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Guns, Babies and Labor:

Campaign Finance Networks in the 2000 Elections

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Abstract:
This paper seeks to expand upon what we know regarding the structure of interest group networks. To explore the potential for Social Network Analysis in the larger context of group behavior and information sharing, we make use of existing federal contribution data to explore how non-corporate political action committees are linked to one another at the federal level via regulated campaign finance. Thus, we explore the density of networks, who the central players are and group relationships with respect to investment behavior. Here, we make use of FEC contribution data from the 2000 electoral cycle to describe and explore the relationships between the different types of contributions made to federal candidates.

Introduction and Previous Research

"Money is the mother's milk of politics" -- we learn that phrase in our early training as political scientists and share the mantra with our undergraduates. Still, money isn't everything in politics; other things matter, such as who and what you know. In fact, in common parlance, "the who and what you know" idea is just as pervasive as the "how much" element. Moreover, the cozy relationships between K Street and Capitol Hill appear heightened in that many lobbying and public relations firms hire Hill Staffers – up to 17% of the top-salaried staffers in one study and, at least until recently, there was considerable pressure placed upon firms to hire on a partisan basis a.k.a. "the K Street Project" (Sangillo 2006; Salant 2006).

Still, the fairly recent scandals surrounding lobbyist Jack Abramoff and Republican officials highlight the importance of connections and money. The scandal epitomizes all that is thought wrong with the lobbying industry – undue influence and corruption, a good ol' boys network. In the investigation that followed, money loomed large. Campaign records indicate that he (or his affiliates) distributed over $1.7 million dollars to 220 different members of Congress over 3 years. In the wake of the Abramoff investigation, these same members hastened to return the funds (Feldman and Chaddock 2006). Some nonprofits, such as the U.S. Family Network, were funded almost entirely by corporations connected to the once powerful lobbyist (Smith 2005). The network was well-enough connected to cause serious political and potentially criminal problems for former Congressman Tom DeLay (R TX-22) and Congressman Bob Ney (R OH-18). Moreover, the scandal revealed the various conduits through which different groups worked – that is the interconnectedness of organizations, particularly non-profits – via money and, in this case, Abramoff (Stone 2006). These journalistic accounts and others openly suggest that a labyrinth of special interests pull the strings in the halls of power, with cash helping to make things happen.

Yet, how would we empirically investigate these networks, which are inherently about the intangible qualities of relationships? This paper seeks to expand upon what we know about group networks. To explore the potential for Social Network Analysis (SNA) in the larger context of group behavior and information sharing, we make use of existing data. This data does not answer the important questions scholars raise about influence, but it does allow us to investigate the network structure of those groups spending money in the 2000 federal election.

A social network is a group of actors – people and organizations who are linked together by goals, behavior and exchange – whether that exchange be hard currency (campaign contributions) or something less tangible (information). Not all networks have the same structure, nor do they all function in the same way, but they are based on patterns of exchange – money, influence, objectives, power – thus relationships.

What do Group Scholars Infer about Lobbying Behavior and Money?

While these journalistic assertions of undue influence are certainly not new, academics have had mixed results when it comes to understanding the influence of groups. They provide money through electoral strategies and information in lobbying behavior, but to whom? Do they work with their "Hill friends" or pressure their "Hill foes"? And do they do this alone, or in concert with other organizations? The obvious answer is "yes" to all of the above – or maybe, "it

depends". Academic research is mixed with respect to lobbying behavior. For example, the early literature finds that groups mostly lobby their friends – that lobbying is not a game of arm twisting and lobbyists are simply trying to convince or influence decision makers predisposed to their positions (Bauer, Poole, and Dexter 1963; Milbrath 1963). Others argue the groups target those in the middle who are undecided or confront their opponents, thus groups could potentially influence agendas and decision-making or buy access (e.g., Ainsworth 1993; Austen-Smith and Wright 1992, 1994; Baumgartner and Leech 1996; for an in-depth discussion see Baumgartner and Leech 1998).

Moreover, recent group research highlights the fact that groups form coalitions. (Hula 1999; Schlozman and Tierney 1983; Baumgartner and Leech 1998). Hula (1999) writes that the Washington environment has become fragmented (see also Salisbury 1990; Heclo 1978; Heinz et al. 1993). Specifically he notes, "[w]ithout core actors to coordinate political action within a policy domain, the use of coalitions has become more important to lobbyists (p. 5)". He further notes that groups without longstanding connections in the policy community will be more likely to form coalitions with other organizations. Others who study coalition behavior of groups also investigate the incentives, such as repeated interactions, for organizations to overcome collective action problems and work together (Hojnacki 1998) and the issue and partner context of the coalition, noting the importance of strong leaders to coalition formation (Hojnacki 1997).

The question of money – or campaign contributions – implies that money buys something from government, perhaps access, votes, agendas or some combination. However, the *quid pro quo* has been difficult to find conclusively in the empirical literature – at least not in a way that aids in theory building (Baumgartner and Leech 1998). Much of this literature focuses on the legislative effects of campaign contributions with contradictory results. For example, Langbein's (1993) study of gun control does find evidence of PAC influence, while Rothenberg's (1992) study of Common Cause and the MX missile failed to find evidence to support PAC influence. In part, this is due to the limited scope of the individual studies, which tend to focus on a few issues, groups or votes (Baumgartner and Leech 1998). As Hall and Wayman (1990) point out, perhaps we need to rethink the connection between money and outcomes, and consider giving strategies first. Wright's (1985) PAC research reminds us that the groups best suited to raise money and engage in electoral strategies may not be the ones best suited for policy influence.

Campaign contributions through political action committees may be thought of as part of an electoral strategy, such that the influence of money is filtered through a process, and not a direct *quid pro quo* for policy and influence. Rather, financing elections are directly related to maintaining a set of favorable agents for representation of your groups' interests, or actively seeking to enlarge your coalition of agents in the legislature. A maintaining strategy preserves access, while an expanding allows the possibility of future access, with most organizations likely taking the safe bet – maintaining access, seeking to expand only when the opportunity for that investment to pay off seems more likely (Currinder et al 2007; Rozell et al 2006; Wright 1985; Gopoian 1984). Some organizations, such as the NRA and some labor organizations, follow a mixed strategy, attempting to both maintain and expand the current coalition (Herrnson 2005; Patterson and Singer 2007; Sorauf 1992). For example, Patterson and Singer (2007) write that the National Rifle Association acts strategically in its electoral support, offering different levels

of backing. While it is a relatively wealthy organization, it does tend to target competitive races, and does not usually give the full legal amount (p. 53).

The Confluence of Three Rivers: Groups, Public Policy, Social Network Analysis

The interest group and the public policy literatures merge when discussing the role of groups with respect to actual influence on agendas and outcomes. Whether discussing "whirlpools", iron triangles, issue networks or policy subsystems, this avenue of research agrees that some groups at least, play an active role in public policy making (Baumgartner and Leech 1998; for a discussion on this see Berry 1997; see also Heclo 1978; McCool 1998). Heclo (1978) in particular highlights the importance of amorphous network that is open, fluid and changeable to modern policy making.

Similarly, the Advocacy Coalition Framework (ACF) links together stakeholders as the primary agents of change in public policy. Stakeholders are those specialists in the policy field and include groups, legislators, bureaucrats, think tanks, academics, etc. ACF proponents note that the best way to deal with so many actors is to have them work together as "advocacy coalitions" (Sabatier and Weible 2007; Sabatier and Jenkins-Smith 1993). More broadly, the policy network approach stresses that the policy making involves a "diversity of actors who are mutually interdependent" (Adam and Kriesi 2007, p. 146). When examining a network, you do not just investigate the actors or their actions and attempt to link them to outcomes. Rather, the primary unit of analysis becomes the relationships between actors in the system.

While Heclo and Sabatier indicate networks that have shared knowledge or shared policy beliefs, Berry (1997), notes that issue networks are even more complex, and can have many attributes – including conflict and cooperation. Moreover, he notes that most group networks will have hollow cores and sloppy boundaries, much as others have hypothesized (Heinz et al. 1993; Hula 1999). In other words, we would not expect the presence of a small number of strong leaders across issue areas. We would also expect that it may be difficult to ascertain where one network leaves off and another begins.

Some political scientists are beginning to study the structure of networks among interested parties. For example, Schneider et al (2003), in a study of policy outcomes, note the importance of networks in creating social capital among divergent interests and to the creation of consensual institutions to solve common pool resource issues. Likewise, Heaney (2006) used network analysis to examine coalition behavior with respect to Medicare prescription drug coverage. In his study, he finds a fragmented community of interests all working toward similar goals; groups are able to exert influence by acting as brokers (or leaders) within this community.

What we do know is that groups do not work in a vacuum, nor are they necessarily altruistic in their motives, whether providing cash or information. They are interested capturing rents, maintaining benefits and reducing the costs (however defined) of legislation. That is, they desire to influence what Washington talks about and how it decides to resolve those issues, preferably such that they gain. They have an arsenal of tactics available, including the option of spending money with hopes that access and influence will follow. They may choose to join with other groups, but even when they work alone, they are part of a larger social network that includes

decision-makers. What do those networks look like? Are they highly centralized, with a few powerful, well-connected groups controlling, or is the network fluid and loose?

Data

We use data regarding campaign contributions in the 1999-2000 electoral cycle for federal candidates, available from the Federal Election Commission and distributed by the Inter-University Consortium for Political and Social Research (U.S. Federal Election Commission 2004). The dataset contains over 245,000 separate contributions to approximately 4500 different federal candidates. We examine the data mapping contributions, communication costs and independent expenditures from non-corporate organizations to candidates for the U.S. Senate, U.S. House of Representatives and the U.S. President for the year 2000.[1]

The total number of group contributions and independent expenditures for this cycle was $259.8 million dollars. This electoral cycle organizations were limited to contributions of $5000 or less per candidate per election and to $15,000 to party committees; they could also spend money toward the election or defeat of a particular candidate, so long as it was uncoordinated with the campaign (independent expenditures) and contribute to other PACs. FEC data does not include money spent on issue ads that do not explicitly target a particular candidate, as this type of spending was largely unregulated at the time (Rozell, Wilcox, and Madland 2006; U.S. Federal Election Commission 2004).

Why PACs?

Nearly a century ago, Arthur Bentley argued for a definition of an interest group that is closely tied to its actual behavior, or what they do (1908; see also Salisbury 1991; 2000). Spending money, whether as a contribution or expenditure, necessarily implies that the groups feel that this strategy is necessary to affect either current electoral outcomes or future legislative benefits (i.e., outcomes or access). Here, we study those groups, organized as political action committees - PACs, who donated to a candidate or spent money in federal candidates in the 2000 election. These contributions could be in the form of cash contributions (limited), communications to their membership regarding a candidate or independent expenditures for or against a candidate. Not all interest groups have associated PACs, though many PACs derive from interest groups, thus can be considered an arm of traditional interest groups. Unconnected PACs often tend to be single issue or ideological in nature (i.e., pro-Israeli, pro-life), thus also represent interests (Herrnson 2005).

The FEC data sorts contributions into several, albeit limited, categories. In 2000, donations from corporate PACs made the largest percentage of contributions, after individuals. We investigate the contributions from the affiliated PACs of Labor, trade, membership and health organizations, as well as the non-connected organizations (often leadership PACs and small single issue organizations). Together, they comprise 51 percent of all PAC contributions (see Table 1). We

[1] We include information for organizations coded as "non-party non-qualified (N)" and "qualified non-party (Q)". "N" PACs include those organizations that have not qualified as multi-candidate committees. A non-qualified committee may contribute up to $1,000 per candidate per election. "Q" committees are multi-candidate committees. A qualified committee may contribute up to $5,000 per candidate per election. This does mean that we do include Leadership PACs and PACs from many non-corporate law firms and small businesses, two categories that do not always fit the traditional interest group definition.

include communication costs made by organizations to their members in support of/opposition to a candidate, independent expenditures, in addition to regulated cash and in-kind contributions.

Table 1: Group Type by FEC Category

Category	Frequency	%
Corporate	1730	48.9
Labor	389	11
Trade/Membership/Health/Professional	912	25.8
Cooperative	42	1.2
Non-Connected PACs	341	9.6
Corporate, not traded	122	3.5
Total	3536	100

While using PACs narrows the population of interest groups to only include those who engage in electoral strategies, it does enable us to explore the density of networks on one level of behavior: investment behavior. It also allows us the possibility of a methodology (Social Network Analysis) to begin sort out the debates about friends, foes, coalitions and influence. Contributions, then, constitute one avenue to study interest group networks, though by no means the sole way to do so.

Methods

Social Network Analysis (SNA) is a useful quantitative analytical tool to examine complex social networks or patterns of interaction between actors in a system. In focusing on relationships between actors, rather than the characteristics of the actors or the outcomes, it allows us to illustrate the structure of the network under study. The key aspects of network analysis, beyond the graphics or maps, are the degree of centralization in the network, the centrality of the actors, how connected the actors are, and the density of the network.

We make use of this tool, which examines the actors (nodes) and their connections (links). These links are the commonalities and may vary in intensity. Different types of networks can exist, reflecting the different interconnections of the various actors. For example, some networks can be a closed, or circle network, which prevents ready entry by outsiders. Some networks, which resemble a star shape, have a central actor who is linked to every other actor. The other actors may or may not be aware of one another – the central actor controls most exchange. Other networks are decentralized: every participant is linked to every other actor. This type of network is more open, more porous, with elements counterbalancing one another. There may or may not be a "core" or group that is any more important than any other. Finally, SNA can allow us to analyze influence. For example, a "star" network would indicate that the group in the center of the star would have a more important role to play as the center of the network, and connected to more actors than any other group. Moreover, there exists the possibility of networks within networks, which some groups acting as brokers between to subsets of a larger network (Manheim et al. 2006).

Thus, Social Network Analysis (SNA) can be viewed as an intersection of qualitative and quantitative methodologies; the central objective of SNA is analysis of patterns of interconnections between actors in a social or political system. Mathematically, actors (in this

paper: contributing organizations) are referred to as *"nodes"* and connections between them as *"edges"*. Together, nodes and edges form a structure known as a *"graph"* or topology (see Figure 1, Appendix B).

Quantitative techniques include measurement of *actor centrality*, *network centralization*, search for key players that span boundaries between disparate parts of the network, and identification of common network patterns related to processes of information diffusion, power and governance styles.

The first question a social network analyst asks when looking at a dataset is: who are the key players in this network? Starting with Freeman's (1978/1979) seminal paper, a set of centrality metrics has been adopted to approach this question. Detailed derivation of the centrality metrics described below is well-documented by Freeman (1978/1979) and Wasserman and Faust (1994). While replication of this information is beyond the scope of this paper, Appendix A briefly outlines the meaning of the metrics to a practitioner in the field.

In this paper, we treat the publicly available political contribution data as a bipartite network of contributors and recipients. This network is then morphed into a set of *unipartite* graphs of actors joined by undirected edges -- two groups who give contributions to a common candidate are connected by an edge. The *bipartite* and *unipartite* representations of a small example network are illustrated in Figure 2 (Appendix B). Of further importance is the number of affiliations that each committee has in common with other committees. In a *unipartite* view of the political contribution network, this translates into strength of connection (*edge*) between the two committees.

Essentially, we proceed as follows: we select all pairs of candidates who have received contributions from the same organization and count how many contributions they have in common. This conversion creates a *unipartite* graph where each edge between two actors was assigned a weight. The weight of an edge *(i,j)* is the number of contributions actors *i* and *j* have received from the same sources. For example, in figure 2, nodes *b* and *e* have received a contribution from organization 1. Thus the weight of the edge *(b,e)* is equal to 1. Similarly, nodes *e* and *f* have received contributions from both organization 2 and organization 3, and thus the weight of *(e,f)* is 2. These weights can be viewed as a determinant of how similar they are. We run this routine to extract a network of PACs based on their contributions to federal candidates in the 2000 elections.

We use the result matrix of data to extract topologies (graphs, maps) that visualize the data to allow for interpretation. In this analysis, we use the resulting matrix to calculate the centrality of the PACs, the distances between organizations, the strength of the relationships between them, as well as the existence of multiple cores (networks within networks).

Organization Networks in the 2000 Electoral Season

The 2000 federal elections are notable for having a close presidential race, with the potential for the majority in Congress to change. In addition, a great deal of money, much unregulated, went into financing the elections – by some estimates close to $3 billion dollars (Corrado 2001; Makinson 2001). PACs gave almost $382,000 on average to winning House candidates; Senate

winners averaged just over one million dollars (Center for Responsive Politics 2008). The 2000 cycle was also notable for having some extra-ordinarily expensive Senate races, including Jon Corzine's privately financed $60 million dollar campaign and the $80 million dollar (combined) campaign between Hillary Clinton and Rick Lazio (Corrado 2001; Center for Responsive Politics 2008).

Simple cross-tabs illustrate contribution patterns the academic literature and common senses would predict. Tables 2-4 present the 2000 data looking at contributions by partisanship (Table 2), incumbency status (Table 3) and expenditure type (Table 4).[2] Labor PACs overwhelming contribute to Democratic candidates, with the other types of organizations favoring Republican candidates, with the catch-all category of "trade, etc" groups giving at nearly sixty percent. Since the Republican Party held both houses of Congress in 2000, one would expect that this may be in part due to incumbency.

Table 2: Number of Contributions from Different Group Types to Democratic and Republican Candidates

Group Type	Democrats	Republicans	all other	Total
Labor	88.02%	10.55%	1.43%	26,694
Unconnected	43.14%	55.87%	1.00%	12,517
Trade/Member/Health/Professional	39.41%	59.75%	0.85%	53,249
Cooperative	46.38%	51.12%	2.51%	2,594
Other Business	43.51%	55.69%	0.80%	3,859
Total	53.34%	45.59%	1.06%	98,913

The cross-tabulation of group type by target (incumbent, challenger, open seat) bears this out: all groups heavily favored incumbents. The FEC data file separates challengers into "true" challengers and those challengers who currently hold a seat (or "experienced" challengers", starred in the table). Interestingly, only labor (14.74%) and unconnected (12.28%) PACs support true challengers at double-digit rates, with labor tending to choose true challengers at slightly higher rates than open seat candidates. Trade, membership, health and professional organizations appear to have the most conservative giving strategy, after co-ops, preferring to give to incumbents at nearly 84%. Unconnected PACs have the most diverse giving pattern in 2000, going after incumbents (61.5%), then open seats (24.8%) and finally to true challengers (12.3%). Nonconnected and ideological PACs tend to use an expanding strategy of giving, assisting challengers and participating in open seats races more often (Herrnson 2005).

Table 3: Group Type by Spending Target

Group Type	Challenger	Challenger*	Incumbent	Open Seat	Total
Labor	14.74%	1.94%	70.99%	12.33%	26,694
Unconnected	12.28%	1.36%	61.52%	24.84%	12,518
Trade/Member/Health/Professional	5.46%	0.63%	83.96%	9.95%	53,252
Cooperative	3.12%	0.31%	92.56%	4.01%	2,594
Other Business	7.70%	1.09%	79.74%	11.48%	3,859
Total	8.85%	1.08%	77.68%	12.38%	98,917

[2] Chi-square tests revealed statistically significant relationships for all three tables.

Groups also exhibited variation in the types of regulated expenditures used in the 2000 elections. Though not shown in Table 4, all groups gave more hard money contributions than any type of contribution, in terms of sheer numbers of contributions, not amounts. Independent expenditures appear to be the province of unconnected PACs; of all independent expenditures, this type of PAC "gave" 65.9% of the expenditures against and 60.9% for candidates. Trade, membership, health and professional organizations, though far more numerous, were second in independent expenditures against (25.9%) and for (23.8%) a candidate. Almost all communications costs whether for or against a candidate came from labor PACs.

Table 4: Expenditure by Group Type (Column Percentages Shown)

Group Type	Ind. Exp. Against	Coordinated Expenditure	Ind. Exp. For	Communication Cost For	Hard Money	Communication Cost Against	In-Kind Contribution	Total
Labor	4.6%	0.0%	13.7%	94.9%	28.1%	100.0%	1.4%	27.0%
Unconnected	65.9%	0.0%	60.9%	0.0%	9.3%	0.0%	42.2%	12.7%
Trade/Member/ Health/Professional	25.9%	100.0%	23.8%	5.1%	55.6%	0.0%	54.3%	53.8%
Cooperative	0.0%	0.0%	0.1%	0.0%	2.9%	0.0%	0.2%	2.6%
Other Business	3.6%	0.0%	1.4%	0.0%	4.1%	0.0%	1.9%	3.9%
Total	560	1	3346	761	89871	193	4,185	98,917

Overall Network Analysis of the 2000 PAC Contribution Data

We first computed the relationships (edges), and then used NetDraw to visualize the resulting data matrices. We examined the data primarily with respect to contribution type: all contributions, hard money, independent expenditures and communications costs. We computed the degree centrality for each network, setting the node sizes to correspond to the centrality of that actor (the larger the node, the more weight that PAC carries in the network). The thickness of the lines graphically portrays the strength of the relationships – thicker lines indicate stronger relationships. We used non-metric multi-dimensional scaling to plot the nodes in two-dimensional space so that the distances become meaningful. Groups that are similar in contribution ties will be located more closely. Finally, to enhance the readability of the graphs, we only present the strongest links in the networks.

The topology of all contributions (Figure 3)[3] reveals several interesting patterns. Most notable is the absence of any one central actor in the contribution network. Three clear "star" patterns are evident. The AFL-CIO/COPE (right) and NRA Political Victory Fund (top) are central anchors in their network, while the National Committee to Preserve Social Security, NEA Fund for Children and the Sierra Club anchor a third configuration (bottom left). Several groups appear to act as intermediaries between the NRA network and the coalition network at the bottom left (NCPSS, NEA and Sierra Club). Of these, the National Association of Realtors appears to play the most pivotal role in linking the two networks. A fairly strong link exists between the AFL-CIO/COPE and the NRA, while intermediaries, such NOW help to link the

[3] All figures are in Appendix B at the end of the paper.

AFL-CIO/COPE to the coalition of three. The NRA and AFL-CIO roles in the overall network are not entirely surprising, as accounts of their spending, grassroots and issue advocacy (not mapped here) in the 2000 elections highlight their widespread efforts across the country (Biersack and Viray 2005).

To clarify these relationships, we magnify the network to examine only the strongest ties, and reconfigure the topology. Figure 4 reveals a network with no central actor. The "core" of the network resembles a circle network, or one where the flow of relationships between actors requires intermediaries, or boundary spanners. All four of the major players in the network, the Sierra Club, AFL-CIO/COPE, the NRA Political Victory Fund and the Realtors PAC, appear roughly equal the degree of "power" each holds within its own "star" network. As the central player in each of these networks, the PACs connect smaller organizations to other networks. For example, the Dairy Farmers of America are linked to the NRA Political Victory Fund, but only through its common ties, or contributions, with the Realtors.

The relative closeness between the NRA and the AFL-CIO is not entirely surprising. While the NRA tends to support Republicans and the AFL-CIO Democrats, they do have overlapping membership bases – in some states NRA members are also union members (Biersack and Viray 2005). In the 2000 elections, NRA President Charlton Heston was quoted as saying, "Find every gun owner and union member and get them out to the polls on November 7," (quoted in Biersack and Viray 2005, p. 65, originally in McClellan 2000). Likewise, the labor messages included the following: "Al Gore doesn't want to take your guns away, but George Bush wants to take away your union (quoted in Biersack and Viray 2005, p. 65, originally in Eilperin and Edsall 2000).

Spatially, the Realtors and NRA are closer to one another than they are to either the AFL-CIO or the Sierra Club – something we would expect. In addition, they have direct common ties to one another, as well as ties through intermediaries, such as the Build PAC of the National Association of Homebuilders and American Bankers Association. AFL-CIO is also closer to the NRA Political Victory Fund in terms of common contributions than it is to the Sierra Club, its natural partisan tie, at least in the 2000 electoral cycle.

Most interesting in Figure 4 is the relationship of the Sierra Club to the other actors in the network. It does not have direct ties to any of the other three major players in this network. Rather, its commonalities run through gatekeepers, in this case the NEA Fund for Children (to the Realtors), and the International Association of Firefighters (to the AFL-CIO). In addition, the National Committee to Save Social Security anchors a smaller subnetwork within the left leaning and mostly government-related unions in the Sierra Club faction.

Slicing the Data by Type of Contribution

The cross-tabulations discussed at the beginning of this section suggest that groups are not monolithic in their giving habits. In particular, it appears that groups give many small contributions – 91% of all the contributions given in 2000 were hard money contributions. However, excluding corporations, the average hard money contribution in 2000 was $1463. 41, with considerable variation (s = 1348.67). The next most common form of contribution is the independent expenditure at about 4%. Communications costs, primarily the province of labor, should prove another interesting way to slice the data.

By law, even after campaign finance reform, PACs can give up to $5000 per candidate, per election with no aggregate limit (Cantor 1997). Figure 5 displays how groups are inter-connected via this most common form of contribution type. The network topology is crowded, even when we only portray the strong ties, yet, it too has multiple cores. This particular graphic is colored coded by type of PAC (using the FEC designation), and shows two overlapping "star" patterns. One of the stars consists primarily of labor organizations (bottom) while the top-most star consists almost exclusively of trade, membership, and professional PACs. Very few of the non-connected or other types of PACs in the 2000 elections make the cut with respect to hard money spending. In addition, there appear to be more strong connections (the weight of the linking lines, or edges) in the trade association/membership configuration. This is unexpected, as one might expect more commonalities within the labor organizations. However, this network also appears to have many more "subnetworks" in an almost spider web like configuration. This most likely reflects the divisions within this rather broad categorization of groups.

Most interestingly, the anchors in this configuration differ somewhat from Figures 3 and 4. The most powerful or central actor among the trade association/membership/professional PACs is the Realtors, once again. It has more common links to candidates than any other PAC in that part of the network, attesting to its centrality. However, smaller players also exist within this network, including the American Hospital Association PAC, the Credit Union Legislative Action Council and the Dealers Election Action Committee. In addition, one cooperative (the Dairy Farmers) and two labor unions (one is the American Maritime Officers) are more clearly situated with the catch-all category for trade, member and professional PACs. Interestingly, one of the bigger players in the overall contribution network, the NRA Political Victory Fund, is not central to the hard money network. However, this is not surprising, given the research of Currinder et al (2007), who point out that PAC hard money ($5000) contributions are not automatically distributed to sympathetic candidates.

Finally, the labor configuration at the bottom of Figure 5 reveals a more centralized, or "star" shaped network. However, this network is not purely anchored by a labor union; the most powerful player in this part of the graph is actually the National Committee to Preserve Social Security and Medicare PAC (NCPSSM). In the 2000 electoral cycle, this organization spent almost $800,000 dollars in hard money contributions, 79% of which went to Democratic candidates. Its parent organization of the same name, a nonprofit nonpartisan 501(c)4 organization, fights to preserve social security as created under FDR. However, its centrality within the labor organizations is not entirely surprising, as Social Security was considered one of the most important issues for union members in the 2000 elections and one of five issues upon which labor focused (Francia 2005; Biersack and Viray 2005). The AFL-CIO, the natural hypothesied centralizing organization, does not even play a role with respect to the hard money, even though it spent nearly one million dollars in cash contributions, 99% of which went to Democratic candidates.[4] Instead, this role is played by the National Education Association Fund for Children, alongside NCPSSM.

[4] This is not to say that the AFL-CIO was not a major player in the 2000 electoral cycle, just that within the hard money contribution network, it did not play the same role that other organizations did. The AFL-CIO did change its electoral strategy after the Republican takeover in 1994 (Biersack and Viray 2005; Francia 2005). For more information on the money and issue advocacy role of the AFL-CIO in the 2000 election, see Francia (2005).

Independent expenditures are one way that groups can get around the $5000 hard money spending limit. Independent expenditures are those expenditures by groups used for express advocacy. These advertisements, mailers, activities and the like all call for the election or defeat of a particular candidate in an election. Independent expenditures must originate from hard money sources and be uncoordinated with the candidates; it is one way that a PAC may spend more on behalf of a candidate, as spending is protected under Supreme Court first amendment rulings (Cantor 1997; Herrnson 2005). In 2000, groups spent $21 million in this category (Herrnson 2005). Figures 6 and 7 map these contributions in terms of their express advocacy against (Figure 6) and for (Figure 7) particular candidates.

Interestingly, the network of anti-candidate expenditures is composed almost exclusively of pro-life organizations and conservative organizations. One core of this spending network is the Conservative Leadership PAC, which primarily used its funds against Al Gore and Hillary Clinton. It plays a semi-central role in this network linking RUFF PAC, the Conservative Campaign Fund and the American Council for Health to the main part of the network. The RUFF PAC, an ultra-conservative PAC, was clearly focused on defeating Hillary Clinton in her Senate bid. Convinced of her presidential aspirations, Ruff noted about Mrs. Clinton, "It's a lot easier to kill a 12-inch baby snake than a 12-foot king cobra" (Ruff, cited by the Center for Public Integrity 2000).

The other cores of the upper part of this network include the Right to Life of Michigan PAC and the National Right to Life PAC. This particular part of the network resembles a pair of all channel networks held together by the Right to Life MI PAC. Within the two all-channel networks, all parties appear to hold equal weight, sharing in all connections. Future analyses will examine the timing of the contributions, as many pro-life organizations were actively working together in the Republican primary race (Corrado 2001). Last, this network exhibits a pendulum of left-leaning organizations including the League of Conservation Voters and the NEA Fund for Children, though there appears to be very little structure within this grouping.

Independent spending in support of candidates reveals a very different configuration (Figure 7). This network has three distinct cores – no central linking organization, with a few smaller players very central to their respective networks. On the left side of the map, the NRA and the National Right to Life anchor a fairly cohesive network of single issue and non-connected organizations, with one or two trade organizations. In the middle, the International Association of Firefighters centralizes another network, though its side player is the League of Conservation Voters. The group of organizations it links, however, is quite varied, including EMILY's List, NARAL, the Consumer Federation of America, the Sierra Club and the NEA Fund for Education. Many different organizations link the third core, including the Oregon Natural Resources Council and the NJ NEA. The groups here, too are varied, but include many more labor organizations. The second and third core suggests a division in democratic leaning organizations.

Interestingly, there are a few players that play a small gate keeping role, connecting the NRA to the International Firefighters (the American Medical Association) and the Consumer Federation of American to pro-life organizations (the Sierra Club and the Service Employees Union

International). The Sierra Club's role as a gatekeeper may be in part due to its role in the 2000 primary season, when it actively campaigned against Bush's environmental record in Texas (Corrado 2001) and supported more pro-environmental Republican candidates. While the vast majority of its pro-candidate expenditures were in favor of Democrats, the Sierra Club did spend in favor of some Republicans.

Last, we investigated the communications expenditures of the labor organizations made against particular candidates (Figure 8). Here, the AFL-CIO/COPE plays the most central role organizing labor unions. While only the strongest ties are shown in Figure 8, it is the only player connected directly to all other PACs in the network. In 2000, the AFL-CIO and other union PACs began to target their grassroots activities toward more competitive races and worked with other organizations to mobilize voters (Francia 2005). Competitive races in 2000 included many races in Southern California and the defeat of Senator Slade Gorton in Washington State.

Final Thoughts- Where do we go from here

Overall, when examining the group networks, we find a multi-core, porous network, reflective in part of the arguments advanced in Hula (1999; see also Salisbury 1990; Heclo 1978; Heinz et al. 1993). Here, we find a stronger presence of issue and ideological interests when it comes to grassroots efforts. For 2000 at least, the core is dominated by single issue groups, such as abortion friends/foes, and labor organizations.

With the exception of communication costs, no one single actor emerged to centralize and organize the networks. Instead, with respect to the overall spending, traditional hard money and independent expenditures networks, multiple cores exist, likely reflecting different issue areas of the group network. Moreover, depending on how one sliced the data (overall spending, cash, or independent expenditures), different patterns of leaders emerge. For example, in the overall network of contributions, the different cores that emerge conform to the literature – real estate, labor, guns and the environment play prominent roles. However, when one examines the regulated contributions ($5,000), the major players lose their prominence. Instead, a bifurcated network emerges around group type – labor and the trades (along with membership and professional organizations). In 2000, the labor network of contributions appears more organized, but this is likely a coding artifact, as "trade associations" in this database combine many types of organized interests.

For the most part, single-issue/ideological and labor organizations appear dominant with respect to independent expenditures. At the core, independent expenditures against particular candidates appear most organized among pro-life and conservative organizations, while the network of expenditures in support of candidates exhibits multi-core tendencies. Interestingly, many single issue groups, such as pro-life, and non-connected organizations do not come into prominence until one examines the independent expenditures. Most of the trade associations and organizations such as the Realtors fade from prominence in these networks. This suggests that different electoral strategies may exist by type of organization – those with mass membership bases, and strong ideological positions (and labor), may prefer to work directly with the grassroots to affect electoral outcomes. Traditional organizations, especially trade associations and business leaning groups, appear to favor traditional regulated forms of affecting outcomes.

However, as Dahl (1970) points out, the use of money is only one aspect of politics or power. Groups may trade contributions to buy access or votes, though the empirical jury is out on this question. We also know that groups traffic in information. How do organized interests in DC build information networks with one another and public officials? Under what conditions do groups share specialized information with one another to achieve common and disparate goals? Moreover, the networks here cannot assume coordinated behavior – though the graphs appear to have a great deal of structure, we cannot assume that coordination necessarily exists within campaign contributions or make conclusions about issue content. Second, like all cross-sectional analyses, this paper merely presents a snapshot of one point in time. It also does not address the surge in unregulated spending and issue advocacy that occurred in the 2000 elections (Corrado 2001).

The purpose of this paper was to explore the potential use of social network analysis to uncover patterns and relationships among organized interests with available data before investing time and energy collecting the data necessary to conduct a larger analysis of interest group networks. With respect to PAC contributions, communications and independent expenditures in the context of the 2000 electoral cycle, several interesting patterns emerged. Even if we assume absolutely no coordination between organizations (complete independence) in giving, recognizable patterns of behavior emerge. This gives us encouragement to proceed with network analysis with respect to issues, not just money. Our future research delves more deeply into relationships of issues and relationships over time so that we may better measure and study the influence of organized interests in issue networks.

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Appendix A

Degree Centrality is computed for every node *i* as a normalized sum of all edges connecting *i* to other nodes. Degree centrality operates on an assumption that highly connected actors in a network will be the ones wielding the most power.

This power argument is true in some networks. For example, if connection $e_{i,j}$ means that actor *i* *givesAdvice* to actor *j*, actors with highest degree centrality will most likely be the resident experts. However, if the same edge means *delegatesTasksTo*, nodes with highest degree centrality are the least powerful actors.

Betweenness and Closeness Centralities rely on a notion of a *shortest path*, otherwise known as the *geodesic*. A geodesic path between two actors *i,j* in a network is the sequence of relays that a a piece of information must pass through to get from *i* to *j*, without repeating. In popular literature, length of a geodesic is referred as *"degrees of separation"*.

Let us then compute shortest paths from every node in the network to every other node. *Betweenness Centrality* for node *i* is defined as a ratio of the number of geodesic paths that include *i* to the total number of possible geodesics. Betweenness centrality represents actors' ability to control or keep abreast of the information flow. Actors with high betweenness may not be very well-connected in the absolute terms, but occupy a key position as a "gatekeeper" between two groups. They are also the best people to know behind-the-scenes information, and use it to their advantage.

Closeness Centrality for node *i* is computed as a mean geodesic path length from *i* to every other node in the network. This represents actors' ability to disseminate information to other actors, and the speed of dissemination. In political structure, actors with highest closeness centrality can reach and influence more people faster, and thus may be ideal sponsors of legislative initiatives.

Nodes that connect their group (e.g. party, committee) to others usually are more central on a number of measures than their immediate neighbors whose connections are only local. These actors are referred to as *Boundary Spanners* are well-positioned to be innovators, since they have access to ideas and information flowing in other clusters. They are in a position to combine different ideas and knowledge, found in various places, into new initiatives. Mathematically, the quality of being a boundary spanner is calculated as a linear combination of degree, betweenness and closeness centralities.

Boundary Spanners often also hold a key position of being a *cutpoint*, a key individual whose presence and good will in the network largely shape whether the groups he spans will be able to communicate.

Network Centralization

Individual network centralities provide insight into the individual's location in the network. The relationship between the centralities of all nodes can reveal much about the overall network structure. A very centralized network is dominated by one or a few central nodes (e.g. a star network). If these nodes are removed or damaged, the network quickly fragments into unconnected sub-networks. A highly central node can become a single point of failure. A network centralized around a well-connected hub can fail abruptly if that hub is disabled or removed. A less centralized network has no single points of failure and is resilient in the face of many intentional attacks or random failures.

Affiliation Networks

An affiliation network is a network in which actors are joined together by common membership in groups, or acceptance of contributions from common sources. Examples that have been studied in the past include networks of individuals joined together by common participation in social events (Davis et al. 1941) and CEOs of companies joined by common membership of social clubs (Galaskiewisc and Marsden 1978). Because membership of groups can be established from membership lists, studies of these networks need not rely on interviews or questionnaires, and this makes possible the construction of much larger and more accurate network datasets.

Appendix B: Network Topologies

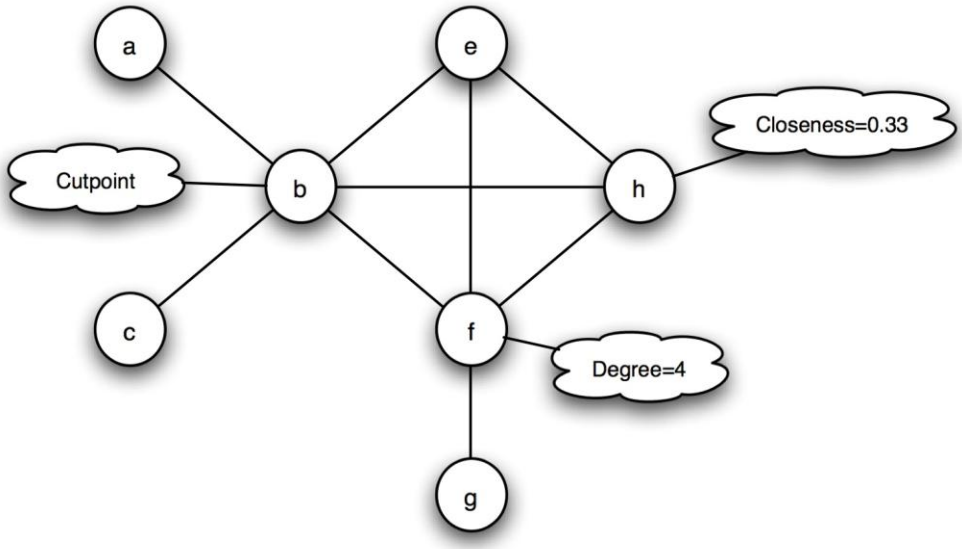

Figure 1: A Sample Network

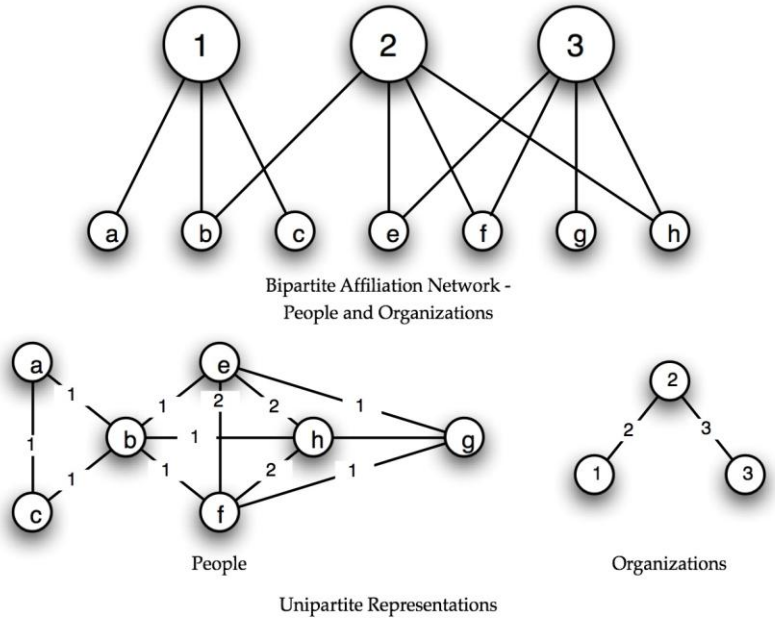

Figure 2: Bipartite and Unipartite Representations of an Affiliation Network

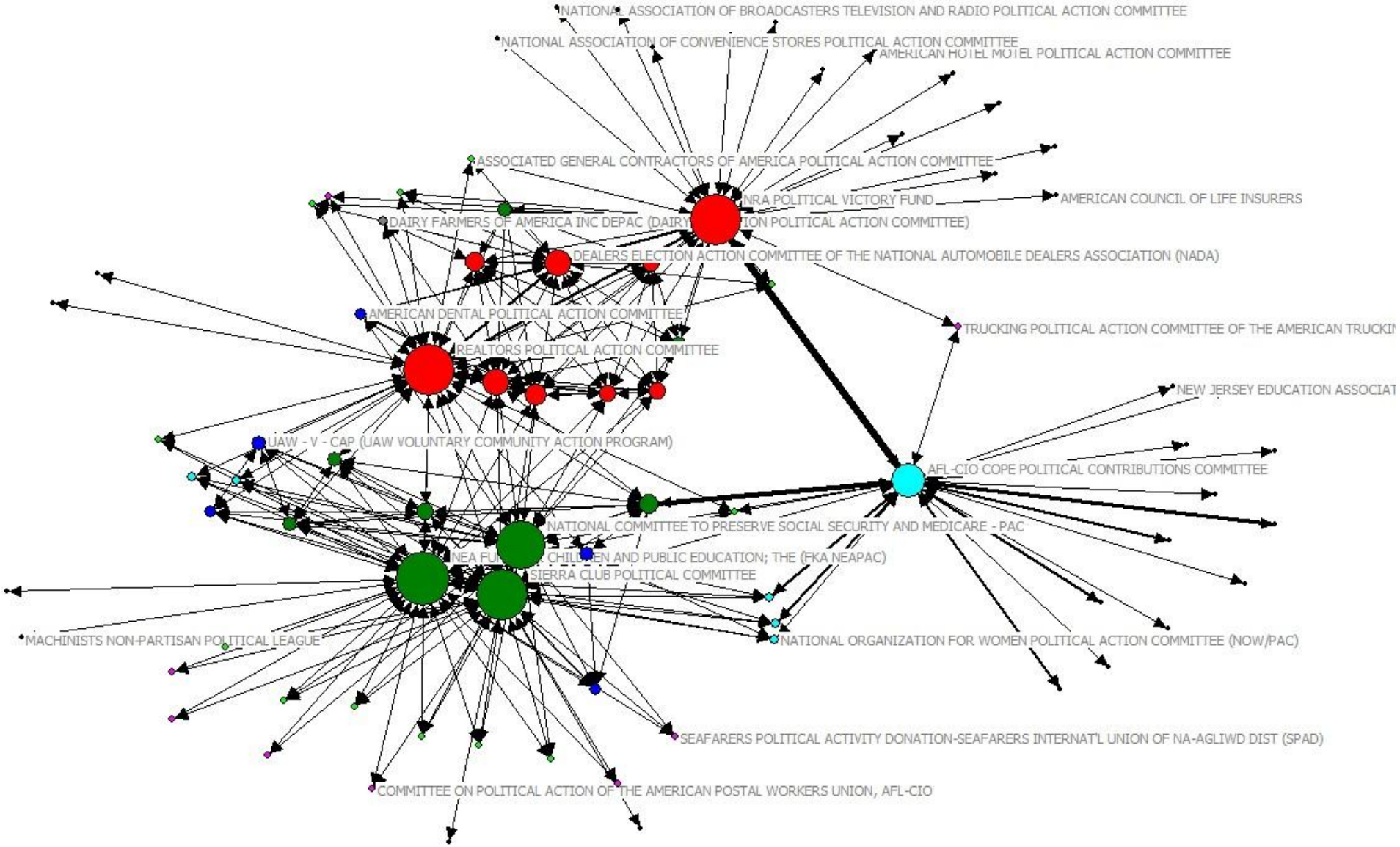

Figure 3: Network of all Non-Corporate PACs (strong ties only, all types of spending)

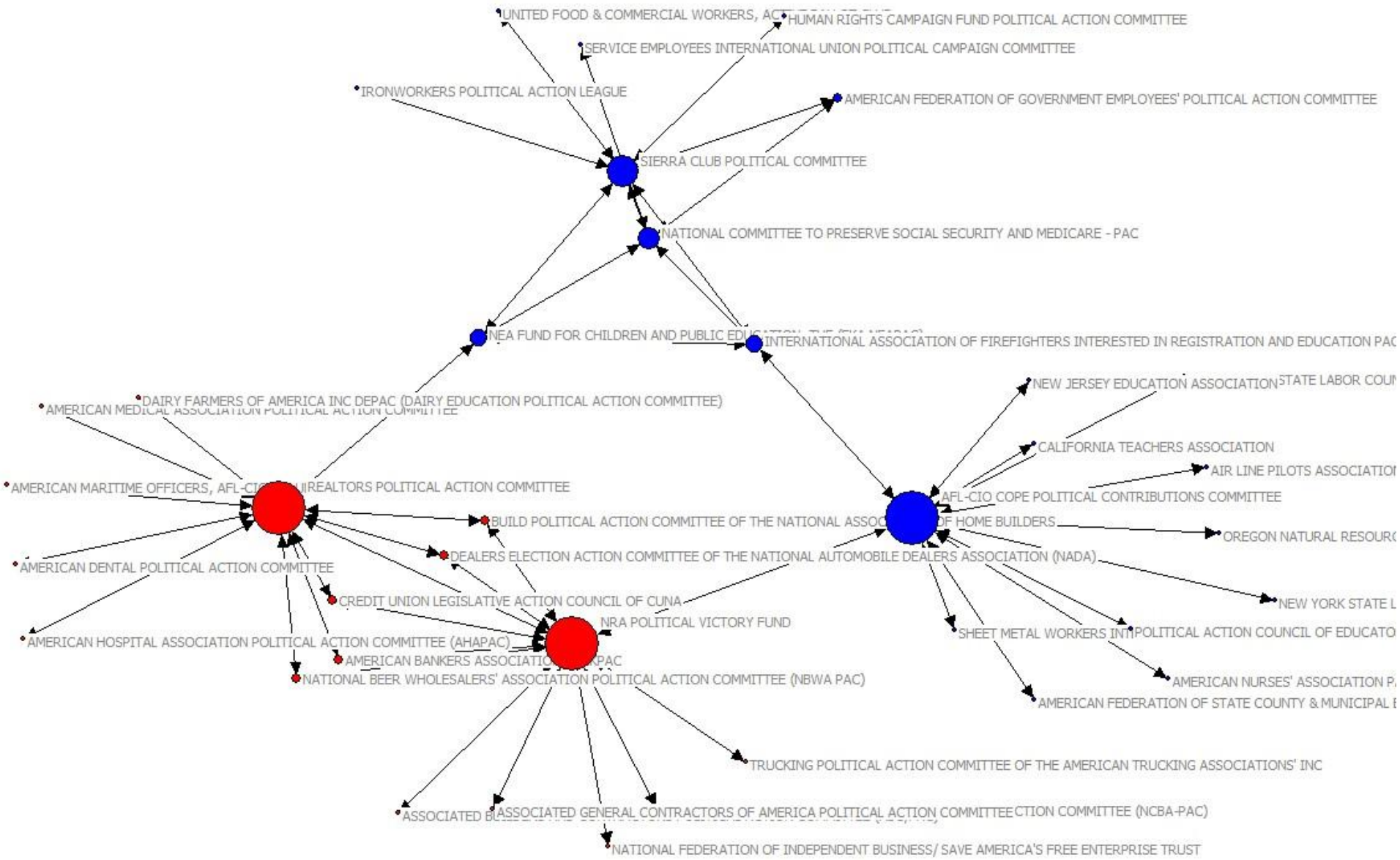

Figure 4: Core of the Non-Corporate PAC Contribution Network (all types of spending)

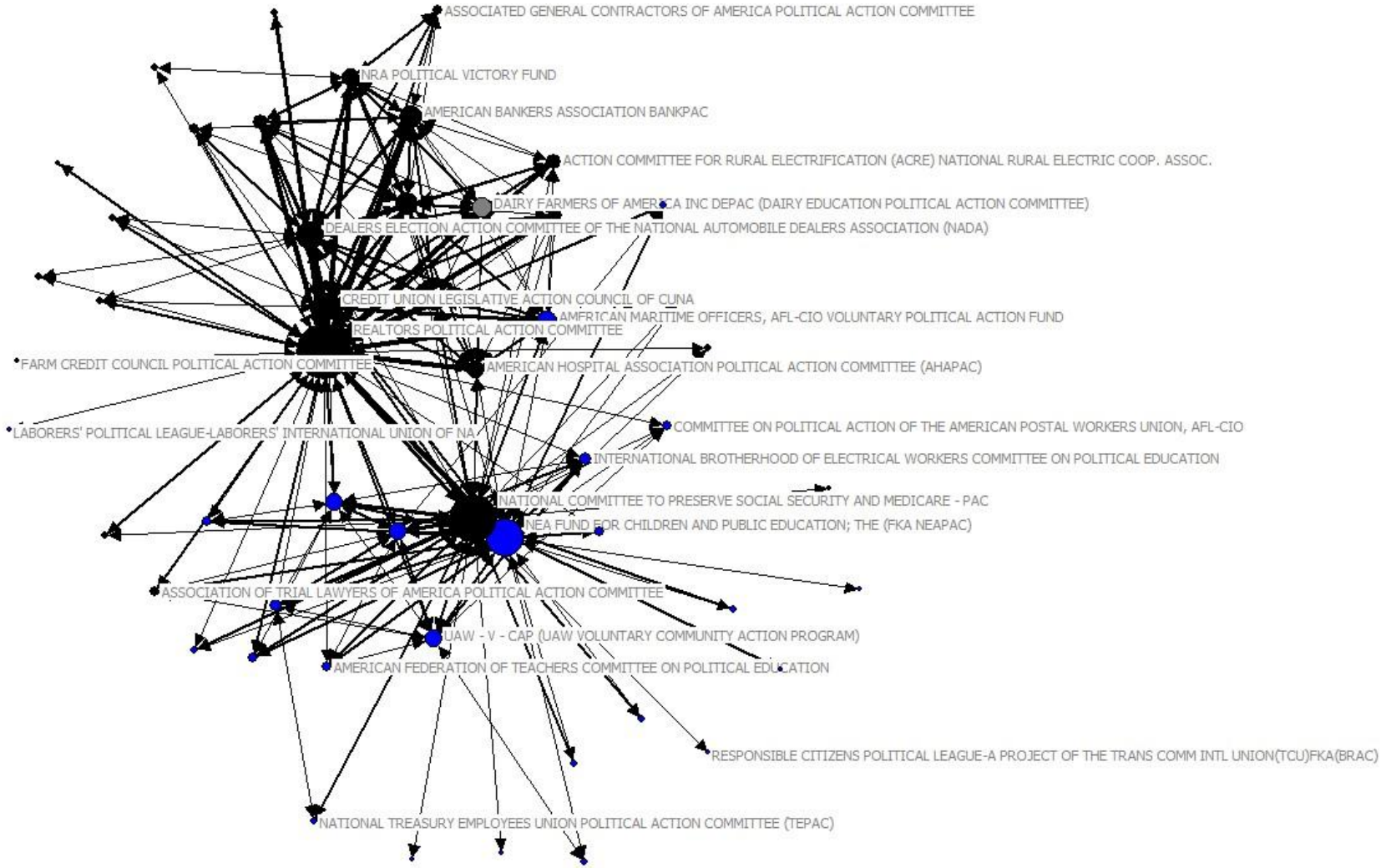

Figure 5: Network of Hard Money Contributions

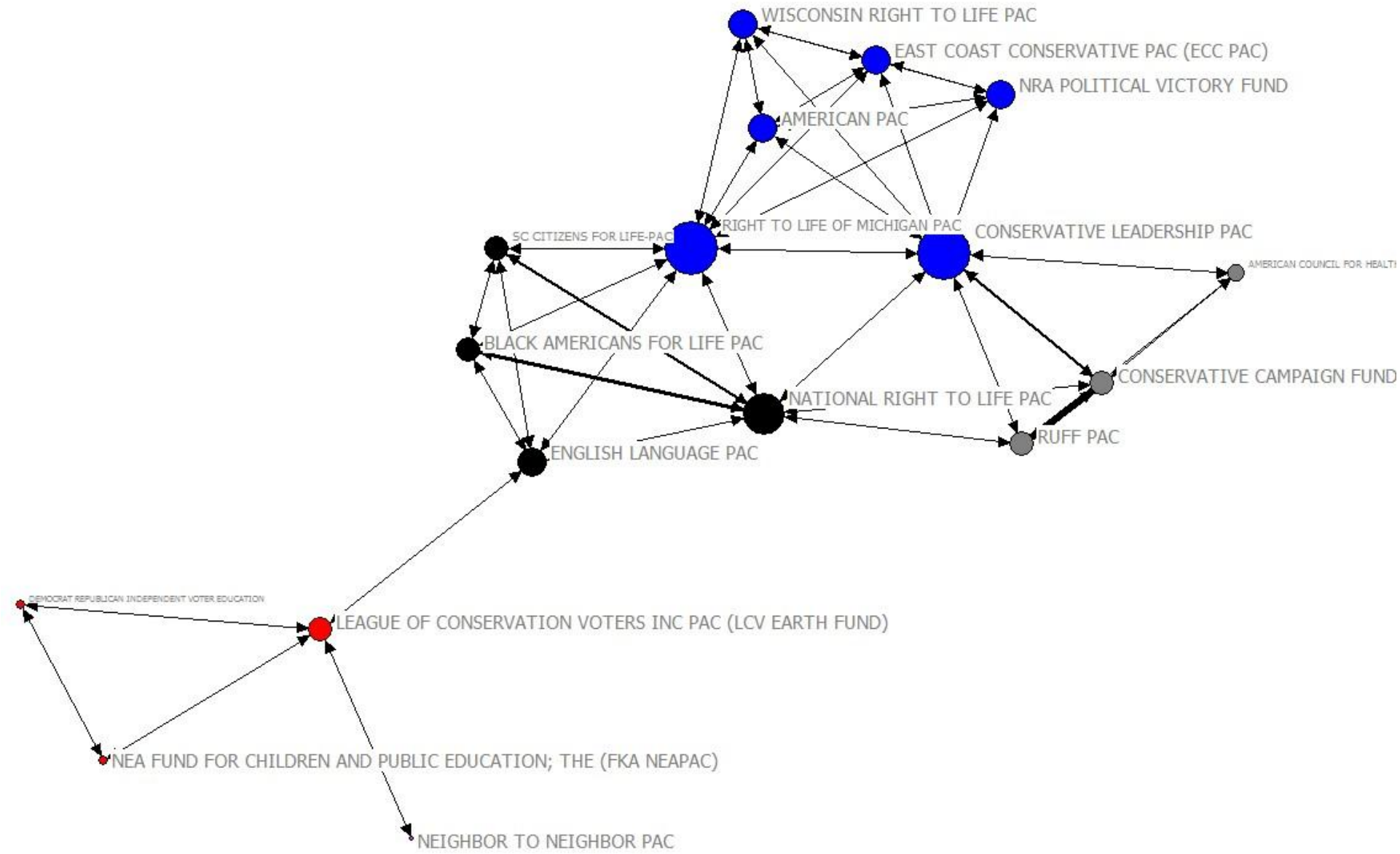

Figure 6: Independent Expenditures Against Candidates

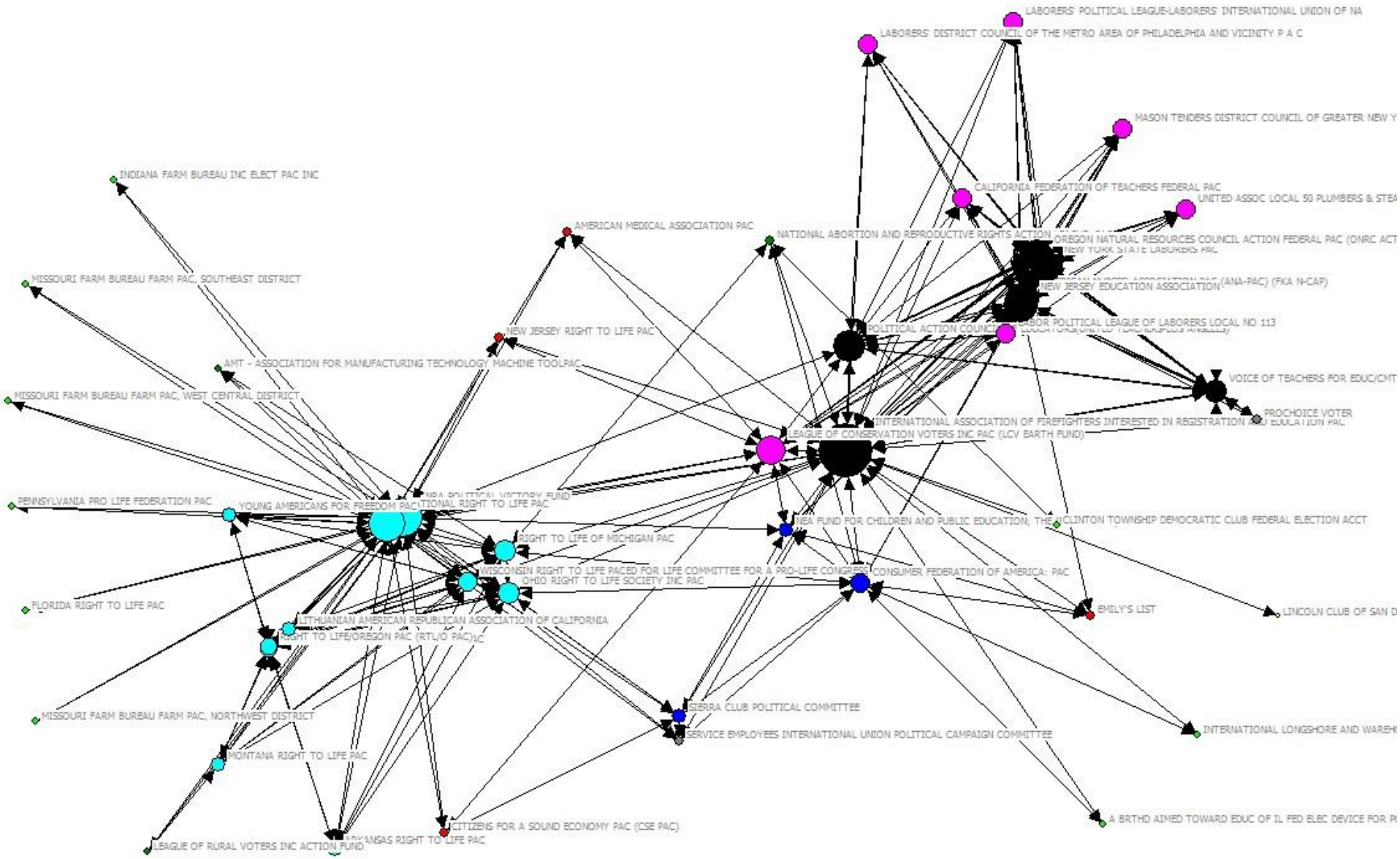

Figure 7: Independent Expenditures for Candidates

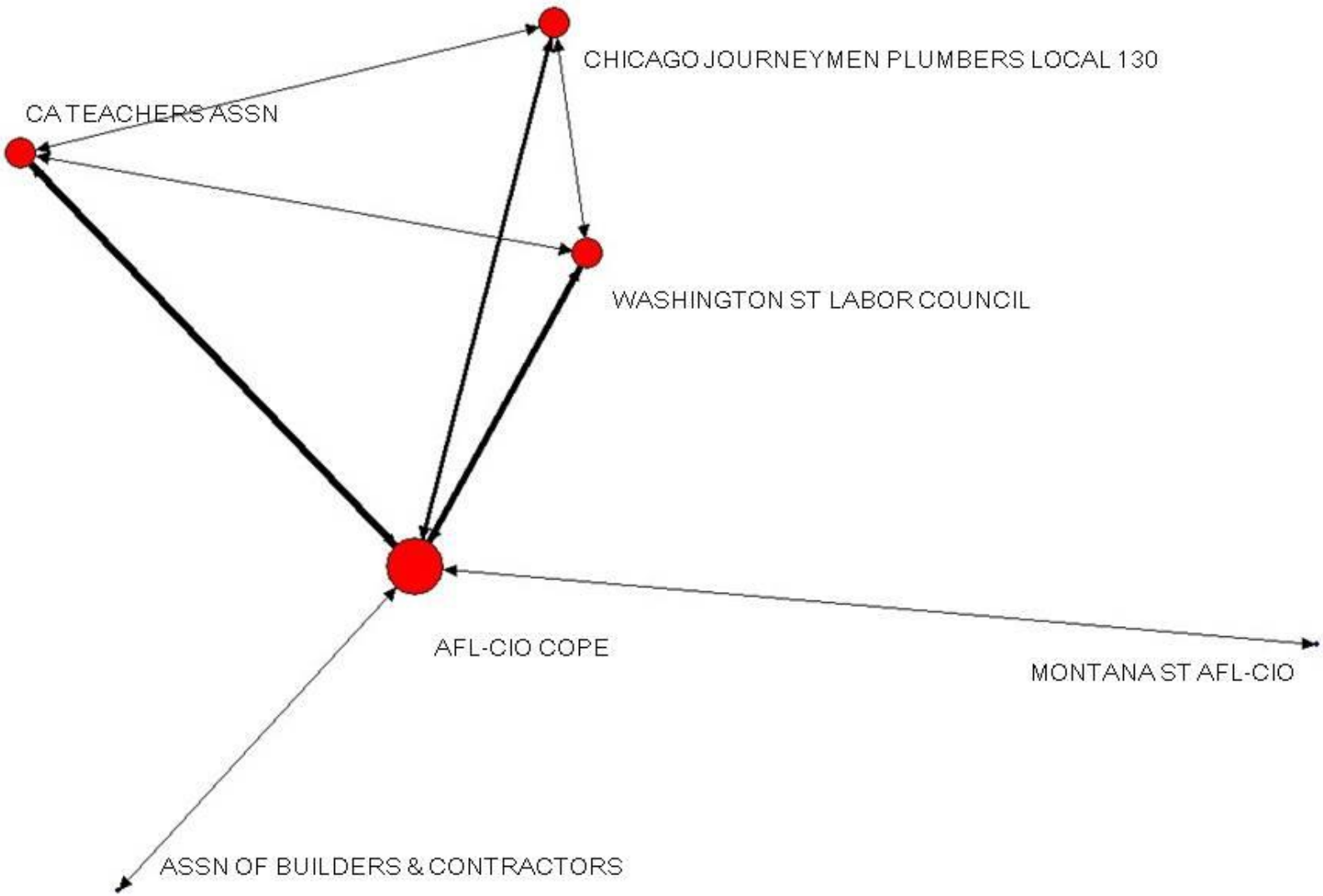

Figure 8: Communications Costs Spent Against Candidates