professional or subregional organizations? If so, name one.
The Snowball Sampling Technique

Each of the fifty individuals (or their staff) in the initial sample was contacted for interviews. The cover letter that was sent to this initial group of respondents is included in Appendix B. Those consenting to the interview were asked to name two people with whom they communicated most often on each of the three key issue areas of municipal finance--local government revenues, expenditures on municipal employees, and public service provision--identified through the content analysis described in the previous section. This process could generate the names of up to six individuals for each respondent but some respondents identified the same two people as their communication link for all three topics and other respondents indicated that they did not communicate with others on all three topics, so this number varied from one respondent to the next. The people identified through this process were then contacted and asked to consent to an interview, a technique known as snowball sampling. Individuals who were contacted through the snowball sampling process received the same cover letter as the initial sample.

The snowball sampling technique was used to identify additional respondents for the study and also to identify the relationships among members of the study. Information on relationships among respondents was in turn used to identify the structure of epistemic community networks. Ideally, the snowball sampling continues until the researcher reaches a point where no more new subjects are identified (Lincoln and Guba, 1985), indicating that all of the members of the group being studied have been identified. In this study, however, not all members of the communication networks within the policy domain of municipal finance are identified, as this is not the goal of this study. Instead,
the goal here is to identify the presence of epistemic communities within this domain. Again, here the goal is not to identify every single member in these epistemic communities, but to identify the presence of these communities and locate them within the communication networks. For the most part, researchers have access only to a part of the epistemic community that is being studied (Maldonado-Maldonado, 2004). Hence, the practice of interviewing only some EC actors is common in studies on epistemic communities.

Data Collection Methods

The Interview Method

In all, 100 interviews were conducted between August 2011 and February 2012. Interviews were requested from 120 people and 100 (83% response rate) agreed to respond. The interviews were conducted via telephone or email; on average each lasted fifteen minutes. Participants were asked to do a phone interview, but for those who preferred to answer the questionnaire online, a personalized interview link was emailed using the Qualtrics survey design and analysis software. Consent of participants was obtained by asking them to read a research information sheet before the interviews began. The interview schedule was pre-tested thrice to ensure question clarity and timing before entering the field.

Variable Measures

In this section, I discuss the most important theoretical concept used in the empirical analysis in this research: the identification of epistemic communities involved
in issues of municipal finance reform. This measure needs elaboration because the kind of quantitative measurement I use for identifying an epistemic community has not been attempted in previous research examining epistemic communities. The remaining variable measures and the deductive hypotheses to be tested in this research, according to their occurrence in empirical analysis, will be discussed in their respective empirical chapters--chapters four and five.

**Identifying an Epistemic Community**

Identifying an epistemic community is a complex process. This process is described in this section. Importantly, the process I have developed here is theoretically guided and based on evidence from prior studies conducted on epistemic communities. This process is just one way of identifying an epistemic community through the use of social network methods and quantitative measures.

**Step 1: Identifying the Communication Network that has Emerged in the Issue Area**

The first step in identifying an epistemic community is identifying and mapping the communication network in the issue area studied. In this research, I focus on three key issue areas of municipal finance--local government revenues, expenditures on municipal employees and public service provision. So I first map the three communication networks that have emerged in each of these issue areas. Each respondent in the initial sample was asked to name two people with whom (s)he frequently communicated on each of the three issue areas of municipal finance. The people identified by the initial sample were contacted and those consenting to interview were
asked to identify their contacts on the three issue areas. Using the data collected, I mapped the three communication networks separately.

**EC Relationships: More Informal than Formal Interactions**

An important feature of ECs is that they are based largely on informal rather than formal relations (Haas, 1992a). Haas (1992a) specifically mentions that members need not have to meet formally or even in a regular manner. Interview questions 2, 5, 8 were designed so as to capture the informal communication ties that respondents developed on various issues of municipal finance (see Table 3.6 under step 4).

**Step 2: Identifying Actors with Epistemic Characteristics: Academic Training, Policy Expertise, and Sharing Beliefs and Interests**

After mapping the three communication networks, I proceed to identify the actors within these networks who are qualified to be epistemic community members. In the literature examining epistemic communities, an individuals’ academic training, policy knowledge and professional interactions are typically used to identify if they are functional experts in that particular policy domain (Haas, 1989; 1992a). Based on this practice, I developed three separate variables that capture these elements. In order to be an epistemic community member, an individual must have at least a certain level of academic training, high policy expertise, and opportunities or venues to share policy beliefs and interests.

An epistemic community should not be confused with a particular profession. Also, it should not be assumed that academic prestige suggests only the highest level of education within a subject area. EC members need not be natural scientists or social
scientists; individuals from any discipline or profession who have a sufficiently strong claim to a body of knowledge that is valued by society qualify as EC members (Haas, 1992a). In this study, an individual, at a minimum, must have a bachelor’s degree to qualify as an epistemic community member. Typically, a large number of local- and state-level bureaucrats and nongovernmental actors participating in regional governance activities hold only a bachelor’s degree. However, many of these individuals have been working for decades within the same policy area, thereby acquiring great expertise within that area. Raising the threshold of academic training to the masters level may exclude many who are recognized as experts of municipal finance within that domain. Interview question 14 captures the academic training of the respondent.

The second variable, respondent’s policy expertise, was measured by asking respondents to rank themselves on a policy knowledge scale of 1 to 10—where 1 denotes basic general knowledge and 10 denotes high technical expertise. I decided to ask respondents to rank themselves instead of asking others to rank them for two reasons. First, self assessment is likely to be more accurate than external assessment. An individual may know more about his/her knowledge level than anyone else. Second, individuals may be reluctant to rank someone else’s knowledge level for fear of giving an inaccurate estimate. This was clear on the occasions when a staff member did the interview on behalf of an official. The staff member, in general, was reluctant to rank the official on the knowledge scale. Those respondents with policy knowledge scores above the median score qualified as epistemic community members. Interview questions 1, 4 and 7 capture the policy knowledge of the respondent on the following issues of
municipal finance--local government revenues, expenditures on municipal employees and public service provision.

Membership in professional organizations is viewed as an important avenue for developing a common corpus of professional knowledge and diffusing that knowledge--both of which are fundamental functions of an epistemic community (Haas, 1989; 1992a). Usually, functional experts seek membership in such organizations and previous studies have consistently showed that EC members are typically members of professional or scientific bodies (e.g., Irvine et al., 2011; Van Daele, 2005). In this study, I use membership in a professional or subregional organization as a proxy for measuring the third variable: opportunities or venues the respondent has to share policy beliefs and interests. Since this study examines a regional level policy area, subregional organizations are treated as similar to professional organizations. In order to qualify as an EC member, an individual has to be a member of at least one professional or subregional organization. Interview question 15 captures respondents’ membership in these organizations.

The three variables described above capture three different elements and are therefore mandatory requirements for participating in ECs. Only respondents who satisfy all three conditions qualify as EC members. It has to be noted that these three variables are not the only measures used for assessing whether an individual is qualified to be EC member. The individuals in the initial sample were selected based on their policy knowledge and involvement in Michigan's municipal finance reform effort. These individuals were then asked to identify the people with whom they communicated on issues of municipal finance. These initial steps ensure that the group studied, at a
minimum, has basic knowledge relevant to the domain of municipal finance. The three variables are intended to capture the experts within this relevant group. Table 3.4 lists the interview questions that measure the epistemic characteristics of respondents.

**Table 3.4: Identifying Actors with Epistemic Characteristics**

<table>
<thead>
<tr>
<th>Academic Training</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>IQ 14.</strong> What is the highest level of education that you have achieved?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Policy Knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>IQ 1.</strong> On a scale of 1 to 10, what kind of knowledge do you think you bring to the general topic of local government revenues?</td>
</tr>
<tr>
<td><strong>IQ 4.</strong> On a scale of 1 to 10, what kind of knowledge do you think you bring to the general topic of compensation policies for local government employees?</td>
</tr>
<tr>
<td><strong>IQ 7.</strong> On a scale of 1 to 10, what kind of knowledge do you think you bring to the general topic of local government service delivery arrangements?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Opportunities or Venues for Sharing Beliefs and Interests</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>IQ 15.</strong> Do you belong to any professional or subregional organization? If so, name one.</td>
</tr>
</tbody>
</table>

Note: IQ means interview question.

**Step 3: Identifying the Common Policy Agenda of Actors with Epistemic Characteristics**

At this point, I am concerned only with the actors who possess epistemic characteristics, the rest of the participants in the communication network do not matter. I now proceed to analyze the policy beliefs/agenda of these actors. An epistemic community is a finite group of individuals who share the same worldview or episteme.
The most important element for identifying an EC is the common policy agenda shared among its members and it is this feature that distinguishes an EC from other groups such as issue networks that seek to influence decision makers (Haas, 1992a). The policy agenda of respondents’ was identified from their involvement in advancing specific reform strategies within a particular issue area of municipal finance. It is worth stressing that these reform strategies or epistemes were originally identified from the content analysis discussed earlier in this chapter (see Table 3.2 for the various potential epistemes).

For those actors identified from the communication network on local government revenues, interview question 3 was used to identify their policy agenda. For those actors identified from the communication network on expenditures on municipal employees, interview question 6 was used to identify their policy agenda. For those actors identified from the communication network on public service provision, interview question 9 was used to identify their policy agenda. Next, within each of the three issue areas, through the use of social network mapping, I group actors promoting similar policy solutions for reforming municipal finance as advocacy networks. Following this, I filter out the the identified advocacy networks from the larger communication network. When filtering out the advocacy networks, comprised of actors with epistemic characteristics and a common policy agenda, I also filter the communication links that exists among these actors. From this point onward, I am concerned only with these new and smaller networks of actors and the links among them. The next step explains why these links are critical.
Table 3.5: Identifying the Common Policy Agenda of Actors with Epistemic Characteristics

3. During the past twelve months, to what extent have you publicly recommended changing laws at the state level to enable local government officials to more easily:

<table>
<thead>
<tr>
<th></th>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
<th>Very Often</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seek increased state shared revenues?</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
</tr>
<tr>
<td>Increase local property taxes?</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
</tr>
<tr>
<td>Adopt or increase local income taxes?</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
</tr>
<tr>
<td>Adopt or increase user fees for specific local public services?</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
</tr>
</tbody>
</table>

6. During the past twelve months, to what extent have you publicly recommended changing laws at the state level to enable local government officials to more easily:

<table>
<thead>
<tr>
<th></th>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
<th>Very Often</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduce municipal employment through layoffs?</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
</tr>
<tr>
<td>Reduce current pay or benefits of municipal employees?</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
</tr>
<tr>
<td>Reduce benefits paid to municipal retirees?</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
</tr>
<tr>
<td>Restrict the ability of municipal employees to collectively Bargain over compensation and work rules?</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
</tr>
</tbody>
</table>

9. During the past twelve months, to what extent have you publicly recommended changing laws at the state level to enable local government officials to more easily:

<table>
<thead>
<tr>
<th></th>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
<th>Very Often</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consolidate one or more local governments?</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
</tr>
<tr>
<td>Transfer certain functions to a higher level of government?</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
</tr>
<tr>
<td>Consolidate services with other local governments?</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
</tr>
<tr>
<td>Contract for services from other local governments?</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
</tr>
<tr>
<td>Contract for services from nonprofit organizations?</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
</tr>
<tr>
<td>Contract for services from for profit organizations?</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
</tr>
</tbody>
</table>

Step 4: Identifying if Actors with Epistemic Characteristics and Common Policy Agenda are Involved in Knowledge Transaction

An EC is not simply a finite group of qualified experts who have common policy beliefs. It is also actively involved in developing a common corpus of knowledge on the issue areas in which it specializes and in promoting that knowledge for societal good. Knowledge transaction typically occurs when, through the interaction of individual
agents, the capabilities of one or both increase (Håkanson, 2010). Haas (1992a) points out that knowledge transaction is not limited to traditional methods of empirical research and publication of findings. It can also originate from knowledge development and diffusion techniques suited to the disciplines or professions that an EC’s members pursue. Activities constituting knowledge transactions are either tangible or intangible. Some activities are concrete and can be documented, while others are unrecorded, or difficult to observe. Due to this fundamental variation in these activities, empirical methodologies for measuring them differ (Håkanson, 2010).

In this study, the discussion and information-seeking activities that exist among actors possessing epistemic characteristics and a common policy agenda are used as a proxy for measuring the knowledge transaction activities of these actors. In descriptive network mapping, actors are indicated by points called nodes and the ties or links among them are indicated by lines that run from one node to another. The presence of links/lines connecting an actor with other actors indicates that the actor is involved in knowledge transaction activities. In order for actors with epistemic characteristics and a common policy agenda to belong to an epistemic community, they should participate in knowledge transaction. For this, each actor should be connected to at least one other actor.

In the absence of these ties, then the second measure of knowledge transaction is examined. The second measure of knowledge transaction is scope for professional interactions. If an actor was member of a professional or subregional organization in which other actors of his network also participate, then the actor was considered as participating in knowledge transaction. If an actor had no communication ties with other network actors and was also not a member of any professional or subregional organization in which these other network actors were members, then that actor was
treated as an isolate and was not considered to be an EC member. Interview questions 2, 5, 8 and 15 capture the knowledge transacting activities of municipal finance experts. These questions are listed in Table 3.6.

In this last step, those individuals participating in knowledge transaction are filtered out. Along with these actors, the communication links that exist among them are also filtered out. These actors and the links that exist among them are treated as an epistemic community and a name is given to this epistemic community. With this the process of identifying an epistemic community is complete.

Table 3.6: Measuring Epistemic Knowledge Transaction

<table>
<thead>
<tr>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. If you frequently discuss the topic of local government revenues with individuals outside of your organization, please identify the two individuals whom you have contacted most often about this topic in the past year. Please write the name, job title and organization of these two individuals in the space provided below.</td>
</tr>
<tr>
<td>5. If you frequently discuss the topic of compensation policies for local government employees with individuals outside of your organization, please identify the two individuals whom you have contacted most often about this topic in the past year. Please write the name, job title and organization of these two individuals in the space provided below.</td>
</tr>
<tr>
<td>8. If you frequently discuss the topic of local government service delivery arrangements with individuals outside of your organization, please identify the two individuals whom you have contacted most often about this topic in the past year. Please write the name, job title and organization of these two individuals in the space provided below.</td>
</tr>
<tr>
<td>15. Do you belong to any professional or subregional organizations? If so, name one.</td>
</tr>
</tbody>
</table>

The expectation is that at least one EC will be present within the domain of municipal finance. However, there may also be more than one EC and each of these ECs maybe promoting a different episteme/policy solution(s) for reforming municipal finance. These ECs may consist of entirely different sets of actors or have some common
members. This is the significant advantage of using social network methods and quantitative measures for studying epistemic communities; it is possible to identify multiple ECs simultaneously and conduct comparative/correlative analysis on the membership and linkages of these ECs. Such analysis will in turn allow a researcher to make generalizations about ECs within the specific policy domain studied.
Notes

1The Detroit–Warren–Livonia Metropolitan Statistical Area (MSA) includes the six counties of Lapeer, Livingston, Macomb, Oakland, St. Clair, and Wayne. In 2005, the Detroit–Warren–Livonia MSA was the 10th largest MSA in the US. According to the 2010 census, this MSA has a population of 4,296,250 (almost half of Michigan’s population), and covers an area of 3,913 square miles (10,130 km²). Within this area, there are 185 cities and townships (Wikipedia, 2012b).

2In recent times, several software packages have been developed to facilitate sophisticated coding and quantitative analysis of qualitative data. In particular, Provalis Research and Wordij have developed user-friendly software packages for in-depth document analysis.

3Originally, there were four groups of codes identified from the content analysis, the fourth group being emergency financial management. However, this group of codes was not included in the rest of the analysis as emergency financial management is not a solution but a means of imposing certain solutions.

4In this sampling technique, the interviewee identifies members of the group under study. Members in the initial sample are contacted and this group identifies a secondary group. Members of the secondary group are contacted and they identify more subjects (Lincoln and Guba, 1985).

5This process is described elaborately in the sampling section.

6Only six of the 100 interviews were given by staff members.

7Experts can be members of more than one epistemic community.
CHAPTER IV

Municipal Finance Epistemic Communities: Existence and Composition

Epistemic communities are complex self organizing systems. Often, participants in these communities hold memberships in more than one epistemic community. Their worldviews developed in multiple knowledge communities and their multiplex relationships developed from repeated and overlapping interactions in these communities are thought to provide these actors with the advantages of interconnected perspectives, long term focus and valuable social capital.¹ It is possible to import these advantages and the enhanced cognitive capabilities of epistemic communities into policy making environments to facilitate and sustain voluntary collaboration amidst fragmented political and administrative settings.

In this chapter, using social network analysis, I identify the epistemic community/communities that are expected to exist within the domain of municipal finance in the state of Michigan. As discussed in earlier chapters, this is the first time that social network methods are used to identify epistemic communities. In order to identify the existence of epistemic communities, I have developed a multi-step process. This process is based primarily on the insights provided by Peter Haas (1992a) on the concept of epistemic communities. Identifying the existence of these communities, and understanding their composition, interaction patterns, motivations for interactions, and functional performance will help recognize the various roles these knowledge networks play to facilitate coordination and cooperation across the highly complex and critical policy domain of municipal finance reform. Such recognition will convey to policy makers the incentives they have for mobilizing epistemic communities and will
encourage them to more formally and systematically utilize these valuable policy making resources. While policy makers in US regions and metropolitan areas are already seeking and consulting functional experts on complex policy matters, empirical evidence on the prevalence and utility of these practices may motivate them to more fully acknowledge and formally engage the resources at their disposable. In this chapter, I focus only on identifying municipal finance epistemic community/communities and examining their composition (i.e., network membership). In chapter five, I analyze the interaction patterns that exist among actors of the epistemic communities identified in this chapter. In chapter five, I also analyze the factors that motivate these actors to interact with each other. Lastly, I examine the policy performance of these actors.

This chapter is organized as follows. I begin the first section with a broad overview of Michigan’s fiscal crisis. I then proceed to discuss the various constraints imposed on Michigan’s municipalities which have severely limited the ability of these governments to raise revenues. I follow up this discussion with a brief description of the various strategies that have evolved in the state as responses to the growing financial problems. In the second section, I propose research hypothesis about the potential existence of epistemic communities in Michigan within the domain of municipal finance. Next, I present the various analytical procedures carried out to test the proposed hypothesis and the findings of this test. In this same section, I propose a second set of research hypotheses focused to the composition of municipal finance epistemic communities. Following this, I proceed to present the various analytical procedures carried out to test this second set of hypotheses and the findings of these tests. Finally, I conclude this chapter with a discussion of the implications of my findings.
Michigan’s Municipal Fiscal Crisis

In the year 2000, Michigan’s economy was performing well, as indicated by its 3.8 percent rate of unemployment. However, beginning in 2001, the state’s economy suffered a long and steady decline.

Unemployment jumped to 5.2 percent in 2001 and increased over the next seven years, reaching 12.9 percent by April 2009. Through 2006 Michigan’s economic hardship was largely due to declines in manufacturing, in the context of a state that has historically relied on manufacturing as the primary component of its economic base. Since 2007, however, the challenges have been exacerbated by the severe national recession. Second, continuing structural deficits at the state level have led to reductions in revenue sharing to local units. Third, the combination of restrictive property tax limitations and a down housing market over the past two years has exacerbated fiscal conditions (Skidmore and Scorsone, 2009: 675).

Additionally, Michigan’s economy is facing more problems due to a shrinking tax base.

People are leaving Michigan at a staggering rate. About 109,000 more people left Michigan last year than moved in. It is one of the worst rates in the nation, quadruple the loss of just eight years ago. The state loses a family every 12 minutes, and the families who are leaving -- young, well-educated high-income earners -- are the people the state desperately needs to rebuild….

Michigan's exodus is one of the state's best known but least understood problems. Long ignored or downplayed, outmigration has been shrugged off partly because it was assumed that those who were leaving were unemployed blue-collar workers and retirees, groups that, in economic terms, don't cripple the state with their departure.

But a Detroit News analysis of U.S. Census Bureau and Internal Revenue Service data reveals that every day, Michigan gets less populated, less educated, and poorer because of outmigration….

The state suffered a net loss to migration of 18,000 adults with a bachelor's degree or higher in 2007 alone -- the equivalent of half the staff of the University of Michigan crossing the state line (The Detroit News, 2009).
Adding to the state’s woes is the effect of the aging of baby-boomers. Though a national phenomenon, it is more acute in Michigan where the population over 60 is greater than the population below 60 (Anderson Economic Group, LLC, 2011). An aging population is typically seen as generating less revenue for state and local governments, while requiring more services (Snyder, 2011). On the other hand, Michigan’s unemployment has grown from three percent to fourteen percent between 2000 and 2010, higher than the national rate of ten percent for the same period (Snyder, 2011). Today, Michiganders are also earning less than a decade ago, which also means less revenue and more need for government services (Snyder, 2011). Personal income growth between 1995 and 2009 was only seven percent as opposed to the national average of thirty-five percent during the same period (Anderson Economic Group, LLC, 2011). As citizens struggle with persistent unemployment and economic hardship, they look up to the government for more services than ever before (Snyder, 2011).

Plagued with a highly restricted property tax environment, housing market crashes, and an aging and shrinking tax base, Michigan municipal governments are in no position to sustain growing needs for public services. At the same time when service provision related expenditures were mounting, between 2000 and 2009, the compensation (salary and benefits) for classified Michigan state government employees increased by nineteen percent and the compensation for classified Michigan local government employees increased by thirteen percent (US Bureau of Economic Analysis, 2009). This growth has been mostly in employee health care, retiree health care and pensions (Snyder, 2011). In contrast, during this ten year period, private sector compensation in Michigan fell by four percent. When confronted with rising expenditures and declining
revenues, local units tend to turn to parent governments for help. To make matters worse, both federal and state intergovernmental revenues have been harder to come by. While transfers from the federal government have almost vanished due to a variety of reasons, the state government also has drastically cut aid to local governments due to its own budget challenges (Citizens Research Council, 2005). Consequently, many Michigan communities have depleted their fund balances, borrowed money and failed to put aside money for impending liabilities, in particular pensions and retiree benefits (Snyder, 2011). Michigan’s 1,800 local governments have borrowed billions of dollars (Henion, 2011); but property tax revenues have plummeted in recent years and municipalities struggle to repay debts.

A few local communities have come close to bankruptcy. In an effort to hopefully put such fiscally distressed communities on the path of fiscal solvency, the state has resorted to the application of the new revised emergency financial manager law. This law, the Local Government and School District Fiscal Accountability Act/ Public Act 4 (PA 4), authorizes state officials to intervene in units of local government that experience severe financial stress or financial emergencies.

If, after statutory due process has been accorded to local officials, the Governor confirms the existence of a financial emergency, the Governor then is required to declare the unit of local government to be in receivership and to appoint an emergency manager… If a unit of local government is placed in receivership, beginning then and throughout the receivership, the governing body and chief administrative officer of the unit of local government may not exercise any of the powers of those offices except as may specifically authorized in writing by the Emergency Manager. In addition, the governing body and chief administrative officer are subject to any conditions required by the Emergency Manager (PA 4, 2011: 8).

This law provides an emergency financial manager (EFM) with a broad range of tools to tackle the problems of the jurisdiction in fiscal distress. An EFM, with the
approval of the Governor, may even disincorporate or dissolve a municipal government and assign its assets, debts, and liabilities as provided by law (PA 4, 2011). Once all financial conditions are met and a two-year budget is in place, the EFM may return power to the elected officials.³

**Michigan’s Restrictive Revenue-Raising Environment**

The above discussion provides a broad overview of Michigan’s municipal fiscal crisis. However, the chronic financial problems that local units in the state confront can be fully recognized only with an understanding of the restrictive revenue-raising environment in which they operate. In Michigan, local governments raise their revenues from three primary sources: (1) property tax, (2) intergovernmental revenues, and (3) a mix of user fees, licenses/permits, fines, investment income, etc. (Ohren, 2004). The general property tax has traditionally been an important part of Michigan’s tax structure for funding its counties, cities, townships, villages and school districts. In fact, general property tax has been the largest yielding tax of all of Michigan’s state and local taxes (Michigan Legislature, 2011).

But this important revenue source for municipal governments has some critical limitations. First, value of real property though assessed locally by cities or townships, is equalized by counties and the state.

Equalization is needed to ensure that property owners in all parts of the county or school district pay their fair share of that unit’s taxes. Equalization provides that all similar properties are equally and uniformly assessed and serves to ensure that a school district, city, township, or village in which property is underassessed does not get more than its fair share of state aid (Michigan Legislature, 2011: 2).
Those communities with greater state equalized value (SEV) can generate more revenue from a mill than communities with lower SEV.

Moreover, the state constitution, through the 1978 Headlee amendment, limits the growth in revenue that a community can receive from property tax values to the lesser of the rate of inflation or five percent. When property values in a jurisdiction increase faster than inflation, millage rates must be reduced to stay within the revenue limits imposed by Headlee. Such a rate reduction is popularly referred to as a “Headlee rollback” (Skidmore and Scorsone, 2009). After Proposal A was approved by voters in 1994, these rollbacks were greatly reduced in number and magnitude. This proposal imposes a taxable value cap on individual properties. The new cap limited the growth of the value of property for tax purposes to the lesser of the rate of inflation (as measured by the national Consumer Price Index (CPI)) or five percent, regardless of the actual increase in state equalized value (SEV) of property. Thus, over time, the taxable value of a property could fall well below the SEV (Skidmore and Scorsone, 2009).

Besides a restrictive property tax environment, other potential sources of revenue are also constrained in Michigan. Cities can levy income tax, but only with voter approval. As a result, of the 273 cities in the state, only 22 raise revenue from local income taxes (Skidmore and Scorsone, 2009). Further, the imposition of income taxes on nonresidents is a very contentious issue and has led to controversies in virtually every city that has adopted local income taxes (Ross and Levine, 2006). Municipalities tax nonresidents who work within their boundaries based on the argument that commuters should help pay for public safety, transportation and other services the central city provides. Nonresidents, however, resist contributing to the tax revenues of a jurisdiction
in which they do not live. In some cases, this conflict of interest has led to the state legislature denying localities authority to tax. In others, the tax rate for nonresidents is set at a lower rate than residents (Ross and Levine, 2006). This is typical in Michigan cities where the income tax rates for nonresidents are different from those for residents. Despite such compromises, the high collection and administration costs of local income taxes make them unattractive.

As of 2002, 28 states in the US allow their municipalities to levy a sales tax. The states contain 58 percent of the cities with over 50,000 population (Ross and Levine, 2006). Michigan, however, has no county or city sales tax and only the state levies a 6% sales tax. Michigan also does not allow cities or other local units to impose a use tax, the companion to sales tax. Only the state imposes 6% use tax on the total price (including shipping and handling charges) of all taxable items brought into Michigan or purchases by mail from out-of-state retailers (State of Michigan, 2011).

The ability of Michigan communities to charge fees for specific local public services is also limited by state statute and court rulings; fees must not exceed the cost of service provision (Skidmore and Scorsone, 2009). The Headlee Amendment of 1978 requires that local governments have to obtain voter approval before a tax can be imposed or increased. However, a growing number of Michigan counties, cities and townships are skirting the voter approval requirement by labeling certain taxes as user fees. Consequently, many disputes on the fairness of user fees have been litigated (State of Michigan, 2011).

In short, nearly all potential sources of revenue for Michigan municipal governments are restricted in some way by state law, leaving them limited options for
generating revenue (Skidmore and Scorsone, 2009). Michigan municipal governments have, hence, traditionally relied excessively on the growth in taxable values to boost their property tax revenues (Skidmore and Scorsone, 2009). But starting in 2001, growth in property values stagnated, and then began to decline in 2006 (Skidmore and Scorsone, 2009). Figure 4.1 traces the rates of change of average property values in Michigan for the period between 1994 and 2007. For comparison, the figure shows the rate of change of the national CPI, since the property tax assessment cap is based on the change of the CPI.\(^5\)

**Figure 4.1: A Comparison of Michigan Housing and National Consumer Price Indexes--1994 to 2007**

![Graph showing rates of change of average property values in Michigan for the period between 1994 and 2007, compared to the rate of change of the national CPI.](image)

**Note:** Adopted from Skidmore and Scorsone (2009). CPI indicates national consumer price index and HPI indicates Michigan housing price index.
Responses to Michigan’s Municipal Fiscal Crisis

Given such state-imposed limitations and a depressed housing market, how do Michigan’s municipalities respond to their ongoing fiscal challenges? In Michigan, local government responses on the revenue side include:

1. placing proposals before their citizens for Headlee overrides and millage increases;
2. adopting or increasing user fees for specific local public services;
3. requesting passage of special millages for financing specific services such as public safety and recreation; or
4. exploring the possibility of implementing a local income tax, which also requires a referendum (Ohren, 2004).

On the expenditure side, common local government responses in the state include:

1. drawing from fund balances or “rainy day funds” to compensate for reductions in current year revenues;
2. leaving positions vacant when they become open, and eliminating positions from budgets altogether;
3. postponing maintenance and deferring capital construction;
4. prioritizing service provision by government and subsequent decisions to shed less important functions such as recreation and library services;
5. eliminating some services and transferring those services to the county;
6. cooperating with other jurisdictions to jointly deliver services; and
7. contracting-out to the nonprofit or private sector for the delivery of services, e.g., collection and disposal of solid waste (Ohren, 2004).

While none of these strategies are easy to accomplish, many communities have managed to implement critical changes to their revenue raising capabilities and spending patterns. I organize these responses into three issue areas--local government revenues, expenditures on municipal employees and public service provision arrangements. I then proceed to identify if there exists an epistemic community or communities either
specifically within a single issue area or spanning multiple issue areas by mapping the communication networks in the three issue areas.

**Michigan’s Municipal Finance Epistemic Communities**

**Existence of Municipal Finance Epistemic Communities**

Both issue uncertainty and technical complexity provide opportunities for epistemic communities to influence decision makers. When these factors combine with an impending shock or crisis, a demand for functional expertise arises. As discussed in the previous section, several of Michigan’s municipalities have been facing a decade-long period of fiscal uncertainty and instability. At least half a dozen communities in the state have either been placed in receivership or brought under the direct control of an EFM, thereby creating a sense of fiscal crisis in the minds of many state and local public officials. Given these suitable conditions for the emergence and proliferation of epistemic communities, I expect that at least one epistemic community exists in the state of Michigan within the domain of municipal finance. This community could be either specifically embedded within a single issue area among the three issue areas of local government revenues, expenditures on municipal employees, and public service provision, or spans more than one issue area. Accordingly, I propose that,

*Hypothesis 1a (H1a): In Michigan, within the policy area of municipal finance, there exists at least one epistemic community.*

To test my proposition, I have developed a multi-step process that will for the first time help identify epistemic communities using social network analysis. These steps are outlined in Table 4.3. Before I discuss the process, it is necessary to explain some
analytical decisions which were important in shaping the outcomes of this analysis. As there is no general expectation or specific assumptions that suggest the epistemic community/communities may be limited to a single issue area or span multiple issue areas, I chose to do an issue by issue analysis. The benefit of this approach is it allows me to analyze the membership in communities identified within each issue area and compare them. Such comparisons will allow us to see if the same community is operating across different issue areas, if the communities in the different issue areas are overlapping, or if the community in each issue area is exclusive to that area. Another reason for adopting this approach is that the process I have developed is an entirely novel effort that has no precedents. As the approach has not been tested before, it made more sense to proceed with a simple issue by issue analysis, rather than start with a complex approach which has three different issue areas aggregated together. Also, the three municipal finance communication networks each have 100 actors and pooling all of them and their communication relations together as a single network increases complexity.

Having chosen to conduct an issue by issue analysis, I proceeded to group municipal finance reform strategies within each issue area. Earlier in chapter three (see Table 3.2), I had grouped the municipal finance reform strategies identified from the newspaper articles analysis into the three groups that represent the implication of these strategies for the municipal budget. These groups include increasing local government revenues, reducing expenditures on municipal employees, and altering public service provision options. These three groups correspond to the three issue areas--local government revenues (LGR), expenditures on municipal employees (EME), and public
service provision (PSP)--within which I examined the presence of epistemic communities.

Within the first group of strategies for increasing local government revenues, there are four specific strategies. The newspaper stories on policy actors’ proposal and implementation of revenue increasing strategies revealed a pattern. Many Michigan communities typically sought millage increases on property taxes and also creatively adopted or increased user fees for public services (Detroit Free Press 2010; 2011; Detroit News, 2010; 2011). In general, policy actors in a number of these communities also complained about reduced state aid and were seeking more assistance. The three strategies were therefore combined together as a single episteme, Episteme ALLREVENUES. The remaining strategy of increasing local income taxes was individually identified as Episteme INCOMETAX. This strategy was kept separate from the other three based on the type and number of governments it involves--which is only a small group of cities that either already have voter approval or are seeking approval to levy income tax.

The second group of strategies for reducing expenditures on municipal employees also includes four specific strategies. Here again, I group related strategies based on patterns seen in newspaper stories and on the functional content of the strategies. Reducing municipal employment through lay-offs and reducing the wages and/or benefits of municipal employees are grouped as Episteme EMPLOYEES, while the remaining two strategies--reducing the benefits paid to municipal retirees and restricting the ability of municipal employees to collectively bargain for compensation and work rules are grouped as Episteme RETIREES. The strategies in Episteme RETIREES, in particular
the strategy restricting the ability of municipal employees to collectively bargain, are highly sensitive politically and are often those that elected officials try to avoid.

The third group consists of strategies for altering service provision options. Here there are three epistemes. The first strategy involves political consolidation; an extremely rare phenomenon in Michigan. This strategy alone was treated as Episteme CONSOLIDATE. The next two strategies—transferring functions to a higher level of government and consolidating services with other local governments—were jointly treated as Episteme COOPERATE. Finally, the three strategies related to contracting services to different sectors—public, nonprofit, and private—were collectively treated as Episteme CONTRACT. Table 4.1 lists the seven epistemes used in identifying the municipal finance epistemic communities.

Other ways of grouping these strategies would have led to different outcomes in terms of the composition of municipal finance epistemic communities. However, the classification is chiefly based on patterns observed in the document analysis of the 248 newspaper articles which has shaped this entire study. First, through the document analysis, I identified my initial sample of fifty individuals. Using this initial sample and the snowball sampling technique I identified the communication networks in the three issues of municipal finance. Next, through the document analysis, I identified the various policy solutions for confronting fiscal stress in Michigan municipal governments and grouped them into three broad groups—raising local government revenues, reducing expenditures on municipal employees and altering service provision options. These three groups served as the basis for designing the interview questionnaire used in this study. Respondents were asked about their level of support for individual strategies within the
three groups. This information has been a very important element in the process of identifying the municipal finance epistemic communities. That is, I first grouped specific strategies as epistemes based on patterns seen in the newspaper stories and the functional content of the strategies. Next, I used these epistemes for identifying municipal finance experts that promoted these epistemes as potential ways to tackle specific municipal finance problems. This methodology of identifying potential epistemic community actors around specific policy beliefs is customary in EC studies (Dotterweich, 2009).

<table>
<thead>
<tr>
<th>Episteme INCOMETAX</th>
<th>Episteme EMPLOYEES</th>
<th>Episteme CONSOLIDATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adopting or increasing local income taxes</td>
<td>Reducing municipal employment through lay-offs</td>
<td>Consolidating one or more local governments</td>
</tr>
<tr>
<td></td>
<td>Reducing the wages and/or benefits of municipal employees</td>
<td></td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>Episteme ALLREVENUES</th>
<th>Episteme RETIREES</th>
<th>Episteme COOPERATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seeking additional state shared revenues</td>
<td>Reducing the benefits paid to municipal retirees</td>
<td>Transferring certain functions to a higher level of government</td>
</tr>
<tr>
<td>Increasing local property taxes</td>
<td>Restricting the ability of municipal employees to collectively bargain for compensation and work rules</td>
<td>Consolidating services with other local governments</td>
</tr>
<tr>
<td>Adopting or increasing user fees for specific local public services</td>
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<table>
<thead>
<tr>
<th>Episteme CONTRACT</th>
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<tbody>
<tr>
<td>Contracting for services from other local governments</td>
</tr>
<tr>
<td>Contracting for services from nonprofit organizations</td>
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<tr>
<td>Contracting for services from private organizations</td>
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In sum, a systematic analytical connection has been established between the initial document analysis and sample selection, design and development of the interview instrument, and identification of key issue areas and the policy beliefs (epsitemes) within those issue areas. All of these elements have directly influenced the analysis and the outcomes of this study. Such analytical connection is particularly useful to ensure consistency across the various stages in this research and the decisions made in those stages.

**A Process for Identifying Epistemic Communities Using Social Network Analysis**

**Step 1: Identifying the Communication Network**

In this process, described elaborately in chapter three and depicted in Table 4.2, the first step in identifying an epistemic community in a particular issue area is identifying and mapping the discussion and information-sharing network (hereafter communication network) that has emerged in that issue area. Using the snowball sampling technique and data collected from 100 interviews, I map the three communication networks on local government revenues (N=148) (see figure 4.2), expenditures on municipal employees (N=138) (see figure 4.8) and public service provision (N=148) (see figure 4.14). The three communication networks are directed networks, that is, the direction of communication ties, who communicates with whom is known. The presence of a communication tie is indicated with a 1 and the absence of a tie with a 0. For example, if actor A has a tie with actor B, it is indicated with a score of 1 in the row of A and the column of B. In the network map, this relationship is indicated with a line having an arrow running between two circles which represent actors A and B. In
this case, the tie stems from A and is directed toward B, so the arrow head is pointed toward B.

As noted earlier, this study is not focused on identifying all members who participate in the communication network on the three issue areas of municipal finance. Instead, the goal here is to identify the presence of epistemic communities within these issue areas. So interviews were requested with 120 people of whom 100 agreed to participate. So, for each communication network, I first map all actors identified by the 100 respondents. However, in network analysis, you typically need a finite set of actors with no missing data. Therefore, I excluded all the actors who did not respond to the interview questionnaire. This means in the areas of LGR and PSP I excluded 48 actors, and 38 in the issue area of EME. After excluding the nonrespondents from each of the three networks, I once again map the three networks with the 100 actors (see figures 4.3, 4.9 and 4.15). Given that nonrespondents are excluded from the map, the ties that go from the remaining 100 actors toward these nonrespondents are also gone. This results in many actors appearing as isolates/unconnected actors in the second network.

Step 2: Identifying Actors with Epistemic Characteristics: Academic Training, Policy Expertise, and Sharing Beliefs and Interests

After mapping the three communication networks, I proceeded to identify the actors within these networks who meet the requirements to be epistemic community members. In the EC literature, individuals’ academic training, policy knowledge and professional interactions are often used to identify if they are a functional expert in that particular policy domain (Haas, 1989; 1992a). Based on this practice, I developed a measure that will help identify potential ECs. The measure consists of three separate
variables that capture these elements. In order to be an epistemic community member, an individual must have at least a certain level of academic training, high policy expertise, and opportunities or venues to share policy beliefs and interests with other EC members (see chapter three for more details on this measure). With regard to academic training, an individual must have at least a bachelor’s degree to qualify as an EC member. As regards policy expertise, respondents with policy knowledge scores above the median score qualified as EC members. This score was 8 on a policy knowledge scale of 1 to 10 for all three issue areas. Lastly, membership in professional or subregional organizations is viewed as an avenue for sharing ideas, developing a common corpus of professional knowledge and for diffusing that knowledge. Hence, only individuals who belonged to at least one professional or subregional organization qualified as EC members. Only those individuals who fulfilled all three of these requirements were considered as actors with epistemic characteristics. Once actors were classified based on the presence of each characteristic, new networks involving only these actors possessing epistemic characteristics were mapped for each issue area. You can find these maps in Appendix A (see Figures 1A, 2A and 3A). As can be seen, the network on LGR (Fig. 1A) is left with 63 actors, while the networks on EME (Fig. 2A) and PSP (Fig. 3A) each have 60 actors.

Step 3: Identifying the Common Policy Agenda of Actors with Epistemic Characteristics

An epistemic community is a finite group of individuals who share a common policy agenda. Given this, it was necessary to examine the policy beliefs/agenda of the actors judged to have epistemic characteristics. Earlier, I had identified seven different epistemes. Based on their support for each episteme, the epistemic actors within each
area were grouped together. Respondents should have demonstrated at least a minimum level of support for all strategies included in an episteme to be considered as supporters of that episteme. That is, interviewees choosing answer options “rarely,” “sometimes,” “often,” or “very often” were grouped as supporters of that particular strategy. Those who chose the answer option “never” were grouped as nonsupporters of that particular strategy. EC participation is about sharing professional and policy beliefs, developing a common body of policy knowledge in the issue area it specializes in, and working collaboratively to promote and institutionalize professional practices that stem from this knowledge. It is important to note here that all EC actors need not have to be active policy promoters. So this coding was sufficient for capturing this concept. In this way, I created separate dichotomous variables for individual strategies within each episteme. An actor’s support for a particular episteme (i.e., support for all strategies within that episteme) was indicated with a 1 and his/her lack of support was indicated with a 0.

Following this, within each issue area, I divided the actors with epistemic characteristics into advocacy networks based on their support for the epistemes within that issue area. These advocacy networks are shown in the Appendix A (see Figures 1B, 2B and 3B). In the advocacy network for a particular episteme, the episteme lies at the center and lines run toward it from actors who support that episteme. Those actors who do not support any of the epistemes within an issue area are left as isolates in the network (indicated by circles with no connections running from them). Those actors who support all epistemes within an issue area have lines running toward all of them. In the issue area of LGR, there are 27 isolates (see Fig. 1B); in the issue area of EME, there are 30 isolates (see Fig. 2B) and in the issue area of PSP, there are 8 isolates (see Fig. 3B). These
isolates were excluded from subsequent analysis as they possess epistemic characteristics, but do not share policy beliefs with other actors.

After excluding the isolates, advocacy networks involving only the actors possessing both epistemic characteristics and a common policy agenda were mapped for each issue area in Figure 4.4 (LGR), Figure 4.10 (EME), and Figure 4.16 (PSP).

In Figure 4.4 (LGR), blue circles indicate actors who support only Episteme INCOMETAX (due to space constraints referred to as Episteme A in the network maps) (N= 4), green circles indicate actors who support only Episteme ALLREVENUES (Episteme B) (N=14), and black circles indicate actors who support both Episteme INCOMETAX and Episteme ALLREVENUES (N=18). The total number of actors supporting Episteme INCOMETAX = 4+18 (22), while the total number of actors supporting Episteme ALLREVENUES = 14+18 (32). Figure 4.10 (EME) indicates that 12 actors support only Episteme EMPLOYEES (Episteme C), three actors support only Episteme RETIREES (Episteme D), and 15 actors support both Episteme EMPLOYEES and Episteme RETIREES. The total number of actors supporting Episteme EMPLOYEES = 12+15 (27), while the total number of actors supporting Episteme RETIREES = 3+15 (18). Figure 4.16 (PSP) indicates that three actors support only Episteme CONSOLIDATE (Episteme E), 12 actors support only Episteme COOPERATE (Episteme F), six actors support only Episteme CONTRACT (Episteme G), one actor supports both Episteme CONSOLIDATE and Episteme COOPERATE, one actor supports both Episteme CONSOLIDATE and Episteme CONTRACT, 10 actors support both Episteme COOPERATE and Episteme CONTRACT, and 19 actors support all three epistemes. The total number of actors supporting Episteme CONSOLIDATE =
Step 4: Identifying if Actors with Epistemic Characteristics and Common Policy Agenda are Involved in Knowledge Transaction

As mentioned earlier, an EC is not just a finite group of qualified experts who share policy beliefs. It is also a group involved in developing a common body of professional knowledge on the issue areas in which it specializes, and in promoting the knowledge developed for collective benefit. Therefore, in order for actors with epistemic characteristics and a common policy agenda to belong to an epistemic community, they must participate in knowledge transaction. Knowledge transaction can occur through a number of avenues. In this study, the process of knowledge transaction was measured in two ways. The first measure involved the presence of direct communication ties among the members of an epistemic community. In descriptive network mapping, actors are indicated by points called nodes, and the ties or links among them are indicated by lines that run from one point to another. The presence of links connecting an actor with other actors indicates that the actor is involved in knowledge transaction activities. To be an EC member, actors should be connected to at least one other actor they share policy beliefs.

If the actors have no communication with other actors in their network, then the second measure of knowledge transaction is examined. The second measure of knowledge transaction is scope for professional interactions. If this actor was member of a professional or subregional organization in which other actors of his/her network also
participate, then the actor was considered as participating in knowledge transaction. If an actor had no communication ties with other network actors and was also not a member of any professional or subregional organization in which these other network actors were members, then that actor was treated as an isolate and was not considered to be an EC member.

Two overlapping advocacy networks supporting epistemes INCOMETAX and ALLREVENUES were identified within the issue area of LGR. Two overlapping advocacy networks supporting epistemes EMPLOYEES and RETIREES were identified within the issue area of EME. Three overlapping advocacy networks supporting epistemes CONSOLIDATE, COOPERATE and CONTRACT were identified within the issue area of PSP. Within each of these seven advocacy networks, I analyzed the knowledge transaction activities of the actors who participated in these networks. Of the 22 actors in the network of Episteme INCOMETAX, only one member did not participate in knowledge transaction (i.e., had no communication ties with other actors in the network and did not belong to any professional or subregional organization that the other actors in the network participate). So, I excluded this single actor. The remaining 21 individuals (who possessed epistemic characteristics, a common policy agenda and participated in knowledge transaction) and the communication links that existed among these actors were together treated as a municipal finance epistemic community and a new name was given to this EC--municipal finance epistemic community INCOMETAX (see Figure 4.5). Obviously, the name is derived from the episteme supported/promoted by this community. With this, the process of identifying the first municipal finance epistemic community (hereafter MFEC) in the issue area of LGR is complete. This process was
repeated for the six remaining epistemes which resulted in the identification of six more MFECs (see Figures 4.6; 4.11; 4.12; 4.17; 4.18; and 4.19).\textsuperscript{10} The results of this process are summarized in Table 4.2.

### Table 4.2: Municipal Finance Epistemic Communities in Michigan

<table>
<thead>
<tr>
<th>MFEC Codes</th>
<th>Count (N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MFEC_INCOMETAX</td>
<td>21</td>
</tr>
<tr>
<td>MFEC_ALLREVENUES</td>
<td>31</td>
</tr>
</tbody>
</table>

#### Local Government Revenues

<table>
<thead>
<tr>
<th>MFEC Codes</th>
<th>Count (N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MFEC_EMPLOYEES</td>
<td>22</td>
</tr>
<tr>
<td>MFEC_RETIREES</td>
<td>13</td>
</tr>
</tbody>
</table>

#### Expenditures on Municipal Employees

<table>
<thead>
<tr>
<th>MFEC Codes</th>
<th>Count (N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MFEC_CONSOLIDATE</td>
<td>22</td>
</tr>
<tr>
<td>MFEC_COOPERATE</td>
<td>39</td>
</tr>
<tr>
<td>MFEC_CONTRACT</td>
<td>32</td>
</tr>
</tbody>
</table>

#### Public Service Provision

A color scheme is used to differentiate between actors involved in knowledge transaction through direct communication linkages as opposed to those involved in
knowledge transaction through interactions facilitated by their shared membership in professional and subregional organizations.

Interpreting the Findings

It appears that seven different municipal finance epistemic communities (MFECs) have been identified across the three issue areas of municipal finance reform. Two of these are within the issue area of local government revenues, two within the issue area of expenditures on municipal employees, and three within the issue area of public service provision. In fact, however, this is not the case. As mentioned in earlier chapters, the focus of this study is not to identify the entire communication networks in the three issue areas of municipal finance, nor is it to identify the entire epistemic community or communities that exist within these issue areas. Rather, the goal was to identify the existence of epistemic communities in Michigan within the domain of municipal finance. Given the limitations in the data, while I have found seven communities that are epistemic communities, I cannot conclude that these are seven different communities and that the actors that I have identified are the only actors in these communities. All that I can conclude is that in Michigan, within the policy area of municipal finance there exists at least one epistemic community. Given that this is so, Hypothesis 1a is strongly confirmed.

The seven MFECs may consist of the same or different or overlapping actors. The extent to which the examination of the composition of these ECs permits me to make conclusions about the number of these communities is discussed in the section on the composition of the seven municipal finance ECs (which is the next section). Furthermore,
I made the choice of grouping individual policy strategies for resolving municipal finance problems into seven different epistemes. Hence, I have the obvious outcome of seven knowledge communities. Another way of grouping the strategies into epistemes may have led to a different outcome. Still, regardless of whichever route is being used, as long as an approach is sufficiently capturing the essence of the epistemic communities concept, the analyst must be able establish the presence of ECs within a domain and locate at least some key EC actors within that domain.

Visualizing the Presence of Municipal Finance Epistemic Communities within the Communication Networks

The presence of municipal finance epistemic community (communities) has been established. Now it is necessary to locate these communities within the full communication network in each issue area. In Figure 4.7, I again map the full communication network shown in Figure 4.2. But in Figure 4.7, I show the presence of municipal finance epistemic communities INCOMETAX and ALLREVENUES. In this figure, there are 65 non-EC members and a total of 35 EC members (who are members of MFECs INCOMETAX and ALLREVENUES). A color scheme is used to differentiate between non-EC members, actors who are members in both MFECs, actors who are members only in MFEC_INCOMETAX and those who are members only in MFEC_ALLREVENUES. This visualization process is repeated for the two other issue areas. There are some differences in the overall structure of figures 4.2 and 4.7. This is because the network in Figure 4.7 was drawn such that similar actors are grouped together. (See Figure 1C in Appendix A to visualize the location of the two MFECs
within the network consisting of the communication linkages of only the 100 interviewees.)

In Figure 4.13, I map the full communication network on EME, and show the presence of MFECs EMPLOYEES and RETIREES.\textsuperscript{11} (See Figure 2C in Appendix A to visualize the location of the two MFECs within the network consisting of the communication linkages of only the 100 interviewees). Finally, in Figure 4.20, I map the full communication network on PSP and show the presence of MFECs CONSOLIDATE, COOPERATE and CONTRACT. Unlike the other two issue areas, in PSP, three ECs have been identified. Moreover, this area has the maximum number of EC actors. Also, the communication network on PSP is denser than the other two networks. Among others, the reason for this broader participation can be attributed to the fact that nongovernmental actors have greater stakes in this area due to the contracting-out option. Additionally, while actors from townships and counties are not very much interested in local income tax, both governmental and nongovernmental actors are highly restricted in communicating or revealing their communication contacts on municipal employment issues. Such limitations are not found in the issue area of PSP and, hence, the observed high level of involvement from a variety of policy actors. (See Figure 3C in Appendix A to visualize the location of the three MFECs within the network consisting of the communication linkages of only the 100 interviewees). One overall conclusion from this visualization process is that popular actors (that is, actors who have more ties coming toward them) typically happen to be EC actors who are members in more than one MFEC. Importantly, this pattern is prominent in the issue areas of LGR and PSP.
Table 4.3: A Process for Identifying Epistemic Communities Using Social Network Analysis

<table>
<thead>
<tr>
<th>Step 1: Identifying the Communication Network that has Emerged in the Issue Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>The first step in identifying an epistemic community in a particular issue area is identifying and mapping the communication network that has emerged in that issue area.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Step 2: Identifying Actors with Epistemic Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>The second step is identifying the actors within the communication network who satisfy the requirements to be epistemic community members. In the literature examining epistemic communities, individuals’ academic training, policy knowledge and professional interactions are typically used to identify if they are functional experts in that particular policy domain (Haas, 1989; 1992a).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Step 3: Identifying the Common Policy Agenda of Actors with Epistemic Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>An epistemic community is a group of individuals who share a common policy agenda (Haas, 1992a). Given this, it is necessary to examine the policy beliefs/agenda of actors with epistemic characteristics and group together actors who have similar policy beliefs.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Step 4: Identifying if Actors with Epistemic Characteristics and Common Policy Agenda are Involved in Knowledge Transaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>An EC is not just a finite group of qualified experts who share policy beliefs. It is also a group that is actively involved in developing a common body of professional knowledge on the issue areas it specializes and in promoting that knowledge for collective benefit. Therefore, in order for actors with epistemic characteristics and a common policy agenda to belong to an epistemic community, they should participate in knowledge transaction. Knowledge transaction can occur through a number of avenues such as communication linkages, interactions in professional organizations, workshops, conferences, etc., and publishing newsletters, technical reports, conference papers, books, articles or other scholarly material.</td>
</tr>
</tbody>
</table>
Figure 4.2: Communication Network on the Issue of Local Government Revenues

Note: Network generated using the Pajek software. N=148.
Figure 4.3: Communication Linkages of Interviewees on the Issue of Local Government Revenues

Note: Network generated using the Pajek software. N=100.
Figure 4.4: Actors with Epistemic Characteristics and a Common Policy Agenda

Note: Network generated using the UCINET software, Version 6.354, N=36. Blue circles indicate actors who support only Episteme A (N=4), green circles indicate actors who support only Episteme B (N=14), and black circles indicate actors who support both Episteme A and Episteme B (N=18).
Figure 4.5: Municipal Finance Epistemic Community A

Note: Network generated using the Pajek software. N= 21. Fourteen EC members are involved in knowledge transaction through direct communication linkages. These fourteen actors are indicated by green circles. The remaining seven members are involved in knowledge transaction through interactions facilitated by their common membership in professional and subregional organizations. Through these memberships the group of fourteen and the group of seven are connected. The seven actors are indicated by yellow circles. The episteme promoted by this municipal finance EC is Episteme INCOMETAX.
Figure 4.6: Municipal Finance Epistemic Community B

Note: Network generated using the Pajek software. N= 31. Sixteen EC members are involved in knowledge transaction through direct communication linkages. These sixteen actors are indicated by pink circles. The remaining fifteen members are involved in knowledge transaction through interactions facilitated by their common membership in professional and subregional organizations. Through these memberships the group of sixteen and the group of fifteen are connected. The fifteen actors are indicated by yellow circles. The episteme promoted by this municipal finance EC is Episteme ALLREVENUES.
Figure 4.7: Municipal Finance Epistemic Communities A and B within the Full Communication Network on LGR

Note: Network generated using the Pajek software. N of network=148, N of nonrespondents= 48, N of non-EC members=65, and N of all EC members=35. Pink circles indicates nonrespondents, green circles indicate actors who are non-EC members, red circles indicate actors who are members in both municipal finance epistemic community A as well as municipal finance epistemic community B, blue circles indicate actors who are only members in municipal finance epistemic community A, and yellow circles indicate actors who are only members in municipal finance epistemic community B.
Figure 4.8: Communication Network on the Issue of Expenditures on Municipal Employees

Note: Network generated using the Pajek software. N=138.
Figure 4.9: Communication Linkages of Interviewees on the Issue of Expenditures on Municipal Employees

Note: Network generated using the Pajek software. N=100.
Figure 4.10: Actors with Epistemic Characteristics and a Common Policy Agenda

Note: Network generated using the UCINET software, Version 6.354. N=30. Green circles indicate actors who support only Episteme C (N=12), purple circles indicate actors who support only Episteme D (N=3), and black circles indicate actors who support both Episteme C and Episteme D (N=15).
Note: Network generated using the Pajek software. N=22. Eight EC members are involved in knowledge transaction through direct communication linkages. These actors are indicated by blue circles. The remaining fourteen members are involved in knowledge transaction through interactions facilitated by their common membership in professional and subregional organizations. Through these memberships the group of eight and the group of fourteen are connected. The fourteen actors are indicated by red circles. The episteme promoted by this municipal finance EC is Episteme EMPLOYEES.
Note: Network generated using the Pajek software. N=13. Seven EC members are involved in knowledge transaction through direct communication linkages. These actors are indicated by pink circles. The remaining six members are involved in knowledge transaction through interactions facilitated by their common membership in professional and subregional organizations. Through these memberships the group of seven and the group of six are connected. The six actors are indicated by green circles. The episteme promoted by this municipal finance EC is Episteme RETIREES.
Figure 4.13: Municipal Finance Epistemic Communities C and D within the Full Communication Network on EME

Note: Network generated using the Pajek software. N of network=138, N of nonrespondents=38, N of non-EC members=76, and N of all EC members=24. Teal circles indicates nonrespondents, blue circles indicate actors who are non-EC members, pink circles indicate actors who are members in both municipal finance epistemic community C as well as municipal finance epistemic community D, green circles indicate actors who are only members in municipal finance epistemic community C, and yellow circles indicate actors who are only members in municipal finance epistemic community D.
Figure 4.14: Communication Network on the Issue of Public Service Provision

Note: Network generated using the Pajek Software. N=148.
Figure 4.15: Communication Linkages of Interviewees on the Issue of Public Service Provision

Note: Network generated using the Pajek Software. N=100.
Figure 4.16: Actors with Epistemic Characteristics and a Common Policy Agenda

Note: Network generated using the UCINET software, Version 6.354. N=52. purple circles indicate actors who support only Episteme E (N=3), pink circles indicate actors who support only Episteme F (N=12), green circles indicate actors who support only Episteme G (N=6), teal circle indicates actor who supports both Episteme E and Episteme F (N=1), grey circle indicates actor who supports both Episteme E and Episteme G (N=1), yellow circles indicate actors who support both Episteme F and Episteme G (N=10), and orange circles indicate actors who support all three epistemes--Epistemes E, F and G (N=19).
Figure 4.17: Municipal Finance Epistemic Community E

Note: Network generated using the Pajek software. N=22. Fourteen EC members are involved in knowledge transaction through direct communication linkages. These actors are indicated by pink circles. The remaining eight members are involved in knowledge transaction through interactions facilitated by their common membership in professional and subregional organizations. Through these memberships the group of fourteen and the group of eight are connected. The eight actors are indicated by grey circles. The episteme promoted by this municipal finance EC is Episteme CONSOLIDATE.
Figure 4.18: Municipal Finance Epistemic Community F

Note: Network generated using the Pajek software. N=39. Thirty-four EC members are involved in knowledge transaction through direct communication linkages. These actors are indicated by light brown circles. The remaining five members are involved in knowledge transaction through interactions facilitated by their common membership in professional and subregional organizations. Through these memberships the group of thirty-four and the group of five are connected. The five actors are indicated by teal circles. The episteme promoted by this municipal finance EC is Episteme COOPERATE.
Figure 4.19: Municipal Finance Epistemic Community G

Note: Network generated using the Pajek software. N=32. Twenty-four EC members are involved in knowledge transaction through direct communication linkages. These actors are indicated by green circles. The remaining eight members are involved in knowledge transaction through interactions facilitated by their common membership in professional and subregional organizations. Through these memberships the group of twenty-four and the group of eight are connected. The eight actors are indicated by blue circles. The episteme promoted by this municipal finance EC is Episteme CONTRACT.
Figure 4.20: Municipal Finance Epistemic Communities E, F and G within the Full Communication Network on PSP

Note: Network generated using the Pajek software. N of network=148, N of nonrespondents=48, N of non-EC members=53, and N of all EC members=47. Grey circles indicate nonrespondents, green circles indicate actors who are non-EC members, dark pink circles indicate actors who are members in all three municipal finance epistemic communities—E, F and G (N=18), blue circle indicates actor who is member of both municipal finance epistemic community E as well as municipal finance epistemic community F (N=1), teal circles indicate actors who are members in both municipal finance epistemic community F as well as municipal finance epistemic community G (N=9), black circles indicate actors who only members in municipal finance epistemic community E (N=3), yellow circles indicate actors who are only members in municipal finance epistemic community F (N=11) and light pink circles indicate actors who are only members in municipal finance epistemic community G (N=5).
Composition of Municipal Finance Epistemic Communities

Evidence from the existing epistemic communities literature suggests that ECs typically consist of at least one group of scientific or technical experts with knowledge of and expertise in a particular issue area, and of at least one group of relevant appointed and/or elected government officials who are responsible for formulating and implementing policy within that issue area (Haas, 1992a; Kutchesfahani, 2010). Importantly, in many cases the membership of these constituent groups overlap, as experts take positions in government, while elected and appointed government officials move from their jobs to work for nonprofit organizations or private firms (Kutchesfahani, 2010). Given that consolidating formal bureaucratic and political power within itself is considered critical for an EC’s policy success (Haas, 1992a), this pattern is likely to be observed in the municipal finance ECs also. Therefore, I propose the following set of hypotheses regarding the composition of the municipal finance epistemic communities that were identified in the previous section.

*Hypothesis 2a (H2a):* Any municipal finance epistemic community will include at least one government bureaucrat who is a specialist in municipal finance.

*Hypothesis 2b (H2b):* Any municipal finance epistemic community will include one or more municipal finance specialists drawn from professional bodies, nonprofit organizations and/or private firms.

*Hypothesis 2c (H2c):* Occasionally, municipal finance epistemic communities will include one or more elected officials who are specialists in municipal finance.

The Issue Area of Local Government Revenues

MFEC_INCOMETAX consists of 21 members. Of these 21 members, 12 are state and local government actors. Among these 12 actors, three are elected officials and nine are bureaucrats. Besides these governmental actors, MFEC_INCOMETAX also includes
a group of nine actors from nongovernmental sectors--six actors from nongovernmental organizations (NGOs), an academic who specializes in municipal finance issues, an attorney who previously worked as a government official and is a municipal governance expert, and an official from a private firm. \(^{12}\) MFEC_INCOMETAX is the second smallest of the seven municipal finance epistemic communities; the smallest being MFEC_RETIREES.

MFEC_ALLREVENUES consists of 31 members. Like MFEC_INCOMETAX, this MFEC also has two groups of actors, 22 actors representing the governmental sector and nine actors representing the nongovernmental sector. Seventeen actors in MFEC_ALLREVENUES are also members of MFEC_INCOMETAX. Except for a city council member, a city chief fiscal analyst, and two officials from NGOs, all other participants in MFEC_INCOMETAX are also participants in MFEC_ALLREVENUES. This overlapping membership of EC actors is not limited to a single issue area. Instead, it spans the three issue areas of LGR, EME and PSP. More detailed discussion of the complex web of overlapping memberships of EC actors across the seven MFECs embedded in the three issue areas is provided toward the end of this section.

Of the 18 bureaucrats in MFEC_ALLREVENUES, 10 are city managers. In contrast, MFEC_INCOMETAX includes only two city managers. Further, unlike MFEC_INCOMETAX, this MFEC includes township level actors such as a township supervisor and township manager. The absence of township level actors from MFEC_INCOMETAX can be attributed to the nature of the episteme promoted by this MFEC--adopting or increasing local income taxes. As mentioned earlier, in Michigan, only cities can levy income taxes and hence the disinterest of township level actors in participating
Table 4.4: Composition of MFECs INCOMETAX and ALLREVENUES

<table>
<thead>
<tr>
<th></th>
<th>INCOMETAX</th>
<th>ALLREVENUES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency (%)</td>
<td>Frequency (%)</td>
</tr>
<tr>
<td><strong>Elected Officials</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Michigan State House Representative</td>
<td>3 (14.3%)</td>
<td>4 (12.9%)</td>
</tr>
<tr>
<td>City Mayor</td>
<td>1</td>
<td>1*</td>
</tr>
<tr>
<td>City Council Member</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Township Supervisor</td>
<td>----------</td>
<td>1</td>
</tr>
<tr>
<td><strong>Bureaucrats</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>County Deputy Executive</td>
<td>1</td>
<td>1*</td>
</tr>
<tr>
<td>County Administrator</td>
<td>1</td>
<td>1*</td>
</tr>
<tr>
<td>County Chief Financial Officer</td>
<td>1</td>
<td>1*</td>
</tr>
<tr>
<td>County Finance Director</td>
<td>1</td>
<td>1*</td>
</tr>
<tr>
<td>City Manager</td>
<td>2</td>
<td>2* + 8</td>
</tr>
<tr>
<td>Deputy City Manager</td>
<td>1</td>
<td>1*</td>
</tr>
<tr>
<td>Deputy City Administrator</td>
<td>1</td>
<td>1*</td>
</tr>
<tr>
<td>City Chief Fiscal Analyst</td>
<td>1</td>
<td>----------</td>
</tr>
<tr>
<td>City Financial Director</td>
<td>----------</td>
<td>1</td>
</tr>
<tr>
<td>Township Manager</td>
<td>----------</td>
<td>1</td>
</tr>
<tr>
<td><strong>Officials from NGOs</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Official from NGO Supporting Local Govt. Leadership in MI</td>
<td>2</td>
<td>2*</td>
</tr>
<tr>
<td>Official from a Regional Planning Partnership in Southeast MI</td>
<td>1</td>
<td>1* + 1</td>
</tr>
<tr>
<td>Official from a Community Conference in MI</td>
<td>1</td>
<td>----------</td>
</tr>
<tr>
<td>Official from an Association of MI Local Governments</td>
<td>1</td>
<td>----------</td>
</tr>
<tr>
<td>Official from an Association of MI Municipal Governments</td>
<td>----------</td>
<td>1</td>
</tr>
<tr>
<td>Official from an Association of MI Bureaucrats</td>
<td>1</td>
<td>1*</td>
</tr>
<tr>
<td><strong>Officials from Private Firms</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Official from an Accounting and Business Advisory Firm</td>
<td>1</td>
<td>1*</td>
</tr>
<tr>
<td><strong>Academics w/Municipal Expertise</strong></td>
<td>1 (4.8%)</td>
<td>1* (3.2%)</td>
</tr>
<tr>
<td><strong>Attorneys w/Municipal Expertise</strong></td>
<td>1 (4.8%)</td>
<td>1* (3.2%)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>21 (100%)</td>
<td>31 (100%)</td>
</tr>
</tbody>
</table>

Note: * Indicates same actor as in MFEC_INCOMETAX.
The Issue Area of Expenditures on Municipal Employees

MFEC_EMPLOYEES consists of 22 members which includes 15 governmental and 7 nongovernmental actors. Nearly two-thirds of the members of MFEC_EMPLOYEES are governmental bureaucrats, and nearly two-thirds of these are city managers. Among the nongovernmental actors, three actors deserve special mention. The academic who specializes in municipal finance, the attorney who previously worked as a government official, and the official from a private firm, earlier identified in MFECs INCOMETAX and ALLREVENUES also participate in MFEC_EMPLOYEES and MFEC RETIREES.

MFEC RETIREES is the smallest of all MFECs, consisting only 13 members. The small size of MFEC RETIREES does not come as a surprise given the sensitive nature of the reform strategies promoted by this group. These strategies include reducing the benefits paid to municipal retirees and restricting the ability of municipal employees to collectively bargain with compensation and work rules. Also, unlike the other six MFECs, this MFEC does not include any elected officials. Despite this difference in its composition and its smaller size, MFEC RETIREES is not greatly different from the other MFECs, as it is made up of both governmental (eight) and nongovernmental (five) actors. Among its 13 actors, MFEC RETIREES shares nine actors with MFEC EMPLOYEES. Further, akin to MFEC EMPLOYEES, a substantial portion of MFEC RETIREES is made up of governmental bureaucrats (61.5%) and half of these bureaucrats are city managers. However, participation of officials from NGOs is very low in this MFEC--only one actor.
Relative to the other two issue areas, this issue area is technically more complex due to its legal component. Hence, the expectation is that ECs in this area will include more number of actors from specialized bodies such as law firms. However, together, MFECs EMPLOYEES and RETIREES include only two attorneys.\textsuperscript{13} Table 4.5 is a frequency table on the composition of MFEC\_EMPLOYEES and MFEC\_RETIREES.

<table>
<thead>
<tr>
<th></th>
<th>EMPLOYEES</th>
<th>RETIREES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency (%)</td>
<td>Frequency (%)</td>
</tr>
<tr>
<td>\textit{Elected Officials}</td>
<td>1 (4.5%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>City Council Member</td>
<td>1</td>
<td>--------</td>
</tr>
<tr>
<td>\textit{Bureaucrats}</td>
<td>14 (63.6%)</td>
<td>8 (61.5%)</td>
</tr>
<tr>
<td>County Deputy Executive</td>
<td>--------</td>
<td>1</td>
</tr>
<tr>
<td>County Administrator</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Assistant County Administrator</td>
<td>1</td>
<td>--------</td>
</tr>
<tr>
<td>County Finance Director</td>
<td>1</td>
<td>1*</td>
</tr>
<tr>
<td>City Manager</td>
<td>9</td>
<td>4*</td>
</tr>
<tr>
<td>Deputy City Manager</td>
<td>1</td>
<td>--------</td>
</tr>
<tr>
<td>City Chief Fiscal Analyst</td>
<td>1</td>
<td>--------</td>
</tr>
<tr>
<td>Township Manager</td>
<td>--------</td>
<td>1</td>
</tr>
<tr>
<td>\textit{Officials from NGOs}</td>
<td>4 (18.2%)</td>
<td>1 (7.7%)</td>
</tr>
<tr>
<td>Official from NGO Supporting Local Govt. Leadership in MI</td>
<td>1</td>
<td>1*</td>
</tr>
<tr>
<td>Official from a Regional Planning Partnership in Southeast MI</td>
<td>1</td>
<td>--------</td>
</tr>
<tr>
<td>Official from an Association of MI Local Governments</td>
<td>1</td>
<td>--------</td>
</tr>
<tr>
<td>Official from an Association of MI Municipal Governments</td>
<td>1</td>
<td>--------</td>
</tr>
<tr>
<td>\textit{Officials from Private Firms}</td>
<td>1 (4.5%)</td>
<td>1 (7.7%)</td>
</tr>
<tr>
<td>Official from an Accounting and Business Advisory Firm</td>
<td>1</td>
<td>1*</td>
</tr>
<tr>
<td>\textit{Academics w/Municipal Expertise}</td>
<td>1 (4.5%)</td>
<td>1* (7.7%)</td>
</tr>
<tr>
<td>\textit{Attorneys w/Municipal Expertise}</td>
<td>1 (4.5%)</td>
<td>1* + 1 (15.4%)</td>
</tr>
<tr>
<td>\textbf{Total}</td>
<td>22 (100%)</td>
<td>13 (100%)</td>
</tr>
</tbody>
</table>
**The Issue Area of Public Service Provision**

MFEC_CONSOLIDATE consists 22 members--fifteen governmental and seven nongovernmental actors. MFEC_COOPERATE is larger in size than MFEC_CONSOLIDATE consisting of 39 actors--29 governmental and 10 nongovernmental actors. In fact, this is the largest of the seven MFECs. Further, among the seven MFECs, MFEC_COOPERATE has the largest number of city managers--14 of them. MFEC_COOPERATE shares 19 (that is, 65.5%) of its actors with MFEC_CONSOLIDATE. MFEC_CONTRACT consists of 32 members--23 governmental and nine nongovernmental actors. It shares 10 of its actors with MFEC_COOPERATE, and 17 of its actors with both MFEC_CONSOLIDATE and MFEC_COOPERATE. This suggests that in the issue area of public service provision, 17 actors are participants in all three MFECs. In particular, the academic who specializes in municipal finance, the attorney who previously worked as a government official, and the official from a private firm, earlier identified in MFECs INCOMETAX, ALLREVENUES, EMPLOYEES, and RETIRES, also participate in MFECs CONSOLIDATE, COOPERATE and CONTRACT.

Overall, the issue area of public service provision has more EC actors than the other two issue areas. This issue area also includes a more diverse range of governmental actors such as a managing director of a county commission, a county undersheriff, a township treasurer and a township financial director. In general, in this issue area, there are more actors from township governments. One obvious reason for this is that service provision is common to all local governments. Table 4.6 is a frequency table on the composition of MFECs CONSOLIDATE, COOPERATE and CONTRACT.
| Table 4.6: Composition of MFECs CONSOLIDATE, COOPERATE and CONTRACT |
|-------------------------|-------------------------|-------------------------|
|                         | CONSOLIDATE             | COOPERATE               | CONTRACT               |
|                         | Frequency (%)           | Frequency (%)           | Frequency (%)          |
| **Elected Officials**   |                        |                        |                        |
| Michigan State House Representative | 2 (9.1%) | 4 (10.3%) | 4 (12.5%) |
| County Executive        | 1                       | 1*                     | 1**                    |
| City Council Member     | 1                       | 1* + 1                 | 1***                   |
| Township Treasurer      | 1                       |                        |                        |
| **Bureaucrats**         |                        |                        |                        |
| County Deputy Executive | 1                       | 1*                     | 1***                   |
| County Administrator   | 1*                      | 1                      | **+ 1                 |
| Assistant County Administrator | 1       | 1*                     | 1**                    |
| Managing Director of a County Commission | 1       | 1                      |                        |
| County Chief Financial Officer | 1       | 1*                     | 1***                   |
| County Finance Director | 1                       | 1*                     | 1***                   |
| County Under Sheriff    | 1                      |                        |                        |
| City Manager            | 6                       | 6* + 8                 | 3** + 6*** + 2         |
| Deputy City Manager     | 1*                      | 1                      |                        |
| City Financial Director | 1                       | 1* + 1                 | 1***                   |
| Township Manager        | 2                       | 1                      |                        |
| Township Financial Director | 1     |                        |                        |
| **Officials from NGOs** |                        |                        |                        |
| Official from NGO Supporting Local Govt. Leadership in MI | 1       | 1* + 1                 | 1** + 1*** + 1         |
| Official from a Regional Planning Partnership in Southeast MI | 2       | 2*                     | 2***                   |
| Official from an Association of MI Local Governments | 1       | 1                      | **                     |
| Official from an Association of MI Municipal Governments | 1       | 1                      |                        |
| **Officials from Private Firms** |         |                        |                        |
| Official from an Accounting and Business Advisory Firm | 1       | 1*                     | 1***                   |
| **Academics w/Municipal Expertise** |         |                        |                        |
| Attorneys w/Municipal Expertise |         |                        |                        |
| Total                   | 22 (100%)               | 39 (100%)              | 32 (100%)              |

Note: * Indicates same actor as in MFEC_CONSOLIDATE, **indicates same actor as in MFEC_COOPERATE, *** indicates same actor as in MFEC_CONSOLIDATE and COOPERATE.
All of the seven MFECs consist of two groups of actors, a set of governmental actors and a set of nongovernmental actors. Among governmental actors there are both elected officials as well as bureaucrats serving at the state as well as the local level. Only in the case of MFEC RETIREES, elected officials do not participate. The nongovernmental actors come from professional bodies (such as universities), nonprofit organizations and private firms. This pattern is observed across all seven MFECs. These findings confirm H2a which proposes that any municipal finance epistemic community will include at least one government bureaucrat who is a specialist in municipal finance. They also confirm H2b which proposes that any municipal finance epistemic community will include one or more municipal finance specialists drawn from professional bodies, nonprofit organizations and/or private firms. The data also provide support for H2c which proposes that occasionally, municipal finance epistemic communities will include one or more elected officials who are specialists in municipal finance. Typically the proportion of elected officials participating in MFECs ranges from 4.5 to 14.3 percent.

A Complex Web of Overlapping Memberships in MFECs

ECs are complex, integrated structures that contain several networks and subnetworks which involve overlapping membership of experts from the public, nonprofit and private sectors. The complex memberships of the various municipal finance ECs serve as a solid base and perpetuate a diversified series of networks that establish familiarity and loyalty among participants (Yu, 2008). Importantly, this familiarity and loyalty among individual actors increases the credibility of the ECs to which these actors belong. Thus, the immediate interactions facilitate extended relations, all of which
collectively provide the foundation for a habit of dialogue and on-going consultation (Yu, 2008). Also, through these kinds of repeated and overlapping interactions, community members develop strong links with the decision makers who are part of these ECs. Through these elected officials, EC members reach out to other decision makers, eventually increasing their overall access to and influence on decision makers.

Table 4.7 displays the trend of complex interconnected membership in the seven MFECs. That is, there are 24 different combinations into which EC actors can be grouped based on their membership in multiple MFECs. While the smallest of these combinations consists of two MFECs, the largest consists of all the seven MFECs. While 42 of the 58 EC actors are members in two or more MFECs, 16 of them are members of only a single MFEC. Table 4.8 presents details on actors who participate in a single MFEC.

Table 4.7 indicates that five actors participate in all seven MFECs. These actors are the academic who specializes in municipal finance, the attorney who previously worked as a government official, the official from a private firm, a county finance director and a city manager. Among these actors, many interviewees made special mention of the academic and the actor’s expertise in various issue areas of municipal finance. Similarly, special mention was made concerning the expertise of a county deputy executive. This county deputy executive, along with a city manager, participates in six of the seven MFECs. Likewise, a senior executive from an NGO supporting local government leadership in MI and a senior executive from a regional partnership in Southeast Michigan were referred to as experienced municipal finance experts by a number of interviewees. These two actors are members of five of the seven MFECs. Also, there are a number of city managers, identified as experts of municipal finance
issues, serving as members in two or more MFECs. The social network analysis formally confirms the expertise of these actors as well as the observations of the interviewees.

Table 4.7: Memberships in Multiple MFECs

<table>
<thead>
<tr>
<th>MFEC Cluster No.</th>
<th>MFECs in the Cluster</th>
<th>No. of MFECs in the Cluster</th>
<th>No. of Actors in the Cluster</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>INCOMETAX, ALLREVENUES, EMPLOYEES, RETIREES, CONSOLIDATE, COOPERATE, CONTRACT</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>INCOMETAX, ALLREVENUES, RETIREES, CONSOLIDATE, COOPERATE, CONTRACT</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>ALLREVENUES, EMPLOYEES, RETIREES, CONSOLIDATE, COOPERATE, CONTRACT</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>INCOMETAX, ALLREVENUES, EMPLOYEES, RETIREES, CONTRACT</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>INCOMETAX, ALLREVENUES, EMPLOYEES, COOPERATE, CONTRACT</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>INCOMETAX, ALLREVENUES, CONSOLIDATE, COOPERATE, CONTRACT</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>7</td>
<td>ALLREVENUES, EMPLOYEES, RETIREES, COOPERATE, CONTRACT</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td>ALLREVENUES, EMPLOYEES, CONSOLIDATE, COOPERATE, CONTRACT</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>9</td>
<td>INCOMETAX, EMPLOYEES, COOPERATE, CONTRACT</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>10</td>
<td>ALLREVENUES, CONSOLIDATE, COOPERATE, CONTRACT</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>11</td>
<td>INCOMETAX, ALLREVENUES, RETIREES</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>12</td>
<td>ALLREVENUES, EMPLOYEES, COOPERATE</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>13</td>
<td>EMPLOYEES, COOPERATE, CONTRACT</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>14</td>
<td>RETIREES, CONSOLIDATE, COOPERATE</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>15</td>
<td>CONSOLIDATE, COOPERATE, CONTRACT</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>16</td>
<td>INCOMETAX, ALLREVENUES</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>17</td>
<td>INCOMETAX, EMPLOYEES</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>18</td>
<td>INCOMETAX, COOPERATE</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>19</td>
<td>ALLREVENUES, EMPLOYEES</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>20</td>
<td>ALLREVENUES, CONSOLIDATE</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>21</td>
<td>ALLREVENUES, CONTRACT</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>22</td>
<td>EMPLOYEES, RETIREES</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>23</td>
<td>EMPLOYEES, COOPERATE</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>24</td>
<td>COOPERATE, CONTRACT</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td>42</td>
</tr>
</tbody>
</table>
Table 4.8: Membership in a Single MFEC

<table>
<thead>
<tr>
<th>MFEC No.</th>
<th>Name of MFEC</th>
<th>No. of Actors in MFEC</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>INCOME TAX</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>ALLREVENUES</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>RETIRES</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>CONSOLIDATE</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>COOPERATE</td>
<td>7</td>
</tr>
<tr>
<td>6</td>
<td>CONTRACT</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>16</strong></td>
<td></td>
</tr>
</tbody>
</table>

As pointed out earlier, though I identify the existence of epistemic community/communities in Michigan within the domain of municipal finance, the limitations of the data do not allow me to determine the exact size and number of these ECs. However, my analysis of the composition of the seven ECs reveals a complex, overlapping web of membership among the actors involved in these ECs. This complex web suggests that perhaps there are not seven different ECs but fewer than that—maybe just four, or three or even two. Additional data collection that is focused only on the EC actors identified from my analysis, is one possible route to uncover the exact number of municipal finance ECs present in Michigan. While this kind of analysis is a potential part of my future research efforts, at present, I can verify my claim that there are multiple groups of municipal finance experts with overlapping memberships that span the three issue areas of LGR, EME and PSP.

This overlapping membership of these EC actors should be reflected in the data gathered on communication ties. A pooled network of the 58 actors spanning the three issue areas should be connected. To investigate this, I aggregated all incoming and outgoing ties of the 58 EC actors into one network; even if an actor connected twice or thrice with another actor, it was indicated only as a single tie. I then mapped the network revealing the connection patterns of the 58 actors across the three issue areas.
Figure 4.21: Communication Network of Municipal Finance Epistemic Communities A, B, C, D, E, F and G

This network, shown in Figure 4.21, is sufficiently connected with a main component consisting of 48 actors (nearly 83%), a minor component consisting of 6 actors (10.3%), 4 isolates and two actors with a single connection. Thus, the data generally confirm the overlapping membership of actors in the seven MFECs. Though identifying the number of clusters within this network will to some extent help understand whether there are seven different subnetworks (MFECs) operating within this network, I have avoided doing this. The reason being that I have neither fully identified all epistemic communities nor all members of these communities. Therefore, I withhold drawing conclusions based on insufficient data.

**Concluding Remarks**

Few, if any, policy makers in Michigan are familiar with the concept of epistemic communities. But a number of elected and appointed officials in the state are certainly associated with these entities--either through their direct membership in them or through communication and information-sharing ties with those who participate in these entities. Identification of the various ECs embedded in the communication networks on LGR, EME and PSP reveals the importance of these entities in information exchange on questions of municipal finance. This study is just a cross-sectional analysis. Perhaps a longitudinal analysis would more clearly show the significance of the municipal finance ECs in general, and the “popular” EC actors in particular. Furthermore, the full communication networks were not mapped. If these are mapped, more elaborate details
may emerge on the knowledge transaction and brokerage roles that EC actors are playing in Michigan in efforts to address municipal finance problems.

The analysis on the composition of MFECs has been particularly useful in specifying the complex, overlapping structure of ECs within each issue area and across the entire domain of municipal finance. This maze of interconnections was explored in detail because it is a critical feature of ECs. That is, the ability to consolidate formal political and bureaucratic power within an EC is a key factor that determines the level of policy influence an EC possesses and subsequently its capability in promoting and institutionalizing its epistemic ideas (Haas, 1992a). Whether it is Haas’ (1992b) “ecological EC” or Van Daele’s “prewar labor ECs” or Mani’s “innovation systems EC,” memberships of EC actors in multiple, overlapping networks have played critical roles in building trust, reciprocity and credibility among policy actors within epistemic communities. These elements have in turn helped these knowledge experts reach out to other policy actors outside these communities and build social capital and political legitimacy. Using social capital and political legitimacy, EC actors have successfully created policy consensus on difficult and wicked problems and have institutionalized various professional best practices. This same dynamic is likely the fundamental basis of the operation strategies of municipal finance ECs.

The multiplexity of the relations of MFEC actors is important not just for building and sustaining social capital and political legitimacy, but also for developing interconnected perspectives and assuming a long term focus on “wicked” public problems. As Haas (1992a) points out, several contentious public problems are so that without sufficient expertise it is not even possible to fully understand the nature of these
problems. MFEC members participating in multiple ECs in the issue areas of LGR, EME and PSP have the unique advantage of seeing the bigger picture. They may more fully understand how policy actions taken in the issue area of LGR may impact other interconnected issue areas such as EME and PSP. Using their heightened awareness, along with their professional credibility and political and bureaucratic influences, these actors could initiate and sustain meaningful dialogues to achieve policy consensus on conflicting municipal finance policy choices.

In sum, the data discussed in this chapter have empirically established the existence of deliberative, analytical resources in the form of Michigan’s municipal finance epistemic communities. It would be useful to formally introduce these resources to policy makers and also explore the extent to which they are aware of the existence of these resources and the extent to which they are willing to utilize them in policy making processes.
Notes

1 Social network analysis is an analytical technique that enables researchers to represent relational data and explore the nature and properties of those relations. The actors whose relations are measured are represented as points or nodes (Wasserman and Faust, 1994). The relations between these actors, for example, “communication with,” are represented as lines connecting these actors or nodes (Monge and Contractor, 2002). These lines are typically referred to as lines, links, ties, or arcs (Wasserman and Faust, 1994). When relations between actors are studied one at a time, they are called uniplex relations. When two or more relations are studied together, they are called multiplex relations.

2 An EFM can:
   • hire staff and additional staff;
   • direct existing staff;
   • determine staffing levels or implement layoffs;
   • renegotiate labor contracts;
   • enter into new contracts with other local governments for service provision;
   • issue, approve or disapprove vendor contracts;
   • amend, revise, approve, or disapprove the budget of a unit of local government;
   • consolidate departments of a unit of local government, or transfer functions from one department to another department;
   • appoint, supervise, and, at his or her discretion, remove heads of departments other than elected officials of the unit of local government;
   • review payrolls or other claims against the unit of local government before payment;
   • sell or otherwise use the assets of a unit of local government to meet past or current obligations;
   • recommend consolidation of the unit of local government with one or more municipal governments; and
   • authorize the unit of local government to proceed under federal bankruptcy provisions (PA 4, 2011).

3 PA 4 of 2011 replaced and repealed the previous law on financial emergencies--PA 72 of 1990.

4 Credit is given for tax paid to another state.

5 Skidmore and Scorsone (2009) point out that there is usually a lag between the time that property values change and the time those changes are reflected in assessments and incorporated into the tax rolls.

6 The median score is a location. Therefore, though the median score was 8 in each of the three issue areas, many scores above the median were also 8.

7 The generation of each subnetwork involves the creation of a new adjacency matrix whose size is proportional to the number of actors in the subset. For example, for the network shown in Figure 4.3, a 100*100 adjacency matrix was created. This process will help in excluding irrelevant actors, the ties that stem from these actors, and the ties directed toward these actors. This pattern continues throughout the rest of the analysis.

8 It has to be noted here that the sampling was intentional/purposive and purposive sampling is typical in studies of epistemic communities (see for example, Dotterweich, 2009). That is, starting with the identification of the initial sample of 50 individuals, my focus was on municipal finance experts. Following this, the snowball sampling was also targeted to capture experts of municipal finance. Accordingly, the interview questions were so worded to identify the two people most frequently contacted by an individual for discussion and information sharing on a particular issue of municipal finance. Therefore, there is a large group of actors with epistemic characteristics. However, the mere possession of epistemic characteristics is not sufficient qualification to be an EC member.

9 Separate attribute files were created to show these differences through color scheme in the network.
From this point onward, I use the terms MFEC and EC interchangeably to refer to the seven communities.

With regard to this issue area, some actors preferred not to identify their contacts. This hesitation was particularly noticeable among attorneys. In particular, two key labor attorneys were identified as experts on municipal employment issues by a number of my respondents. However, these two attorneys did not consent to the interview. They said it violated their professional ethics to divulge the names of their contacts. They were also equally unwilling to discuss their policy preferences on issues of municipal finance. However, through other respondents and secondary sources, I was able to assess that these two attorneys were EC actors. I have indicated the position of these actors in the communication network on EME through labels in Figure 4.13.

I refer to nongovernmental organizations as well as nonprofit organizations as NGOs.

Earlier, I noted that two labor attorneys declined to be interviewed. Through secondary sources, these attorneys were identified as EC actors but were not included in the analysis. Besides these attorneys, there may be other attorneys who are also EC members but remain unknown.

As the concern here is about the connectivity and not the strength of connectivity of these actors, binary ties are enough for analysis.
CHAPTER V

Municipal Finance Epistemic Communities:
Patterns of Interaction, Motivations for Interaction and Policy Performance

Epistemic communities are complex, integrated network structures and social network theory is perhaps the best avenue to demonstrate the nature, the causes, and the effects of the interaction and exchange that take place among network participants. However, this methodology has never been applied by scholars to understand the functional performance of epistemic communities. For the first time, in this dissertation, I use this methodology to explore the interaction patterns of epistemic community members and to identify factors that motivate them to interact with each other. Importantly, I use sophisticated statistical models to examine how the actors within these knowledge communities use their roles and positions to transact knowledge.

Structural characteristics of networks are viewed by analysts as the outcomes of certain social processes (Robins, Pattison, Kalish, and Lusher, 2007). That is, certain behavioral characteristics of network participants lead actors to structure networks in specific and predictable ways. For instance, when participants seek to have access to credible information, they reach out to popular actors in the network, who have, by virtue of their credibility, already attracted many other network participants to form ties with them. This behavior of participants produces a network configuration called “in-stars.” Similarly, when participants tend to reciprocate relationship choices of other network participants, the result is the formation of “reciprocal ties.” Elaborate explanations of these configurations along with their graphic representations are provided in the next section. Through statistical network models, analysts can predict and test the occurrence of certain network structures to explain the dynamics of the workings within a network.
With this chapter, I am employing the same techniques, to understand the dynamics of the knowledge producing activities of EC actors. This approach to understanding the functional performance of ECs by analyzing network structural characteristics is a significant step in shifting the EC literature from inductive, qualitative analysis to deductive, quantitative analysis. Following this analysis, I explore the various avenues that EC actors use to develop liaisons with politicians in order to influence public policy making and to thereby promote professionally best practices within the domain of their expertise.

As discussed in chapter four, I can conclude that among the 100 persons interviewed, 58 actors are epistemic community members. These actors belong to one or more of the seven communities identified. Yet, whether these seven communities are part of a single epistemic community or more than one epistemic community can be established only with additional data collection that focuses on these 58 actors. As of now, I refer to these seven subnetworks, which are a part of the municipal finance epistemic communities that exist in Michigan, as subsets of these MFECs. For ease of interpretation, I refer to them simply as epistemic communities or municipal finance epistemic communities. I also retain the names given to them in chapter four. In all the analyses conducted in this chapter, I analyze these 58 actors and the communication linkages that exist across them in the three different issue areas (local government revenues, expenditures on municipal employees and public service provision) as a single communication network. Only at the end of this chapter, where I examine the ties that epistemic community members develop with elected officials, do I approach each of the
seven subsets as individual communities embedded within the full communication network in the particular issue area.

In this chapter, I propose and test three different sets of hypotheses. The first set is focused on the anticipated interaction patterns among members of the municipal finance ECs. Based on the characteristics and functional performance of EC actors, I propose that certain network structures are more/less likely to be present in the communication network consisting of the 58 EC actors. I then proceed to test these proposed hypotheses using exponential random graph models (ERGM). In the context of predicting interaction patterns among EC actors, I also propose a hypothesis that is focused on the prevalence of strong and weak ties among these actors. This hypothesis is based on Granovetter’s (1973) insights on the strengths of ties and their implications for information flow within interorganizational networks. I test my hypothesis using network mapping and descriptive statistics.

The second set of hypotheses is focused on the factors that motivate EC actors to develop communication linkages with each other to discuss and share information on issues of municipal finance. I use quadratic assignment procedures (QAP) analysis to test this second set of hypotheses. The third set of hypotheses is focused on the policy performance of EC actors. The policy agenda of the seven EC subsets have already been identified and discussed in chapter four during the process of identifying the common policy agenda of actors with epistemic characteristics. In this chapter, I only propose hypotheses about the preferred policy promotion forums of EC actors and about the ties that these actors develop with elected state and local government officials in Michigan. I test these hypotheses using descriptive analysis and network mapping. Each set of
hypotheses, along with its tests and the findings of these tests, are presented in separate sections in this chapter. Finally, in the concluding section of this chapter, I discuss the implications of my findings.

**Interaction Patterns of the Members of Michigan’s Municipal Finance Epistemic Communities**

In this section, I analyze the interaction patterns of EC actors. This analysis is two-fold. First, I employ the ERG model to describe parsimoniously the local selection forces that shape the global structure of the observed communication network of the 58 EC actors. The observed network is understood as one particular pattern of ties out of a large set of possible patterns that can emerge given the same number of actors and the same number of relationships as the observed network. The ERGM analysis reveals there are significantly more, or less, of the structural characteristics of interest in the observed network than expected by chance. For instance, do actors in the observed network of EC members tend to reciprocate communication relationship choices? Based on the qualitative case study literature on ECs, I propose they do. ERGM provides a means to empirically test this proposition.

Second, using network mapping and descriptive statistics, I analyze the strength of the ties among EC actors. Social networks are essentially composed of ties that differ in their interpersonal strength. Strong ties are more efficient contributors of information, especially within organizational subsystems (Friedkin, 1982). But since Granovetter’s (1973) seminal paper on the strength of weak ties, network scholars have started to acknowledge the value of weak ties, in particular, their efficiency in allowing information
to flow between one organizational subsystem and another. Findings in chapter four (Figure 4.21) clearly indicated that the seven communities are overlapping subsets of municipal finance experts. In this chapter, I examine whether the communication linkages between EC actors are weak ties that are unreciprocated and limited to a single issue of municipal finance, or are they strong ties that are reciprocated ties and/or ties that span more than a single issue of municipal finance. Given EC actors are members of overlapping knowledge communities, the expectation is that strong ties will be more prevalent than weak ties.

**Exponential Random Graph Models**

I am using the PNet for single networks program to estimate the probability that the network structures included in the model appear at a greater frequency than would be explained by a comparable random graph with the same number of actors (nodes) and relationships (links/ties). Importantly, the model, controlling for other network effects specified in the model and for potential random relationships within the network, estimates the probability that a given structure occurs at a greater or lesser frequency than would be explained by comparable random graphs. In the ERGM analysis, the hypothesized network structures are the independent variables and the observed communication network of EC actors is the dependent variable/matrix. Table 5.1 presents descriptive graph statistics of the communication network of all EC actors.
Table 5.1: General and Hypothesized Network Structures

<table>
<thead>
<tr>
<th>Network Configuration</th>
<th>Graphic Representation of Network Configuration</th>
<th>Occurrences of Configuration in Observed Network</th>
<th>Hypothesized Relations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vertices/Nodes</td>
<td><img src="image" alt="Graph" /></td>
<td>58</td>
<td>N/A</td>
</tr>
<tr>
<td>Isolates</td>
<td><img src="image" alt="Graph" /></td>
<td>4</td>
<td>N/A</td>
</tr>
<tr>
<td>Arcs</td>
<td><img src="image" alt="Graph" /></td>
<td>68</td>
<td>N/A</td>
</tr>
<tr>
<td>Reciprocal Ties (Reciprocity)</td>
<td><img src="image" alt="Graph" /></td>
<td>9</td>
<td>More Likely</td>
</tr>
<tr>
<td>In-2-stars (Popularity)</td>
<td><img src="image" alt="Graph" /></td>
<td>52</td>
<td>Less Likely</td>
</tr>
<tr>
<td>Out-2-stars (Activity--Expansiveness)</td>
<td><img src="image" alt="Graph" /></td>
<td>36</td>
<td>Less Likely</td>
</tr>
<tr>
<td>2-paths (Information--Bridging)</td>
<td><img src="image" alt="Graph" /></td>
<td>55</td>
<td>Less Likely</td>
</tr>
<tr>
<td>Transitive Triads (Transitivity--Bonding)</td>
<td><img src="image" alt="Graph" /></td>
<td>6</td>
<td>More Likely</td>
</tr>
</tbody>
</table>

Note: Values indicate occurrences of the particular configuration in the observed network. General network structures are fundamental features of networks and so I do not propose specific hypotheses on these structures.
In Table 5.1, general and hypothesized network structures are graphically represented. The table also provides information on the number of times a particular network configuration occurs in the observed network and about the proposed hypothesis on each of these configurations. More likely indicates that a given configuration is expected to occur at a greater frequency in the observed communication network of EC actors than in comparable random graphs with the same number of actors and relationships as the dependent network. Less likely indicates that a given configuration is expected to occur at a lower frequency in the observed communication network of EC actors than in comparable random graphs.

**Network Structure Hypotheses**

**Reciprocity**

The reciprocity characteristic is measured by “reciprocal ties.” In this network, reciprocity indicates actor A is reaching out to actor B to discuss and seek information on issue(s) of municipal finance and actor B is reciprocating the tie by reaching out to actor A to discuss and seek information on issue(s) of municipal finance. Reciprocal ties foster a cohesive relationship between the actors involved in such ties, eventually leading to the development of social capital and mutual solidarity (Coleman, 1988).

Reciprocity and group solidarity are fundamental for the functioning of epistemic communities. We can see this in Van Daele’s (2005) “prewar labor epistemic communities.” The Commission on International Labour Legislation, consisting of epistemic community actors, was invited to advise official government leaders and diplomats on specific labor and industrial development questions. Importantly, a majority
of the commission members knew each other from various prewar networks in politics, science, and labour administration before they came together in Paris in 1919 (Van Daele, 2005). The reciprocity and repeated interactions in these overlapping networks facilitated group solidarity and allowed members of the commission to institutionalize their worldviews by successfully establishing the international labour organization as early as in 1919. Based on patterns observed in Van Daele’s “prewar labor ECs” and in other epistemic communities (Adler and Haas, 1992) it is expected that the ties that members of municipal finance epistemic communities develop among them will be reciprocal. So I propose that,

Hypothesis 3a (H3a): The discussion and information-sharing ties observed in the communication network of municipal finance epistemic communities are more likely to be reciprocal than ties observed in comparable random graphs.

Popularity

The popularity characteristic is measured by “in-stars.” In this network, a popularity pattern of communication relationships occurs when many municipal finance EC actors seek to discuss and share information with a particular EC actor. An actor is a popular (or central) actor when many other actors create links to this particular actor. These ties are depicted in Table 5.1 by in-stars coming toward this actor. The popularity concept illustrates reputational differences among EC actors, and that actors will choose to develop communication ties with those actors who have managed to attract more incoming communication ties than others in the network (Shrestha, 2008; Snijders, Bunt and Steglich, 2010).

Within epistemic communities, there is a common knowledge base; there are common norms of validity; and a common policy agenda. Peter Haas (1992a) (whose
model is used in this study) does not mention anything about whether hierarchies may or may not exist within epistemic communities. Also, existing EC literature in the IR field, in general, does not discuss the existence of hierarchical systems of authority or credibility within these communities. However, Amy Verdun (1997), based on Ernst Haas’ (1980) insights, does not rule out the possibility of the existence of leadership in an epistemic community. As Amy Verdun suggests, it is not possible that an epistemic community is made of completely equal actors; some of them are likely to be more informed and influential than others, and a hierarchy could exist. However, the existence of a hierarchy within an EC is only a possibility, not a certainty. Therefore, though reputational differences may exist among EC actors, these differences may not be a regular feature and the popularity pattern may not occur frequently. In the communication network of EC actors, linkages across three issue areas of municipal finance are examined. Here the popularity concept captures actors who are popular and central in all three issue areas. My expectation is that there may be only a few popular actors spanning all the issue areas. Therefore, I propose that,

_Hypothesis 3b (H3b): The discussion and information-sharing ties observed in the communication network of municipal finance epistemic communities are less likely to produce a popularity pattern of communication relationships than ties observed in comparable random graphs._

Activity—Expansiveness

The network activity (expansiveness) characteristic is measured by “out-stars.” In this network, expansiveness is expected to occur when actors choose multiple partners to communicate on the three issues of municipal finance. This activity appears in the network as out-stars configuration or what is commonly referred to as ego-centered

I believe that members of municipal finance ECs are less likely to form ego-centered network structures. In the communication network of EC actors, participants can identify up to six different individuals as their contacts--two in each issue area. Given the existence of many actors who are experts in more than a single issue area of municipal finance, EC members may not be interested in expending additional time and resources in reaching out to multiple actors. Also, in the case of epistemic communities, norms, beliefs and policy agenda are shared among all actors (Haas, 1992a). So there is relatively less benefit in having multiple partners. Additionally, in MFECs, credible commitments of members are already established via academic prestige and professional background. So, there is likely to be fewer worries within these communities as to the authenticity of the information shared. Hence I propose that,

Hypothesis 3c (H3c): The discussion and information-sharing ties observed in the communication network of municipal finance epistemic communities are less likely to produce ego-centered network structures than ties observed in comparable random graphs.

Information Bridging

Structural bridges are essentially actors who provide access to parts of the network that are unreachable by other means (Friedkin, 1982). The information bridging characteristic is measured by “2-paths” (Feiock, Lee, Park and Lee, 2010). In this network, the 2-paths configurations are expected to occur when actors rely on information brokers to exchange information with actors who are not directly linked to
them (Andrew and Carr, *Forthcoming*). In other words, actors are expected to form weak ties (Friedkin, 1982).

Weak ties are unreciprocated ties that do not occur on a regular basis (Granovetter, 1973). In contrast, strong ties are ties that involve reciprocal relationships; also, these ties occur frequently, for example, once a week (Friedkin, 1982). Bridging relationships are essentially weak ties (Lubell, Scholz, Berardo and Robins, 2011). Given the general expectation for reciprocal relationships among members of ECs (Van Daele, 2005; Adler, 1992), and the complex overlapping web of Michigan’s MFECs, strong rather than weak ties are expected to be more prevalent in the observed communication network. Consequently, the occurrence of 2-path structures is also expected to be less frequent. So I propose that,

*Hypothesis 3d (H3d): The discussion and information-sharing ties observed in the communication network of municipal finance epistemic communities are less likely to produce 2-paths structures than ties observed in comparable random graphs.*

**Transitivity--Bonding**

The transitivity/bonding characteristic is measured by “transitive triplets.” The transitive triad structures indicate parts of the network where actors have formed tightly-clustered linkages with other actors (Feiock, Lee, Park and Lee, 2010). In this network, transitive triads are expected to occur when actors choose to forge tightly clustered communication relationships that span beyond simple reciprocal relationships. An example of this principle is to become friends with people whose friends are already yours (Shrestha, 2008).
Kendra and Wachtendorf (2004) suggest that when actors feel a strong sense of obligations and duties, they are more likely to engage in bonding activities that support these values. Members of epistemic communities typically have a commitment to uphold professional best practices (Irvine et al., 2011) and bonding activities are particularly suitable for furthering their objective. Further, bonding activities result in closeness, reciprocity, mutual trust and stability by transforming short-term interactions into repeated games (Leonard, 2004; Berardo and Scholz, 2010; Andrew and Carr, Forthcoming), which is the essence of EC functionality (Adler and Haas, 1992). Therefore, transitivity, a direct extension of reciprocity (Lee, 2011), is expected to be the preferred norm of EC members and I propose that,

**Hypothesis 3e (H3e):** The discussion and information-sharing ties observed in the communication network of municipal finance epistemic communities are more likely to be transitive than ties observed in comparable random graphs.

**Findings**

The estimated parameters in Table 5.2 provide relatively straightforward information about the presence of the hypothesized structural effects in the observed network data. Statistically significant positive parameters indicate that more configurations of that type are observed in the network than expected by chance, while controlling for other network effects specified in the model and the presence of potential random relationships in the network (Robins, Pattison, and Wang, 2009). Significant negative parameters indicate that fewer configurations of that type are observed in the network than expected by chance, given the relative dependence of all specified network relationships and the presence of potential random relations (Robins, Pattison, and Wang, 2009).
Positive and statistically significant coefficients for reciprocity and transitivity confirm the predicted hypotheses 3a and 3e and establish that EC actors choose to create reciprocal ties and tightly-clustered network structures while discussing and sharing information on multiple issues of municipal finance. The negative and statistically significant coefficients for popularity, activity and bridging are consistent with my predictions, thereby confirming hypotheses 3b, 3c and 3d. These findings indicate that these EC actors do not rely on popular or bridging actors, nor do they seek to expand their network links by reaching out to multiple partners in order to obtain information on issues of municipal finance.

Table 5.2: Interaction Patterns of Members of Municipal Finance ECs

<table>
<thead>
<tr>
<th>Network Structure Effects</th>
<th>Parameter (Std Error)</th>
<th>t-statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reciprocity (Reciprocal Ties)</td>
<td>1.656 (0.426)</td>
<td>0.02*</td>
</tr>
<tr>
<td>Popularity (In-2-stars)</td>
<td>-0.323 (0.142)</td>
<td>-0.00*</td>
</tr>
<tr>
<td>Activity (Out-2-stars)</td>
<td>-1.134 (0.223)</td>
<td>-0.01*</td>
</tr>
<tr>
<td>Bridging (2-paths)</td>
<td>-1.153 (0.124)</td>
<td>-0.05*</td>
</tr>
<tr>
<td>Bonding (Transitive Triads)</td>
<td>1.324 (0.336)</td>
<td>0.07*</td>
</tr>
</tbody>
</table>

Note: Coefficients from PNet for Single Networks ERGM analysis of directed network matrix. All statistics converged with t-statistic <0.1 with minimum of 1000 iteration. * p< 0.05.

The Strength of Ties: Strong versus Weak Links

In the previous section, the patterns of the ties among EC actors were analyzed. Besides the ties themselves, the strength of these ties also matter for understanding the strength and quality of relationships within a network. By differentiating between strong and weak ties, Granovetter (1973) described how the diversity, homogeneity and heterogeneity of these ties affect access to resources, opportunities and privileged
information. According to Granovetter, “the strength of a tie is a (probably linear) combination of the amount of time, the emotional intensity, the intimacy (mutual confiding), and the reciprocal services which characterize the tie” (1973: 1361). In network studies, scholars measure tie strength based on some or all of the elements specified by Granovetter (Friedkin, 1982). Typically, frequency of contact is used to measure the interpersonal strength of ties (Marsden and Campbell, 1984).

Consistent with Granovetter’s definition and the way in which other network scholars have measured tie strength, in this study also, frequency of contact is used to measure tie strength. Any asymmetric tie, i.e., un reciprocated tie, which spans only a single issue area, is treated as a weak tie. In contrast, ties that are reciprocated are treated as strong ties. These reciprocated ties may be limited to a single issue area or span more than one issue area; regardless, they are treated as strong ties as the actors have more opportunity to interact than if interactions were only one way. At the same time, un reciprocated ties that span more than a single issue area are also treated as strong ties. This is because, an EC actor who connects with another EC actor on issues of local government revenues and public service provision is likely to interact with this other actor more often than if (s)he were to communicate with this actor only on one of those issues. Thus, except for the un reciprocated ties that span a single issue area of municipal finance, all other ties are treated as strong ties.

Reciprocity and group solidarity are fundamental operational strategies of epistemic communities (Haas, 1992a; Adler, 1992; Van Daele, 2005). Besides, findings in chapter four clearly show that the 58 EC actors are participants in an extensively overlapping web of municipal finance epistemic communities, which in turn indicates
that many EC actors specialize in more than a single issue area of municipal finance. This suggests that if actor A has established contact with actor B for discussing topics of local government revenues and if actor A comes to know that actor B is also a specialist in the issue area of public service provision, then it is natural that actor A will start discussing with actor B topics of public service provision. That is, it is relatively easier and cheaper to form a tie with an already familiar actor than expend time and resources in locating a new contact. This in turn suggests that connections that span more than one issue area are more likely in the communication network of EC actors. Similarly, if actor C is communicating with actor D because the latter specializes in the issue area of expenditures on municipal employees, and actor D who is seeking information on the issue of local government revenues comes to know that actor C is a specialist in that area, then it is natural that actor D will initiate a tie on that issue area with actor C rather than seek out another specialist of local government revenues. Hence, I propose that,

Hypothesis 3f (H3f): The discussion and information-sharing ties observed in the communication network of municipal finance epistemic communities are more likely to be strong ties than weak ties.

To test Hypothesis 3f, I use network mapping and descriptive statistics. The 68 arcs in the EC actors’ communication network (see Table 5.1) were examined on the basis of their tie strengths. In Figure 5.1, I map the communication network of the 58 EC actors and differentiate between strong and weak ties using color and line thickness. Thicker lines indicate stronger ties. Blue dotted lines indicate communication is limited to a single issue area of municipal finance (tie strength=1), red dotted lines indicate communication spans two issue areas of municipal finance (tie strength=2), and green dotted lines indicate communication spans all three issue areas of municipal finance (tie strength=3).
Figure 5.1: Strong Ties and Weak Ties of Members of Municipal Finance ECs

Note: Network generated using the UCINET software, Version 6.354. N=58. Colors and thickness of lines indicate strength of ties among EC actors. Blue dotted lines indicate tie strength is 1, red dotted lines indicate tie strength is 2, and green dotted lines indicate tie strength is 3. In some reciprocal ties, two colors overlap indicating variation in the strength of ties stemming from the two actors. In others, both ties are of the same strength and have the same color. See Table 5.3 for cumulative value of reciprocal ties.
Single, unreciprocated blue dotted lines are the only weak ties in the figure. The rest of the unreciprocated and reciprocated ties are strong ties. In some reciprocal ties, two colors overlap indicating variation in the strength of ties stemming from the two actors. In others, both ties are of the same strength and have the same color. In reciprocated ties where both ties have the same color, the dashed lines will merge and appear almost like a solid line. Table 5.3 identifies the four possible combinations of reciprocal ties and the total strength of these ties in each combination.

This table indicates that 4 is the maximum tie strength observed between two EC actors in the pooled communication matrix. There are two possible combinations of tie strengths that add up to 4. First, actor A communicates with actor B on all three issues of municipal finance and actor B reciprocates by communicating with actor A on a single issue area of municipal finance. Next, both actor A and actor B communicate with each other on two issue areas of municipal finance. Other values taken by reciprocated ties are 2 and 3.

Table 5.3 also indicates that there are a total of 28 occurrences of weak ties. In contrast, there are 40 occurrences of strong ties. Among the 40 strong ties, 14 ties span across two issue areas of municipal finance, 8 ties span across 3 issue areas and 9 are reciprocated ties. Strengths of reciprocated ties range from 2 to 4. Note there are nine instances of reciprocated ties and since they are reciprocated, they have to be counted twice. Both the network mapping and the descriptive statistics reveal that strong ties are more prevalent than weak ties among EC actors, thereby confirming Hypothesis 3f.
Table 5.3: Strong Ties and Weak Ties of Members of Municipal Finance ECs

<table>
<thead>
<tr>
<th>Tie Strength</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arcs</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>28</td>
</tr>
<tr>
<td>2</td>
<td>14</td>
</tr>
<tr>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>Reciprocal Ties (Combination of Tie Strengths)</td>
<td></td>
</tr>
<tr>
<td>(1+1)</td>
<td>2</td>
</tr>
<tr>
<td>(2+1)</td>
<td>3</td>
</tr>
<tr>
<td>(2+2)</td>
<td>4</td>
</tr>
<tr>
<td>(3+1)</td>
<td>4</td>
</tr>
<tr>
<td>Total Reciprocal Ties</td>
<td>---</td>
</tr>
<tr>
<td>Total Arcs Indicating Weak Ties</td>
<td>---</td>
</tr>
<tr>
<td>Total Arcs Indicating Strong Ties</td>
<td>---</td>
</tr>
<tr>
<td>Total All Arcs</td>
<td>68</td>
</tr>
</tbody>
</table>

Note: Tie strength indicates the total number of issue areas of municipal finance on which EC actors communicate. Frequency indicates the number of times ties with the particular tie strength occur in the communication network of EC actors.

Motivations for Interactions among Members of Michigan’s Municipal Finance Epistemic Communities

As extensively discussed in chapter two, several factors explain the emergence and proliferation of epistemic communities within the public policy making domain. These include issue uncertainty and shock, the need for interpreting highly complex and technical information, and the availability of governance processes/motivation for institutionalization of policy ideas and beliefs (Haas 1992a). The data collected from the interviews do not permit me to analyze when exactly the municipal finance epistemic communities emerged. However, interview question 10 is intended to capture respondent’s motivations for communicating on the three issues of municipal finance. This question is presented in Table 5.4.
Table 5.4: Interview Question on EC Actors’ Motivations for Interactions

IQ 10. In general, to what extent do you agree that the following reasons are motivations for you to discuss, seek advice or offer advice to your colleagues in other organizations on the topics we have covered in this survey?

<table>
<thead>
<tr>
<th>Reason</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neither Agree nor Disagree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Your interest in achieving policy objectives/outcomes</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Your search for best practices of fiscal governance</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Your colleagues engage in similar exchanges and so you follow suit</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Your desire for more information about these topics</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>To deal with the uncertainty surrounding these issues</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>In order to deal with the specific problems created by the current financial crisis</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>The highly technical and complex nature of municipal finance reform</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

Using the information collected from this question, it is possible to analyze the following questions.

- When two EC actors perceive that issue uncertainty motivates them to develop communication ties, what is the likelihood that a communication tie exists between them?

- When two EC actors perceive that information inadequacy motivates them to develop communication ties, what is the likelihood that a communication tie exists between them?

- When two EC actors perceive that the specific problems created by the current financial crisis motivate them to develop communication ties, what is the likelihood that a communication tie exists between them?

- When two EC actors perceive that issue technical specificity and complexity motivates them to develop communication ties, what is the likelihood that a communication tie exists between them?
When two EC actors perceive that their interest in achieving policy objectives/outcomes motivates them to develop communication ties, what is the likelihood that a communication tie exists between them?

It is useful to recall that each of the five motivation factors analyzed are identified by existing EC literature as conditions that favor the emergence and proliferation of ECs. Notably, each of these factors, individually or in combination, has been shown to impact the emergence/proliferation of ECs (e.g., Adler, 1992; Drake and Nicolaïdis, 1992; Haas 1992b; Irvine et al., 2011). Though I cannot identify the causal logic of Michigan’s municipal finance ECs, I can ascertain if these factors have motivated the communication linkages that have developed among these actors. Assessing the five factors separately is therefore consistent with the theoretical framework of epistemic communities.

Interviewees were asked to identify the individuals they contacted in the past 12 months to discuss and share information on issues of municipal finance. During this time period (August 2010 to August 2011), the perception of an impending financial crisis had been particularly acute among many government officials in Michigan (Detroit Free Press, 2010; 2011; Detroit News, 2010; 2011). Assessing the five factors separately will allow me to draw the conclusion as to whether the current financial crisis is the only motivator for MFEC actors to interact with each other or do they interact for other longstanding reasons such as issue complexity and technical specificity, and the interest to achieve policy objectives.

Based on Haas’ (1992a) causal logic for the emergence of ECs, I propose that,

**Hypothesis 4a (H4a):** When two EC actors perceive that the uncertainty of municipal finance issues motivates them to develop communication ties, a communication tie exists between them.
Hypothesis 4b (H4b): When two EC actors perceive that inadequate policy information in municipal finance issues motivates them to develop communication ties, a communication tie exists between them.

Hypothesis 4c (H4c): When two EC actors perceive that the specific problems created by the current fiscal crisis motivate them to develop communication ties, a communication tie exists between them.

Hypothesis 4d (H4d): When two EC actors perceive that the highly technical and complex nature of municipal finance issues motivates them to develop communication ties, a communication tie exists between them.

Hypothesis 4e (H4e): When two EC actors perceive that the intention to achieve municipal finance related policy objectives motivates them to develop communication ties, a communication tie exists between them.

Table 5.5 summarizes these hypotheses. To test the hypothesized relationships, I employed quadratic assignment procedures analysis. This analysis includes both QAP correlation analysis and QAP full partialling, original (Y-permutation) method regression analysis. These analyses were conducted using the UCINET program Version 6.354.

<table>
<thead>
<tr>
<th>Motivation for Communication Exchanges</th>
<th>Hypothesized Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Issue Uncertainty</td>
<td>+</td>
</tr>
<tr>
<td>Information Inadequacy</td>
<td>+</td>
</tr>
<tr>
<td>Fiscal Crisis</td>
<td>+</td>
</tr>
<tr>
<td>Issue Technical Specificity and Complexity</td>
<td>+</td>
</tr>
<tr>
<td>Institutionalization of Policy Beliefs</td>
<td>+</td>
</tr>
</tbody>
</table>

The QAP Correlation Analysis

First, I employed the QAP correlation analysis to investigate the simple correlation between each of the five motivators for communication (issue uncertainty, information inadequacy, fiscal crisis, issue technical specificity and complexity, and
institutionalization of policy beliefs) and the communication network of the 58 EC actors. The QAP correlation analysis is an investigation of the correlation between a covariate (which is an independent variable in the QAP regression analysis) matrix and the observed communication network matrix of the EC actors (which is the dependent variable in the QAP regression analysis). The communication network matrix is the matrix consisting of the discussion and information-seeking ties of the 58 EC members on the three issue areas of municipal finance.

The first covariate matrix is issue uncertainty. To create this matrix I first identified EC actors who said that their communication ties on issues of municipal finance were motivated by the intention to deal with the uncertainty surrounding issues of municipal finance. EC actors who “agreed” and “strongly agreed” were coded as 1, while the respondents who chose the remaining three options (“neither agree nor disagree,” “disagree” and “strongly disagree”) were coded as 0. A coding of 1 indicates that respondents perceive that their discussion and information-seeking ties are motivated by the intention to deal with the uncertainty surrounding issues of municipal finance. In the communication network matrix of the 58 EC actors (i.e., the dependent matrix), if two actors perceived that issue uncertainty motivated their communication ties, and if there existed a communication tie between them, then the tie that existed between them was coded as 1. If one or both of them did not believe that issue uncertainty motivated their communication ties and if there existed a communication tie between them, then the tie that existed between them was coded as 0. For example, if actors A and F both had a score of 1 on issue uncertainty, and if actor A had a communication tie with actor F, then this was indicated with a 1 in the row of A and in the column of F. Alternatively, if actors
A and F both had a score of 0 (or one of them alone had a score of 0) on issue uncertainty and if actor A had a communication tie with actor F, this was indicated with a 0 in the row of A and in the column of F. After the ties of all actors had been recoded based on their issue uncertainty scores, the matrix was saved as the covariate matrix on issue uncertainty. The same logic was used in the creation of the other four covariate matrices. More details on these matrices are provided in the endnotes.\(^5\)

I use QAP analysis to identify the degree of association between two matrices and develop standard errors to test for its significance (Hanneman and Riddle, 2005). In the first step, the analysis computes the Pearson's correlation coefficient and the simple matching, Jaccard, and Goodman Kruskal Gamma coefficients along with the Hamming distance between corresponding cells of the two data matrices.\(^6\) This analysis includes binary relations in both matrices, and so I focus on analyzing the Jaccard coefficient. What this coefficient indicates is the likelihood of the presence of a communication tie between a pair of EC actors who share the same motivation for developing communication linkages. For example, in case of information inadequacy, the Jaccard coefficient indicates the percent chance that a communication tie exists between two actors who perceive that information inadequacy motivates them to develop communication ties.

In the second step, the analysis randomly permutes rows and columns (synchronously) of one matrix (the observed communication matrix) and recomputes the correlation and other measures. The second step is carried out hundreds of times in order to compute the proportion of times that a random measure is larger than or equal to the observed measure calculated in step 1. In doing so, the QAP analysis takes into account
the assumption of independency of observations in standard bivariate analyses (Shrestha and Feiock, 2009). Table 5.6 reports the findings of the QAP correlation analysis.

Table 5.6: QAP Correlation Analysis of the Communication Network of EC Actors

<table>
<thead>
<tr>
<th>Correlation between Communication Network of EC Actors and Issue Uncertainty</th>
<th>Statistics</th>
<th>Value</th>
<th>Significance</th>
<th>Average</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Correlation</td>
<td>0.881***</td>
<td>0.000</td>
<td>0.000</td>
<td>0.018</td>
<td></td>
</tr>
<tr>
<td>Simple Matching</td>
<td>0.995***</td>
<td>0.000</td>
<td>0.964</td>
<td>0.019</td>
<td></td>
</tr>
<tr>
<td>Jaccard Coefficient</td>
<td>0.779***</td>
<td>0.000</td>
<td>0.009</td>
<td>0.009</td>
<td></td>
</tr>
<tr>
<td>Goodman-Kruskal Gamma</td>
<td>1.000***</td>
<td>0.000</td>
<td>-0.237</td>
<td>0.570</td>
<td></td>
</tr>
<tr>
<td>Hamming Distance</td>
<td>15.000***</td>
<td>0.000</td>
<td>118.756</td>
<td>3.181</td>
<td></td>
</tr>
<tr>
<td>Hubert’s Gamma</td>
<td>53.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Correlation between Communication Network of EC Actors and Information Inadequacy</th>
<th>Statistics</th>
<th>Value</th>
<th>Significance</th>
<th>Average</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Correlation</td>
<td>0.889***</td>
<td>0.000</td>
<td>0.000</td>
<td>0.018</td>
<td></td>
</tr>
<tr>
<td>Simple Matching</td>
<td>0.996***</td>
<td>0.000</td>
<td>0.963</td>
<td>0.019</td>
<td></td>
</tr>
<tr>
<td>Jaccard Coefficient</td>
<td>0.794***</td>
<td>0.000</td>
<td>0.009</td>
<td>0.009</td>
<td></td>
</tr>
<tr>
<td>Goodman-Kruskal Gamma</td>
<td>1.000***</td>
<td>0.000</td>
<td>-0.223</td>
<td>0.566</td>
<td></td>
</tr>
<tr>
<td>Hamming Distance</td>
<td>14.000***</td>
<td>0.000</td>
<td>119.676</td>
<td>3.217</td>
<td></td>
</tr>
<tr>
<td>Hubert’s Gamma</td>
<td>54.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Correlation between Communication Network of EC Actors and Fiscal Crisis</th>
<th>Statistics</th>
<th>Value</th>
<th>Significance</th>
<th>Average</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Correlation</td>
<td>0.881***</td>
<td>0.000</td>
<td>0.000</td>
<td>0.018</td>
<td></td>
</tr>
<tr>
<td>Simple Matching</td>
<td>0.995***</td>
<td>0.000</td>
<td>0.964</td>
<td>0.019</td>
<td></td>
</tr>
<tr>
<td>Jaccard Coefficient</td>
<td>0.779***</td>
<td>0.000</td>
<td>0.009</td>
<td>0.009</td>
<td></td>
</tr>
<tr>
<td>Goodman-Kruskal Gamma</td>
<td>1.000***</td>
<td>0.000</td>
<td>-0.232</td>
<td>0.575</td>
<td></td>
</tr>
<tr>
<td>Hamming Distance</td>
<td>15.000***</td>
<td>0.000</td>
<td>118.712</td>
<td>3.221</td>
<td></td>
</tr>
<tr>
<td>Hubert’s Gamma</td>
<td>53.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Correlation between Communication Network of EC Actors and Issue Technical Specificity and Complexity</th>
<th>Statistics</th>
<th>Value</th>
<th>Significance</th>
<th>Average</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Correlation</td>
<td>0.734***</td>
<td>0.000</td>
<td>0.000</td>
<td>0.018</td>
<td></td>
</tr>
<tr>
<td>Simple Matching</td>
<td>0.991***</td>
<td>0.000</td>
<td>0.968</td>
<td>0.019</td>
<td></td>
</tr>
<tr>
<td>Jaccard Coefficient</td>
<td>0.544***</td>
<td>0.000</td>
<td>0.008</td>
<td>0.009</td>
<td></td>
</tr>
<tr>
<td>Goodman-Kruskal Gamma</td>
<td>1.000***</td>
<td>0.000</td>
<td>-0.314</td>
<td>0.647</td>
<td></td>
</tr>
<tr>
<td>Hamming Distance</td>
<td>31.000***</td>
<td>0.000</td>
<td>103.393</td>
<td>2.726</td>
<td></td>
</tr>
<tr>
<td>Hubert’s Gamma</td>
<td>37.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Correlation between Communication Network of EC Actors and Institutionalization of Policy Beliefs</th>
<th>Statistics</th>
<th>Value</th>
<th>Significance</th>
<th>Average</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Correlation</td>
<td>0.872***</td>
<td>0.000</td>
<td>0.000</td>
<td>0.018</td>
<td></td>
</tr>
<tr>
<td>Simple Matching</td>
<td>0.995***</td>
<td>0.000</td>
<td>0.964</td>
<td>0.019</td>
<td></td>
</tr>
<tr>
<td>Jaccard Coefficient</td>
<td>0.765***</td>
<td>0.000</td>
<td>0.009</td>
<td>0.009</td>
<td></td>
</tr>
<tr>
<td>Goodman-Kruskal Gamma</td>
<td>1.000***</td>
<td>0.000</td>
<td>-0.253</td>
<td>0.584</td>
<td></td>
</tr>
<tr>
<td>Hamming Distance</td>
<td>16.000***</td>
<td>0.000</td>
<td>117.810</td>
<td>3.170</td>
<td></td>
</tr>
<tr>
<td>Hubert’s Gamma</td>
<td>52.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: A total of 2500 permutations were conducted for each analysis. Significance: * p ≤ .05; **p ≤ .01; ***p ≤ .001.
The second column of Table 5.6 reports the values of each measure for the correlation; the third column tests the significance of the values in column two based on standard errors; the fourth column shows the average value of the correlation across a large number of random trials generated by random QAP process; and the fifth column reports a standard deviation of the distribution of the measures for a correlation across the random trials.

For issue uncertainty, the Jaccard coefficient of .779 indicates that when two EC actors perceive that issue uncertainty motivates them to develop communication ties, there is 78 percent chance that a communication tie exists between those two actors (which is represented by a 1 in the communication network matrix). The coefficients of the information inadequacy, fiscal crisis, and institutionalization of policy beliefs are also similar, indicating that when a pair of EC actors shares any of these three motivations, there is nearly 80 percent chance that a communication tie is present between that pair of actors. Unlike the above four factors, perception that issue technical specificity and complexity motivates the development of communication ties has a significant, but very low coefficient of .544. This value is barely better than chance and indicates that when two EC actors perceive that issue technical specificity and complexity motivates them to develop communication ties, there is only 54 percent chance that a communication tie exists between those two actors. This is not surprising given that EC actors are themselves municipal finance experts, and therefore, have the ability to decode and make sense of the technical specificity and complexity of municipal finance issues without having to reach out to other actors. In sum, the findings indicate that issue uncertainty, information inadequacy, problems created by the current financial crisis, and the interest
in institutionalizing policy beliefs motivate municipal finance EC actors to communicate with each other on issues of local government revenues, expenditures on municipal employees and public service provision. These findings of the matrix correlation analysis provide strong support for associational hypotheses 4a, 4b, 4c, and 4e.

**The QAP Regression Analysis**

Next, rather than simply correlating a perceived motivation with the existence of a communication tie, I wanted to predict one relation knowing the other. That is, rather than examine symmetric association between the relations, I wanted to examine asymmetric association. The standard tool for this question is linear regression which allows the investigation of more than one independent variable (Hanneman and Riddle, 2005; Krackhardt, 1987). So I supplement the correlation analysis by estimating the QAP matrix regressions to examine how the five predicted factors explain the existence of communication linkages among the 58 EC actors. The QAP regression randomly permutes rows and columns of the original data matrix for the dependent variable and reestimates the original regression model to compute unbiased standard error of the estimates (Krackhardt, 1987; Shrestha and Feiock, 2009). The estimated coefficients show the probability of the occurrence of the relationship in the dependent matrix given the presence of the relationship in the independent matrix when the effects of all other specified independent variables have been controlled for (Krackhardt, 1987; Shrestha and Feiock, 2009).

While in the correlation analysis, the simple association between a perceived motivation and the communication linkages of EC actors was assessed, in the regression
analysis, the associational impact of a particular perceived motivation on the communication linkages between EC actors was assessed, while controlling for the effects of the other four perceived motivations. For example, if two EC actors perceive that information inadequacy motivates them to develop communication ties in the information inadequacy matrix, the estimated coefficient on information inadequacy reports the likelihood that a communication tie exists between them, while controlling for the effects of issue uncertainty, fiscal crisis, issue technical specificity and complexity, and institutionalization of policy beliefs.

In the first regression model, I examined only the five hypothesized factors. However, in the second regression model, I also controlled for effects of homophily, i.e., similarity in actor attributes. I added two actor attribute variables to these five factors to understand how the seven factors together explain the existence of the communication linkages among EC actors. As in the correlation analysis, all variables have to be converted to the matrix form.

The first of these actor attribute matrices was created based on the extent to which similar organizational affiliations/positions motivated actors to communicate with each other—the theory of homophily. To do this, I first collapsed the various organizational affiliations of EC actors into four categories of a single variable. A score of 1 indicates an actor is an elected government official, 2 indicates an actor is an appointed government official, 3 indicates an actor belongs to a nonprofit/nongovernmental organization and 4 indicates an actor belongs to a private organization. However, within the covariate matrix, the variables are used in binary form. Ties between actors belonging to the same sector were coded 1 and those between actors from mismatched sectors were coded 0.
For example, actor X is an appointed government official who has a communication tie with actor Y who is also an appointed government official. This relationship is indicated with a 1 in the row of X and in the column of Y. If Y is not an appointed government official, then this relationship is indicated with a zero in the row of X and in the column of Y. The second actor attribute matrix was created based on the extent to which gender similarity motivated actors to communicate with each other. Ties between EC actors belonging to the same gender were coded 1 and those between actors of different genders were coded 0.

Table 5.7 reports the results of the regression analysis. Model fits ($R^2$) for both models are statistically significant. R-square of Model I indicates that knowing whether two EC actors perceive issue uncertainty, fiscal crisis, issue technical specificity and complexity, and interest in institutionalization of policy beliefs motivate them to form communication linkages, reduces uncertainty in predicting the existence of a communication tie between them by a very substantial 89%. Knowing the organizational affiliations and the gender of these actors further modestly reduces this uncertainty to 92.8% as indicated by Model II. In Model I, which included five predictor variables, the coefficients of issue uncertainty, fiscal crisis, issue technical specificity and complexity, and institutionalization of policy beliefs are positive and statistically significant. In Model II, even after controlling for the effects of homophily, these four variables continue to remain statistically significant. This indicates that each of these factors is a significant motivator for EC actors to develop communication linkages with each other. In the EC literature, these factors have been shown to influence the emergence and proliferation of epistemic communities. Case studies conducted in different policy areas have shown that
a variety of policy actors, including decision makers, consult with epistemic communities due to issue uncertainty, crisis situation, issue technical specificity and complexity, and/or availability of processes/motivation for institutionalization of policy beliefs (Adler, 1992; Drake and Nicolaïdis, 1992; Haas 1992b; Gough and Shackley, 2002; Irvine et al., 2011). This study indicates that EC actors’ motivations for consulting with the members of their community are similar to the motivations the entire policy community has for consulting with epistemic communities. This is an important finding because previous literature focused on the policy community as a whole and did not specifically explore the motivations EC actors had for interacting with each other. Also, previous analyses have never systematically examined these motivations; conclusions have typically been drawn based on broad patterns observed rather than on individual actors’ perceptions.

In Model II, both attribute variables are statistically significant. Though no specific hypotheses have been proposed on the homophily effects, these effects are important in the network literature and it is useful to discuss them. The organizational similarity coefficient indicates that actors with similar organizational affiliations are more likely to communicate with each other. For example, an elected government official is more likely to communicate with another elected government official rather than with a bureaucrat or an official from an NGO or a private firm. This finding provides strong support for the homophily argument in the social network literature: homogeneity breeds collaboration (Lubell, 2007). Similarly, results indicate that actors of the same gender are more likely to communicate with each other. However, not much should be drawn from this finding as 79 percent of EC actors are men.
The regression analysis indicates that issue uncertainty, the intention to deal with specific problems created by the current financial crisis, issue technical specificity and complexity, and the interest to institutionalize policy beliefs, serve as positive reinforcers of communication ties between EC actors. Of the hypothesized factors, only the information inadequacy factor is not statistically significant in both models. Overall, the results of the regression analysis support all the associational hypotheses, except Hypotheses 4b on information inadequacy as a predictor. In the correlation analysis, there is support for all associational hypotheses, except Hypotheses 4d on issue technical specificity and complexity as a predictor.

Table 5.7: QAP Regression Analysis on the Communication Network of EC Actors

<table>
<thead>
<tr>
<th>Variables</th>
<th>Model I (Five Variables)</th>
<th>Model II (Seven Variables)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Issue Uncertainty</td>
<td>0.296***</td>
<td>0.212***</td>
</tr>
<tr>
<td>Information Inadequacy</td>
<td><strong>0.100</strong></td>
<td>-0.048</td>
</tr>
<tr>
<td>Fiscal Crisis</td>
<td>0.356***</td>
<td>0.201***</td>
</tr>
<tr>
<td>Issue Technical Specificity and Complexity</td>
<td>0.155***</td>
<td>0.110***</td>
</tr>
<tr>
<td>Institutionalization of Policy Beliefs</td>
<td>0.130*</td>
<td>0.285***</td>
</tr>
<tr>
<td>Similar Organizational Affiliation</td>
<td>------------------------</td>
<td>0.134***</td>
</tr>
<tr>
<td>Same Gender</td>
<td>------------------------</td>
<td>0.216***</td>
</tr>
<tr>
<td>Intercept</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>R²</td>
<td>0.890***</td>
<td>0.928***</td>
</tr>
<tr>
<td>Adjusted R²</td>
<td>0.890</td>
<td>0.928</td>
</tr>
<tr>
<td>No. of Observations</td>
<td>3306</td>
<td>3306</td>
</tr>
<tr>
<td>No. of Permutations</td>
<td>1999</td>
<td>1999</td>
</tr>
</tbody>
</table>

Note: The dependent variable in this analysis is the pooled communication network of the 58 EC actors and numbers in each variable represent standardized coefficients. QAP regression in UCINET output does not report standard errors on each variable but provides p-values. Significance: * p ≤ .05; **p ≤ .01; ***p ≤ .001.
Policy Performance of Members of Michigan’s Municipal Finance Epistemic Communities

Previous research on epistemic communities suggests that the policy success of an EC depends largely on its ability to be more convincing to political decision makers than rivaling epistemic communities that have emerged around the same issue area, and on that EC’s ability to forge alliances with decision makers (Haas, 1990). Based on these assumptions, I propose a last set of hypotheses.

Hypothesis 5a (H5a): Making direct recommendations to state level policy makers is the most preferred policy promotion forum of members of municipal finance epistemic communities.

Hypothesis 5b (H5b): Popular actors in municipal finance epistemic communities will develop communication ties with elected officials.

Hypothesis 5c (H5c): Elected officials will develop communication ties with popular actors in municipal finance epistemic communities.

Policy Promotion Forums

Given that the ability to diffuse epistemic ideas and the availability of various means to diffuse these ideas are crucial components of the policy performance of ECs, I examined the policy forums that previous research on epistemic communities has found are used to broadcast epistememes. Interview question 11 was intended to identify these forums and is presented in Table 5.8. Table 5.9 displays the frequency at which municipal finance EC actors use the six different policy promoting forums to advance their respective epistememes.
Table 5.8: Interview Question on the Policy Promotion Forums Used by EC Actors

<table>
<thead>
<tr>
<th>Propagating the topic through pamphlets, brochures, radio, television, email, etc.</th>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
<th>Very Often</th>
</tr>
</thead>
<tbody>
<tr>
<td>Propagating the topic through blogs, websites, Facebook, Twitter, etc.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Individually or collaboratively publishing/producing articles, books, technical reports, conference papers or other scholarly material on the topic</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Presenting ideas on the topic at a state legislative meeting</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Directly recommending to a state level policy maker</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Making state level political or administrative decisions in support of the topic</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

Table 5.9 shows that 55 (95%) of the 58 MFEC actors make direct policy recommendations to state level policy makers on issues of municipal finance; only three actors (5%) never used this forum. Not surprisingly, 36 actors (62%) tend to use this forum on a regular basis (that is, often or very often). Clearly, this is the most used policy promotion forum. Following this, in second place, is the use of pamphlets, brochures, radio, TV and emails. 50 (86%) of the 58 MFEC actors rely on this forum to promote their epistemes. Twenty-six actors (45%) tend to regularly use this indirect policy promotion avenue. Next, in third place, is presentation of policy ideas at state level legislative meetings; 48 actors (83%) tend to use this forum. While 23 actors (40%) use this direct policy promotion avenue on a regular basis, 10 actors (17%) never use it at all. This pattern clearly provides strong support for Hypothesis 5a.
Table 5.9: Policy Promotion Forums Used by Members of Municipal Finance ECs

<table>
<thead>
<tr>
<th>Policy Promotion Forum</th>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
<th>Very Often</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Direct Forums</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Making direct recommendations to a state level policy maker</td>
<td>3</td>
<td>2</td>
<td>17</td>
<td>25</td>
<td>11</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>(5.2%)</td>
<td>(3.4%)</td>
<td>(29.3%)</td>
<td>(43.1%)</td>
<td>(19.0%)</td>
<td></td>
</tr>
<tr>
<td>Presenting ideas at a state level legislative meeting</td>
<td>10</td>
<td>7</td>
<td>18</td>
<td>15</td>
<td>8</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>(17.2%)</td>
<td>(12.1%)</td>
<td>(31.0%)</td>
<td>(25.9%)</td>
<td>(13.8%)</td>
<td></td>
</tr>
<tr>
<td>Personally involved in making state level political/administrative decisions</td>
<td>37</td>
<td>2</td>
<td>9</td>
<td>8</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>(63.8%)</td>
<td>(3.4%)</td>
<td>(15.5%)</td>
<td>(13.8%)</td>
<td>(3.4%)</td>
<td></td>
</tr>
<tr>
<td><strong>Indirect Forums</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use of pamphlets, brochures, radio, tv, emails</td>
<td>8</td>
<td>8</td>
<td>16</td>
<td>20</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>(13.8%)</td>
<td>(13.8%)</td>
<td>(27.6%)</td>
<td>(34.5%)</td>
<td>(10.3%)</td>
<td></td>
</tr>
<tr>
<td>Use of blogs, websites, Facebook, Twitter</td>
<td>15</td>
<td>10</td>
<td>14</td>
<td>16</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>(25.9%)</td>
<td>(17.2%)</td>
<td>(24.1%)</td>
<td>(27.6%)</td>
<td>(5.2%)</td>
<td></td>
</tr>
<tr>
<td>Publishing articles, books, reports, conference papers, scholarly material</td>
<td>27</td>
<td>7</td>
<td>10</td>
<td>10</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>(46.6%)</td>
<td>(12.1%)</td>
<td>(17.2%)</td>
<td>(17.2%)</td>
<td>(6.9%)</td>
<td></td>
</tr>
</tbody>
</table>
Liaisons with Policy Makers

To examine the ties that MFECs develop with elected officials, I analyze the full communication networks in each of the three issue areas. This examination allows me to compare the ability of the members of the seven MFECs to develop communication linkages with decision makers within each of the three issue areas of municipal finance. At this juncture, I would like to remind that I neither have the full communication network in each issue area, nor do I have all the epistemic community actors. It is important to recognize this limitation in this analysis. The seven communities identified in chapter four are presented in separate maps to show the relative degree of direct influence each MFEC within a particular issue area has on decision makers. In these maps, circles indicate non-elected officials and boxes indicate elected officials. Table 5.10 summarizes the findings of the network mapping.

The Issue Area of Local Government Revenues

Figure 5.2 shows INCOMETAX within the full communication network on LGR (N=148) and Figure 5.3 shows ALLREVENUES within the same network. In Figure 5.2, non-EC members are colored green and EC members are colored red. Three elected officials are members in this EC. Besides the connections with these elected officials, the members of this community have managed to develop communication links with seven other elected officials who lie outside this community. Of the 43 elected officials in the LGR network, 10 (23.3%) have direct incoming or outgoing communication ties with members of INCOMETAX. Among these ten elected officials, three reach out to popular EC actors and two of the popular EC actors reach out to elected officials. Popular actors
are actors who have two or more ties coming toward them (the in-stars concept in the ERGM analysis). The analysis in this section is targeted at this popularity concept—Do elected officials, both within and outside the epistemic community, reach out to popular EC actors and vice versa? In addition to the occurrences of the hypothesized popularity concept, it also important to understand the occurrences of tightly clustered network structures consisting of EC actors and elected officials. EC actors connected to a chain of three or more elected officials are highlighted in this map using two dashed circles.

Figure 5.3 shows that within ALLREVENUES there are four elected officials. Eleven other elected officials, while not members of this EC, have developed direct communication linkages with the members of this EC. In total, 34.9% of all elected officials in the LGR network are linked with members of this EC. Similar to INCOMETAX, in this EC also, it can be observed that five elected officials reach out to popular EC actors and four popular EC actors reach out to elected officials. Again, in this figure, I use dashed circles to highlight EC actors who are connected to a chain of three or more elected officials. This pattern is more prominent in figure 5.3 than in figure 5.2. Overall, connection patterns seen in figures 5.2 and 5.3 strongly support Hypotheses 5b and 5c which propose that popular actors of municipal finance ECs will develop communication linkages with elected officials, and that elected officials will reach out to popular actors in these communities.

Compared to members of INCOMETAX, members of ALLREVENUES have managed to develop more links to decision makers. This is not surprising based on the policy beliefs the two ECs are promoting. The former is focused on adopting or increasing only one revenue source: an income tax. Given the constitutional restrictions
that only cities can levy income taxes with voter approval, it is understandable that only a restricted group of elected policy actors are involved in this policy idea. In contrast, the episteme of ALLREVENUES is seeking additional state shared revenues, increasing local property taxes, and adopting or increasing user fees for specific local public services. This collection of policy ideas applies to a variety of local government types and hence, more elected officials participate in the consideration/promotion/restriction of these ideas.

**The Issue Area of Expenditures on Municipal Employees**

Figure 5.4 shows EMPLOYEES within the full EME communication network (N=138) and Figure 5.5 shows RETIREES within the same network. As discussed in chapter four, the issue area of expenditures on municipal employees is a politically sensitive area and only one elected official participated in the two MFECs in this area. Even this official participates only in EMPLOYEES and not in RETIREES as seen in Figure 5.4. Besides this elected official, members of EMPLOYEES are linked to only one other elected official. Thus, connectivity with decision makers is very low in EMPLOYEES, only 6.7%. Neither of these two elected officials reaches out to popular EC actors. Similarly, none of the popular EC actors reach out to either of these officials. In case of RETIREES, none of the 30 elected officials in the EME network are connected with the members of EC. Thus, there is no support for Hypotheses 5b and 5c within the issue area of EME.
The Issue Area of Public Service Provision

Figure 5.6 shows CONSOLIDATE within the full PSP communication network (N=148); Figure 5.7 shows COOPERATE and Figure 5.8 shows CONTRACT within the same network. In addition to developing connections with the two elected officials embedded in CONSOLIDATE, members of CONSOLIDATE have developed ties with nine other elected officials making the overall connectivity nearly 29%. Three of these elected officials reach out to popular EC actors and two of the popular EC actors reach out to elected officials. Figure 5.7 shows that COOPERATE includes four elected officials. Members of this EC also have ties with 11 non-EC elected officials; a connectivity rate of 39.5%. Four of these elected officials reach out to popular EC actors and two of the popular EC actors reach out to elected officials. Figure 5.8 shows that CONTRACT includes four elected officials. Additionally, members of this EC have direct communication ties with eight non-EC elected officials, making the overall connectivity rate 31.6%. Just as in COOPERATE, four of these elected officials reach out to popular EC actors and two of the popular EC actors reach out to elected officials. Again here, in all three figures, I use dashed circles to highlight EC actors who are connected to a chain three or more elected officials. In all these figures, the most interesting connections stem from a popular EC actor connected to a transitive triad consisting solely of elected officials.

The patterns of connectivity observed in Figures 5.6, 5.7 and 5.8 are similar to patterns observed in the issue area of LGR. Connections with elected officials are denser in the issue area of public service provision than in the other two issue areas and these connections provide strong support for Hypotheses 5b and 5c. Among the seven MFECs,
only members of RETIREES, due to the high sensitivity of their episteme, have zero connectivity with elected officials. In contrast, members of COOPERATE have the highest proportion of connections with elected officials; this EC is connected to 39.5% of the elected officials in the PSP communication network. This does not come as a huge surprise as the episteme of this community consists of transferring certain local government service functions to a higher level of government and consolidating services with other local governments through interlocal cooperation. My analysis of newspaper articles revealed that both these strategies and, in particular interlocal cooperation are among the most commonly proposed and/or implemented reforms in Michigan local governments.

Table 5.10: Liaisons of EC Actors with Policy Makers

<table>
<thead>
<tr>
<th>MFEC</th>
<th>Total elected officials in communication network</th>
<th>Elected officials who are members of MFEC</th>
<th>Elected officials outside of MFEC but linked to it</th>
</tr>
</thead>
<tbody>
<tr>
<td>INCOMETAX</td>
<td>43</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>ALLREVENUES</td>
<td>43</td>
<td>4</td>
<td>11</td>
</tr>
<tr>
<td>EMPLOYEES</td>
<td>30</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>RETIREES</td>
<td>30</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>CONSOLIDATE</td>
<td>38</td>
<td>2</td>
<td>9</td>
</tr>
<tr>
<td>COOPERATE</td>
<td>38</td>
<td>4</td>
<td>11</td>
</tr>
<tr>
<td>CONTRACT</td>
<td>38</td>
<td>4</td>
<td>8</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MFEC</th>
<th>Total elected officials linked to MFEC (Percent)*</th>
<th>Total elected officials reaching out to popular MFEC actors</th>
<th>Total popular MFEC actors reaching out to elected officials</th>
</tr>
</thead>
<tbody>
<tr>
<td>INCOMETAX</td>
<td>10 (23.3%)</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>ALLREVENUES</td>
<td>15 (34.9%)</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>EMPLOYEES</td>
<td>2 (6.7%)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>RETIREES</td>
<td>0 (0%)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>CONSOLIDATE</td>
<td>11 (28.9%)</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>COOPERATE</td>
<td>15 (39.5%)</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>CONTRACT</td>
<td>12 (31.6%)</td>
<td>4</td>
<td>2</td>
</tr>
</tbody>
</table>

Note: As percent of all elected officials in the particular communication network.
Figure 5.2 Political Ties of MFEC_INCOMETAX within the Full Communication Network on LGR

Note: Network generated using the UCINET software, Version 6.385. N of network=148 and N of MFEC_INCOMETAX=21. Green color indicates actors who are non-EC members and red color indicates actors who are EC members. Circles indicate actors who are non-elected officials and boxes indicate actors who are elected officials.
Figure 5.3: Political Ties of MFEC_ALLREVENUES within the Full Communication Network on LGR

Note: Network generated using the UCINET software, Version 6.385. N of network=148 and N of MFEC_ALLREVENUES=31. Blue color indicates actors who are non-EC members and yellow color indicates actors who are EC members. Circles indicate actors who are non-elected officials and boxes indicate actors who are elected officials.
Figure 5.4: Political Ties of MFEC_EMPLOYEES within the Full Communication Network on EME

Note: Network generated using the UCINET software, Version 6.385. N of network=138 and N of MFEC_EMPLOYEES=22. Green color indicates actors who are non-EC members and red color indicates actors who are EC members. Circles indicate actors who are non-elected officials and boxes indicate actors who are elected officials.
Figure 5.5: Political Ties of MFEC RETIREES within the Full Communication Network on EME

Note: Network generated using the UCINET software, Version 6.385. N of network=138 and N of MFEC RETIREES=13. Grey color indicates actors who are non-EC members and orange color indicates actors who are EC members. Circles indicate actors who are non-elected officials and boxes indicate actors who are elected officials.
Figure 5.6: Political Ties of MFEC_CONSOLIDATE within the Full Communication Network on PSP

Note: Network generated using the UCINET software, Version 6.385. N of network=148 and N of MFEC_CONSOLIDATE=22. Light green color indicates actors who are non-EC members and rust color indicates actors who are EC members. Circles indicate actors who are non-elected officials and boxes indicate actors who are elected officials.
Figure 5.7: Political Ties of MFEC_COOPERATE within the Full Communication Network on PSP

Note: Network generated using the UCINET software, Version 6.385. N of network=148 and N of MFEC_COOPERATE=39. Green color indicates actors who are non-EC members and purple color indicates actors who are EC members. Circles indicate actors who are non-elected officials and boxes indicate actors who are elected officials.
Figure 5.8: Political Ties of MFEC_CONTRACT within the Full Communication Network on PSP

Note: Network generated using the UCINET software, Version 6.385. N of network=148 and N of MFEC_CONTRACT=32. Dark blue color indicates actors who are non-EC members and orange color indicates actors who are EC members. Circles indicate actors who are non-elected officials and boxes indicate actors who are elected officials.
Concluding Remarks

This study is the first step taken in the direction of systematically analyzing epistemic communities as dependent variables. Up to now, epistemic communities have typically been analyzed as independent variables which influence policy behaviors and outcomes. The only dimensions examined about epistemic communities include the composition of these communities and, to some extent, the causes for their emergence. A structurally sophisticated understanding of epistemic communities has been conspicuous in its absence from the EC literature. This study, in particular, the analyses in this chapter, are intended to address this critical gap in this literature.

First, departing from the traditional approach of qualitative analysis, I use methods of social network analysis such as exponential random graph models and quadratic assignment procedures analysis to examine the interaction patterns of EC actors and the motivations for such interactions. Available knowledge on the dynamics of epistemic communities is limited to norms of reciprocity, and repeated games of short-term interactions facilitated by membership in multiple, overlapping knowledge networks. The potential existence of leadership and a hierarchical structure of interaction patterns within epistemic communities are unexplored in existing EC studies. Similarly, the tendency of EC actors to go past simple reciprocal relationships and engage in social bonding via tightly clustered structures has also not been dealt with in this literature. Other important questions on the organizational structure of ECs are also yet to be examined by EC scholars. Some of these questions are: Do EC actors seek multiple
knowledge transaction partners or do they limit themselves to few and already familiar actors? Do EC actors tend to form strong, reciprocal relationships among members of their community or do they develop weak, unreciprocated and infrequent ties? If indeed EC actors are likely to interact in certain definite patterns that lead to the formation of specific network structures, then what are the motivations for these actors to interact in these patterns? Using the knowledge on EC actors’ motivations for interacting in definite patterns, can we make predictions about the structure of EC networks?

This dissertation has taken the first step in identifying the pathways to address these critical questions. It has reoriented the EC concept and has analyzed these questions; but the answers it provides are limited and additional research is necessary to make generalizations and predictions on epistemic communities. Till date, questions on the structural characteristics of EC networks have not been given their due attention mainly due to the current form of the EC framework and the complementary qualitative analytical procedures used in the application of this framework. The current framework precludes the conception of ECs as networks in a real sense. That is, a metaphorical allusion to the network concept is all that the framework provides. I have reoriented this framework in such a way that it permits scholars to conceive of epistemic communities as networks and analyze them using testable hypotheses and network methods.

Knowledge on the interaction patterns among EC actors and the motivations for these interactions are very important. But this knowledge alone is not sufficient and it is necessary to uncover the operational strategies of these actors in the wider policy community. Besides Peter Haas (1992a), a number of EC scholars have repeatedly emphasized that the success of an epistemic community is largely based on its ability to
influence policy makers (e.g., Adler, 1992; Hopkins, 1992; Van Deale, 2005; Kutchesfahani, 2010). Typically, however, these assertions have been based on single issue case studies centered on successful execution of specific legislative bills or policy agreements. Importantly, the conclusions drawn are broad enough that they do not focus on the specific roles and positions of actors in the wider policy community. This study, for the first time, assesses the proposition that EC actors seek leverage in the policy process by reaching out to policy makers through the use of deductive hypotheses and social network mapping. My findings support prior findings that ECs reach out to decision makers. They indicate that making policy recommendations directly to decision makers, presenting ideas in legislative meetings, and developing communication linkages are the most popular avenues for achieving this leverage.

In addition to confirming findings from prior studies, my analysis on the liaisons between EC members and elected officials provides other useful insights. I had limited my analysis and focus to direct linkages that EC actors develop with elected officials. However, in each of the seven network maps, it can be observed that many EC members have access to a number of other elected officials through indirect connections. That is, they are connected to the decision makers via brokers (the bridging/2-paths concept in the ERGM analysis). The network mapping process has also revealed the other side of the story, how decision makers reach out to knowledge experts. In particular, decision makers seek out popular EC actors, who are, in general, experts in multiple issue areas. The roles and positions of these popular EC actors are important in understanding the impact that epistemic communities have on public policy making processes. The analysis also shows how EC actors are for the most part closely-knit within the communication
network of the issue area in which they specialize. These connections span beyond elected officials to encompass other policy actors from the governmental and nongovernmental sectors who participate in the particular issue area.

The ability of EC actors to consolidate formal decision making power within the community (i.e., by attracting elected officials as network participants), to develop direct communication links with elected officials, to reach out to unconnected elected officials through brokers, and to embed themselves within the larger policy community by developing ties with policy actors other than elected officials, are all revealed in the network mapping process. The graphic depiction of the ties of EC actors, which permits an elaborate exploration of the operational strategies of these actors within their larger policy community, has not been attempted before. This study neither maps the full communication networks, nor identifies all EC actors within these networks. But despite this limitation, it paves the way for fuller and more sophisticated analysis on the functionality of EC actors.
Notes

1 Issue uncertainty is often a result of inadequate policy information (Haas, 1992a). This factor is also included in the analysis of the motivations for the communication linkages of EC actors.

2 The motivation to achieve policy objectives indicates the intention to institutionalize policy beliefs and ideas. In case of an individual EC actor, these beliefs and ideas refer to the episteme(s) that the particular actor is seeking to promote.

3 Though the interpretations and implications of the correlation and regression analyses may be very similar to a traditional statistical approach, the major difference is that the QAP analyses deal with a series of dyadic data in which observations are more likely to be interdependent (Lee, Feiock and Lee, 2011). However, QAP analytical techniques allow us to control for interdependencies that are commonly observed in social network data (Lee, Feiock and Lee, 2011).

4 Figure 5.1 in this chapter and Figure 4.21 in chapter four were generated using this matrix.

5 The second covariate matrix is information inadequacy and was created based EC actors’ scores on the information inadequacy factor (see option 4 in IQ 10). Here again, respondents who chose answer options “agree” and “strongly agree” were coded as 1 and respondents who chose the remaining three options were coded as 0. The third covariate matrix is fiscal crisis and was created based on EC actors’ scores on the fiscal crisis factor (see option 6 in IQ 10). The fourth covariate matrix is issue technical specificity and complexity and was created based on EC actors’ scores on the issue technical specificity and complexity factor (see option 7 in IQ 10). The fifth covariate matrix is institutionalization of policy beliefs and was created based on EC actors’ scores on the policy objectives/outcomes achievement factor (see option 1 in IQ 10).

6 The Pearson correlation is a standard measure when both matrices have valued relations measured at the interval level (that is, the strength of the ties is known). Gamma would be a reasonable choice if one or both relations were measured on an ordinal scale. The simple matching and Jaccard coefficients are considered to be standard measures when dealing with binary relations for both matrices. Finally, Hamming distance is a measure of dissimilarity or distance between the score in one matrix and scores in the other matrix (Hanneman and Riddle 2005).

7 Academics were treated as officials from nonprofit/nongovernmental organizations. Attorneys and media persons were treated as officials from private firms.

8 This measure is consistent with the social networks literature.
CHAPTER VI

Epistemic Communities and Regional Governance

Without the convergence of interests and the diffusion of ideas between the specialist network and the leaderships, there would be no story at all (Mendelson, 1993: 328).

In recent times, the US has undergone significant changes in how regional governance is conceptualized and the focus has shifted from government to governance and from governmental consolidation to problem solving (Barnes and Foster, 2011). Policy makers’ quest for interjurisdictional responses to the financial crisis and the recession has rekindled interest in the topic of regional governance (Barnes and Foster, 2011). However, the economic, social and technical changes of the recent decades, which have now assimilated in US urban regions, fundamentally challenge existing dominant ways of thinking about regional governance and call for more useful analytic frameworks (Bollens, 1997; Barnes and Foster, 2011). This dissertation is essentially an answer to such calls for newer approaches to regional governance. Its prime purpose is to examine the use of epistemic communities as a means to confront the wicked problems of urban America.

Contributions of the Study

Development of the Epistemic Communities Framework (ECF)

The chief contribution of this dissertation is to expose the field of urban politics to the utility of the epistemic communities framework for tackling wicked regional
problems. Though Holden (1964) and Frederickson (1999) initiated this dialogue, their efforts were very minimal. Subsequent to Frederickson’s 1999 Gaas Lecture, no significant attempts were undertaken to revive the dialogue on the significance of ECs for American regional governance. What could be the reason for this lack of scholarly attention to this topic? In order to show the significance of epistemic communities for dealing with complex and tough regional problems, it is necessary to develop a framework for identifying and analyzing these communities. Such a framework is, however, absent in the field of urban politics and this dissertation has taken the first effort in developing it.

One of the greatest advantages of the three-part framework developed in this dissertation is its flexibility/adaptability to various governance settings (transnational, national and regional) and a wide variety of policy domains (from economic development to public welfare). Additionally, the framework is significant for two other reasons. One, existing information on the EC concept is dispersed across several single issue case studies conducted in different policy domains. These case studies deal only with those aspects of the framework that are important for the epistemic community/communities analyzed in the particular study. Two, though Haas (1992a) and Adler and Haas (1992) provide elaborate information on various aspects of the EC framework, their presentations, consisting of numerous examples and elaborate case by case discussions, make the EC framework less accessible, in particular, to scholars outside of international relations. This dissertation overcomes these two serious limitations. First, it brings together the scattered theoretical pieces of the EC concept and organizes them such that
they address three important questions about epistemic communities. These questions are:

1. What is an epistemic community?
2. What factors or conditions encourage the emergence/proliferation of epistemic communities?
3. In what ways do epistemic communities affect public policy making processes?

Next, it systematically presents the information on these three questions such that it is fairly easy to generate testable hypotheses on the EC concept.

Absent this framework, it is impossible to move forward the dialogue on the application of ECs in urban policy making processes. If the most fundamental questions about ECs, such as their potential existence in urban regions, their chief characteristics, their causal logic, and their functionality are not dealt with, then how is it possible to address the more difficult and bigger questions in the dialogue on ECF utility for regional cooperation? Without an EC framework which can generate testable hypotheses, how can we progress toward finding answers to critical questions such as:

- What is the linkage between epistemic communities and significant policy change?
- How versatile is the EC concept?
- Will it fit a wide set of regional problems and policy domains or does its utility vary with specific features of the problem and the policy domain?
- Does attacking wicked regional problems ultimately require the involvement of epistemic communities in public policy making?
- If so, how can epistemic communities be integrated into existing self-organizing regional solutions?

In this sense, this dissertation has made a very significant contribution by developing the EC framework and opening the doors for scholarly discussion on this topic.
Development of A Four-Step Process for Identifying Epistemic Communities

This dissertation has not just developed the EC framework, but has also tested several elements of the framework it has built. For this, it has, for the first time, developed a replicable four-step process for identifying the existence of epistemic communities. This process involves:

- mapping the communication network of policy actors in the issue area of interest;
- identifying actors with epistemic characteristics within the communication network;
- examining of the policy agenda of actors with epistemic characteristics and sorting them into advocacy networks based on their shared policy agenda/episteme;
- identifying knowledge transaction activities of actors within each advocacy network and classifying the actors involved in knowledge transaction activities along with their communication linkages within their advocacy network as an epistemic community.

Previous efforts on identifying ECs work backward. Scholars typically identify a successful policy situation such as signing an international treaty or passing a national legislative bill, and then trace back the network of experts who have contributed toward that situation. This backward mapping process has two significant limitations. First, it is inefficient as it permits the examination of only one or two communities at a time. Second, communities identified are typically the ones that successfully impacted policy decisions or at least came close to impacting policy decisions. This skewed focus on ECs has hindered the development of a comprehensive understanding of EC effectiveness; in particular, it has stalled the identification of factors that contribute toward EC effectiveness. That is, absent comparative analysis of multiple ECs which vary in their
policy performance, it is rather difficult to analyze conditions and factors that contribute to EC success/failure in influencing decision makers and decision making. Without this information, EC utility in different governance settings and policy domains will continue to remain unclear. Exclusive reliance on the case study method for identifying and analyzing ECs will prevent generalization of findings to a wider universe of cases; applicability will remain limited to a small number of cases in which similar variables exist. The four-step process developed in this dissertation overcomes these serious drawbacks that mar existing EC research. With this process, it is possible to simultaneously identify multiple ECs that exist within an entire policy domain; essentially, a more efficient and comprehensive approach to identifying ECs. Next, unlike in prior efforts, wherein there has been a skewed focus on successful ECs, my approach permits identification of all ECs, regardless of their policy contributions, and the assessment of the differences in their policy performances and the reasons for those differences. The four-step process can capture ECs that have succeeded, ECs that have impacted policy making processes in small, incremental ways, ECs that have failed, and even ECs that are just emerging. Without the process developed in this study, progress toward efficient and effective comparative analysis of ECs is rather unlikely.

A major criticism that surrounds the EC approach is the difficulty in finding a community of experts who sufficiently fulfill Haas’s (1992a) definitions and characteristics of epistemic communities (Kutchesfahani, 2010). This dissertation addresses this concern by developing a process that has the ability to systematically identify communities of experts that satisfy Haas’ stringent assumptions. The four-step process identifies shared policy agenda among experts. It, however, does not identify if
these actors also share causal beliefs of public problems. But this component can be added to the existing process. For example, I could ask interviewees to identify the factors they think that might have contributed to the current financial crisis in Michigan’s municipalities. It is important to note here that the process developed here is only an initial effort and it has to be refined through additional efforts from me and from other scholars. But despite the requirement for improvements, the identification process developed here is a significant contribution; absent this process, there is no systematic way of identifying ECs.

**Development of A New Research Strategy which Conceptualizes ECs as Networks**

This dissertation has developed an entirely new research strategy for identifying and analyzing ECs. It has, for the first time, created a replicable approach that facilitates ECs to be conceptualized as networks, both theoretically and empirically. Up until now, scholars studying epistemic communities have not moved past a metaphorical conception of ECs as networks.

Conceiving ECs as networks, both theoretically and empirically, facilitates sophisticated analysis of ECs as dependent variables. Existing EC studies, typically, analyze ECs as independent variables that explain policy behaviors and choices. The farthest these studies have gone in terms of examining ECs as dependent variables is identifying the composition of these communities, and to some extent, explaining the causes for their emergence. In contrast, the network-based research strategy developed here helps unravel intricate and important features of ECs such as EC organizational characteristics, structure, and functional strategies. The list of all the EC dimensions that
can be analyzed through the use of a network-based strategy is long and can be further extended through the creativity and efforts of other scholars. Conception of ECs as networks is significant for another important reason as well; it allows us to address one of the major criticisms against the EC framework. Described as a model of elites by elites and for elites (Jacobsen, 1995), the epistemic communities framework has been criticized for assigning too much influence to experts at the expense of other actors (Toke, 1999, Dunlop, 2000). The framework in its current form fails to take into account the multitude of actors, including interest groups and social movements, who, at various times, shape the norms of decision makers (Kutchesfahani, 2010). By conceptualizing ECs as networks, it is possible to develop models which account for EC influence while simultaneously accounting for the effects of other factors. Research on networks has sufficiently advanced and scholars employ network level variables in regular regression models (Andrew and Carr, Forthcoming).

Absent this research strategy, which examines ECs as networks, progress on sophisticated analysis of EC networks is impossible. Further, the method of process tracing will remain the only avenue available for researchers to trace an epistemic community’s activities and demonstrate its influence on decision makers at various points in time. This method will allow identification of alternative credible outcomes that were foreclosed as a result of EC influence, and can explore alternative explanations for the actions of decision makers (Haas, 1992a). However, relative to the network-based strategy developed here, the process tracing method is likely to be less rigorous and efficient.
Directions for Future Research

This dissertation is only an early effort toward its intended objective of showing the significance and utility of the EC concept for solving “wicked” regional problems; more work needs to be done.

Refining ECF and Improving Measures Used

First, the framework developed here needs to be improved and enhanced through the efforts of other scholars as well. For this, it has to be widely-tested in other governance settings and policy domains. Based on these tests, the three-part framework could either be extended by including additional elements, or else, existing elements could be better explained.

Next, measures developed and used in identifying ECs have to be improved. For instance, more robust measures for capturing the policy knowledge of actors and their knowledge transaction activities have to be developed. In case of policy knowledge, I used a policy knowledge scale and asked respondents to rank themselves on that scale. This measure could be supplemented by asking respondents to rank not just themselves, but also their communication contacts on the policy knowledge scale. In this way, we can get more than one value for each respondent’s level of policy knowledge--one given by the respondent and the other by the individual(s) communicating with that respondent. The average of these values could be used as a measure of the respondent’s policy knowledge. The measure could be further enhanced by supplementing it with years of professional experience the respondent has had in the particular policy domain. In case of
knowledge transaction activities, I use the presence of communication ties or participation in professional/subregional organizations as an indicator of a respondent’s involvement in these activities. This measure could be replaced and respondents can be asked to indicate if they participated in the development/discussion of potential solutions to public problems in the particular issue area by directly or indirectly communicating with other policy actors in the field or by participating in workshops, conferences, and/or meetings of professional/subregional organizations. Further, in his study, I focus only on consensus among EC actors in developing policy solutions to municipal finance problems. However, I do not identify if these actors share consensus on the causal logic of these problems. This limitation could be overcome by asking respondents to list the factors they think have led to the tough problems in the issue area they specialize in.

**Understanding the Emergence and the Longevity of EC Networks**

In this study, I do not identify when exactly the ECs emerged. This could be assessed by asking respondents to not just name their communication contacts, but also to indicate since when these actors became their communication contacts. Using this information, along with the information on the factors that motivated respondents to develop communication linkages, the emergence of ECs can be explained. Knowledge on EC emergence is vital for policy makers to understand how to mobilize epistemic communities for the purpose of using them in policy making activities.

Knowledge on what holds the EC actors together is a vital piece in understanding how to mobilize ECs. This knowledge is essential to identify ways and means of nurturing and maintaining these communities over long periods of time. Previous studies
do not specifically assess why EC actors choose to interact with each other; they stop with analyzing why policy makers’ choose to consult with EC actors. EC networks are self-organizing structures and self-organizing network structures, typically, have the tendency to mutate (Monge and Contractor. 2002). Mutation could have both positive and negative implications. For instance, addition of elected officials to an EC network may imply enhanced access for the EC to decision makers. On the other hand, loosing participants may imply loss of consensus among EC members. An EC network may not just mutate, but also disband entirely, especially after achieving policy success on a particular issue it had been interested in (Adler and Haas, 1992). An EC network may also disband for other reasons such as failure to achieve consensus among its members or inability to sustain in the wake of emergence of rivaling EC networks. Longevity is critical for an epistemic community to achieve policy consensus among its members, to gain legitimacy in the policy community in which it is embedded, and to be able to institutionalize the epistemes it has promoted (Adler and Haas, 1992). All of these factors allow the community to become a significant player in consensus development across difficult public policy issues. Hence, EC scholars have to focus on explaining EC longevity.

**Understanding Policy Effects of ECs**

Next, regional EC networks have to be studied as independent variables in order to understand if they contribute toward policy choices and behaviors. Scholars should identify if regional ECs play critical roles in policy development and implementation, and if so, do they do so in a variety of policy domains such as economic development,
environmental protection, land use and planning, public safety, public health, transportation, social and welfare services, urban sprawl, etc. For this, it is necessary to explore different policy domains and identify and analyze the ECs present in these domains. In which policy domains are ECs present? Among these domains, in which ones have ECs impacted policy behaviors/choices? In which policy domains have ECs failed to make an impact? If ECs have failed to contribute toward policy change in some domains, what could be the potential causes for this failure?

Understanding and Predicting EC Effectiveness

The most logical progression of the analysis of EC influences on policy outcomes is the analysis of factors which contribute toward EC effectiveness. These factors are: EC network structures, operational strategies of EC networks, and the interactions between EC network structures and the operational strategies of EC networks.

Exploring EC Network Structures

Specific behavioral tendencies of EC members result in specific network structures as revealed by the ERGM analysis in this study. Given this, do structural differences in EC networks have implications for EC effectiveness in influencing policy behaviors and choices? That is, do EC network structures matter?

- Do ECs in housing policy generate network structures that are different from network structures generated by ECs in economic development?
- If so, what do these differences mean for EC policy successes/failures?
- Are there differences in the network structures of ECs that have successfully impacted policy decisions and the network structures of ECs that have failed to impact policy decisions?
• Does the existence of transitivity within an epistemic community, which indicates cohesiveness among members, translate into effective policy performance of that community?

• Does the existence of network activity/expansiveness within an epistemic community, which indicates distrust among members, adversely affect the policy performance of that community?

Questions such as these are critical for explaining the potential implications of EC organizational structures for EC policy performance.

**Exploring Operational Strategies of EC Networks**

Besides EC network structures, it is also useful to conceive network operational strategies as independent variables that can help explain EC policy performance.

• Do the operational strategies of EC networks matter for EC policy success?

• Do the operational strategies of ECs in housing policy differ from the operational strategies of ECs in economic development?

• If so, what do these differences mean for EC policy successes/failures?

• Are there differences in the operational strategies of ECs that have successfully impacted policy decisions and the operational strategies of ECs that have failed to impact policy decisions?

• Does developing communication ties with elected officials translate into effective policy performance of an epistemic community?

• Does not making direct recommendations to policy makers adversely affect the policy performance of an epistemic community?

**Exploring Interactions between EC Network Structures and Operational Strategies of EC Networks**

Research on ECs should also focus on understanding the implications of connections between specific network structures and the specific operational strategies of
these network structures. In particular, it should analyze the implication of these features as an interacting group for EC effectiveness in influencing policy decisions.

- Do the interactions of specific EC network structures and specific EC operational strategies translate into EC policy success?

- What is the implication of a combination of a network structure with reciprocal ties and the operational strategy of developing communication ties with elected officials for EC effectiveness?

- What is the implication of a combination of a hierarchical network structure consisting of popular actors and the operational strategy of making direct recommendations to policy makers for EC effectiveness?

Knowledge obtained on EC effectiveness from comparative EC studies, especially with longitudinal data collection and analysis would allow scholars to make predictions/generalizations about how to successfully apply ECs to achieve policy consensus on tough problems. Only when this knowledge is attained can we address questions such as:

- How can we integrate ECs with existing self-organizing prescriptions such as regional partnerships, interlocal cooperation, services contracting, etc?

- How can we make such integrations useful resources for initiating and sustaining dialogues on tough regional problems?

- In which areas do we need to carry out such integrations?

Finding answers to these questions will provide a comprehensive understanding of what regional ECs are, how they work, when they work, and when they do not work. After achieving such knowledge, scholars should seek to formally introduce these resources to policy makers and explore the extent to which they are aware of the existence of these resources, and the extent to which they have already used or are willing to utilize these resources in policy making processes.
To sum up, the objective of using the epistemic communities framework to facilitate better regional governance in urban America is very ambitious. This dissertation has made only a small step toward this lofty objective. But this small step has helped unlock the doors to better research on epistemic communities. It has also paved the path for other scholars to tread on. In this sense, this small step is a significant one.
APPENDIX A

Figure 1A: Communication Linkages among Actors with Epistemic Characteristics (LGR)

Note: Network generated using the Pajek software. N=63.
Figure 1B: Policy Agenda of Actors with Epistemic Characteristics (LGR)

Note: Network generated using the Pajek software. N=63. Twenty-seven actors who do not share policy interests represented by Epistemes A or B are depicted as isolates in the network.
Figure 1C: Municipal Finance Epistemic Communities A and B within the Communication Linkages of Interviewees (LGR)

Note: Network generated using the Pajek software. This communication network includes only the linkages among the 100 interviewees. N of non-EC members=65, and N of all EC members=35. Green circles indicate actors who are non-EC members, red circles indicate actors who are members in both municipal finance epistemic community A as well as municipal finance epistemic community B (N=17), blue circles indicate actors who only members in municipal finance epistemic community A (N=4), and yellow circles indicate actors who are only members in municipal finance epistemic community B (N=14).
Figure 2A: Communication Linkages among Actors with Epistemic Characteristics (EME)

Note: Network generated using the Pajek software. N=60.
Figure 2B: Policy Agenda of Actors with Epistemic Characteristics (EME)

Note: Network generated using the Pajek software. N=60. Thirty actors who do not share policy interests represented by Epistemes C or D are depicted as isolates in the network.
Figure 2C: Municipal Finance Epistemic Communities C and D within the Communication Linkages of Interviewees (EME)

Note: Network generated using the Pajek software. This communication network includes only the linkages among the 100 interviewees. N of non-EC members=74, and N of all EC members=26. Blue circles indicate actors who are non-EC members, pink circles indicate actors who are members in both municipal finance epistemic community C as well as municipal finance epistemic community D (N=9), green circles indicate actors who only members in municipal finance epistemic community C (N=13), and yellow circles indicate actors who are only members in municipal finance epistemic community D (N=4).
Figure 3A: Communication Linkages among Actors with Epistemic Characteristics (PSP)

Note: Network generated using the Pajek Software. N=60.
Figure 3B: Policy Agenda of Actors with Epistemic Characteristics (PSP)

Note: Network generated using the Pajek Software. N=60. Eight actors who do not share policy interests represented by Epistemes E, F or G are depicted as isolates in the network.
Figure 3C: Municipal Finance Epistemic Communities E, F and G within the Communication Linkages of Interviewees (PSP)

Note: Network generated using the Pajek software. This communication network includes only the linkages among the 100 interviewees. N of non-EC members=53, and N of all EC members=47. Green circles indicate actors who are non-EC members, dark pink circles indicate actors who are members in all three municipal finance epistemic communities—E, F and G (N=18), blue circle indicates actor who is member of both municipal finance epistemic community E as well as municipal finance epistemic community F (N=1), teal circles indicate actors who are members in both municipal finance epistemic community F as well as municipal finance epistemic community G (N=9), black circles indicate actors who only members in municipal finance epistemic community E (N=3), yellow circles indicate actors who are only members in municipal finance epistemic community F (N=11) and light pink circles indicate actors who are only members in municipal finance epistemic community G (N=5).
APPENDIX B

Cover Letter
Subject: 2011 Epistemic Communities and Urban Governance Survey

Dear [Full Name]:

We are examining the role played by networks of experts in developing public policies to deal with highly complex problems and hope you will be willing to participate in our study. We are asking you to participate in this study because our review of the 248 articles published in the Detroit Free Press and the Detroit News between November 2010 and April 2011 on Michigan’s crisis in municipal finance revealed you as an advocate of one or more popular strategies intended to improve the fiscal condition of municipal governments in Michigan or as an expert in some facet of this topic.

If you agree to participate, we will ask you a few questions about your support for several specific strategies for confronting fiscal stress in municipal governments (such as revenue increases, downsizing, service consolidations, etc.). We will also ask you to identify six individuals with whom you most frequently discuss your ideas for how state and local officials should respond to the fiscal crisis that is currently affecting Michigan local governments. We will contact the six individuals you identify and request them to participate in this study. However, we will neither reveal your responses to these individuals nor say that you identified them. The questionnaire takes approximately 20 minutes to complete.

This research is not an examination of the fiscal crisis in Michigan local governments, but is instead an effort to understand the role of knowledge-based networks of policy experts (aka epistemic communities) in policy development. Epistemic communities are believed to play a critical role in developing consensus on: (1) policies that will impact multiple autonomous communities (e.g., nations, states, municipalities) and (2) policies that are highly technical or extremely complex in nature. Epistemic communities are also thought to be important for developing solutions to public problems arising at least in part from a serious system-wide shock or crisis of some form. The current debate over the best way to improve the fiscal condition of municipal governments in Michigan is an excellent case study for examining the role epistemic communities play in policy making.

We know you have many demands on your time, but we hope you will choose to participate in this study. An important objective of this research is to map the networks of policy advocates and experts that have emerged to promote solutions to the municipal finance crisis. You are an important actor in one or more of these networks and your exclusion from this study will prevent the full scale and structure of these important networks from being understood. We believe that a better understanding of the structure of these self-organizing, knowledge-based networks will permit the development of strategies designed to encourage the emergence of these networks, and consequently, the creation of better public policies.
We would be pleased if you will respond to this email and suggest a time that would be good for us to call you to do a short phone interview to complete the questionnaire. We can also send you a link that will permit you to answer the questionnaire online without talking to us directly. Either way, your participation is entirely voluntary. Your responses will remain confidential and the findings of this study will be reported in a form that does not reveal the identities of the participants.

If you have any questions or concerns about this research study, please contact Shanthi Karuppusamy at shanu@wayne.edu or by calling 313-806-9759.

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APPENDIX C

Epistemic Communities and Urban Governance

Research Information Sheet

Title of Study: Epistemic Communities and Urban Governance

Principal Investigator: Shanthi Karuppusamy
Department of Political Science
Wayne State University
(313)806-9759

Co-Investigator: Jered B. Carr
Department of Political Science
Wayne State University
(313)310-3632

Purpose:
You are being asked to be in a research study examining the role played by networks of experts in developing public policies because our review of the 248 articles published in the Detroit Free Press and the Detroit News between November 2010 and April 2011 on Michigan’s crisis in municipal finance revealed you as an advocate of one or more popular strategies intended to improve the fiscal condition of municipal governments in Michigan or as an expert in some facet of this topic. This study is being conducted at Wayne State University in Detroit.

Study Procedures:
- If you take part in the study, you will be asked a few questions about your support for several specific strategies for confronting fiscal stress in municipal governments. You will also be asked to identify six individuals with whom you most frequently discuss your ideas for how state and local officials should respond to the fiscal crisis that is currently affecting Michigan local governments.
- You can answer the questionnaire either through a phone interview or by taking an online survey.
- We will contact the six individuals you identify and ask them to participate in this study. However, we will neither reveal your responses to these individuals nor say that you identified them.
- Participation is completely voluntary and you have the option of not answering some of the questions and still remain in the study.
- It will take approximately 20 minutes to complete this survey.

Submission/Revision Date: July 7th, 2011
Epistemic Communities and Urban Governance

Benefits
- As a participant in this research study, there will be no direct benefit for you; however, information from this study may benefit other people now or in the future.

Risks
- Research does not involve greater than minimal risk in that procedures are like those participants encounter in daily life.

Costs
- There will be no costs to you for participation in this research study.

Compensation
- You will not be paid for taking part in this study.

Confidentiality:
- You will be identified in the research records by a code name or number.
- This master file with respondent names will be kept separate from the list containing the coded identifiers. This file is a hard copy and can be accessed only by key research personnel. The file will only be kept for the length of time necessary to conduct the research project. It will not be distributed to any individual outside of the research project and, upon completion of the research project, will be destroyed.

Voluntary Participation /Withdrawal:
Taking part in this study is voluntary. You are free to not answer any questions or withdraw at any time.

Questions:
If you have any questions about this study now or in the future, you may contact Shanthi Karuppusamy at shanu@wayne.edu or by calling (313)806-9759. If you have questions or concerns about your rights as a research participant, the Chair of the Human Investigation Committee can be contacted at (313) 577-1628. If you are unable to contact the research staff, or if you want to talk to someone other than the research staff, you may also call (313) 577-1628 to ask questions or voice concerns or complaints.

Participation:
By completing the interview/questionnaire you are agreeing to participate in this study.

Submission/Revision Date: July 7th, 2011
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ABSTRACT

EPISTEMIC COMMUNITIES AND REGIONAL GOVERNANCE: POLICY DEVELOPMENT IN MUNICIPAL FINANCE REFORM

by

SHANTHI KARUPPUSAMY

August 2012

Advisor: Dr. Jered B. Carr
Major: Political Science
Degree: Doctor of Philosophy

In recent times, the US has undergone significant changes in how regional governance is conceptualized and the focus has shifted from government to governance and from governmental consolidation to problem solving (Barnes and Foster, 2011). Policy makers’ quest for interjurisdictional responses to the financial crisis and the recession has rekindled interest in the topic of regional governance. However, the economic, social and technical changes of the recent decades, which have now assimilated in US urban regions, fundamentally challenge existing dominant ways of thinking about regional governance and call for more useful analytic frameworks (Bollens, 1997; Barnes and Foster, 2011). This dissertation is essentially an answer to such calls for newer approaches to regional governance. Its prime purpose is to examine the use of epistemic communities (ECs) as a means to confront the wicked problems of urban America.

In this context, I have developed a framework for identifying and analyzing epistemic communities. The three-part framework developed in this dissertation is flexible/adaptable to various governance settings (transnational, national and regional)
and a wide variety of policy domains (from economic development to public welfare); the framework also helps generate testable hypotheses on the EC concept. This dissertation has not just developed the EC framework, but has also tested several elements of the framework it has built. For this, it has, for the first time, developed a replicable, network-based, four-step process for identifying the existence of epistemic communities. With this process, it is possible to simultaneously identify multiple ECs that exist within a policy domain, regardless of their policy contributions; essentially, a more systematic, efficient and comprehensive approach to identifying ECs than single issue case studies.

Using archival document analysis, the snowball sampling technique, data collected from 100 structured interviews, a four-step EC identification process, and social network methods such as network mapping, exponential random graph models and quadratic assignment procedures analysis, I identify and analyze the municipal finance ECs that exist in Michigan. I examine the composition, interaction patterns, motivations for interactions, and functional performance of these communities which are involved in Michigan’s municipal finance reform efforts.
AUTOBIOGRAPHICAL STATEMENT

Shanthi Karuppusamy is joining Northern Illinois University as Assistant Professor of Public Administration in Fall 2012. Her research and teaching interests are in urban politics, regional governance and public policy. Her research has been published in *The American Review of Public Administration, Urban Affairs Review* and *Urban Studies*. 