Social Movement Organizational Collaboration: Networks of Learning and the Diffusion of Protest Tactics, 1960-1995*

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December 15, 2011 *Word Count:* 13,073

* Direct written correspondence to the first author at the Department of Sociology, Stanford University, Stanford, CA 94304. This research was supported by grants to the second author from the National Science Foundation (SBR # 9709337, SBR # 9874000). We thank Doug McAdam, John McCarthy, and Susan Olzak for their role in collecting the data used in this paper. We also thank the members of the Organizational Behavior group at the Stanford Graduate School of Business and the members of the Organizations and Networks Workshop and Social Movements and Political Sociology Workshop at Stanford University for comments on earlier iterations of this paper. Finally, we thank Steve Barley, Linus Dahlander, Amir Goldberg, Woody Powell, Craig Rawlings, Jesper Sørensen, Kurt Sandholtz, Sidney Tarrow, and the anonymous reviewers for their suggestions on earlier drafts of this manuscript.

ABSTRACT

This paper examines the diffusion of protest tactics between social movement organizations (SMOs). Drawing on organizational learning theory, we argue that knowledge about specific tactics diffuses between social movement organizations via their co-engagement in protest events. Using a longitudinal network dataset of organizations and their participation in protest events between 1960 and 1995, we adapt novel methodological techniques for dealing with selection and measurement bias in networks analysis, which comes in two forms—1) the mechanism that renders some organizations more likely to select into collaborations than others, and 2) the notion that tactical diffusion is not a result of collaboration, but rather is an artifact of homophily or some form of indirect learning. We find that collaboration is indeed an important channel of tactical diffusion. We also find that SMOs with broader tactical repertoires are more likely to adopt additional tactics as a result of their collaborations with other SMOs, but only up to a point, beyond which such SMOs are spread too thin. Engaging in more collaborations also makes SMOs both more active transmitters and adopters of novel tactics. Finally, achieving some initial overlap in their respective tactical repertoires facilitates the diffusion of tactics between collaborating SMOs.

INTRODUCTION

Ties and associations between actors in social movements represent potential channels for information and resource flow (Obach 2004; Van Dyke and McCammon 2010). For example, social movement organizations routinely share information about protest tactics and strategies, newsworthy events of interest, sources of funding, and new ideas for framing movement goals. Indeed, the success of social movements often depends on the ability of individuals and organizations to coordinate within such networks of interdependence. Past research has shown that understanding the structure of these associations provides great insight into a variety of movement outcomes, such as civic associationism (Baldassari and Diani 2007; Putnam 1993), collective identity formation (Gould 1993), and issue salience (Bearman and Everett 1993).

One of the most common types of association between social movement organizations (SMOs) is that which is formed when two or more organizations participate in a protest event together. For example, Levi and Murphy (2006) describe how more than 200 organizations came together in November 1999 in Seattle to demonstrate against the World Trade Organization Ministerial Conference. Organizational collaborations such as these can be useful for the spread of information between social movement organizations.

When movement organizations collaborate, one of the main pieces of information that is circulated between them concerns the *tactics* used to press for some desired change (e.g., McAdam and Rucht 1993; Kreisi et al. 1995; Soule 1997, 2004; Givan, Roberts, and Soule 2010). It is striking, though, that scholars of social movements rarely examine how protest tactics diffuse via the direct ties formed when organizations work together on some movement action. Instead, studies of diffusion have largely relied on proxies for ties between organizations (e.g., Soule 1997; Andrews and Biggs 2006) or on qualitative evidence from a limited number of organizations (e.g., McAdam and Rucht 1993; Chabot 2002; Meyer and Whittier 1994)

Moreover, previous work that has examined diffusion and spillover between movement organizations has selected on the dependent variable by focusing on cases of *successful* diffusion (Soule 2004). To account for diffusion as an outcome of organizational collaboration, a proper research design must compare cases of both successful and unsuccessful diffusion.

Finally, previous work on tactical diffusion has not been able to discern whether tactics spread between organizations via their ties to one another *or* via pressures of homophily. That is, in much diffusion research, scholars usually are not able to say with certainty whether actors adopt novel behaviors through learning and copying from collaborators *or* that instead, actors that are similar to begin with would have adopted these behaviors irrespective of their contact with one another (VanderWeele 2011; Shalizi and Thomas 2011).

The goal of this paper is to resolve these shortcomings in the literature on the diffusion of protest tactics. We do this by analyzing tactical diffusion through the network formed via SMO collaboration in protest events. In particular, we begin by examining the claim that organizational collaboration leads to tactical diffusion. Next, we suggest that certain aspects of collaborations between movement organizations facilitate higher volumes of tactical diffusion than others. We examine these questions using a longitudinal network dataset of social movement organizations and their participation in U.S. protest events between 1960 and 1995. Adapting a novel matching estimator method, we find strong empirical support for the claim that organizational collaboration is an important channel of tactical diffusion between SMOs, distinguishable from homophily-driven diffusion. We also show that SMOs with broader tactical repertoires are initially more likely to adopt additional tactics as a result of their greater experience implementing novel tactics in the past. But, we show that this is only true up to a point when an SMO is simply overloaded and cannot adopt any additional tactics. We also present evidence that SMOs engaged in more collaborations are more active transmitters *and* more active adopters of tactics. However, using a matching estimator, we demonstrate that this positive relationship between the number of an SMOs collaboration ties and the volume of tactics it adopts from a collaborating SMO is a result of homophily-driven diffusion rather than influenced-based contagion. Finally, we show that similarity between their tactical repertoires facilitates the transfer of tactics between SMOs until a certain point at which they become too similar and have nothing new to offer one another.

THEORY AND HYPOTHESES

From early work on food riots (Bohstedt and Williams 1988) and plane hijackings (Holden 1986), to the study of the spread of sit-ins (Oberschall 1989; Morris 1981; Andrews and Biggs 2006) and shanty towns (Soule 1997), to the study of the cross-national transfer of tactics and frames within and across movements (e.g., McAdam and Rucht 1993; Chabot 2002; Roggeband 2010), it is clear that tactical diffusion is a topic that has captured the imagination and attention of social movement scholars. We contribute to this literature by asserting that the transfer of protest tactics between movement organizations engaged in protest collaboration can be understood as a process of *organizational learning*, similar to how firms adopt new capabilities from other firms through collaborations and strategic alliances.

Most research on inter-organizational knowledge diffusion is grounded in the *knowledge-based view of the firm*, which considers knowledge to be an asset necessary for organizational survival (Grant 1996; Cyert and March 1963; Penrose 1958).[1] Specifically, the knowledge-based

[1] Eisenhardt and Schoonhoven (1996) posit the resource-based view of the firm in contrast to transaction cost economics as a framework for understanding alliance formation among firms.

view of the firm emphasizes "the mechanisms for transfer [of a firm's resources and capabilities] across individuals, across space, and across time" (Grant 1996, p. 111). In effect, a firm's performance depends on its ability to both seek out and share knowledge across firm boundaries, often by interacting with other firms (March 1991; Cohen and Levinthal 1990).

According to Grant (1996), all firms possess some knowledge that is commonly accessible and meaningful to its members—for example, shared meaning in practices, the recognition of a firm's competencies, and other forms of symbolic communication. Like firms, a social movement organization is defined by its stock of knowledge about protest tactics, access to resources, and ideological positions (Edwards and McCarthy 2004). Thus, in the same way that firm capabilities are encoded as specialized knowledge, the tactics that are used by a given social movement organization can also be considered specialized know-how that can be potentially adopted by other SMOs. We therefore frame SMOs in the knowledge-based view of the firm.[2]

In our empirical context, we observe *collaboration* when two or more movement organizations participate in a protest event. While movement organizations can collaborate in ways that do not involve protest gatherings (e.g., fund-seeking, education), we treat co-protest as an important form of collaboration for two reasons. First, co-protest relates directly to our outcome variable, the diffusion of *protest tactics*. In protest events, SMOs showcase certain tactics as a means to advance some agenda or change. Thus, collaboration in such events allows SMOs to share information through observation or direct exchange. Second, Levi and Murphy (2006) call short-lived collaborations—such as those under study here—*event coalitions*, which

[2] We recognize that firms and social movement organizations differ in important ways as well. Namely, whereas firms are sensitive to the forces of market competition, competition for resources in social movement contexts is more ambiguous. That said, research has shown that frameworks that traditionally have been applied to firm-specific settings are relevant for explaining social movement phenomena as well (see review in Soule *forthcoming*).

are purposive, commitment-based, and foundations for resource-sharing. As such, we argue that co-protests are strong indicators of collaboration, and not simply inadvertent interactions that leave few imprints.

Hypotheses

Explanations for the diffusion of knowledge and capabilities between organizations tend to focus on two major areas: first, the features of the organizations themselves and second, aspects of their relationships with one another.[3] While most previous research has examined these explanations separately, we offer four hypotheses based on past research on inter-organizational knowledge transfer that pertain to both approaches.

Tactical repertoire diversity. We argue that an SMO's ability to adopt novel tactics depends on its history of engaging in different forms of protest activity. Specifically, some SMOs employ a more specialized tactical repertoire, while others use a wide array of different tactics (Levitsky 2007; Soule and King 2008). For example, in the late 1960s and early 1970s, the National Organization for Women (NOW) used a wide variety of protest tactics, ranging from disruptive strategies like demonstrations and other forms of civil disobedience, to more formal tactics such as lawsuits and petitions. In this same period, Women Strike for Peace (WSP) only organized rallies and demonstrations, making its repertoire much more specialized (Soule and King 2008).

To explore tactical repertoire diversity, we borrow from the logic of 'absorptive capacity', which refers to a firm's ability to implement resources obtained from beyond its own boundaries (Cohen and Levinthal 1990). Whereas March (1991) posed a firm's dual abilities to explore new

[3] A third major focus has been on the characteristics of the knowledge being transferred. Here, the organizational learning literature categorizes knowledge based on a number of dimensions (e.g. tacit vs. explicit, specific vs. general, etc; see Argote, et al 2003). While this is certainly important, our level of analysis focuses on collaboration between two SMOs, not the characteristics of the knowledge being transferred.

technologies and exploit its own capabilities as a trade-off, Cohen and Levinthal (1990) argued that firms that are better at exploitation also tend to be better at exploration. In effect, the ability to exploit a firm's existing resources is a necessary precursor to being able to explore and adopt novel capabilities from external sources. Empirical research largely confirms the advantages of absorptive capacity. For example, Szulanski (1996) observed that the lack of absorptive capacity prevented the transfer of management practices between firms, while Mowery et al. (1996) found that firms with broader technology portfolios were more likely to adopt the knowledge from their R&D partners.

We argue that social movement organizations behave similarly. Here, we liken a technology firm's absorptive capacity, often measured by the diversity of its technology portfolio, to an SMO's tactical repertoire, or what some have called the organization's "playlist" (Edwards and Marullo 1995, p. 915).[4] To some extent, the success of a social movement organization depends on its ability to make its tactics appeal to many participants; thus organizations often adopt new protest tactics that they perceive will have the potential to mobilize many people (Soule 1999; Soule 1997; Soule and King 2008). As is the case with other kinds of organizations, relevant prior knowledge can help SMOs to recognize the value of innovative tactics and apply them effectively.

Specifically, we argue that an SMO with a more diverse tactical repertoire has a broader knowledge base that will be relevant for successfully adopting a novel tactic from a collaborating SMO's repertoire. In addition, an SMO with a diverse tactical repertoire is better equipped to adopt novel tactics because having greater experience in doing so sharpens its ability to observe,

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[4] Important differences, of course, exist between the two. In our context, we are primarily concerned with the notion that technology capabilities and protest tactics both require some non-trivial level of expertise and resources in order to properly apply them. Note also that the term "repertoire," as we use it, is an organizational attribute. This is different from how Tilly's (1978) usage of the term, which instead was used to describe all of the tactics available for social movements in a given time and place.

learn, and apply new protest strategies, whatever they might be. In other words, the adoption of a new tactic is itself an organizationally-embedded skill (Argote 1999).

Recall from our example above that Women Strike for Peace (WSP) had a more specialized repertoire than the National Organization for Women (NOW). According to our data, in their first five years of protest activity, both NOW and WSP deployed demonstration-oriented tactics, such as marching and speechmaking. In addition, during its first five years, NOW also deployed tactics such as press conferences, leafleting, and other more formal means of protest. During the 1970s, NOW began adopting the so-called “insider” forms of protest (e.g., lawsuits, legal actions, petitions) that WSP could have adopted from its repeated collaborations with NOW. However, WSP, according to our data, never adopted any of these insider tactics. One possible reason for this is that WSP's limited repertoire did not equip it with the knowledge and resources to successfully implement insider tactics, especially the legal strategies, which required a set of capabilities that they might not have had at their disposal.

However, we also argue that there is likely some point beyond which SMOs with a diverse array of tactics simply cannot afford to adopt additional ones. We base this on research by Soule and King (2008), which shows that under certain conditions, protest organizations that employ broad and diverse tactical repertoires have lower rates of survival. This, they argue, is because each additional tactic in the organization’s quiver necessitates the deployment of additional resources. At some point, this becomes too costly for the SMO. As well, the tactics an organization chooses to use can also help to define the organization’s identity (Polletta and Jasper 2001). It is possible that repertoire expansion risks alienating some potential participants, who will have trouble making sense of the organization's identity or mission. Thus, while there may be a *desire or an impetus* to adopt the tactics of other SMOs, research shows that doing so may lower the chances of survival because it may mean that an SMO is depleting its resources by trying to do too much or that it is confusing its audience by not presenting a coherent identity (see also Zuckerman 1999; Levitsky 2007; Hsu 2006; Hsu et. al 2009).[5] As such, an SMO that is saturated with too many protest tactics might be unwilling to adopt any new tactics.

Hypothesis 1: The diversity of an SMO's tactical repertoire increases the number of tactics that it will adopt from a collaborating SMO, but only up to a certain point.

Centrality in the collaboration network. An organization's position within a collaboration or alliance network has also been shown to be a robust explanation of knowledge diffusion. Simply put, the more central an organization is within a collaboration network, the more access it has to flows of novel knowledge from other organizations (Rogers 1995). For example, Powell, Koput, and Smith-Doerr (1996) found that a biotech firm's centrality increased its growth and overall R&D activity largely because central firms had greater access to technological innovations via their many alliances. This result has been replicated in many contexts, including the wine industry (Giuliani 2007), the automotive industry (Zhao et al. 2005), and other high-tech sectors (Sorenson et al. 2006). Moreover, in many industrial clusters, knowledge transfer between organizations is, by design, a periphery-to-core process (Boari and Lipparini 1999).

Accordingly, we expect that the centrality of a social movement organization makes it more likely to adopt novel tactics. This is because more central organizations, by definition, engage in more collaboration and hence, have a greater likelihood of exposure to new tactics.

At the same time, we also expect centrally positioned movement organizations to be the

[5] The example of WSP is, again, instructive. Even though it had ample opportunity to adopt insider tactics from its repeated collaborations with NOW, WSP's identity as an activist group might have been threatened by engaging in these more formal means of protest.

most active exporters of tactics. In other words, the collaborative ties attached to central SMOs are not merely uni-directional conduits. A central SMO's multiple connections to other organizations represent not only potential sources of novel tactics, they also serve as links to a broad SMO audience to which it can spread its own forms of protest. We base our argument on Powell, Koput, and Smith-Doerr's (1996) observation that in order for biotech companies to become the early recipients of novel information, they must also actively engage in exporting novel resources. In other words, in order to receive news, organizations must make news. In the same spirit, central, high-profile SMOs are not simply consumers of new tactics; they also serve as hubs that facilitate the more widespread adoption of certain protest tactics.

Hypothesis 2a: The more central a receiving SMO in a social movement protest network, the more tactics it will adopt from a collaborating SMO.

Hypothesis 2b: The more central a sending SMO in a social movement protest network, the more tactics it will export to a collaborating SMO.

Tactical repertoire similarity. The similarity of the two actors to one another is another important determinant of successful diffusion (Soule 1997; Strang and Soule 1998). However, empirical research on the effects of *organizational similarity* (i.e., the extent to which two organizations are similar in terms of knowledge, culture, and capabilities) on diffusion has not produced a sound consensus. On one hand, knowledge transfer is most useful when the knowledge being diffused is non-redundant; this implies that the parties involved cannot be too similar. If two organizations overlap too much in terms of knowledge, they have little to learn from one another. As such, the greater their organizational similarity, the less likely they will experience successful knowledge transfer (Hedberg 1981; Burgleman 1983; Nystrom and Starbuck 1984).

Conversely, some research asserts that some degree of similarity between organizations is necessary for knowledge transfer to take place. Two organizations that are very different might have a great deal to gain from collaboration, but if their knowledge gap is too large, they might not be capable of adopting any potential transfer of knowledge (see Benford and Snow 2001 for a discussion of how cross-cultural differences can hinder the diffusion of social movements). Thus, some argue that organizations that have common areas of expertise tend to engage in greater volumes of knowledge transfer because they are better able to communicate with one another (Hamel 1991; Nonaka and Takeuchi 1995).

Either scenario is likely among social movement organizations. For instance, our data show that from 1968 to 1972, Students for a Democratic Society (SDS) and the Black Panthers took part in seven different protest events together. As a result of their first co-protest event in November 1968—at which point their respective repertoires had 15 protest tactics in common—the Black Panthers successfully adopted 5 novel tactics from SDS' tactical repertoire in the next two years. By their seventh co-protest event in 1972 though, they shared 33 protest tactics, and their collaboration generated no tactical diffusion. By contrast, during the first collaboration between the NAACP and the National Urban League in September 1963, they shared no common tactics, resulting in no transfers of tactics. However, by their fourth co-protest in 1974, they shared five tactics. After this event, the National Urban League successfully adopted two novel protest tactics from the NAACP's repertoire (see Measurement section for our definition of an SMO collaboration and what constitutes the successful adoption of a protest tactic).

Thus, some similarity between the tactical repertoires of two collaborating SMOs is necessary for the adoption of one SMO's unique tactics by the other. However, being too similar might make the adoption of novel tactics difficult because they have little to offer one another. As such, we argue that the tactical repertoire similarity between two collaborating SMOs boosts the volume of tactical transfers between them, but only initially.

Hypothesis 3: The similarity between of two collaborating SMOs' tactical repertoire increases the number of tactics that are transferred between them, but only up to a certain point.

RESEARCH DESIGN

Data Source: The Dynamics of Collective Action, 1960-1995.

The data for our analysis come from observing the activities of social movement organizations at protest events in the United States. We define a *protest event* as any type of activity that involves more than one person and is carried out with the explicit purpose of articulating a claim against (or expressing support for) a target.[6] Data on these events were drawn from daily editions of the *New York Times* (*NYT*) between 1960 and 1995 as part of the *Dynamics of Collective Action Project*.[7]

For a particular protest event to be included in the dataset, the event must have happened in the *public sphere* or have been open to the public. Thus, private or closed meetings by social movement actors are not included, but events within organizations (e.g., schools, churches,

[6] The project coded events associated with both sides of each claim or issue area. For example, the researchers coded both pro-war and anti-war/peace events. In all, they coded over 160 different claims articulated over this period.
[7] For more in-depth discussions of the data used here, see http://www.dynamicsofcollectiveaction.com.

private organizations) are included *if* they were open to the public.[8] In addition, because coders recorded information on all protest events regardless of the ideological or political biases of the actors involved, our protest data include events in which both left- and right-wing groups are represented. The results of our analysis are therefore generalizable to a broad range of movement sectors.

These data were collected in two stages. First, researchers read every page of all daily issues of the *NYT* from 1960 to 1995 searching for any mention of protest events. By avoiding the use of an index, they were able to find events that were embedded in articles on other (often related) topics. The second stage of data collection involved the content coding of each event, noting that a single article can discuss multiple events, each of which was coded separately. Aside from claims, project personnel coded information on event size and location, targets of the event, organizational presence, tactics displayed, and police presence. Intercoder reliability for most items were consistently at or above 90% agreement. In all, our database contains 23,624 distinct protest events reported to have occurred in the U.S. between 1960 and 1995.

Newspaper Data

Newspapers are one of the most widely used sources of data in research on collective protest because they allow for the collection of large numbers of events, emphasizing the dynamic activities of social movements. However, there are two chief types of possible bias identified in several recent reviews on the use of newspaper data in the study of collective action (Oliver and Myers 1999; Oliver and Maney 2000; Earl et al. 2004; Ortiz, Myers, Walls, and Diaz 2005; Davenport 2010; Andrews and Caren 2010): *description bias* and *selection bias*. Description bias

[8] The data cannot speak to changes in protest that takes place outside of the public sphere, such as changes in movements that develop within corporations. As well, the dataset does not include organized labor events (e.g., strikes) because the dynamics of labor events are likely different from the rest of the protest sector. Note that if an organized labor event morphed into a public protest event, it would be coded as a distinct event, however.

refers to how well the newspaper reporter describes what actually happened at a given event. Most assessments conclude that the "hard facts" of the event are generally accurately covered by newspapers. Because we draw on "hard facts" of the events (as described in detail below, we use data on tactics used and organizations present), and not on "soft facts" (such as opinions), we are confident that the accuracy of our data is acceptable.

Selection bias refers to the fact the protest events covered by a given newspaper are not a random sample of all protest events that took place. As such, more intense events (e.g., larger, more violent, injurious), and events with "significant actors" (e.g., celebrities, those defined as powerful and/or culturally legitimate) and close proximity to the newspaper are more likely to be selected for coverage (Ortiz et al. 2005; Davenport 2010). To deal with selection bias, unlike many prior studies, researchers reviewed *daily* editions of the newspaper and identified *all* collective action events that were reported, after which research assistants content-coded each event. This strategy helped to reduce the selection bias that might be introduced by indexing methodology and day-of-the-week rhythms in coverage (Earl et al. 2004; Ortiz et al. 2005).

Nevertheless, the issue remains that newspaper coverage of collective protest tends to concentrate on movement organizations that can access extensive resources (Andrews and Caren 2010). The implication for our dataset is that we might have more complete data on the collaborative behavior of large and/or national SMOs like NAACP, but missing data on smaller organizations that do not engage in resource-intensive protest activity. While this is an important issue to consider when interpreting our results, we are somewhat comforted by the fact that an earlier study using a 10-year piece of these same data (Larson and Soule 2009) showed that only 28% of the organizations in the data were listed in the *Encyclopedia of Associations*. In fact, this study used this measure of inclusion in the *Encyclopedia* as a proxy for the organization's level of resources. While not perfect, it is indicative of the fact that not all of the SMOs in our analysis are large and resource-rich enough to be included in this directory of national organizations.

MEASUREMENT AND VARIABLES

Constructing the Network

The unit of analysis in our study is the social movement organization *dyad-instance*, by which we mean the presence of a pair of SMOs at a given protest event.[9] For example, if three SMOs are mentioned in an article on a protest event, there are three possible dyads of SMOs.[10] In addition, because we are interested in the flow of tactics from one SMO to another, we distinguish between two possible directions of diffusion within each dyad. In one scenario, we define one SMO as the possible *sender* of tactics and the other SMO as the *recipient*; in the second scenario, vice-versa.[11] Therefore, in a given protest event, there are $2\binom{n}{2}$ dyad-instances,

[9] Event coders recorded the name(s) of organization(s) listed in the *NYT* article as participating in the protest event. The codesheet allowed for up to four organization names to be listed. Note that coders were instructed not to limit this to what we might typically define as a "social movement organization." In addition to these, they also coded names of churches and other non-profit organizations whose members often participate in public protest events, but which we might not always define as social movement organizations. For example, churches or non-profits that participate in protest events are included. Like Soule and King (2008), by SMO, we actually refer to *protest organizations*; that is, any organization that participated in public protest. In the dataset of 23,624 events, organizations were listed at 42% of the events, and more than one organization was listed at 9% of the events.

Critical readers might be concerned about the importance of SMO collaboration given that only 9% of events report more than one SMO being present. As we note above, protest event collaboration is only one way that SMOs collaborate. We expect that knowledge transfer happens through other forms of collaboration as well.

Because coders could only list the names of up to four movement organizations for each event, we are likely undercounting co-presence ties. Coders, however, could record the number of SMOs present at a given event, and in only 193 events (out of 23,616) do coders report more than four SMOs participating. Because this constitutes such a small percentage of our events, we do not expect this to impact our results. We therefore include the count of SMOs at the event as a control variable in our models as a precaution.

[10] For example, if the NAACP, CORE, and SNCC were present at a given protest event, the three possible dyads are 1) NAACP-CORE, 2) NAACP-SNCC, and 3) CORE-SNCC.

[11] In the example from the previous footnote, we observe both NAACP → CORE and NAACP ← CORE.

where *n* refers to the number of SMOs present at a protest event. In total, we identified 9,700 dyad-instances in our dataset.[12]

The SMO dyad-instance is the proper unit of analysis, following past approaches to examining networks of organizational learning, which emphasize the features of the collaborating organizations and their ties as explanatory factors of diffusion (Kenny et al 2006). The dyad-instance captures both mechanisms in an SMO collaboration at a given point in time.

Based on these dyad-instances, it is possible to construct a snapshot of an SMO *diffusion network* in which the nodes are the SMOs and the directed ties between SMOs indicate tactical diffusion between one SMO in the dyad to the other. In addition, we can also construct a *co-presence network* based on the joint participation of two or more SMOs at protest events. Here, the nodes likewise refer to individual SMOs, but ties represent the co-presence of two SMOs at a protest event. The key conceptual distinction is that in the the co-presence network, ties represent the existence of relationships between SMOs, which serve as *possible* channels of diffusion (Podolny 2001), while ties in the diffusion network signal *actual* instances of tactical diffusion between SMOs. In some studies, this fundamental difference is blurred (Mizruchi 1996; Powell et al. 2005), wherein merely the existence of some relational—or even non-relational—tie between SMOs is taken to be evidence of diffusion.

To illustrate this difference, consider figure 1's visualization the Student Peace Union's co-protest ego-network from 1960 to 1968.[13] The ego-network of a given SMO refers to the

[12] One major data cleaning issue was that coders recorded the names of the organizations involved in protest events under different (mis-)spellings and conventions (e.g. NAACP vs. The National Association for the Advancement of Colored People). Using these recorded names would misrepresent some organizations as two or more unique organizations. We applied a name disambiguation algorithm to address this issue and hand checked multiple random samples of organization names to confirm the algorithm's accuracy. After resolving the different naming and spelling conventions, we found that the initially recorded 5,253 unique organization names represented 4,814 actually unique organizations. We describe the name disambiguation process in an online supplement to this paper, which can be found at www.dynamicsofcollectiveaction.com.
[13] These were the only years in which our data contained any collaborative activity for the Student Peace Union.

network formed by itself and the protest organizations with which the SMO has collaborated during those eight years. Figure 2's visualization displays these same nodes in the same positions, only now the directed ties represent successful tactic transfers between collaborating SMOs (the following sections explain what constitutes a successful tactic transfer). That figure 2's diffusion network is much sparser than figure 1's co-protest network indicates that many collaborative ties between SMOs do not serve as channels of tactical diffusion.

[FIGURE 1 HERE]

[FIGURE 2 HERE]

Dependent Variable

The principal outcome under study is the diffusion of tactics across SMOs. In operationalizing this outcome, we address two major measurement issues in past research on diffusion. First, Soule (2004) emphasizes the need for researchers to identify precisely *what is being diffused* (see also Lee and Strang 2006). Second, Strang and Soule (1998) argue that in research on the diffusion of innovations, it is often unclear what *successful* diffusion entails.

Concerning the first issue (i.e., what is being diffused), we view each SMO as possessing a repertoire of tactics that it has employed in past protest events (Soule and King 2008). This repertoire is akin to an organization's stock of specialized knowledge, similar to a technology company's patent portfolio. *Tactics* refer to the types of behavior that characterizes the protest activity at a given event. Examples include picketing, boycotting, and vigils. For each event, coders were allowed to identify up to 4 from a list of 62 unique tactics.[14] Thus, we construct an

[14] See Appendix A for a list of all possible tactics. It is possible that this artificial limit did not allow coders to capture the true diversity of tactics at some protest events. Therefore, if we construct SMO tactical repertoires using events with undercounted tactics, we might bias our results. To assess the impact of this measurement error, we estimated our models using a version of the protest event dataset in which we only counted the first 3 tactics coded in each event (and a version in which we only counted the first 2 tactics). The results from these models (available from the first author) were similar to the models we present here, which suggests that if coders were allowed to code more than 4 tactics for each event, we would likely not observe a substantial change in our findings.

SMO's repertoire on a given date by collecting the unique tactics that were coded in the events in which the SMO had taken part in the past five years. We use this five-year window to account for the fading of organizational memory.[15]

The second issue, defining successful diffusion, requires more nuance. In research on technological innovation diffusion, diffusion is often measured by observing whether firm A happens to cite any of firm B's patents in firm A's own patent applications. In social movements, successful diffusion can refer to the appearance of tactics in one context that were used previously in a different context. Thus, we identify diffusion by observing whether, after two SMOs participate in a protest event together, a focal SMO adopts any novel tactics (not previously used by the focal SMO) from its collaborator's tactical repertoire.

Specifically, consider the collaboration of SDS and the Black Panthers on August 3, 1969 outside Penn Station in New York at a demonstration to protest charges brought against rioting prisoners at Fort Dix. Both SDS and the Black Panthers had participated in protest events in the past and thus had their own tactical repertoires. While their respective repertoires had some overlap (e.g., speechmaking and sloganeering), SDS had employed tactics in its past protests that the Black Panthers had not (e.g., vigils and walk-outs). If at some future event after the Penn Station protest, the Black Panthers used tactics that were part of SDS' non-overlapping repertoire, then we observe the successful adoption of a tactic by the Black Panthers from SDS.

To rule out obvious sources of measurement error, we also include the following restrictions to our measure of diffusion. First, because we base our diffusion measure on observing past tactical repertoires, we only include the SMO dyad-instance, A→B, if each SMO took part in protest events that occurred before the event in which they participated together.

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[15] Using a cumulative count without a 5-year window, however, does not alter the results in our final models. In addition, using as small as a 2-year window also has little effect. We use a 5-year window to be consistent with our window for tie-decay which is also 5 years (as described below in our discussion of measuring centrality).

Second, we only look at B's protest events two years after A and B's current co-protest event to preserve temporal proximity and constant conjunction.[16] Third, to rule out other sources of contagion (such as collaboration with another protest organization), we only count B's use of A's past tactics if *B's use occurs at an event in which B is the only SMO mentioned* and if *this is the first event in which B has used the tactic since its collaboration with A*.[17] Thus, to test our hypotheses, we take as our dependent variable the number of tactics transferred from a potential sending SMO to a potential receiving SMO in a given dyad-instance. It is nevertheless possible that a receiving SMO adopts novel tactics from sources other than protest event collaboration—we deal with this issue below in our matched dyad analysis.[18]

Independent Variables

Hypothesis 1 concerns the curvilinear relationship between an SMO's absorptive capacity and the number of novel tactics it successfully adopts from a collaborating SMO. Since absorptive capacity is commonly measured using the diversity of a firm's technology or patent portfolio in research on innovation diffusion, we measure the absorptive capacity of an SMO as the diversity of an SMO's set of past tactics. Specifically, we count *the number of unique tactics that a receiving SMO has employed in protest events in the past five years*.[19]

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[16] Robustness checks indicate, however, that looking at future events using windows of up to 10 years do not dramatically alter our results.

[17] Another issue in observing the use of tactics in protest events two years after A and B were co-present at an event is that A might have adopted a tactic from B in an event that was not reported by the *New York Times*. As a result, our dataset would incorrectly show no tactical diffusion from A to B. In fact, in many of our dyad-instances, we observe no tactical diffusion within two years because at least one of the organizations in a dyad-instance does not participate in another event in the two years following their collaboration. We therefore also estimated models using only dyad-instances in which *each member* of the dyad-instance participates in a protest event within the next two years. We find that our results are robust to this more conservative test (available from the first author).

[18] Andrews and Biggs (2006) show, for instance, that proximity to broadcast outlets promoted the diffusion of sit-ins among groups in the American south. Similarly, organizational learning theory suggests vicarious learning as an alternative to learning through direct ties to other organizations (Manz and Sims 1981; Lee and Strang 2006).

[19] As a robustness check, we also calculated and included a Herfindahl diversity index for an SMO's past tactical repertoire, which generated similar results. We display our results using the count variable because the interpretation of its units are more intuitive. We only count tactics from protests in the past five years to account for the fading of organizational memory, which is consistent with the repertoires used for our dependent variable.

Hypothesis 2a argues that network centrality increases the number of claims adopted by a potential receiving SMO while hypothesis 2b posits that centrality also increases the number of tactics exported by a potential sending SMO. To obtain a dynamic measure of centrality, we accumulated monthly snapshots of the SMO co-presence network. To construct the monthly evolution of the network, we added SMOs as nodes and their co-presence ties to the network chronologically based on the events in our dataset. In addition, we remove any ties from a given snapshot of the network that are older than 5 years to account for tie-decay (Fleming et al. 2007, p. 452). Because we only have data for events starting in 1960, we do not remove any ties between January 1960 and January 1965. We obtain the number of co-protest ties a focal SMO has in a given month and year, or the *degree centrality of the receiving and sending SMOs* (Freeman 1979) using the network snapshot from the month and year in which we observe that particular SMO dyad-instance.[20]

Hypothesis 3 suggests that as the similarity between two SMOs' tactical repertoires increases, the volume of tactical transfers between them increase only until a certain point. We measure tactical repertoire similarity by calculating the Jaccard similarity between the two sets of unique tactics belonging to the SMOs in a dyad-instance using the following formula:

$$\frac{|A \cap B|}{|A \cup B|} \tag{1}$$

A is the set of past tactics for one SMO in a dyad-instance, and B is the set of past tactics for the other SMO. Jaccard similarity is a common measure of the similarity of two sets of elements when the number of elements in each set is not always equal. We also construct the same measure for the similarity of their past claim repertoires as required in our network sample selection model (see Methods section for further discussion).

[20] We also compared our models using eigenvector centrality and betweenness centrality (Freeman 1979; Bonacich 1972) and found no substantial change in our results.

Control Variables

In addition to the variables outlined above, protest event-level characteristics can also influence tactical diffusion in a given SMO dyad-instance. If the event is perceived as successful, a receiving SMO might be more likely to adopt a sending SMO's tactics (Soule 1999). We measure protest success by using event-level variables that reflect the "buzz" the event generated in the press. Namely, we use a dummy variable for whether the event was reported on page one of the *New York Times* and the number of paragraphs in the newspaper article on the event.[21]

The use of some tactics also incurs certain costs at protest events (e.g., physical attacks, building take-overs). For example, because disruptive or violent tactics tend to be associated with repression and responses from other groups, we control for whether police were present, and whether counterdemonstrators were present. In addition, we observe whether authorities responded negatively to the event with dummy indicators of whether police used force at the event, deaths or injuries to protestors were reported, and arrests were made. These factors arguably signal that the tactics used might be too costly to employ in the future.

We also control for the reported duration of the event (in days), whether property damage or violent activity was reported at the event, and the number of protestors and SMOs present at the event. In addition, we include year and state fixed-effects to control for the era and location of the event. We also control for the number of possible tactics that can be transferred from the sending SMO to the receiving SMO to account for the notion that some SMOs simply have more tactics to offer other SMOs. Similarly, we include the number of previous events in which the

[21] We are not arguing that these are measures of a successful *outcome* of a protest event in the traditional sense–i.e. that they imply that some collective goods have been won by the SMO (Amenta and Caren 2004). Rather, we argue that these measures are indicators that the event garnered more attention by the media and relevant bystanders.

sending and receiving SMOs have participated—here, our concern is that diffusion success may simply depend on the size, level of activity, and/or newpaper coverage of an organization.[22]

Also, because some tactics, simply by nature, might be more likely to be transferred than others, we control for two different types of tactics. First, we control for the presence of disruptive tactics in the set of tactics that could be transferred from one SMO to the other in a dyad-instance (see Appendix A). Second, we control for whether any of these transferable tactics were among the top three most-used tactics in the year of the dyad-instance's protest event. We include these two variables to account for the possibility that tactics that are either more dramatic or more popular might be more readily adopted than others.[23]

Additionally, we include the number of times the two members of a dyad-instance have collaborated in protest events in the past. We also control for movement industry by classifying a dyad-instance as part of, for example, the women's movement if the event reported women's rights-related claims (we do the same for the civil rights, peace, and environmental movements). Summary statistics for all variables displayed in our models are reported in Table 1.

[TABLE 1 HERE]

Descriptive Analysis

Tactical diffusion activity appears to be concentrated in the SMOs involved in the civil rights movement of the 1960s (Figures 3 and 4). The average number of tactic transfers within a given dyad-instance (based on our definitions of the unit of analysis and outcome variable above)

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[22] As a robustness check, we also included variables for the number of states in which the sending and receiving SMOs have participated in protest events in the past, and the number of years since each SMO's first observed protest event. We observed no major changes in our results; in addition, we found that these variables were highly correlated with the number of previous events in which each SMO participated ($r \geq .87$). Also, because our event data only go back to 1960, we likely miss the protest events of those SMOs that were established before 1960. To account for 1960 as a censoring value, we include dummy variables for whether the sending and receiving SMO's first protest event took place in 1960.

[23] We also estimated our models taking as the dependent variable as the number of disruptive tactics transferred. These models, which do not differ dramatically from our main results (available from first author).

for civil rights protest events is almost four times the amount among women's rights and environmental movement dyad-instances (Figure 3). Tactical diffusion among peace movement SMO dyads was almost as frequent as it was in the civil rights movement, perhaps because of large “New Left”organizations, such as SDS, that were active in both movements (Sale 1974). In addition, diffusion activity was most robust in the 1960s and early 1970s, which again, reflects the heavy involvement of civil rights and anti-war movement organizations (figure 4).[24] Clearly, tactical diffusion is not only an industry-dependent, but also an era-dependent phenomenon, which is precisely what the literature on protest cycles suggests (Tarrow 1998).

[FIGURE 3 HERE]

[FIGURE 4 HERE]

In addition, our data also reveal that throughout the period under study, the most used protest tactics were not necessarily the same tactics that were diffused between SMOs. For instance, Figure 5 shows that demonstration-related tactics, such as holding signs and processions were common since 1960, while tactics such as lawsuits became popular after 1975.[25] By contrast, while some of these common tactics were likely to be diffused between SMOs (e.g., speechmaking and lawsuits), SMO co-protest also channeled other less common tactics such as bank-ins and building take-overs in some periods. Again, while our focus is on the characteristics of SMOs and their relationships with one another as explanations for tactical

[24] The top 10 most active SMOs that send tactics to other SMOs in our data are (in order) NAACP, CORE, SDS, SCLC, SNCC, NOW, Student Peace Union, Black Panthers, Women's Strike for Peace, and Committee for Non-violent Action. The top 10 most active SMOs that adopt tactics from other SMOs are SNCC, CORE, NAACP, SDS, SCLC, Black Panthers, People's Coalition for Peace and Justice, City-Wide Committee For Integrated Schools, Student Peace Union, Young Lords.

[25] Meyer and Boutcher (2007) argue that one enduring outcome of the civil rights movement and the emergence of the “rights frame” was a toolkit of legal action that spilled over to other movements following the 1960s. Thus, this descriptive finding about lawsuits makes sense. We might attribute this result to the rise of the legal profession during the period under study. American Bar Association statistics show that the yearly number of JDs and LLMs granted from 1963 to 1995 almost quadrupled (American Bar Association 2011).

diffusion, there are likely tactic-specific features that affect diffusion outcomes, the investigation of which are beyond the scope of this paper.

[FIGURE 5 HERE]

METHODS

If we only use our sample of dyad-instances described above, we would run the risk of improperly estimating our models because of two major forms of selection and measurement bias. First, we would generate results based only on those SMOs that selected into collaborative ties. In other words, we would not observe the outcomes of those SMOs that could have, but did not, select into our dyad-instances. We refer to this as *nework sample selection bias*.

Second, by analyzing only those collaborations that we know to exist, we cannot be sure that the diffusion we observe is actually a result of collaboration. Consider the scenario in which we observe diffusion from The National Urban League (NUL) to NAACP as a result of collaboration. If NUL had collaborated with a different organization, such as CORE—which is very similar to NAACP—and we observe tactical diffusion from NUL to CORE, we might conclude that diffusion had nothing to do with collaboration, but rather the characteristics of NAACP and CORE. In other words, NAACP and CORE would be likely to both collaborate with NUL and adopt NUL's tactics regardless of whether or not either organization actually collaborated with NUL. We call this *homophily-driven diffusion bias* (Aral et al. 2010). Neither of these forms of bias is unique to our data; rather they are both endemic to any network dataset used to study diffusion.[26] We describe our methods for dealing with both forms of bias in turn, and then turn to a discussion of our results of the models designed to take each into account.

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[26] Studies of disease outbreaks or some other contagion-related phenomena using network data are especially vulnerable to these two types of bias (Eubank 2004; Balthrop et. al 2004).

Network Sample Selection Bias

Empirical research has dealt with sample selection bias for non-network datasets by estimating models that account for the probability of being selected into the sample being analyzed. In these datasets, some selection mechanism usually censors the value of the dependent variable for a subset of observations. Heckman's (1979) resolution of this issue was to first model the selection process, the results of which could then be used to calculate an additional parameter to be included the desired outcome model to correct for selection bias.

We conceive of *network sample selection bias* similarly. Because our dependent variable, by definition, reflects the volume of tactics transferred in an SMO dyad-instance, we cannot observe any tactic transfers between non-collaborating SMOs. However, for every A → B dyad-instance, there exists a list of SMOs other than B with which A could have collaborated. Using only our observed dyad-instances, we bias our results because we use only a small subset of observable dyad-instances. Moreover, we are all but certain that collaborating SMOs vary in some underlying characteristics from non-collaborating SMOs.

To account for this form of selection bias, we adapt Heckman's framework to our empirical context. First, we account for selection into a dyad-instance by using a probit model to predict the probability that a randomly chosen pair of SMOs will actually collaborate. To do this, we construct a dataset of *possible* dyad-instances. Specifically, for every actual dyad-instance, A → B, we compile a list of A → C potential-dyad instances, where C is another active SMO. We define C to be 'active' if we observe protest events in which C has participated both before and after the protest event attached to the original A → B dyad-instance. In total, we collected 2,155,845 possible dyad-instances, including those that actually occurred in our data.

We then estimate a probit regression model using these 2,155,845 dyad-instances predicting the probability of the dyad-instance actually occurring—we refer to this as the *selection model*. From this selection model, we calculate the inverse Mills ratio for each dyad-instance, which we include in an *outcome model* predicting the number of tactic transfers using only actually occurring dyad-instances (these total 9,700).

For our outcome model, we used negative binomial regressions because our dependent variable is both a count and overdispersed. We also include fixed-effects for the year in which a dyad instance's co-protest event took place (or would have taken place).[27] Greene (1995) adapted Heckman's sample selection model to event-count models, showing that including the inverse Mills ratio from the initial probit regression model in the outcome count models generates unbiased and efficient estimates. In essence, the estimation procedure mirrors Heckman's two-step approach for accounting for sample selection bias in linear regression models estimated by OLS. The final model, from Greene (1995), has the following derivation:

$$p(z_i = 1) = \Phi(\gamma' w_i) \tag{2}$$

$$f(y_i \mid z_i = 1) = negbin(\lambda_i, \theta) \tag{3}$$

$$\log \lambda_i = \beta' x_i + \rho M_i \tag{4}$$

$$M_i = \frac{\phi(\gamma' w_i)}{\Phi(\gamma' w_i)} \tag{5}$$

In equation (2), which describes the first-step selection model, $p(z_i)$ refers to the probability of a potential dyad-instance being an actual dyad-instance, and $\gamma' w_i$ is the linear combination of the set of coefficients and vector of covariates for every *possible* dyad-instance *i*. Equations 3 and 4

[27] While our dyad-instances can be transformed into a longitudinal dataset of dyads, estimating an event history model would not be appropriate for our context. First, we do not hypothesize about any time-dependent processes associated with the outcome variable or any time-varying effects; indeed, we control for era using yearly fixed-effects. Second, our dependent variable is the volume of tactics transferred from one SMO to another, which is a metric variable that cannot captured in an standard event-history model.

describe the selection model for the 9,700 *actual* dyad-instances (for the full derivation of the negative binomial model, see Long 1997, p. 245). θ is the overdispersion parameter, while *log* λ_i, refers to the predicted number of tactic transfers in a given actual dyad-instance *i*. Note that this model also includes an estimated coefficient the inverse Mills ratio, M_i (Equation 5).[28]

Our first-stage probit model includes the following independent variables: the number of past tactics for the receiving SMO, the degree centrality of both the sending and receiving SMOs, their tactical repertoire similarity, a dummy indicator of whether the sending and receiving SMOs have ever participated in a protest event with another same SMO in the past (common neighbor), and their claim repertoire similarity. The exclusion restriction of Heckman's sample selection model states that the selection model must include at least one independent variable that is not included in the outcome model. Moreover, this independent variable must be related to process of selection but not the dependent variable in the outcome model. Past research has suggested that indirect social ties and shared ideological and issue frames tend to bring social movement coalitions together. The common neighbor and claim similarity variables reflect these two factors. In addition, we argue that these variables are less related to tactical diffusion than they are to predicting collaboration between SMOs (this is, however, an untestable proposition under Heckman's framework).

Homophily-Driven Diffusion Bias

[28] We also estimated zero-inflated negative binomial models to account for excess zeros. While Vuong tests gave evidence that our zero-inflated models were better fitting, we obtained similar results. We present the estimated coefficients of the negative binomial models because we do not theorize about the differences between the processes that increase the number of tactic transfers from 0 to 1 and those that increase the overall volume of tactic transfers. In addition, we estimated logistic regression models with the same specification using as our dependent variable whether or not there were any tactic transfers in a given dyad-instance. Because most of our main effects do not obtain under these models, we show that our results are generally not driven by the increase from 0 to 1 tactic transferred.

In a collaboration between NAACP and NUL, we assume that NAACP influences NUL by transferring tactics to NUL through their co-protest tie. However, tactics can be diffused between SMOs absent any collaborative ties. Thus, we cannot be sure whether the tactical diffusion from NAACP to NUL is a result of their co-protest tie or is related to some unobserved characteristic that influences both NUL's adoption of novel tactics from NAACP and its likelihood of collaborating with NAACP. Moreover, we are uncertain whether NUL's adoption of certain tactics comes from its collaboration with NAACP or from some other source, like a news broadcast or other unobserved ties. In essence, we ask the counterfactual question, had NAACP not collaborated with NUL, would we still observe tactical diffusion between them?

Without accounting for this homophily-driven matching, factors that positively influence adoption or diffusion tend to be overestimated in studies of diffusion within dyads (Aral et al. 2010). Aral, et al (2010) deal with this issue by using a propensity-score matching technique that compares a matched dyad A → C to an existing dyad, A → B, wherein each dyad is predicted to be equally likely to occur. In other words, B and C must match closely on a vector of node-level characteristics. The difference between the dyads, though, is that whereas the A → B dyad actually occurred, A → C is hypothetical. Thus, if the diffusion of tactics in A → B is just as likely as in the hypothetical A → C, then we would have little evidence that the actually-occuring tie between A and B has any effect on diffusion.[29]

We adapt this matching strategy to our SMO network dataset. For every A → B dyad-instance, we look for another SMO, C, that has never collaborated with A, but matches B along four dimensions. First, for each A → B dyad-instance, we construct a list of active SMOs which have participated in protest events in the same states as B. From this list of matches, we then

[29] To be sure though, as described in the control variables section of this paper, we include a variable in our models to control for whether any of the successfully diffused tactics in a given dyad-instance was among the top 3 most popular tactics employed in all protest events in a given year.

select those SMOs that participated in their first protest events within at most, two years of B's first protest event. Finally, for each of the remaining matches, we evaluate the Jaccard similarities between their (B and the potential match) past claim and tactical repertoires. We take as B's best match the SMO that has the maximum value for the sum of these two Jaccard similarities.[30] C and B, therefore, match based on geographic orientation, issue and tactical similarity, and organizational age.

Through this process, we identify approximately 2,402 actual dyad-instances in which there exists a best possible match for Bm, giving us 4,804 total dyad-instances for our matched pair sample. One half of these dyad-instances represent actual collaborations, while the other half do not. In essence, we construct a quasi-experimental design in which we apply a treatment—collaboration—half of our dyad-instances, using the other half as a control group.[31]

We estimate negative binomial models with the same specifications as those in our network sample selection analysis, only we include a treatment dummy variable indicating whether a given dyad-instance actually occurred. If influence-based contagion exists, the coefficient of our treatment dummy should be positive and significant. We interact the treatment dummy with our independent variables to assess whether they affect tactical diffusion in the collaborating SMO dyad-instances differently than in the matched, non-collaborating SMO pairs.

RESULTS

Network Sample Selection Bias: Negative Binomial Regression Analysis

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[30] The mean difference between the year of earliest protest event for B and its best match C is equal to 1.12 years. The mean Jaccard similarity of their tactical repertoires is .56 while the mean Jaccard similarity of their claim repertoires is .47. We ignore any matches in which the Jaccard similarity of their tactical repertoires is below .4.

[31] See Table B2 in Appendix B for a comparison of key variables for the treatment and control dyad-instances.

Table 2 reports the coefficients of our negative binomial regression models. Model 1 in Table 2 contains only control variables, Model 2 adds the receiving SMO's set of unique past tactics and its squared term to test hypothesis 1, Model 3 includes the receiving and sending SMO's degree centrality to assess hypotheses 2a and 2b, and Model 4 includes tactical repertoire similarity and its squared term to test hypothesis 3. All models include the inverse Mills ratio calculated from the (probit) selection model (Table B1, Appendix B).

In our first step probit model, having a common neighbor facilitates the formation of a collaborative tie between SMOs. However, according to Table B1 (Appendix B), only the squared term of issue similarity is significant. It is possible that the relatively high correlation between these two exclusion restriction variables ($r = .54$) accounts for this result.

Turning to Model 1 in Table 2 (control variables only), the coefficients for the variables measuring event-specific features are largely in their expected directions although not all are statistically significant. In general, event characteristics that signal success in terms of garnering attention (e.g., page one reports) increased tactical transfers, while event characteristics that signal the costs of certain tactics (e.g., injuries and deaths to protesters) diminished tactical diffusion. Previous co-presence increases tactical diffusion, perhaps because SMOs that are more familiar with one another are also better able to learn from each other. Repeated collaborations tend to increase the *attribution of similarity* between the organizations, something that McAdam, Tarrow, and Tilly (2001) argue should increase the likelihood of diffusion.

[TABLE 2 HERE]

Model 2 shows support for hypothesis 1 (Table 2). The greater the number of tactics that a receiving SMO has used in the past, the more tactics it will adopt from a collaborating SMO ($p < .001$). The negative coefficient of the squared term, though, indicates that this positive effect diminishes after a certain point (*$p < .001$*). Figure 6 (upper-left quadrant) shows that the positive effect of repertoire size peaks when an SMO's tactical repertoire contains approximately 25 unique tactics.[32] Beyond this point, having additional unique tactics depresses an SMO's ability to adopt new tactics via its collaborations, perhaps because it would be spreading itself too thin.[33]

[FIGURE 6 HERE]

Recall that hypothesis 2a states that more central SMOs will *adopt* a greater number of tactics, and hypothesis 2b predicts that more central SMOs also *send* more tactics. Both hypotheses also receive support from the results in Table 2 (Model 3). A standard deviation increase in the degree centrality of a receiving SMO increases the number of tactics it will adopt by approximately 8% (*$exp(.080) = 1.083, p < .001$*). The same standard deviation increase in the degree centrality of the sending SMO boosts the number of tactics it exports to the receiving SMO by 13% (*$exp(.123) = 1.131, p < .001$*). This suggests that while more central SMOs tend to be more active adopters of novel tactics, being central has an even greater positive effect on an SMO's ability to be a more active exporter of its own protest tactics.

Consider, again, an example involving SDS, a highly-collaborative movement organization. According to our data, on November 6, 1968, SDS and the Black Panthers collaborated in a violent demonstration, denouncing the results of national and local elections in Newark, New Jersey. By this date, SDS had already collaborated with 61 other organizations. The result of the Newark event was that whereas the Black Panthers adopted 18 of the protest

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[32] According to our data, the maximum number of tactics observed in an SMO's repertoire in a given dyad-instance is 56. Additionally, the number of past tactics exceeds 25 (our inflection point) for the receiving SMO in 11% of the dyad-instances in our data.

[33] 25 tactics might seem high, but note that multiple tactics can be used at a single event (see Appendix A for list of tactics). For example, in May of 1967, at a Peace protest event in New York City, protesters affiliated with the Committee for a SANE Nuclear Policy made speeches, hung wreaths, participated in marches, and wore black clothing to symbolize mourning for soldiers killed in Vietnam (Phillips 1967, p. 44). That said, we find that when SMOs reach a tipping point of around 25 tactics in their repertoire, they appear to be saturated and thus unable to adopt any new tactics.

tactics from SDS' repertoire (which the Black Panthers had not previously used), SDS adopted just 2 tactics from the Black Panthers' repertoire (which SDS had not previously used).

By contrast, consider the diffusion activity of a less well-connected movement organization. On August 30, 1967, the Episcopal Peace Fellowship joined the National Mobilization Committee to End the War in Vietnam at an anti-war rally in Lower Manhattan, New York. The Episcopal Peace Fellowship had a far less active record of movement collaboration compared to SDS, having only worked with five other movement organizations in the past according to our data. The result of the Manhattan event was that the National Mobilization Committee adopted only four of the tactics used previously by the Episcopal Peace Fellowship, while the Episcopal Peace Fellowship adopted none of the tactics employed in the past by the National Mobilization Committee. In short, being highly collaborative raises an SMO's profile as a sender of tactics more than as an adopter of tactics.

The results also show support for hypothesis 3, which suggests that the tactical repertoire similarity between two collaborating SMOs increases the diffusion of tactics between them, but only up to a certain point. In Model 4, the coefficient of the tactical repertoire similarity variable is positive and significant ($p < .001$), while its squared term is negative and significant ($p < .001$). According to the model's predictions visualized in Figure 6, the positive effect of tactical repertoire similarity peaks at a Jaccard similarity of .5, which implies that anything beyond a moderate level of tactical similarity tends to reduce diffusion activity.

Consider the collaboration between the United Automobile Workers and Common Cause in an April 1978 boycott against organizations headquartered in states that had not ratified the Equal Rights Amendment. The United Automobile Workers had primarily engaged in strike-related protest tactics in the past, while Common Cause pursued less disruptive strategies like leafleting and lobbying. In fact, their only common past tactic was speechmaking—accordingly, our data indicates that the Jaccard similarity between their tactical repertoires prior to their collaboration was only .09. As such, we only observed no transfers of tactics between these two organizations likely because their tactic specializations were too distant from one another.

Similarly, in the many protest collaborations between the NAACP and SCLC, we observe almost no tactic transfers between them after 1966. This is likely a result of the two organizations being too similar in terms of their tactical repertoires. Again, our results suggest that maximizing the tactical diffusion between two protest organizations entails striking a balance between overlapping and non-overlapping knowledge.

Homophily-Driven Diffusion Bias: Matched Dyad Analysis

Our suspicion regarding the above analysis is that what we observe as diffusion, which we attribute to contagion, is actually an artifact of homophily. That is, we cannot be sure that some organizational characteristic that makes some organizations more likely to collaborate with one another also influences their adoption of new tactics. By creating a sample of actually collaborating SMO dyad-instances and a matched sample of dyad-instances that did not occur but were just as likely to occur, we can more confidently rule out sources of contagion other than our observed collaborations.

The estimated models in Table 3 indicate that collaboration matters to diffusion and that our results are largely not driven by homophily. Because our treatment (collaboration) dummy variable is positive and significant (Model 1, Table 3), we have have evidence of contagion-based diffusion. Thus, if we estimated our models using only a sample of actual dyad-instances, homophily and contagion (collaboration) would both account for the predicted tactical diffusion, but we would not be able to distinguish between the two effects.

[TABLE 3 HERE]

The interactions in these models serve as a means to show the direction of bias in our coefficients if we did not distinguish between homophily-driven and influence-based diffusion. For example, for non-collaborating (untreated) dyad-instances, the curvilinear effect of receiving SMO's tactical repertoire diversity is much shallower than that for actually collaborating dyad-instances (see Figure 7 for a visualization of the results in Table 3). Therefore, had we simply analyzed a dataset of actual dyad-instances, not distinguishing homophily-driven from influence-based diffusion, our results would have likely underestimated the positive, curvilinear effect of past tactical repertoire on tactical diffusion.

[FIGURE 7 HERE]

Similarly, the degree centrality of the receiving SMO has a positive effect on homophily-driven diffusion ($p < .001$, table 3, Model 3), but the non-significant interaction term indicates no effect on influence-based diffusion. This result suggests that had we estimated our models only using actually occurring dyad-instances, we would mistakenly infer that more central SMOs also adopt more tactics from their collaborators. The result from Model 3 indicates that a more central SMO tends to adopt tactics from SMOs with which the central SMO is likely to collaborate, *regardless of whether or not they actually collaborate*. In other words, we would observe this positive effect of the receiving SMO's degree centrality on tactical diffusion for any dyad-instance, real or hypothetical. From the receiving SMO's perspective, that centrality has a positive effect on an SMO's volume of tactic adoptions is likely due to some organizational characteristic that is associated with both its likelihood of taking part in a given dyad-instance *and* its propensity to absorb novel tactics. As such, we cannot say with certainty that more central SMOs are more active adopters of novel tactics, and therefore interpret our evidence for hypothesis 2a with caution.

On the other hand, the degree centrality of the sending SMO positively affects both homophily-driven and influence-based diffusion. Here, the positive and significant interaction effect indicates that without separating these two forms of diffusion, we would underestimate the positive effect of the sending SMO's degree centrality on tactical transfers. Thus, while having more collaborative ties enhances an SMO's ability to export tactics from other SMOs, these more abundant collaborative channels do not appear to facilitate the adoption of new tactics from more central organizations.

Finally, we have evidence that tactical repertoire similarity affects homophily-based diffusion differently than influence-based diffusion. Specifically, collaboration amplifies the curvilinear effect of tactical repertoire similarity. Thus, while we would still observe that repertoire similarity initially boosts and then diminishes tactic transfers between a pair of SMOs, the effect would again be underestimated if we used a sample of only actually-occuring dyad-instances. Together, these results provide a strong test in validation of what had previously been a mere assumption. Collaborative ties formed by taking part in a protest event together matter to the diffusion of protest tactics between movement organizations.

DISCUSSION AND CONCLUSION

This paper examines the network of SMOs engaged in public protest in the United States, between 1960 and 1995. We conceptualize a tie between two organizations as their collaboration in a protest event, and we asked whether such ties led to the diffusion of tactics between the component organizations. Our findings are straightforward and remarkably robust. In particular, we have shown that collaboration between protest organizations is an important channel of tactical diffusion and that this is a genuine network effect – not, as some might wonder, a symptom of homophily between the organizations present at a protest event or an artifact of the kinds of organizations that might select into collaborations with others.

On top of this important finding, we also find that the characteristics of the organization *and* the characteristics of the relationships between organizations are both important to explaining tactical diffusion. We show that organizations with a richer, more diverse tactical repertoire were more likely to adopt new tactics, but that this was only true to a certain point. Organizations with too many arrows in their quivers simply could not absorb additional tactics. We also show that organizations that were more central in this network were much more likely than peripheral organizations to send tactics to other organizations. These central SMOs were also somewhat more likely to be recipients of tactics from their collaborators. Finally, we show that tactical diffusion is more likely between organizations with some base level of tactical repertoire similarity, but that when the repertoires of two organizations become too similar, this dampens the flow of tactical innovation.

This paper contributes to sociological theory and research in a number of important ways. First, we advance social movement theory by drawing on insights from research on *organizational learning.* In particular, we argue that tactical diffusion is influenced by *both* the characteristics of individual SMOs *and* certain features of the relationships between SMOs. As such, our paper also contributes to organizational learning theory in that we more clearly articulate the relationship between these two dominant explanations of inter-organizational knowledge transfer.

At a substantive level, we also contribute to the growing literature on social movement coalitions. The bulk of the empirical research here has conceptualized coalitions as a dependent variable; that is, it has studied coalitions as an outcome of other movement related phenomena (McCammon and Campbell 2002; Van Dyke 2003; Clemens and Minkoff 2004; Levitsky 2007; Park 2008; also see contributions in Van Dyke and McCammon 2010;). While important, the extant work on coalitions has rarely asked questions about what *effects* coalitions have on some other movement process.[34] Our research identifies and explores tactical diffusion as an important outcome of coalition formation.

Third, we make several methodological contributions by developing two novel techniques for dealing with selection bias in network datasets—a persistent and pernicious problem in empirical network research. Specifically, we address two forms of selection and measurement bias in our statistical analysis: 1) the mechanism that renders some organizations more likely to select into collaborations than others, and 2) the notion that tactical diffusion is not a result of collaboration between two organizations, but merely an artifact of a matching process entailed in the formation of collaborations. Using these techniques, we are not only more confident about our findings for tactical diffusion, but we also hope that these methods can be adopted by others who struggle with the same kinds of biases endemic to network data.

Fourth, at a broader level, this research joins a chorus of other scholars who have successfully sought to bring organizational theory to bear on social movement processes (e.g., Soule 1997; Minkoff 1995; Davis et al. 2005; Soule and King 2008; Davis et al. 2008; Soule 2009). Because our data are on the entire social movement sector of the United States (between 1960 and 1995, as reported in the *New York Times*), we answer a call issued by movement and organizations scholars for more research conducted at the field, industry, and sector-levels (e.g., Davis et al. 2005; Soule *forthcoming*).

[34] There are some notable exceptions. Researchers have looked at how coalitions impact recruitment processes (Jones et al. 2001), levels of protest (Larson and Soule 2009), choice of targets (Diani and Forno 2002), and subsequent organizational foundings (Murphy 2005).

Finally, this research answers a call by Diani (2010) for more quantitative research on networks of social movements, especially that which examines networks over long periods of time. Because of data availability, such research is still in its infancy (although see Bearman and Everett (1993) for an approach similar to ours). This had led some scholars to observe that most movement network analysts use network imagery and ideas, but are unable to obtain network data and use quantitative analysis (Park 2008). Thus, our paper helps to fill a gap in the literature on social movement networks.

We conclude with some suggestions for future research that might help to address specific limitations in our work. First, because we only examine the diffusion of protest tactics, we cannot generalize our findings to the diffusion of other important movement resources like collective action frames. However, future scholars can take our results as a baseline for investigating the spread of other important movement-related information via network-analytic approaches. Second, our longitudinal network contains only one type of tie—collaboration at a protest event. While this is one important relationship between protest organizations, network approaches have emphasized the varying roles of multiple types of affiliations (Padgett and MacLean 2005; Powell et al 2005). We therefore encourage movement scholars to evaluate how different types of ties can facilitate diffusion between protest organizations. Finally, while we note the issue in our descriptive tables (tables 3 and 5, in particular), in our main analysis, we treat different tactics as equally likely to be diffused. It is possible, however, that costly and disruptive tactics, for example, are less likely to be transmitted through SMO collaborations. We invite further investigation into how diffusion outcomes might vary based on the nature of the tactics under study. Ultimately, we hope our work encourages scholarship that can further articulate a view of inter-organizational networks as both outcomes and instigators of movement phenomena.

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Table 1. Summary statistics for selected variables used in sample selection negative binomial regression models

Variable	Full Sample (n = 2,155,845) Mean	SD	Selection Sample (n = 9,700) Mean	SD	Definition
Dependent Variable					
Co-presence	.004				1 = SMOs are present at protest event together
Number of tactics transferred			.269	(1.154)	Number of unique tactics transferred from one SMO to another
Independent Variables					
Common neighbor	.037				1 = Both SMOs in dyad-instance have collaborated with a common other SMO in the past 5 years
Past tactics, receiving SMO	3.971	(5.691)	6.900	(13.324)	Number of unique tactics used by the receiving SMO in protest events in the past 5 years
Degree centrality, sending SMO	7.727	(16.175)	9.625	(19.600)	Number of SMOs with which sending SMO has participated in protest events in past 5 years
Degree centrality, receiving SMO	2.034	(5.583)	9.625	(19.600)	Number of SMOs with which receiving SMO has participated in protest events in past 5 years
Tactic repertoire similarity	.061	(.178)	.134	(.297)	Jaccard similarity of receiving and sending SMO's sets of unique past tactics
Control Variables					
Transferable tactics			4.969	(10.921)	Number of tactics in the sending SMO's repertoire that the receiving SMO could adopt
Previous events, sending SMO	13.899	(61.326)	16.948	(66.760)	Number of protest events in which sending SMO has participated in the past
Previous events, receiving SMO	3.327	(14.954)	16.948	(66.760)	Number of protest events in which receiving SMO has participated in the past
Previous co-presence events			1.768	4.517	Number of past protest events in which sending and receiving SMOs have participated together
Duration of event			3.545	(24.850)	Number of days for which protest event lasted
Violence			.068		1 = Violence reported at protest event
Counter-demonstrators			.086		1 = Counter-demonstrators present at event
Police			.229		1 = Police reported present at protest event
Page One			.173		1 = Protest event report ran on page one of *New York Times*
Paragraphs in report			17.794	(16.217)	Length of protest event report in paragraphs
Police force			.165		1 = Police force reported at protest event
Injuries or deaths			.039		1 = Injuries or deaths reported at protest event
Property damage			.032		1 = Property damage reported at protest event
Number of SMOs			3.892	(2.541)	Number of SMOs counted at protest event
Movement industry					
Civil Rights			.493		1 = Civil Rights claims at protest event
Peace			.222		1 = Peace/Anti-war claims at protest event
Women's Rights			.196		1 = Women's Rights claims at protest event
Environmental			.136		1 = Environmental claims at protest event

Note: Also included in the models are the number of protestors at an event (protest size) and dummy variables for whether within this set of transferable tactics, 1) any can be characterized as disruptive, and 2) any are among the three most used tactics in the year in which the dyad-instance occurred.

Table 2. Estimated coefficients in sample selection negative binomial regression models with year and state fixed-effects

	Dependent Variable: Number of tactics transferred				
	Negative Binomial Regression Models				
Variable	Model 1	Model 2	Model 3	Model 4	Model 5
Independent Variables					
Past tactics, receiving SMO		1.078***			.393***
		(.064)			(.080)
Past tactics, receiving SMO (sq.)		-.678***			-.304***
		(.049)			(.063)
Degree centrality, sending SMO			.123***		.114***
			(.017)		(.036)
Degree centrality, receiving SMO			.080*		-.119**
			(.056)		(.051)
Tactic repertoire similarity				2.194***	1.899***
				(.093)	(.106)
Tactic repertoire similarity (sq.)				-1.788***	-1.610***
				(.091)	(.099)
Controls Variables					
Transferable Tactics Count	.030***	.035***	.028***	.035***	.047***
	(.004)	(.004)	(.007)	(.004)	(.006)
Transferable Disruptive Tactics Dummy	2.045***	1.813***	2.054***	1.227***	1.222***
	(.115)	(.111)	(.114)	(.115)	(.116)
Transferable Popular Tactics Dummy	.181*	.952***	.336***	1.133***	1.216***
	(.116)	(.125)	(.123)	(.113)	(.121)
No. past events, sending SMO	.042*	-.031	-.002	-.032	-.016
	(.029)	(.029)	(.031)	(.027)	(.029)
No. past events, receiving SMO	.014*	-.009	-.038***	.008	-.025**
	(.010)	(.011)	(.013)	(.011)	(.013)
Sending SMO's earliest protest event in 1960 (Dummy)	.256*	.052	.232	-.176	-.110
	(.141)	(.135)	(.147)	(.129)	(.134)
Receiving SMO's earliest protest event in 1960 (Dummy)	.534***	-.006	.153	.082	-.275*
	(.157)	(.153)	(.171)	(.152)	(.161)
Duration of event	.001	.001	.001	-.001	-.001
	(.002)	(.002)	(.002)	(.002)	(.002)
Violence reported	-.135	-.022	-.121	.075	0.076
	(.205)	(.194)	(.202)	(.192)	(.189)
Counter-demonstrators	.105	.119	.105	.276**	.238**
	(.140)	(.132)	(.139)	(.131)	(.129)
Police	.152	.110	.127	.075	.104
	(.158)	(.152)	(.158)	(.151)	(.148)
Page One	.230**	.317***	.238**	.190**	.195**
	(.118)	(.114)	(.117)	(.113)	(.111)
Paragraphs	.034	.015	.033	.016	.021

	(.039)	(.037)	(.038)	(.036)	(.035)
Arrests	.052	.047	.133	-.031	-.037
	(.403)	(.370)	(.394)	(.354)	(.349)
Police force	.230*	.151	.267*	.113	.075
	(.173)	(.165)	(.172)	(.164)	(.161)
Injuries/deaths	-.364*	-.310*	-.419**	-.435**	-.407**
	(.225)	(.212)	(.222)	(.208)	(.205)
Property damage	.090	.264	.086	.407**	.428**
	(.253)	(.239)	(.248)	(.233)	(.229)
Previous co-presence events	.064***	.061***	.031***	.023***	.031***
	(.006)	(.007)	(.008)	(.006)	(.008)
Number of SMOs	.009	-.027*	.021	-.056***	-.051**
	(.019)	(.021)	(.018)	(.023)	(.023)
Sector: Civil Rights	-.009	-.128*	.010	-.083	-.092
	(.101)	(.099)	(.100)	(.097)	(.096)
Sector: Peace	.069	-.116	-.030	-.126	-.205
	(.192)	(.187)	(.192)	(.189)	(.188)
Sector: Women's Rights	.431***	.269**	.461***	.173*	.132
	(.194)	(.128)	(.131)	(.128)	(.128)
Sector: Environmental	.716***	.743***	.728***	.448**	.539***
	(.194)	(.199)	(.196)	(.201)	(.204)
Inverse Mills ratio	.248***	-.094**	.369***	-.155***	-.128**
	(.051)	(.056)	(.053)	(.055)	(.061)
Intercept	-3.004***	-2.032***	-3.282***	-2.162***	-2.076***
Year fixed-effects	Yes	Yes	Yes	Yes	Yes
State fixed-effects	Yes	Yes	Yes	Yes	Yes
Theta (Overdispersion parameter)	.249***	.322***	.260***	.382***	.406***
Log-Likelihood	-3758	-3610	-3735	-3465	-3444
df	111	113	113	113	117
AIC	7739	7448	7696	7155	7122
N	9668	9668	9668	9668	9668

* $p < .05$, ** $p < .01$, *** $p < .001$ (one-tailed tests)

Note: Protest size as a categorical variable was included in all models, but omitted from this table. 32 dyad-instances were removed from analysis in our models because of missing data.

Table 3. Estimated coefficients in negative binomial regression models for matched sample with year and state fixed-effects

Variable	Dependent Variable: Number of tactics transferred			
	Model 1	Model 2	Model 3	Model 4
Independent Variables				
Treated	.238***	-.016	.070	.183**
	(.073)	(.100)	(.083)	
Past tactics, receiving SMO		1.066***		
		(.027)		
Past tactics, receiving SMO (sq.)		-1.186***		
		(.377)		
Degree centrality, sending SMO			.073*	
			(.055)	
Degree centrality, receiving SMO			.333***	
			(.122)	
Tactic repertoire similarity				3.203***
				(.234)
Tactic repertoire similarity (sq.)				-2.958***
				(.252)
Interactions				
Treated × Past tactics, receiving SMO		.518*		
		(.336)		
Treated × Past tactics, receiving SMO (sq.)		-.500*		
		(.334)		
Treated × Degree centrality, sending SMO			.157***	
			(.045)	
Treated × Degree centrality, receiving SMO			-.082	
			(.099)	
Treated × Tactic repertoire similarity				1.102***
				(.304)
Treated × Tactic repertoire similarity (sq.)				-.907***
				(.314)
Intercept	-1.981***	-1.990***	-1.871***	-1.881***
Control Variables included	Yes	Yes	Yes	Yes
Year fixed-effects	Yes	Yes	Yes	Yes
State fixed-effects	Yes	Yes	Yes	Yes
Theta (Over-dispersion parameter)	.631***	.670***	.657***	.923***
Log-Likelihood	-2992	-2969	-2976	-2723
df	96	100	100	100
AIC	6180	6143	6157	5649
N	4804	4804	4804	4804

* p < .05, ** p < .01, *** p < .001 (one-tailed tests)

Note: Control variables (other than event-specific variables because the sample here includes matched, non-occurring dyad-instances) were included in all models, but omitted from this table.

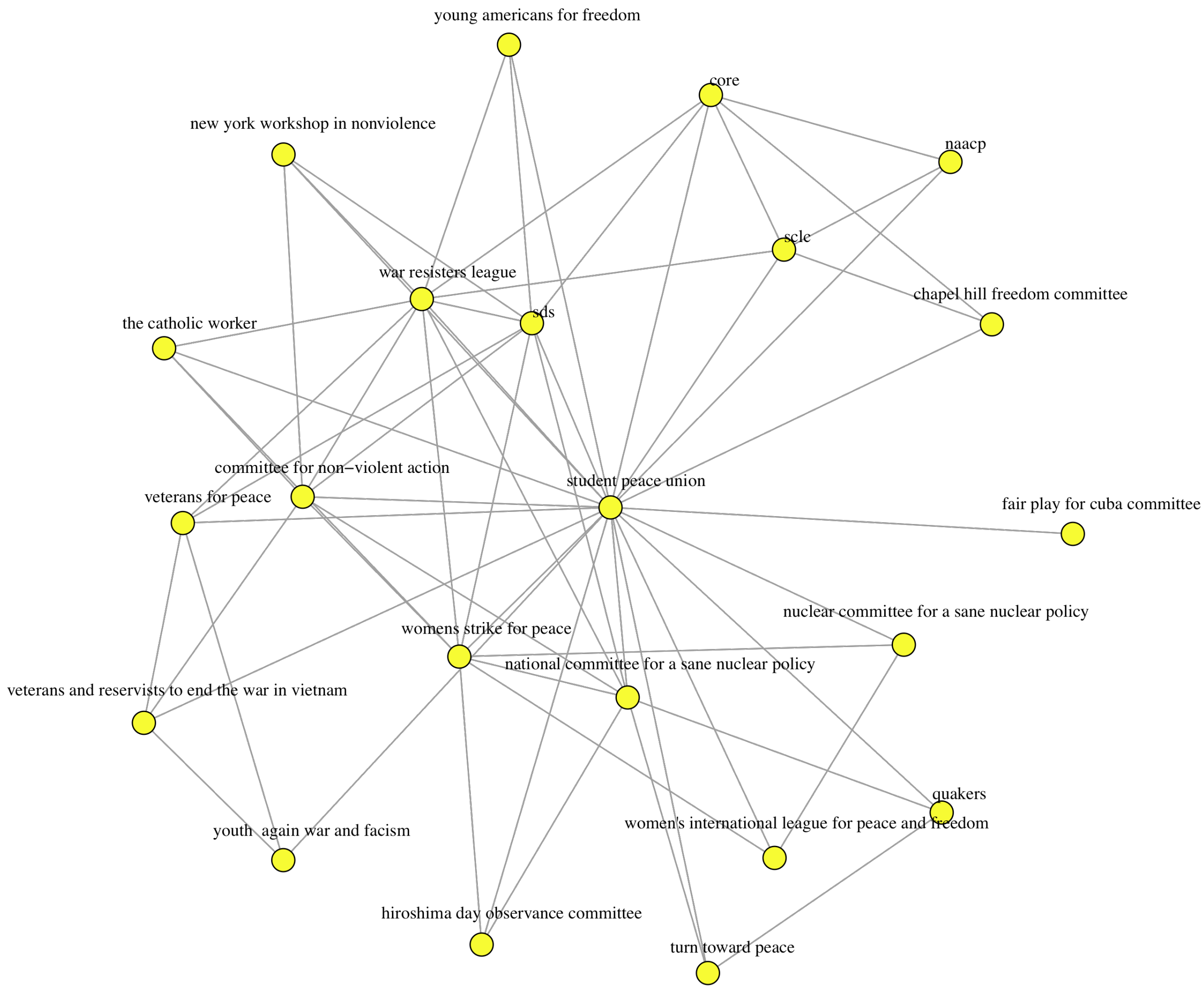

Figure 1. The collaboration ego-network of the Student Peace Union, 1960 – 1968

Note: Ties between any two SMOs denote that they participated in a protest event at some point during this time period.

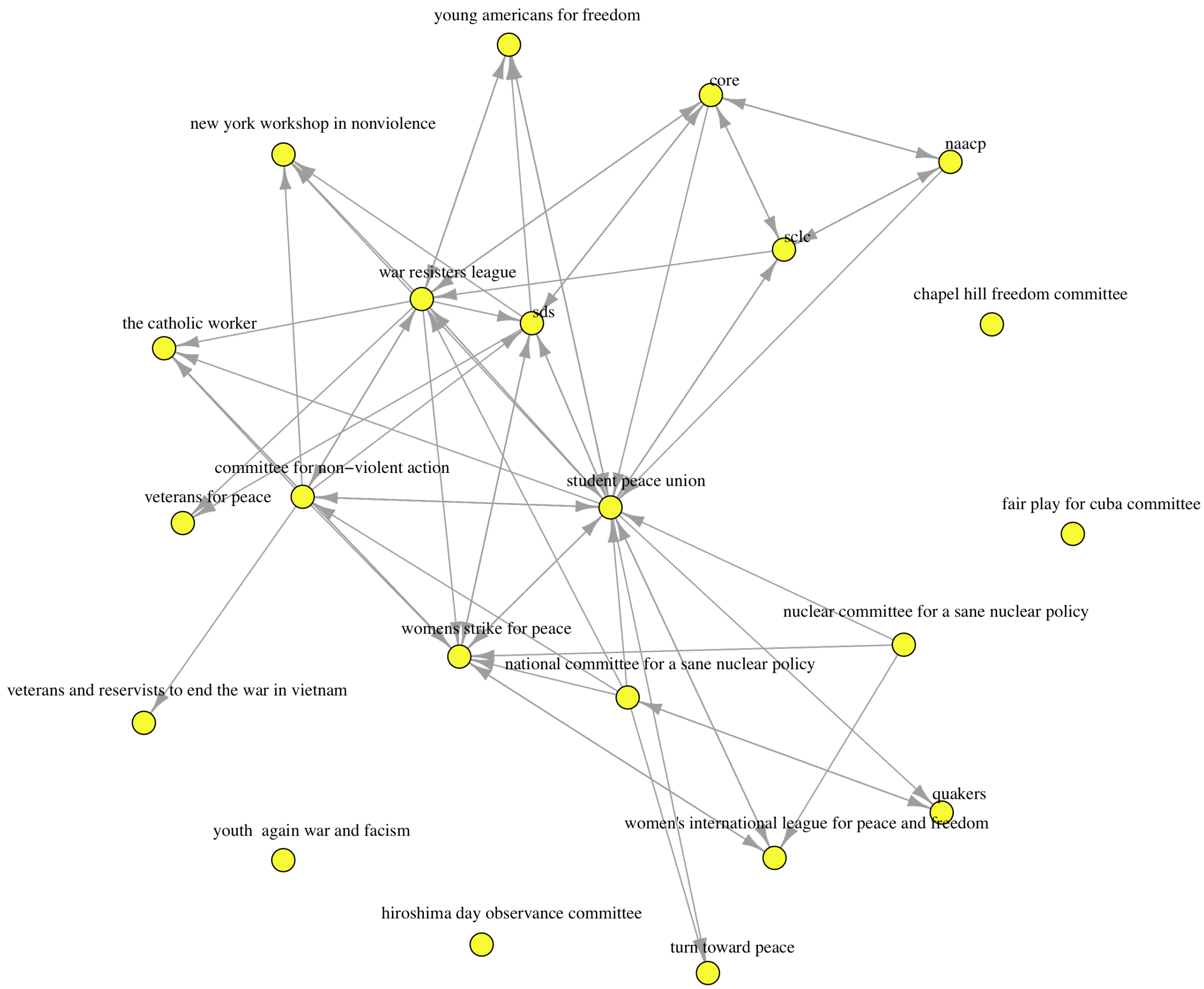

Figure 2. Tactical diffusion amid the collaboration ego-network of the Student Peace Union, 1960-1968

Note: Directed ties between SMOs indicate whether at least one tactic was successfully diffused between collaborating SMOs.

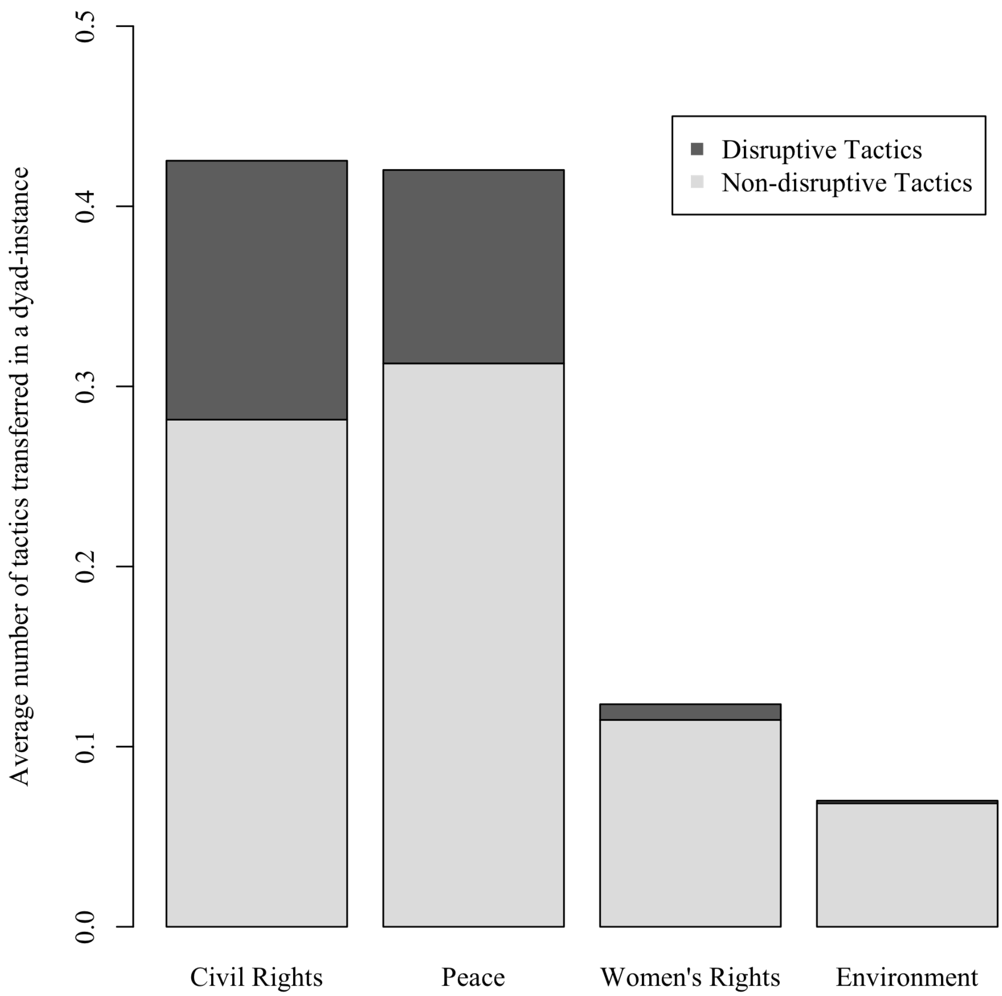

Figure 3. Average number of tactics (disruptive and non-disruptive) transferred in an SMO dyad-instance by selected movement sectors

Note: See Appendix B for list of disruptive and non-disruptive tactics.

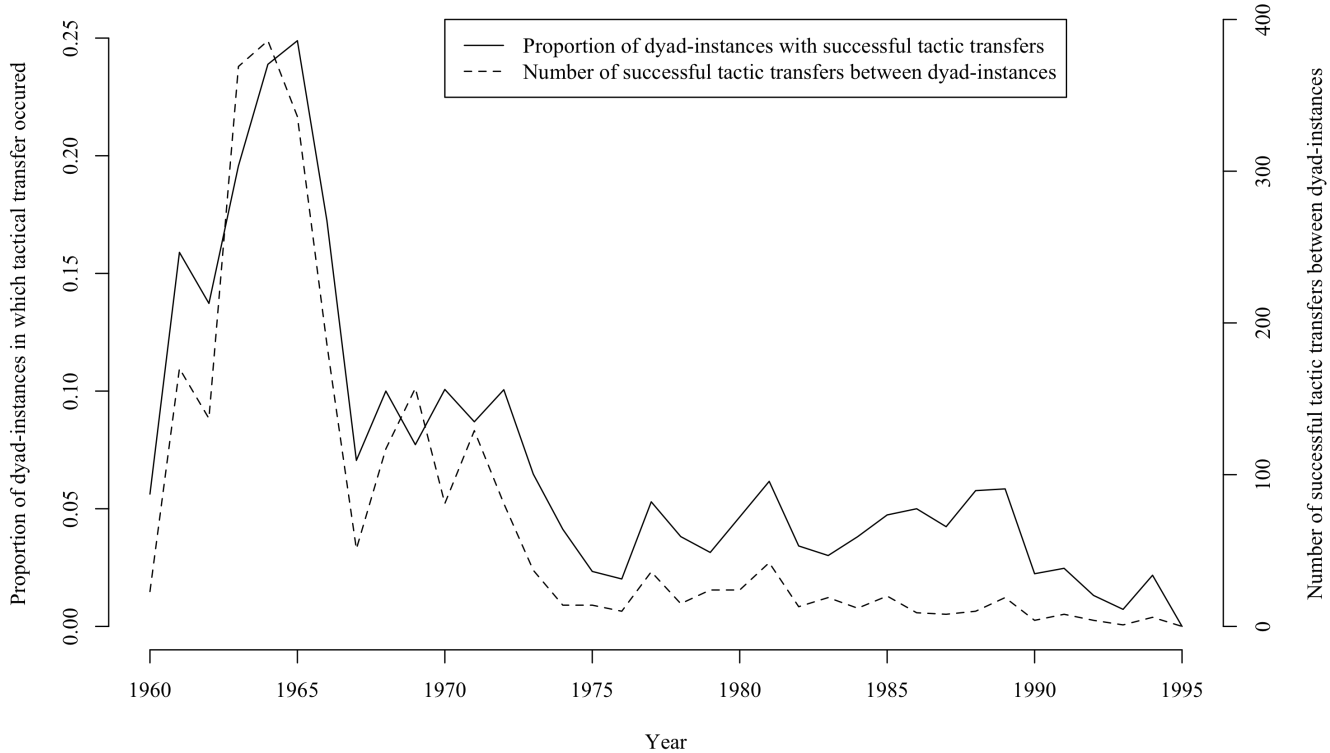

Figure 4. Annual volume of tactical diffusion among SMO dyad-instances, 1960-1995.

Note: Yearly snapshots of the collaboration network from 1965 to 1995 (using a 5-year moving window for tie decay beginning in 1965) reveal that the average degree of the network among organizations with at least one tie decreases moderately and monotonically throughout the 30 year period, starting with 1.45 in 1965 and ending with 1.03 in 1995.

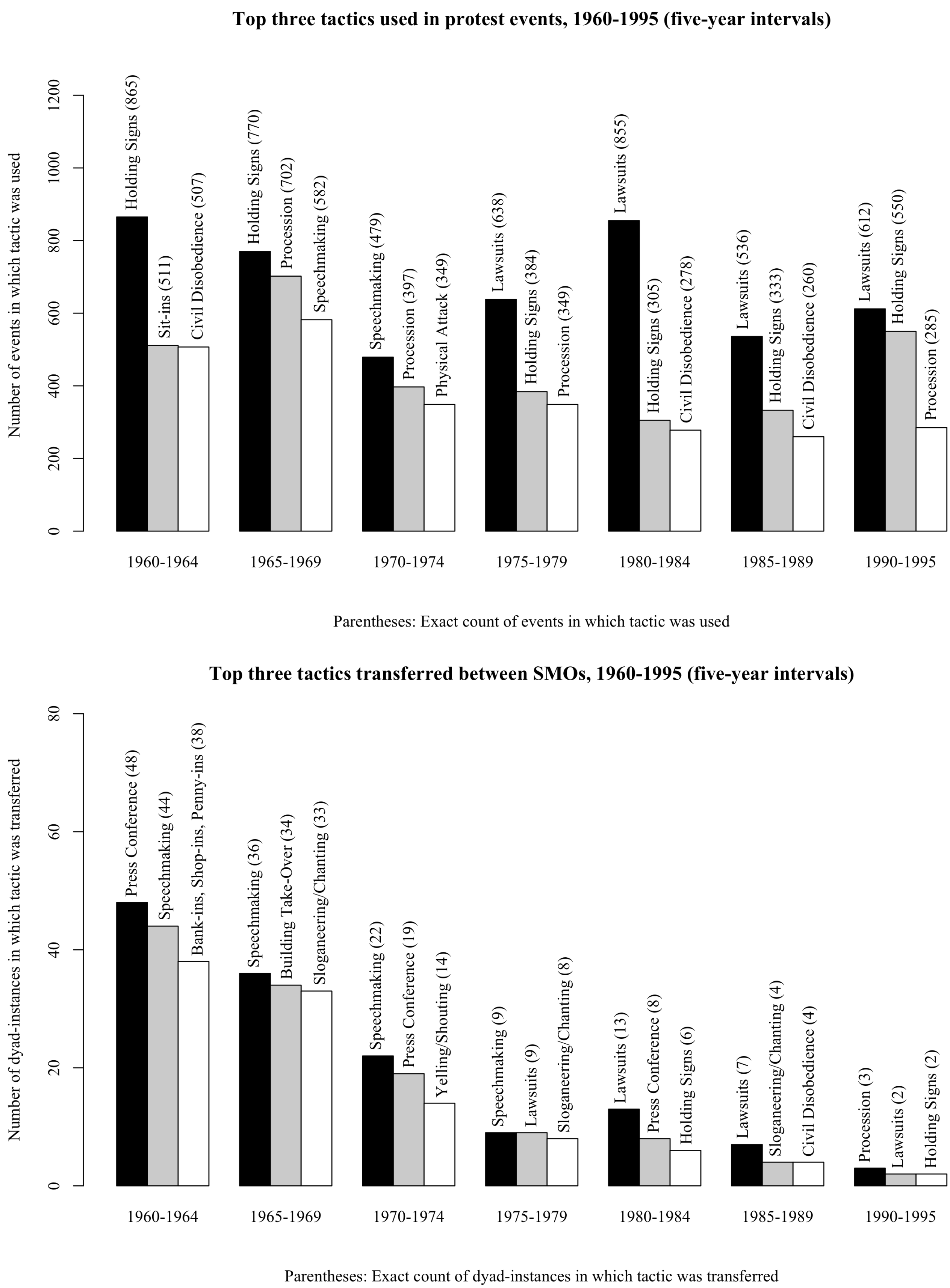

Figure 5. Usage and transfer frequency of tactics in protest events, 1960-1995.

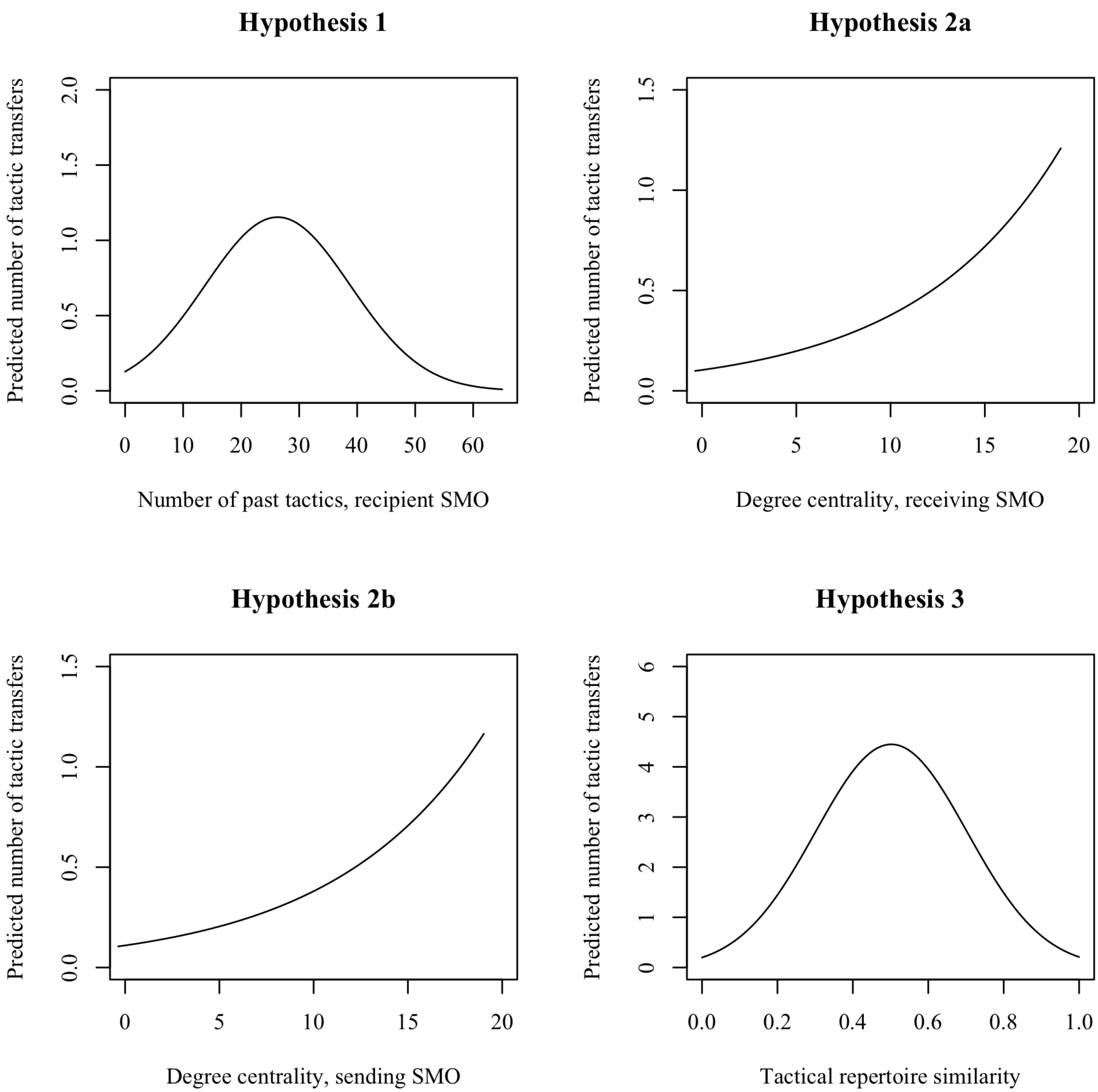

Figure 6. Predicted number of tactic transfers based on sample selection negative binomial regression models

Note: Plot for hypothesis 1 generated using results from Model 2 in Table 2, hypothesis 2a and 2b from Model 3 in Table 2, and hypothesis 3 from Model 4 in Table 2. All other variables are held at either their median values if the variable is metric, or their modal values if the variable is categorical. Values on x-axis reflect the range for each independent variable observed in the data (note that degree centrality measures have been standardized here to be consistent with our models).

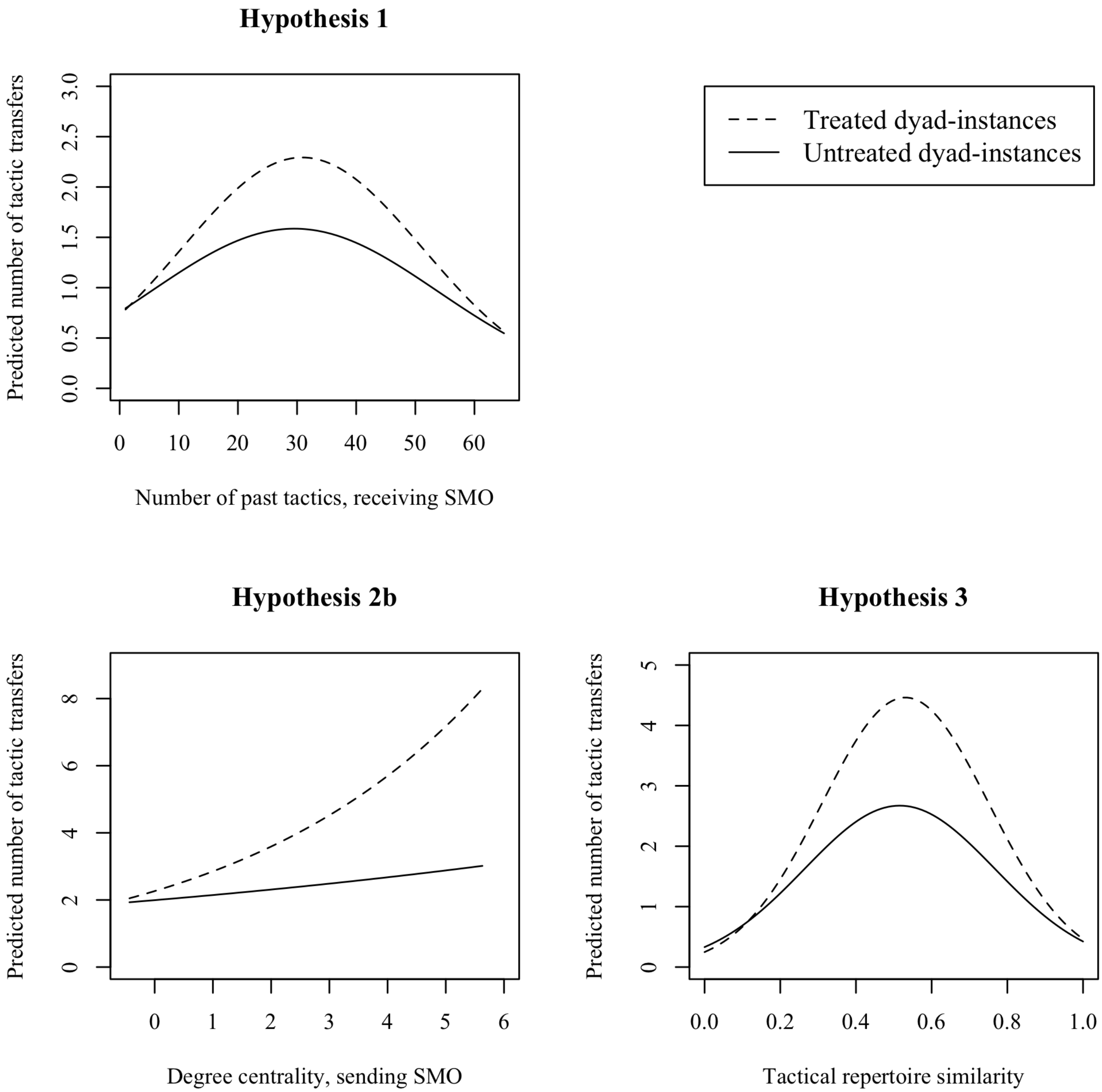

Figure 7. Predicted number of tactic transfers based on negative binomial regression models accounting for homophily-driven and contagion-based diffusion

Note: Plot for hypothesis 1 generated using results from Model 2 in Table 3, hypothesis 2b from Model 3 in Table 3, and hypothesis 3 from Model 4 in Table 3. All other variables are held at either their median values if the variable is metric, or their modal values if the variable is categorical. Values on x-axis reflect the range for each independent variable observed in the data (note that degree centrality measures have been standardized here to be consistent with our models).

Appendix A. Tactics coded in protest events

1	Bannering	33	Musical and/or Vocal Performance
2	Bell ringing*	34	Filming events
3	Bicycling as part of a procession	35	Recruiting or evangelizing
4	Candle-lighting	36	"Shantytowns"
5	Canvassing	37	Lobbying
6	Cross carrying	38	Polling
7	Dances	39	Singing collectively
8	Debate	40	Torch-passing
9	Discussion	41	Bed-racing*
10	Dramaturgical presentation skit	42	Civil Disobedience*
11	Fasting hunger strike*	43	Meeting candidates
12	Film showing	44	Flag waving
13	Fireworks display	45	Distributing goods
14	Leafleting	46	Describing Project
15	Meditation	47	Drumming*
16	Parading chariots*	48	Sit-ins*
17	Petitioning	49	Bank-ins, Shop-ins, Penny-ins*
18	Photo exhibiting	50	Withholding obligations*
19	Holding signs, picket line, placarding*	51	Physical Attack*
20	Praying	52	Verbal Attack or Threat*
21	Procession or Marching*	53	Blockade*
22	Reading or recitation	54	Loud noise-making*
23	Selling paraphanelia	55	Yelling/shouting*
24	Moments of silence	56	Building Take-Over*
25	Speechmaking	57	Looting*
26	Sloganeering/chanting*	58	Damaging Property*
27	Vigiling silent protest	59	Kidnapping/Hostage Taking*
28	Worshipping	60	Meeting Disruption*
29	Wreathing, laying wreaths	61	Walk-Outs*
30	Displaying Goods/Symbolic Displays	62	Letter writing campaign
31	Press Conference	63	Lawsuits
32	Dedication		

* Disruptive tactic

Appendix B. Results tables for various robustness checks

Table B1. Estimated coefficients in probit model predicting selection into dyad-instance

	Dependent Variable: Probability of selecting into a dyad-instance	
Variable	Coefficient	Standard Error
Past tactics, recipient SMO	-.087***	(.002)
Past tactics, recipient SMO, sq.	.001***	(.002)
Degree centrality, sending SMO	.002	(.005)
Degree centrality, recipient SMO	.176***	(.006)
Tactic repertoire similarity	-1.837***	(.087)
Tactic repertoire similarity, sq.	2.189***	(.091)
Issue repertoire similarity	-.366***	(.105)
Issue repertoire similarity, sq.	.103	(.119)
Common collaborator	2.152***	(.012)
No. past events, sending SMO	.002	(.005)
No. past events, recipient SMO	-.068***	(.003)
Intercept	-1.958***	(.057)
Year fixed-effects	Yes	
State fixed-effects	Yes	
Log-Likelihood	-37,299	
Wald Chi-squared	49,592***	
df	93	
Number of Observations	2,155,845	

* p < .05, ** p < .01, *** p < .001

Table C1. Descriptive statistics for matched samples of dyad-instances

	Treatment = 0 (N = 2,402)		Treatment = 1 (N = 2,402)	
Variable	Mean	SD	Mean	SD
Dependent Variable				
Number of tactics transferred	0.267	(0.907)	0.367	(1.280)
Independent Variables				
Number of past tactics, recipient SMO	16.391	(16.256)	17.290	(17.290)
Degree centrality, sending SMO	8.733	(17.590)	8.733	(17.590)
Degree centrality, recipient SMO	15.497	(25.088)	23.530	(29.042)
Tactic repertoire similarity	.234	(.352)	.291	(.397)
Number of previous events, sending SMO	13.042	(54.572)	13.042	(54.572)
Number of previous events, recipient SMO	41.328	(80.407)	53.278	(114.010)

Note: Means and SDs for event characteristic control variables, sending SMO degree centrality, and sending SMO number of previous events are, by design, identical between samples.