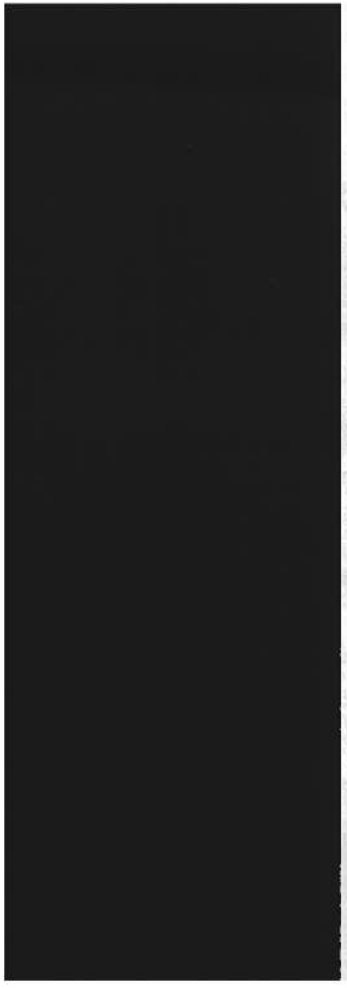



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# 15

# Policy Networks

David Knoke

> Je weniger die Leute davon wissen, wie Würste und Gesetze gemacht werden, desto besser schlafen sie. [The less people know about how sausages and laws are made, the better they sleep.]
>
> –Chancellor Otto von Bismarck (1815–98)

Policy network analysis seeks to identify the important actors – governmental and nongovernmental organizations, interest groups, and persons – involved in policymaking institutions, to describe and explain the structure of their interactions during policymaking processes, and to explain and predict collective policy decisions and outcomes. To those ends, policy theorists and empirical researchers who apply network analytic perspectives have defined a multiplicity of concepts, principles, and propositions to explicate differential aspects of policy networks. Fundamental research objectives include showing how policy networks form, persist, and change over time. Social network theories of political influence and persuasion examine how relational ties among policy participants shape their political attitudes, preferences, and opinions. Other goals are to demonstrate the policy consequences of network structural relations for the actors contending and collaborating within specific public policy arenas. Comparative researchers explore the historical origins of national differences in network structural relations among state institutions and private interest groups, and their consequences for policy network dynamics and collective outcomes.

Probably the first explicit use of the term "policy network" appeared in an article by Peter Katzenstein (1976) comparing the foreign economic policies of France and the United States. Over the next three decades, the volume of theoretical and empirical work on both substantive policy networks and formal policymaking models expanded enormously, with scopes ranging from urban (e.g., Laumann and Pappi, 1976), to national (Schneider, 1992), to regional (Thomson et al., 2006), and to global levels of analysis (Witte et al., 2000). This chapter offers an overview of the history and current situation of policy network analysis; while it cannot be comprehensive and exhaustive, the chapter highlights crucial developments and controversies. The first section defines key concepts used by most policy network analysts. The second section summarizes the origins of policy network and policy domain ideas, while the third section describes more recent empirical research. The fourth section discusses the development of formal network models of collective decision making. The concluding section offers some suggestions for future directions in policy network analysis.

## KEY POLICY NETWORK CONCEPTS

Like any social network, a ***policy network*** consists of a bounded set of actors and one or more sets of relations that connect these actors. Although policy network actors may be individual persons, at the national and international levels of analysis they are more typically formal organizations, such as political parties, legislatures, executive



agencies, and interest group organizations. For example, Kenis and Schneider (1991) defined a policy network as a set of public and private corporate actors linked by communication ties for exchanging information, expertise, trust, and other political resources. The boundaries of a closely related concept, the *policy domain*, are socially constructed by the actors' mutual recognition that their preferences and actions on policy events must be taken into account by the other domain participants (Laumann and Knoke, 1987: 10). More formally, a policy domain is any subsystem "identified by specifying a substantively defined criterion of mutual relevance or common orientation among a set of consequential actors concerned with formulating, advocating, and selecting courses of action (i.e., policy options) that are intended to resolve the delimited substantive problems in question" (Knoke and Laumann, 1982: 256). Examples of policy domains include national defense, education, agriculture, welfare (Laumann and Knoke, 1987: 10), health, energy, and transportation (Burstein, 1991: 328). The twin concepts of policy network and policy domain can be reconciled by recognizing that a policy domain delineates a bounded system whose members are interconnected by multiple policy networks.

Social network theories assume that the primary unit of analysis is a social relation (a specific type of tie) connecting the members of a social system. The pattern of present and absent ties among a network's actors constitutes its social structure. Furthermore, "the perceptions, attitudes, and actions of organizational actors are shaped by the larger structural networks within which they are embedded, and in turn their behaviors can change these network structures" (Knoke, 2001: 63–64). These assumptions focus analysts' attention on the multiple types of interorganizational ties that may be important for explaining a policy domain's social structure, and for understanding the consequent actions at both the individual organizational level and for the policy domain as a whole. Knoke (2001: 65) argued that researchers should take into consideration five basic ***types of interorganizational relations***, each of which may reveal a distinctive network structure: resource exchange, information transmission, power relations, boundary penetration, and sentimental attachments. Although resource exchanges in policy networks, such as money or personnel, are typically voluntary, sometimes governmental mandates – legislation or administrative regulations – impose and enforce interorganizational connections. Information transmission among organizations ranges from scientific and technical data to policy advice and opinions. Asymmetrical power relations rest less often on coercive force than on taken-for-granted beliefs about the authority to issue commands and expect compliance (Weber's legitimate power). Public sector authorities usually possess greater power than private sector organizations to impose and enforce their interests on a domain. Boundary penetrations involve two or more actors coordinating their actions to achieve a common goal (Knoke, 2001: 65); classic illustrations are the lobbying coalitions discussed in the next paragraph. Finally, sentimental attachments refer to subjective, emotional affiliations that generate solidarity and mutual assistance among actors, for example, predispositions by labor unions to provide mutual political support.

A *lobbying coalition* involves consciously coordinated activity by two or more actors to influence a policy decision. Coalitions form around a specific *policy event*, a pending decision on a proposed legislative bill, regulatory order, or court case ruling. A coalition comprises an *action set* in which partners all hold the same policy preferences for an event, are connected through a communication network, and coordinate their lobbying and other policy-influencing activities (Knoke et al., 1996: 22). Although some organizations work alone in attempting to persuade legislators or regulators to choose proposed policies favorable to their interests, the chances of a successful outcome are usually greater when organizations pool their material and political resources into a joint policy campaign. An efficient division of labor among powerful coalition partners can enhance a group's political influence on a policy event outcome relative to a less-synchronized, opposing coalition with fewer resources. By combining their strengths and expertise, partners can deploy a wider variety of political influence tactics. For example, broad-based membership associations mobilize larger numbers of constituents to write letters and emails to their legislators. Organizations with well-staffed research operations present more compelling evidence during private meetings with governmental officials and in testimonies at public legislative or regulatory hearings. Lobbying is neither political bribery nor overt quid pro quo dealing (Browne, 1998). Rather, policy influence requires that a coalition present its most persuasive case to the ultimate decision-making body: Lobbyists give policymakers persuasive information, substantive technical analyses, proposed policy language, and politically accurate arguments about why they should support the coalition's preferred solution, instead of backing the opposition's so obviously inferior and indefensible policy alternative.

Lobbying coalitions are typically short-lived efforts to affect the outcome of a specific, narrowly defined policy event. After public officials render a decision, the coalition partners routinely

disband to pursue their separate agenda items. Although some of those organizations may coalesce again around subsequent policy events, most coalitions involve distinctive constellations of participants, attracted by the substantive particulars affecting their interests. The aphorism "politics makes strange bedfellows" reflects an occasional occurrence of former enemies now working together on an event of mutual concern. For example, both liberals and conservatives opposed President Bush's warrantless wiretapping inside the United States as a serious erosion of Americans' civil liberties. However, most lobbying coalitions involve organizations that share similar preferences across a broad spectrum of interest, identity, or ideological concerns that guides their political calculations about policy stances. Broad and enduring cleavages often emerge within a policy domain; for example, business versus unions in labor policy, producers versus distributors in agricultural policy, and pharmaceutical companies versus consumers in health care policy (Heinz et al., 1993). Typically, only a subset of the organizations with general interests in a policy issue joins a coalition actively fighting to achieve a specific policy event outcome (Knoke, 2001: 351–56). Two fundamental research questions are: How best to describe and measure the network structure created by the overlapping participation of organizations in coalitions across multiple policy events? And how best to explain whether social cohesion and collective action by coalition participants leads to particular policy event outcomes? The next two sections review the initial efforts to answer these questions.

## POLICY NETWORK AND DOMAIN RESEARCH

The extensive efforts to theorize and examine policy networks and policy domains can only be briefly summarized here (for more extensive overviews, see Knoke, 1998; Granados and Knoke, 2005; Robinson, 2006). The next three subsections discuss the origins of distinctive perspectives on policy networks in the United States, Britain, and Germany.

### *United States*

A network approach to public policy analysis originated in a community power study, *New Directions in the Study of Community Elites,* by Edward O. Laumann and Franz Urban Pappi (1976). They demonstrated how multiple networks connecting the elites of a small German city facilitated and constrained their collective capacity to affect community policies. Replications of the approach in two middle-size Illinois cities revealed that organizations occupying central network positions were more influential in community affairs, more likely to mobilize for action in political controversies, and better able to achieve their preferred outcomes in public policy disputes (Laumann et al., 1978; Galaskiewicz, 1979). Laumann and Knoke's *The Organizational State* (1987) extended the network analysis of power structures to national policy domains conceptualized as multiplex networks among formal organizations, not elite persons. Their connections enable opposing interest organization coalitions to mobilize political resources in collective fights for influence over specific public policy decisions. A national power structure is revealed in patterns of multiplex networks of information, resources, reputations, and political support among organizations with partially overlapping and opposing policy interests. A comparison of U.S., German, and Japanese labor policy domains (Knoke et al., 1996) found that organizations that were more central in both the communication network (measured by policy information exchanges) and the support network (measured by resource exchanges) had higher reputations as especially influential players in labor policy. Centrality in both networks led to participation across numerous legislative events in six types of political influence activities, including coalitions with other domain organizations sharing the same policy preferences. In the United States and Germany, communication centrality had more impact than support centrality on organizational reputations and political activities, while the opposite pattern occurred in Japan (Knoke et al., 1996: 120). Most national labor policy fights were conducted by relatively small action sets, with labor unions and business associations making up the primary coalition leaders in all three nations. These factions usually took opposing positions on legislative bills and almost never collaborated, even on rare instances where they held the same policy outcome preferences.

### *United Kingdom*

British scholars sought to identify the dimensions of national policy network structures according to their differentiated pluralist and corporatist features (Rhodes, 1985, 1990; Atkinson and Coleman, 1989, 1992; Jordan and Schubert, 1992). Beginning in the 1980s, as problems in such national policy domains as environment and health increased in complexity, British policymaking shifted away from entrenched subgovernments



(i.e., policy domains at the national ministerial level) that tightly controlled consensual policy agendas. In their place, more fluid and unpredictable networks emerged in such policy domains as agriculture, civil nuclear power, youth employment, smoking, heart disease, sea defenses, and information technology (Richardson, 2000: 1009–11). British political scientists elaborated a ***policy community*** model of self-organizing groups drawing policy participants from government bureaucracies and associated pressure organizations (Wilks and Wright, 1987; Rhodes, 1990; Jordan, 1990). By the 1990s, rising intergovernmental management, new public management practices, and a "hollowed out" state sector had propelled networks into a persistent attribute of the British human services sector (Rhodes, 1996).

Marsh and Rhodes (1992) proposed a model of interest intermediation that emphasized the importance of structural relations among governmental ministries, pressure groups, and informal actors participating in the policy process. Their approach downplayed the significance of interpersonal relations and presented a static, unidirectional relation between policy networks and policy outcomes. Critics (Dowding, 1995, 2001; Raab, 2001) argued that the policy network approach lacked a theoretical basis and could not explain network transformation. In response, Marsh and Smith (2000) offered a model of dialectical change (and stability) involving three interactive effects among the policy network and the agents operating within it; the network and its social context; and the network and policy outcome. They applied the model's mutually causal and feedback relations to explain transformative changes in U.K. agricultural policy since the 1930s. For example, the National Farmers' Union preference for government price supports increased between 1930 and 1947 as it interacted with government officials and learned what demands it could make in shifting economic contexts. Marsh also applied the dialectical model to explain changes in U.K. policy on genetically modified (GM) food and crops, disclosing the power of "outsider" environmental groups in compelling GM foods to disappear from supermarket shelves (Toke and Marsh, 2003). More recently, Kisby (2007) advocated adding "programmatic beliefs" as antecedent ideational contexts in the Marsh dialectical model.

### *Germany*

Germanic perspectives on policy networks are rooted in the American approach, through the collaboration of Franz Pappi and Edward Laumann (1973) on community power structure discussed above, and in Lehmbruch's (1984) analyses of corporatist politics in the Federal Republic of Germany (FRG) before reunification. Drawing from research on interlocking politics (Scharpf et al., 1976), Lehmbruch depicted the web of interorganizational networks as an important institutional constraint that stabilizes collective policy actions. In contrast to more centralized national states, such as France and the United Kingdom, the FRG resembled the U.S. federal system where states (*Länder*) retain important policy powers vis-à-vis the national government. Corporatist *concertation* in the FRG involved generalized exchanges among diverse interest organizations – private-sector organizations, state and federal agencies, and political parties – creating an interlocking system of autonomous, sectoral policy networks integrated under an overarching, noncentralized network (Lehmbruch, 1989). The economic policy network was oriented towards achieving national homogeneity, although regional policy networks apparently grew increasingly powerful. Bargaining and accommodation of interest groups took precedence over hierarchical centralization in the FRG. Lehmbruch's crucial insight – that institutions shape the specific forms and dynamics of policy networks – was largely overlooked by later researchers, who mostly investigated policy domains within a single governmental system.

In contrast to both American and British conceptualizations of policy networks as fundamental structures for intermediation between interest groups and governments, many German scholars tended to view them as a new form of governance. That is, policy networks are an alternative to both centralized authority hierarchies and deregulated markets for efficiently resolving policy conflicts between the state and its civil society (Börzel, 1998). The proliferation of policy networks, especially in supranational European Union policy domains, reflects several trends in state-society relations: increasing dispersion of resources among public and private organizations; elaboration of new policy domains demanding collective decisions; and overloaded governments that are dependent on the cooperation of private organizations, and therefore whose interests must be taken into account during policy formulation and implementation (Kenis and Schneider, 1991; Schneider, 1992). As structured interactions among interdependent but nonhierarchical organizations, policy networks facilitate their members' coordination of interests, the pooling and exchange of resources, and bargaining over policy proposals. In the absence of a central hierarchical authority that is capable of imposing its preferred policy solutions, cooperative policy blocks (based on

communication, trust, support, resource exchange, and other interorganizational relations) constitute an informally institutionalized framework for conducting complex negotiations and reaching collective policy decisions (Marin and Mayntz, 1991; Mayntz, 1993; Benz, 1995). This analytic framework underlies the formal network decision models of European decision making discussed in another section below.

Volker Schneider's comparative research on the dangerous chemicals and telecommunications policy domains of Germany and the EU exemplified the Germanic conceptualization of policy networks as a distinct governance form (Schneider, 1986, 1992; Schneider et al., 1994). He found a variety of governance mechanisms – ranging from institutionalized formal advisory bodies to working committees to informal and secretive groups – for co-opting private-sector actors in the public policymaking process. A study of the 1990–94 privatization of former East German shipbuilding and steel conglomerates after German reunification revealed dense horizontal communication and medium hierarchical power networks as the emergent governance structure (Raab, 2002). Formal institutional rules, indicated by German constitutional provisions and interorganizational reporting requirements, were the dominant factors influencing network tie formation among interested public and private organizations and multilateral negotiations over privatizing or closing down the East German industrial properties.

## RECENT POLICY NETWORK RESEARCH

The initial research on policy networks and domains failed to develop rigorous theories consisting of testable propositions about policy development and outcomes. They suffered from terminological imprecision and the proliferation of typologies, relying heavily on metaphor and description (Burstein, 1991; Dowding, 1995). At times, analysts seemed uncertain about whether to treat policy networks as primarily dependent or independent variables (Mikkelson, 2006: 18), that is, whether the primary objective was to explain the formation of policy networks or the consequences of network dynamics for collective action and policy outcomes. But those early efforts introduced a wealth of network concepts, principles, measures, and methods that invigorated the field and prepared the ground for subsequent advances. This section briefly examines recent examples of policy network research – in the United States, Europe, and non-Western nations, and at the transnational level of analysis – that built on those foundations.

A fallow period followed the florescence of U.S. policy domain research in the 1980s, as the pioneering scholars turned their research attention elsewhere. However, the approach showed signs of revival as some political scientists examined old studies or extended policy domain research in new directions. For example, a reanalysis of Laumann and Knoke's health policy domain data showed that, as the domain's demand for policy information increased, interest organizations invested more time and resources in forging stronger communication ties to their trusted political allies rather than pursuing a broader acquaintance strategy (Carpenter et al., 2003). But strong ties tend to form within cliques, which fail to transmit novel information as quickly as interclique weak ties. Because of its inefficiency in distributing information when it is most in demand, the strong-tie strategy is vulnerable to network failure, the "tendency for a policy community to shatter into competing cliques that do not share information" (p. 433).

Other political scientists examined the relations between political institutions and policy networks. Local water-policy networks spawned local institutions that increased both enforcement and compliance with the federal Clean Water Act from 1994 to 2000, even in conservative areas that were prone to undermining those efforts (Scholz and Wang, 2006). Lubell (2007) found a strong relation between policy trust in the organizations involved in agricultural water policy and the policy-core beliefs of farmers in the Sacramento River watershed policy domain. At the national level, the policy coherence of 18 policy domains (measured by issue concentration, interest concentration, and policy targeting) was highest among domains with a dominant congressional committee or involvement of a lead federal agency (May et al., 2006). A comparative study of biotechnology policy domains found the United States bifurcated into distinct agricultural and food networks that shared key actors, while the Canadian domain split between a network to manage biotech promotion and another network focused on assessing environmental and health risks (Montpetit, 2005). One consequence of these national structural differences is a more permissive regulatory climate in the United States. Despite the encouraging evidence of continuing empirical research on U.S. policy domains, no one has proffered a comprehensive new theoretical framework for systematizing and stimulating further inquiry.

In contrast to the quiescent American scene, European research on policy networks proliferated in recent years, with extensions to new nations and to the supranational European Union.



This increased activity accompanied shifts to broader foci: from government to governance processes; from unitary central government to multilayered policymaking; from top-down hierarchies to bottoms-up bargaining; from national to both supra- and subnational levels of analysis; and from policy formation to policy implementation. A case study of constructing a new British hospital concluded that implementation networks in multilayered government undermined the democratic accountability of elected local officials (Greenaway et al., 2007). In contrast, an investigation of sustainable development in two local communities found broader participation when the state actively manipulated the network than when it withdrew from its central position (Hudson et al., 2007). A "lobbyism" paradigm for state-society relations emerged in Germany as selective lobbying supplanted institutionalized corporatist forms of interest advocacy (von Winter, 2004). Following reunification, a reorientation of federal and local authorities and an increasing number of interest groups induced structural changes in the German poverty policy network (von Winter, 2001). In other European countries, scholars investigated diverse policy networks, including French and Dutch urban policy (Le Gales, 2001; De Vries, 2008), Greek rural development (Papadopoulos and Liarikos, 2007), Swiss energy policy (Kriesi and Jegen, 2001), and Czech social welfare (Anderson, 2003).

Analysts of European Union policymaking emphasized the importance of policy networks, in such domains as higher education (Lavdas et al., 2006), genetically modified foods (Skogstad, 2003), and industrial regulation (Coen and Thatcher, 2008). A comparative study of three policy domains (European integration, agriculture, and immigration) in seven Western nations highlighted the heavy influence of the EU context and the conditional effects of domain-specific domestic power structures (Kriesi et al., 2006). Blockmodel analyses of the integration domain revealed distinctive coalitions and cleavages, implying that theories must aim "to understand the combined impact of country- and policy-specific contexts" (358). The next section discusses formal efforts to model bargaining and negotiation over legislative decision making among EU member-states.

Policy network analyses of non-Western nations are much rarer than projects conducted in advanced democratic societies. The few extant reports are largely descriptive efforts rather than theoretically guided investigations. Some recent instances include free-trade negotiations in Chile (Bull, 2008), water policy in Egypt and Ethiopia (Luzi et al., 2008), Mexican forestry policy (Paredes, 2008), and national development in South Korea and Taiwan (Kondoh, 2002). Clearly, substantial opportunities exist to expand cross-national research on policy domains.

Other scholars have taken tentative but promising steps toward identifying and mapping global or transnational policy networks (e.g., Witte et al., 2000; Benner et al., 2004). These networks involve relations among the important organizations that deal with a boundary-spanning policy issue; for example, global trade, plagues and pandemics, trafficking in illegal substances and endangered species, and climate change. The United Nations' complex of organizations and agencies make up one network with transnational reach in several policy domains (Reinicke and Deng, 2000). Numerous national governmental, private sector, and nongovernmental organizations (NGOs) also populate these policy networks. The key players in these power structures typically consist of international organizations and institutions possessing limited mandates and legitimate authority to set and enforce extra-territorial rules and standards (e.g., World Trade Organization, International Monetary Fund, Convention on International Trade in Endangered Species). Goldman (2007) described how the World Bank facilitated the creation of a transnational water-policy network, linking environmental and development NGOs with business firms. The consequence was a rapid privatization of water supplies in Africa, Asia, and Latin America under the control of a few multinational corporations. In contrast, transnational advocacy networks act as counterweights to corporation-dominated economic globalization. These loose-knit networks mobilize grassroots activists, social movements, and other civil society organizations across borders to pressure governments and business to change their policies and practices. Well-known instances include the Global Fund to fight AIDS/HIV, tuberculosis and malaria and the Campaign for Access to Essential Medicines (Kohlmorgen et al., 2007), human rights and election monitoring, and the anti-globalization protests at Seattle, Davos, and Genoa.

## FORMAL NETWORK DECISION MODELS

An enduring theoretical challenge is to forsake generic metaphors and apply rigorous social network analysis principles to construct formal models of public policymaking. Formal models try to elucidate how binding decisions about proposed laws and regulations emerge within collective action systems – such as legislatures, courts, and regulatory agencies – through

information exchanges, political resource pooling, coalitions, vote trading, and other dynamic political interactions. For example, log rolling (pork-barrel politics) involves one legislator agreeing to vote for another's bill in exchange for the second's vote supporting the first's favored bill. Or legislators may make concessions on the contents of a less important bill in exchange for others' support on issues of more central interest.

Formal network decision models, typically using matrix algebraic formulations, assume that the collective outcomes across a set of policy domain events, such as legislative bills, involve exchanges of resources controlled by policy actors with varied interests in particular event outcomes. The more powerful actors mobilize and deploy their political resources to affect the actions of the less powerful actors, making the latter dependent on the former, and thus increasing the powerful actors' capabilities to achieve their preferred policy outcomes. The following subsections discuss a variety of noteworthy efforts to construct formal models based on such assumptions. These models are impossible to describe adequately without resort to some simple matrix algebra notation.

### Social influence models

These models, also called network effects or contagion models, show how network connections among actors mutually shape one another's beliefs and actions. The general hypothesis is that the greater the proximity of two actors in a network, the higher the probability that one actor's responses will be modified by the other's actions, which may occur without deliberate or consciously attempted influence (Marsden and Friedkin, 1994: 4). Friedkin (1984, 2004) proposed a deterministic, discrete-time linear process model in which each actor's attitude or preference is adjusted to the views of the other actors who have some influence over that actor (e.g., a direct network tie). All actors' opinions are simultaneously determined by the structural relations in the network. In formal matrix algebraic terms, where y is a vector of actors' attitudes at time $t$, and W is a matrix of network ties among the actors, the vector of attitudes at time $t+1$ is shown in Equation 15.1. Friedkin and Johnson (1990) generalized this model to include a matrix X of independent variables and a column vector b of their regression coefficients (shown in Equation 15.2).

$$y_{t+1} = Wy_t \qquad (15.1)$$

$$y_{t+1} = \alpha Wy_t + \beta Xb \qquad (15.2)$$

Several research studies yielded results consistent with the social network influence model's hypothesized effects. An example of the application of the social influence model in policy network research was Mark Mizruchi's (1989, 1990) demonstration that manufacturing corporations operating in the same primary industry tend to give financial contributions to the same political candidates. The behavioral similarity was even stronger to the extent that firms were located in related industries and were indirectly interlocked through shared banks and insurance companies.

### Collective action models

James S. Coleman, in *The Mathematics of Collective Action* (1973), modeled legislative vote trading as an open market with perfect information about policy preferences that yields resulting prices (power) of actors over event outcomes. A legislator's power at market equilibrium is proportional to her control over valued resources for events (i.e., her votes on a set of bills) in which the other legislators have high interest. Power-driven actors seek to maximize their subjective expected utilities by exchanging votes, giving up their control of low-interest events in return for acquiring control over events having high interest to them. To illustrate this log-rolling process, if Senator A from a farming state has high interest in a price-support bill, while Senator B from a coastal state wants to pass a port-development bill, this dyad may mutually agree to vote for one another's event. In effect, each senator transfers control over the event of lesser interest for control over the event of greater importance. The Coleman model's simultaneous power equation solution for the entire legislature can be expressed in matrix algebra notation as the following, where P is a vector of legislators' equilibrium power, after all vote exchanges have taken place; X is a matrix of legislator interests in a set of legislative events (bills) to be decided by vote; and C is each legislator's control over each event (i.e., one vote per person on each bill).

$$P = PXC \qquad (15.3)$$

### Network access models

Peter V. Marsden (1983) modified Coleman's market exchange model so that network relations could restrict actors' access to potential vote exchanges. In contrast to Coleman, whose market model allowed every legislator to trade votes with all others, Marsden assumed varying opportunities for dyadic vote trades. Compatibility of interests – based on trust, ideology, or party loyalty – might restrict the subset of actors among whom legislators prefer to log-roll their votes. The network access model's power equation (shown in Equation 15.4) differs from the Coleman model by including access matrix A, where $a_{ij} = 1$ if a vote exchange between actors $i$ and $j$ is possible, and $a_{ij} = 0$ if no exchange can occur. A is equivalent to the W matrix of network ties in social influence models. Marsden's simulations of his restricted network access model revealed (1) reduced levels of resource exchanges among actors; (2) power redistributed to actors in the most advantaged network positions; and (3) a possible shift to a more efficient system (i.e., higher aggregate interest satisfaction).

$$P = PAXC \qquad (15.4)$$

### Dynamic policy models

Franz Pappi's institutional access models of network exchange were designed to explicate the underlying mechanisms by which interest groups influence the collective decision making of the organizational state. The approach distinguished ***actors*** (e.g., interest groups) from ***agents*** (e.g., public authorities with voting rights, such as legislatures) in national policy domains, with network structures built into the interest component (Pappi and Kappelhoff, 1984; Pappi, 1993; König, 1993; Pappi et al., 1995). An actor's power comes from its ability to gain access to effective agents, who are a subset of the network members (that is, agents can also be actors with their own interests in some event outcomes). Actors can gain control over policy events either by deploying their own policy information or by mobilizing the agents' information. The key equation in the mobilization version of the dynamic policy model is in Equation 15.5, where K* is the event-control matrix at equilibrium ($L$ actors control the votes of $K$ agents), and the W is the matrix of network ties. The alternative resource deployment version of the model operationalized actors' control as *confirmed* policy communication network, and measured *self-control* as the number of organizations not confirming the sender's information exchange offers (i.e., an indicator of independence in the system).

$$PXA = WK^* \qquad (15.5)$$

When Pappi and his colleagues applied the institutional access model to predict legislative outcomes in the U.S., German, and Japanese labor policy domain networks, they found that the information mobilization process fit more closely with American data, while the deployment process provided a better explanation of German policy decisions (Knoke et al., 1996: 184). Both models performed equally well for Japan, during the period when the Liberal Democratic Party had long dominated the Diet. The public authorities in all three countries, in both executive and legislative bodies, that also played the roles of agents were the most powerful actors. These organizations' power stemmed from their ability to maintain high levels of self-control over policy information sought by the other public- and private-sector actors.

### Dynamic access models

In Frans Stokman's dynamic access models, collective decisions occur in a two-stage process where actors first mutually choose their preferred policies, then vote based on those derived preferences. More specifically, (1) each actor's policy event preferences are influenced by the preferences held by all the actors who have access to them through network ties; (2) then public officials cast their votes based on the set of policy preferences formed during the first stage where influence activities could occur (Stokman and Van den Bos, 1992; Stokman and Van Oosten, 1994; Stokman and Zeggelink, 1996). The dynamic access model's three key equations are shown in Equation 15.6, where $C$ is control over events, $R$ is actors' resources, and A is network access to other actors; $X$ is actor interest in events and $S$ is the salience of event decisions; $V$ is voting power of the public officials and $O$ is the predicted event outcomes.

$$C = RA \qquad X = XCS \qquad O = XV \qquad (15.6)$$

Stokman and Berveling (1998) compared predictions made by alternative versions of the dynamic access model to the actual outcomes of 10 Amsterdam policy decisions. The policy maximization model performed better than either the control maximization or the two-stage model. In the maximization version, policy-driven actors selectively agree to requests that they believe will mostly likely improve their own policy positions. Realizing that more distant powerful opponents aren't readily accessible, actors instead attempt to influence others who are most similar to themselves. That is, actors deliberately choose influence strategies that enhance the chances of success for their preferred policy positions but avoid having to change their preferences as they try to persuade others to support them (1998: 598).

Dynamic access models were most extensively applied to institutionalized political bargaining and negotiation over legislative decisions among the member states of the European Union (Bueno de Mesquita and Stokman, 1994; Thomson et al., 2006). Under the EU's governance rules, the executive European Commission (consisting of one commissioner from each of the 25 member-states) introduces a policy proposal either to the Council of the EU (a body of national ministers responsible for the policy area being addressed) or to both the Council and the European Parliament (EP, consisting of 785 members directly elected by the EU citizenry). After consultations and voting under a qualified majority system, which distributes votes among EU member-states roughly by their population sizes, the legislative bodies ultimately either adopt or reject the proposed policy (Thomson and Hosli, 2006: 12–19). Diverse interest groups may try to influence the policy proposal during the Commission's preparatory stage or during the decision-making stage by the Council and EP. The chapters in Thomson et al. (2006) apply various models of informal bargaining and formal decision-making procedures to 66 Commission proposals and 162 policy decisions from 1999 to 2001.

Most relevant to the policy network perspective are comparisons of three alternative two-stage models in which actors try to build winning coalitions by influencing others to support their policy positions (Arregui et al., 2006). Each model consists of an initial round of informal bargaining among actors holding different policy preferences, which may lead to some actors shifting positions over time, followed by a formal voting stage at which policies are adopted. The simple *compromise model* (Achen, 2006), which traces back to Thucydides' analysis of the balance of city-state power in the Peloponnesian War, treats governmental institutions as the key actors whose relative power determines policy outcomes. During informal bargaining, if actors' common policy interests are higher than their divergent preferences, some may change their positions on the basis of convincing information and persuasion. Then, using John Nash's solution to bargaining games, the policy decision can be predicted as a weighted average of actors' most-preferred policies, where weights are calculated as the product of actor power times policy salience. In the *challenge model* (Bueno de Mesquita, 2002), based on rational utility-maximizing decisions in noncooperative game theory, the actors experience a series of potentially hostile encounters during the informal bargaining stage. Coalitions try to compel other actors with divergent positions to change their policy preferences, using power dominance rather than persuasive arguments, before a policy decision is formally adopted. The *position exchange model* (Arregui et al., 2006) assumes that actors may willingly change their initial preferences to support other positions at the final voting stage, because actors engage in mutually beneficial exchanges across pairs of policy decisions (that is, log-rolling).

Analysts initially found that the challenge model made the most accurate predictions of decision outcomes (Bueno de Mesquita and Stokman, 1994), based on only 16 policy issues. However, when the three models were applied to the much larger dataset of 162 EU policy decisions, overall the simple compromise model made the fewest errors in predicting policy adoptions, although not statistically fewer than the position exchange model (Arregui et al., 2006: 151). The position exchange model's predictions were most accurate for more polarized policy issues; the compromise model led to poor predictions for dichotomous issues; and the position exchange model fared best under co-decision procedures requiring both unanimity and qualified majority voting. Although each model captured some aspects of policymaking overlooked by the others, the authors' main conclusion was that the compromise model best explained EU legislative processes, where information and persuasion are central and members willingly compromise their positions to reach common solutions (Arregui et al., 2006: 152).

## FUTURE DIRECTIONS FOR POLICY NETWORKS

Over the past three decades, policy network theory and research moved from a vague metaphor about the interconnectedness of political actors to the demonstration that formal network concepts, principles, and data analytic methods could yield important insights into network formation, structural configurations, collective actions, and policy outcomes. This concluding section offers my suggestions for some possible future directions.

Raab (2002: 581) presciently asked, "Where do policy networks come from?" and answered that macrostructures emerge from conscious micro-decisions about gaining access to resources. At present, researchers know far more about routine activities within established policy domains than about the origins, evolution, and transformation of policy networks. To explain how conditions in civil society generate new policy domains and interorganizational networks, analysts should painstakingly uncover the dynamic interplay between agency and structure through



historical time. Knoke (2004) proposed a provisional framework for the sociopolitical construction of national policy domains. He argued that "focusing events" and innovations, exemplified by the 9/11 terror attacks and fiber-optic surveillance technologies, disrupt routine arrangements. The Internet is a particularly disruptive political force (Rethemeyer, 2007), generating new streams of political money and communication patterns. Policy entrepreneurs reframe policy issues as requiring either a major restructuring or the creation of a new domain with sufficient resources to deal with those disruptions. The eventual outcome is "a new institutional configuration of actors, programs, and procedures for conducting routine policymaking on the reframed substantive issues" (Knoke 2004: 93). To test this model, longitudinal data would have to be culled from archival documents.

As in most social network research, theoretical rigor in policy network analysis lags behind its increasingly sophisticated methods of data analysis (Carlsson, 2000; Raab and Kenis, 2007). Yet opportunities abound for developing new concepts, propositions, and theoretical frameworks. For example, political capital is the conceptual analogue of social capital, defined as an ego actor's access to the resources held by its alters (Knoke, 2009). Organizations acquire political capital through favor trading, such as unions contributing money and campaign workers to party politicians in exchange for sponsoring legislation (Hersch et al., 2008). Although political capital, with few exceptions (Siegel, 2008; Sørensen and Torfing, 2003), has rarely been explicitly studied from a social network perspective, it could be incorporated into formal network decision models. Another possible line of theory construction could assimilate insights from the advocacy coalition framework (ACF) approach to policy subsystems (Weible and Sabatier, 2007). Like policy network analysis, ACF emphasizes that participants coordinate with allies who share policy preferences and that policy brokers mediate conflicts between opposing sides. ACF offers three mechanisms to explain policy changes – external shocks, a "hurting stalemate," and accumulation of scientific/technical information. A third theory development option is to forge closer ties to neoinstitutionalism, particularly by identifying how formal governance rules constrain the capacity of informal networks to achieve collective decisions (Blom-Hansen, 1997; Klijn and Koppenjan, 2006).

The ultimate sign that political network research has intellectually matured will be the emergence of a distinctive theoretical explanation able to account fully for the origins, evolution, and policy outcomes of policy domains at every level of analysis. That theory should be capable of generating novel propositions and testing them with precisely measured network concepts and longitudinal data analytic methods. Although these desiderata seem utopian at present, the policy network field showed such impressive gains over the past three decades that a breakthrough may occur sooner than anyone could reasonably anticipate.

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# 16

# Social Movements and Collective Action

Mario Diani

This chapter examines the relation between network analytical approaches and collective action from two distinct angles.[1] First, it introduces the contribution of network analysis to the "collective action" dilemma proper, namely, how embeddedness in networks affects people's decisions to engage in collective action. Next, it looks at the emergence of collective actors as the result of coalitions and, more broadly, purposively built ties. Here, the focus is on fields, constituted by the interactions between a multiplicity of organizations and individuals. I conclude by identifying a few areas for future research.

While students of social movements and collective action are increasingly adopting network concepts and perspectives in their work, their use of formal network analytical tools is still limited. Accordingly, this chapter also covers studies that do not follow the classic quantitative approach but focus instead on qualitative observation (a strategy now largely represented even at the annual Sunbelt conferences). Instead, it looks far more sparingly at broader theoretical discussions of the role of networks in social processes (for relevant examples, see Emirbayer and Goodwin, 1994; Gilchrist, 2000; Livesay, 2002; Fine and Harrington, 2004).

## SOCIAL NETWORKS AND COLLECTIVE ACTION

### *Individual effects*

Network processes have always been relevant for analysts of political behavior (Zuckerman, 2005). However, attention has become massive since the 1960s, when a new generation of scholar (often with an activist background) found themselves struggling with the inadequacy of previous accounts of collective action as driven by "personal pathology and social disorganization" (McAdam, 2003: 281). This prompted an intellectual movement that stressed how activism would normally be embedded in a rich texture of social relations.[2]

Several studies ensued, illustrating how involvement in extensive connections to people already active facilitated participation (Booth and Babchuk, 1969; Snow et al., 1980; Stark and Bainbridge, 1980; McAdam, 1986; Klandermans and Oegema, 1987; della Porta, 1988; Diani and Lodi, 1988; Opp, 1989; Opp and Gern, 1993; Oegema and Klandermans, 1994). Some suggested that networks mattered most for adhesion to groups that were somehow integrated in society, while adhesion to world-rejecting sects would be largely a matter for isolated individuals (Snow et al., 1980). For others, involvement in specific networks was most important for participation in demanding forms of activism, whether religious or political, whereas more individualistic, market-oriented, and/or less confrontational forms of behavior were more likely to occur without previous connections (Stark and Bainbridge, 1980; Diani and Lodi, 1988). Embeddedness in social networks not only mattered for recruitment, but it also discouraged leaving, and it supported continued participation (McPherson et al., 1992), with substantial bandwagon effects (Sandell, 1999).

Evidence on the important role of social networks in fostering participation has kept piling up