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Social Movements and Policy Change: Direct, Mediated, or Joint Effect?

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Abstract

In this paper, we discuss the relation between social movements, public opinion, and political alliances with respect to the impact of movements on public policy. We first discuss the existing literature and sketch three broad models of the role of public opinion and political alliances (or the absence of such role) in facilitating the task of social movements in producing policy change: the direct-effect model, the mediated-effect model, and the joint-effect model. We test empirically each of this three explanations by means of time-series analyses of the mobilization of ecology, antinuclear, and peace movements in the United States between 1975 and 1995. The results show, first, that the three movements did not have a substantial impact on public policy, confirming that the direct-effect model has little explanatory power. Second, the mediated-effect model, too, is not supported by the empirical evidence, both in its public opinion and political alliances variants. Third, the joint-effect model is that which fits our data the best.
Social Movements and Policy Change: Direct, Mediated, or Joint Effect?

The literature on social movements has primarily examined the causes of the emergence and development of protest, whereas relatively little attention has been paid to the movements’ consequences. As Tarrow (1993: 580) has pointed out, we need to look “systematically at the effects of movements on reform” in order to improve our knowledge of the role of social movements for the promotion of democracy. Some students of policy changes have taken into account in their explanations the role of social movements (Burstein 1985; Jasper 1990). Furthermore, social movement scholars have recently increased their efforts at inquiring into the impact of protest on reform (Giugni et al. 1999; Tarrow 1993, 1994).

The idea that social movements are powerless and therefore can hardly have a direct impact on policy changes is a widespread assumption among researchers. Powerless actors need support to bring about political change. In the course of their interactions with powerholders, challengers must activate “third parties” in order to enter the bargaining arena and to succeed (Jenkins and Perrow 1977; Lipsky 1968; Wilson 1961). A number of authors have argued that social movements need public support, specifically that they need the help of a favorable public opinion if they wish to see their claim fulfilled (Costain and Majstorovic 1994; Burstein 1985; Burstein and Freudenberg 1978). Other scholars have underscored the need for movements to dispose of political support by powerful allies inside the institutional arenas (Kriesi et al. 1995; Tarrow 1994). In brief, movements need the help of mediators in order to force the political authorities to take into account their claims and modify their policies accordingly. Theories stressing one or the other of these two types of “mediators” – public opinion or political alliances –, imply opposing views of democracy. Those who stress the role of public opinion convey a pluralist view of democracy, that is, a bottom-up model of political change. On the other hand, theories that emphasize the importance of political alliances in the institutional arenas imply an elitist model of democracy, that is, a top-down model of democracy and political change.

In this paper, we discuss the relation between social movements, public opinion, and political alliances with respect to the impact of movements on public policy. We first discuss the existing literature and sketch three broad models of the role of public opinion and political alliances (or the absence of such role) in facilitating the task of social movements in producing policy change: the direct-effect model, the mediated-effect model, and the joint-
effect model. We test empirically each of this three explanations by means of time-series analyses of the mobilization of ecology, antinuclear, and peace movements in the United States between 1975 and 1995. The data are part of a broader research project that aim to assess the policy impact of these movements in Italy, Switzerland, and the United States, focusing on the interconnections of mobilization, public opinion, and political opportunity structures and adopting a historical comparative framework.

Assessing the role of social movements in the political system invokes a broader debate on the functioning of democracy. In this respect, in spite of the considerable number of studies bearing on this type of social movements outcome, there still are several blind spots, specifically as regards the relation of mobilization to what we see as two major conditions for its impact: public opinion and political alliances. By looking at public opinion and political alliances as mediators of the success of social movements, we also wish to address the issue of what type of democratic model the American ecology, antinuclear, and peace movements had to face in their attempt to bring about policy change during the past three decades or so.

Public opinion and political allies as mediators of the success of social movements

Social movements have various types of consequences at the social, political, and cultural level. Political effects are certainly the most frequently studied by scholars. Among these effects, policy impact has received most attention (e.g., Amenta et al 1992; Banaszak 1996; Burstein 1985; Burstein and Freudenburg 1978; Costain and Majstorovic 1994; Kitschelt 1986; Middtun and Rucht 1994; Rüdig 1990; Tarrow 1993). Several types of political effects have been distinguished in the existing literature. The most common distinction is that between the acceptance on the part of powerholders of protesters as legitimate representatives of collective interests and the gain of new advantages by challengers (Gamson 1990). Schumaker (1975) has proposed a more detailed typology of the responsiveness of the political system. He first distinguished between two types of acceptance: gaining access to the political system (access responsiveness) and obtaining access to the political agenda (agenda responsiveness). Substantial effects are related to the capability of social movements to bring about policy changes. They can do so by forcing the authorities to adopt new policies (policy responsiveness) or to implementing them (output responsiveness). Schumaker distinguished a third type of substantial effect (impact responsiveness), which is the final outcome of the policy-formation process. For example, a state may adopt new legislation for environmental protection and actually implementing it, but the quality of air does not necessarily improve.
This type of social movement outcome is a real substantial impact insofar as mobilization has produced a substantial change related to its claims. Of course, it is very hard to assess this type of impact due to the intervention of a number of external factors and hence the difficulty of controlling them. Finally, Kitschelt (1986) added a further type of consequence, consisting of the structural impact on the political system itself. Burstein et al. (1995) have summarized all these types of social movement outcomes in the most comprehensive typology we have seen thus far.

According to most studies of the consequences of social movements, the latter do not have a direct effect on public policy. Instead, they need powerful mediators that can function as relays for their claims. In this perspective, we assume that movements affect their social and political environment, but are hardly able to bring about policy changes by themselves. If we look at the literature, we find two main facilitating factors: public opinion and political alliances. In fact, these two factors reflect the two main targets of social movements: the public space and the political arenas. On the one hand, movements try to raise public awareness and concern about certain issues. In other words, they engage in what Klandermans (1988) has called consensus mobilization. In doing so, movements have two more or less explicit objectives. First, they try to directly provoke structural and cultural changes in society by influencing people’s attitudes and behaviors. For example, the environmentalists have always attempted to sensitize the citizens to contribute to improve the state of the environment. Second, they address public opinion in order to make it an ally. When they benefit from the support of public opinion, social movements increase their legitimacy as political actors in front of the political authorities. On the other hand, the second main target of movements is represented precisely by the powerholders. They interact above all with state actors in order to force them to reform policies or the political system itself. Being powerless actors who do not have sustained access to the institutional arenas, movements need to mobilize political allies in order to reach their policy goals.

**The public opinion mediation model**

Authors who have stressed the importance of public opinion for policy changes have a specific view of democracy. They usually embrace the model of representative democracy (Burstein 1998, 1999). According to this view, powerholders respond to public opinion for electoral reasons. In an electoral competition system, elites are sensitive to citizens’ demands in order to maintain their power. This theory underscores the so-called “tyranny of the

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1 See Giugni (1998) for a recent review of work on the consequences of social movements.
majority.” As Lohmann (1993) has put it, to take into account the public’s preferences does not mean to follow naively the democratic ideal of respecting the citizens’ will, but is rather an instrumental attitude by elected officials aimed at preserving their power. Thus, as Burstein (1998, 1999) has pointed out, the struggle of democracy gives the ruled considerable power over their rulers. Any shifts in public opinion alert the political elites, who will adjust their behavior accordingly. In other words, changes in public opinion should be followed by corresponding changes in public policies (Burstein 1998). A number of studies have stressed this close relationship between public opinion and policy (e.g., Burstein 1985; Costain and Majstorovic 1994; Devine 1985; Hartley and Russett 1992; Hicks 1984; Hill and Hinton-Andersson 1995; Page and Shapiro 1983), emphasizing that, particularly when political issues are felt as important by the general public, a clear and visible shift in the public opinion forces the authorities to adjust their policies.

According to the theory of representative democracy, social movements and interest groups should not have a direct impact on public policy. In a well-functioning democracy, political elites respond to the claims that are supported by the majority of citizens and do not take into account particular interests of minority groups such as social movements and interest groups (Krehbiel 1991; Lohmann 1993). By responding to minority demands, elites run the risk of not being re-elected, at least in the long run. In this view, social movements would only have an indirect effect on policy. Burstein (1999) stresses three ways in which social movements can have an indirect impact on public policy: changing the public’s preferences, that is, attracting public opinion to their cause; increasing public concern with regard to the issues raised by the movement; and changing the legislator’s perception of the public’s preferences or of the issue’s saliency in the public space. Thus, Burstein (1998) maintains that when scholars find a direct impact of protest on policy, the impact of protest diminish or even disappears if they include the preferences of the general public in their models.

According to this view of democracy, the impact of social movements on policy is mediated by public opinion. Together with a variety of other external factors, protest influences public opinion and hence can have an indirect impact on policy (Page and Shapiro 1983). In this sense, public opinion is an intervening variable between a range of external factors, including social movements, and policy outcomes. Figure 1 shows two examples of such public opinion mediation models. Burstein (1985) has proposed a theory that stresses the crucial role played by social movements and media coverage as external factors that shape the general public’s preferences. His study shows that the Civil rights movement and media coverage affected the people’s awareness of the issue and this, in turn, led the Congress to act
in favor of African-American’s rights. Costain and Majstorovic (1994), inspired by Carmines and Stimson’s (1989) work on the impact of legislative activity on the orientation of the general public’s preferences, advanced a non-recursive model of policy change whereby public opinion both influences and is influenced by legislation. They illustrate their theory with time-series data on the American women’s movement and show that the movement’s mobilization heightened the public awareness which, in turn, influenced the legislative production. Thus, in this view, policy change is the outcome of an interactive process involving social movements, the state, parties, and public opinion. Again, we see that the impact of social movements on policy is not a direct one, but is mediated by public opinion.

**Figure 1**

**The political mediation model**

Alternatively to the public opinion mediation model, a political alliance model can be derived from the existing literature on social movements, in particular from the political processes approach, which has stressed the role of political opportunities for the emergence, development, and outcomes of movements (Kitschelt 1986; Kriesi et al. 1995; McAdam 1982; Tarrow 1994; Tilly 1978). One key variable in this respect is the presence and availability of political alliances (della Porta 1996; della Porta and Rucht 1995; Kriesi et al. 1995; Tarrow 1994). Specifically, Kriesi et al. (1995) argue that political opportunity structures are more conducive to movement emergence when allies are in the opposition. For example, new social movements in France flourished when their major ally – the Socialist party – was not part of the government. Once the Socialists seize the power in 1981, the new social movements lost their main political support and underwent a rapid process of demobilization. In contrast, to obtain political responsiveness and substantial effects, contenders need to have their main allies within the political system. Allies need to share the power in order to reform policies. Thus, whereas allies in opposition represent an opportunity for the movement emergence and mobilization, when allies are into power they constitute an opportunity to bring social movements demands in the political system.

According to this model, to have a substantial impact on public policy, social movements need the support of powerful political allies that take up their claims in the institutional arenas (Tarrow 1994). In the absence of such mediation, movements can hardly change the course of politics. This political mediation model implies a different view of democracy than that discussed above. The pluralist view of democracy, in which political change follows a bottom-up path, leave the place to an elitist view of democracy according to
which public policies stems from political elites and hence follow a top-down path. When the stimulus for change comes from below, it must be taken up by insiders – i.e., by elites – in order to translate into policy changes and reform.

In a very insightful paper on the impact of May ‘68 on university reforms in France, Tarrow (1993) points out that protest opened up a “window for reform.” The student movement put strong pressure on the political elites and therefore was able to bring about substantial changes in the university policies, but this success would have been impossible if the students were not helped by allies in the institutional arena. A sector of the elites supported the movement’s claims and initiated a profound reform of the university system. State reformers, led by the Minister Faure, endorsed the reform taking advantage by the fact that conservative elites feared major disturbances of the public order. Tarrow’s model, sketched in figure 2 for our purpose, assumes that protest has a substantial impact thanks to the mediation of powerful political allies. The figure also shows a summary of a study by Amenta et al. (1992) on the impact of the Townsend movement in the United States, which, in a somewhat different perspective, also puts forward a political mediation model. In an attempt to test various models of social movement formation and outcomes (economic, social, political opportunity, and political mediation), they find strong support for the claim that political opportunities mediates the relationship between social movements and outcomes, specifically policy outcomes. Their explanation stresses that the state and the party system determine whether mobilization gains acceptance and produces benefits for the constituency, the two dimensions put forward by Gamson (1990) and used in a number of subsequent studies of the consequences of social movements.

Figure 2

Unlike in the previous model, public opinion does not intervene here. The impact of social movements on public policy depends basically on the mediation by political allies who are willing to take up the movements’ claims in the institutional arenas. For our purpose here, what comes out from works by Amenta et al. (1992), Jenkins and Perrow (1977), Lipsky (1968), Schumaker (1975, 1978), Tarrow (1993, 1994), and many others is that there is no direct translation of protest into policy changes. Social movements must be backed by insiders if they are to succeed in influencing public policy.

From mediation to interaction

In the two models discussed above, social movements have an indirect impact on public policies: they first mobilize, then their claims are taken up either by public opinion or political
allies, and the pressure of the public and the action of the allies eventually produce policy changes. To this two-step view we oppose an interactive model of movement outcomes. We think that social movements do shape the general public’s preferences, which in turn influence public policies and that political alliances do provide crucial opportunities in the institutional arenas. Yet, in order to force the powerholders to engage in substantial policy reform, it is necessary to have the joint and simultaneous presence of a strong social movement and either a favorable public opinion or the action of a major political ally in the institutional arenas. Ideally (for challengers), the presence of all these three factors together increases the chances that policy changes will occur.

Tarrow’s study of the impact of May ‘68 on the French university policy encourages us to follow this line of reasoning. Protest offered a major incentive to reform the academic system by putting under pressure the French authorities. The student movement found crucial allies in the progressive elites for bringing about the beginning of a reform. But, in Tarrow’s (1993: 595) apt formulation, “the season for reforms, like the season of protest, was very short.” Once the movement demobilized and once the fear of protest abated, the movement’s allies no longer had the impetus for reforming the university. In other words, an inversion of tendency took place: reformist elites lost their main allies, that is, the movement and reform was abandoned instead of becoming implemented. This example leads us to think that policy change is the joint effect of both a strong social movement and the action of political allies in the institutional arenas.

A similar reflection can be applied to public opinion. As Burstein (1999) has put it, citizens have a limited capability to pay attention to many issues at the same time. As the agenda-building approach to social problems (Cobb and Elder 1972) has shown, there are a variety of factors that lead a political issue to be put on the public agenda and increase its visibility. Among these factors, social movements play an important role. Burstein’s work (1985) on equal employment legislation clearly shows that the Civil rights movement greatly increased the salience of the issue in public opinion which, in turn, strongly influenced Congress activity. Without the joint action by the movement and an increase of public concern, legislation would probably not have changed. If the Civil rights movement had not mobilized strongly during this period, public opinion could easily have shifted its attention to other issues.

These two examples lead us to revise the indirect role of social movements on public policy. While movements can rarely bring about substantial policy changes alone, the way in which they can produce such changes is not through an indirect effect whereby either public
opinion or political allies (or both) mediate their actions, but rather a joint effect of protest actions and one or both of these two “facilitating factors.” Now, one question remains open: Which factor – public opinion or political alliances – is most important for social movements to affect public policy? Moreover, is one of them sufficient or are they both necessary to see movements bring about change? While these are questions that call for answers based on empirical investigations, theoretically the answers differ according to the democratic model one privileges and to the type of issue at hand. Quite obviously, some changes are easier to produce than others. On the one hand, domestic policy is more easily influenced than foreign policy. There are external factors involved in foreign policy that pose major constrains on the decisions of national authorities. In addition, some issues threaten the authorities to a greater extent that others, for they strike the core interests of the state, although the threatening character of a political issue varies from country to country (Duyvendak 1995; Kriesi et al. 1995). Figure 3 offers a typology of political issues that combines the domestic/foreign policy division and the high-profile/low-profile distinction that characterizes the threatening content of issues.

**Figure 3**

The three movements examined can be placed in different cells of this typology. The peace movement targets a policy area that is arguably the most difficult to change among those considered here. As it addresses foreign policy and threaten the core interests of the state, the peace movement has a though task in its attempts to bring about policy changes. In contrast, the ecology movement, which addresses domestic policy and does generally not threaten the core interests of the state, has the highest chances to influence public policy. The antinuclear movement represents an intermediate case, insofar as it addresses domestic policy, but at the same time it raises a high-profile issue (nuclear energy or, more generally, the energetic provision of the country). Finally, the solidarity movement, which is not part of our study, would be an example of a movement that mobilize around low-profile foreign policies. In sum, the degree of difficulty to bring about policy changes should be the following: very difficult for the peace movement, somewhat easier for the antinuclear movement, and rather easy for the ecology movement.

When do public opinion and political alliances become crucial for social movement outcomes? From the elitist model, we can derive the hypothesis that the more threatening the movements’ claims, the more necessary the support of strong allies. In contrast, the pluralist model suggests the hypothesis that conflicting political issues are likely to become salient in the public space and, therefore, the mechanisms of representative democracy would predict
that the support of public opinion is crucial. However, when it comes to threatening issues in the foreign policy domain, such support is probably not sufficient. For this type of movement claims, the help of both public opinion and powerful allies in the institutional arenas are needed to have a substantial impact on public policy.

In the empirical analyses that follow, we assess different models of social movement impact: the direct-effect, the mediated-effect, and the joint-effect models. The underlying question is the following: Is public opinion, political allies or both a crucial facilitating factor for the impact of social movements on public policy? Figure 4 summarizes the models to be tested. We first ascertain whether protest can produce policy changes alone. Second, we test the public opinion mediation model and the political mediation model (which we see as two variants of a more general mediated-effect model). Finally, we introduce a series of interactive terms in order to assess the explanatory power of the joint-effect model.

**Data and methods**

The data used in this paper consist of yearly time-series measuring social movement actions, trends in public opinion, the structure of political alliances, and public policy outcomes in the United States. The period covered spans from 1975 to 1995. Appendix A describes the variables used in the empirical analyses.

*Social movements.* Following a methodology that has proved useful in previous studies of social movements (e.g., Kriesi et al. 1995; McAdam 1982; Rucht et al. 1998; Tarrow 1989; Tilly et al. 1975), data on protest events carried by ecology, antinuclear, and peace movements were collected by content analyzing *The New York Times* as a newspaper source. All Sunday and Monday editions of the paper have been consulted, following a sampling procedure similar to that used by Kriesi et al. (1995). For each event found, a number of basic characteristics were coded, such as the form of the event, its goal, and the number of participants. From the original, event-based file, the data were aggregated into yearly counts of the protest events carried by each of the three movements and stored into a new file specifically organized for time-series analyses. This gives us a first and most straightforward indicator of the development of mobilization over time, In addition, we aggregated the total
number of participants in each single event and hence have a second indicator consisting in
the yearly sum of participants.²

**Political allies.** Political opportunity theorists have shown that the structure of political
alliances and the configuration of power among institutional actors strongly facilitate the
mobilization and impact of social movements (della Porta and Rucht 1995; Kriesi et al. 1995;
Tarrow 1994). There are two ways in which we can measure the role of allies. The most
straightforward way is to look at the formal configuration of power in the institutional
political arenas. Here we use two simple indicators: the distribution of seats in each of the two
chambers of the parliament. As we assume that the Democratic party is more inclined to
support the claims of the three movements under study (similarly to the Social-democratic
parties in Western Europe), we look at the number of democratic seats in the House of
representatives and in the Senate. In addition, we constructed a categorical variable that
combines the presence (hence the power) of the Democratic party in the executive and
legislative arenas. This variable takes on the following values: 0 when there is a Republican
administration and the Democrats are in the minority in both chambers, 1 when they are in the
majority in one of the two chambers, 2 when they hold either the presidency or both
chambers, 3 when they hold the presidency and one chamber, and 4 when they hold the
presidency and both chambers.

These indicators of the formal configuration of power are used in control analyses and
in the construction of the interactive terms. In addition, in order to assess the impact of social
movements on political alliances, we use a crude indicator of the public support given by
institutional actors to the three movements or at least to the issues they raise. These data come
from the same newspaper source consulted to gather the protest events carried by the
movements. We collected conventional actions (mostly public statements) by political elites
that dealt with the issues raised by the movements: the environment, nuclear energy, and
peace.

**Public opinion.** Creating time-series data on public opinion spanning over several years is
very difficult, sometimes just impossible simply due to lack of available data. This task is
made easier in the United States by the presence of long-standing opinion poll institutes.

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² In the analyses, we use the natural logarithm of the number of participants in order to reduce the variation due
to outliers. It should be noted that, depending on the form of action, this variable displays a relatively high
number of missing data. These were replaced with estimates based on the annual average median for each form
of action.
However, even so our series are limited to 15 or 18 yearly observations and include missing data that were replaced with estimated based on linear interpolation. To measure changes in public opinion regarding environmental issues, we look at the number of people who are more on the side (i.e., are in favor) of protecting the environment (Roper poll) as well as the number of people who think that U.S. spending on improving and protecting the environment is too little (NORC poll). Both questions are reported by Dunlap (1992: Tables 3 and 4). Regarding opinion on nuclear energy, we look at the number of people who oppose the building of more nuclear plants in the United States (Harris poll) reported in Rosa and Dunlap 1994: 308). For peace issues, we look at the number of people saying that spending for defense is too much (reported in Stanley and Niemi 1994: Table 11-11).

*Public policy.* Although most works on policy change have measured policy outputs in terms of expenditures (e.g., Dye 1966; Hofferbert and Sharkansky 1971; Jacob and Vines 1971), previous studies inquiring into the policy impact of social movements by means of time-series data take legislative activity or production as the dependent variable. Burstein and Freudenburg (1978), for example, look at the roll calls votes received by bills and amendments related to the Vietnam war voted by the U.S. Senate between 1963 and 1974. More recently, Constanin and Majstorovic (1994) employed a coded measure of the percentage of bills passed the U.S Congress focused on gender. In spite of the problems that have been evoked for using expenditure data (Burstein and Freundenburg 1978; Hofferbert 1974), here we measure policy change basically through government spending in the area at hand as a percentage of the total federal government expenditures.

Our dataset includes a series of indicators of government spending for the environment. The measure used in the empirical analyses that follow consists of the total budget of the Environmental Protection Agency, the main governmental office in charge of dealing with these issues. Change in the area of nuclear energy policy is measured through two indicators that can be considered as the equivalent of expenditures in the two other policy areas: the number of nuclear power plants on order and the total number of plants. Finally, to evaluate the impact of the peace movement we look at the federal outlays for defense.³

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³ The sources for the data on policy change are: for the environment, the Budget of the United States Government (Historical Tables, 1998); for nuclear energy, the Annual Energy Review (Energy Information Administration); for the defense, Stanley and Niemi (1995).
Interactive terms. As our principal argument is that social movements are most likely to have an impact on public policy when their action combines with a favorable public opinion and is supported by powerful political allies, we introduced a number of two-way and three-way interactive terms in the analyses. First, four variables regard the joint effect of social movement mobilization (as measured through the number of protest events) and public opinion: two for the ecology movement, one for the antinuclear movement, and one for the peace movement. The next six variables (three for each movement) combine social movement mobilization and the three indicators of political alliances. Finally, three variables look at the joint effect of social movement mobilization, public opinion, and political alliances. These three-way interactive terms become six in the case of the ecology movement, for two measures of public opinion are used instead of one. Appendix B shows the complete list of interactive terms used in the regression analyses.

All the variables used in the analyses are expressed in terms of variations from the previous year, except for the three measures of the formal configuration of power and the interactive terms, which are measured as absolute levels. Variations consist of annual differences or (in the case of the two indicators of nuclear energy policy) annual percentage changes. The choice of looking at variations instead of levels has both a methodological and a theoretical rationale. Methodologically, using differences instead of absolute levels reduces the chances that the error terms of the regressions display significant serial correlation. This, indeed, is a major problem in time-series analysis, especially with expenditure variables that present a strong trend. In this case, the presence of serial correlation can substantially alter the results, yielding apparently significant effects which are in fact largely due to the effect of the observation at time t-1 on the observation at time t on the same variable. Differencing the dependent variable is the simplest and most straightforward solution to this problem.

But the use of variations instead of levels stems above all from a theoretical reflection. We think that social actors react not so much to the level reached by a given component of their social environment as to changes occurring in that component. In other words, people are more sensible to variations from a previous situation than to the “amounts” observable at a given time. This holds both for ordinary citizens and political elites. For example, powerholders respond (positively or negatively) to an increase from a previous period in the protest actions carried by a social movement rather than to the level of mobilization that it displays at a given moment.
We certainly do not mean that absolute levels are unimportant. Indeed, in addition to the analyses shown, we also analyzed relationships between levels in order to compare these two aspects and to control the results obtained with the differences. Yet, we assume that-year to-year variations are more conducive to a reaction by social actors as compared to absolute levels. The use of differences in the empirical analyses is more in line with the idea of people responding to what they perceive as a significant change from a preceding situation.


Figure 5 shows the development of the number of protest events carried by ecology, antinuclear, and peace movements in the United States between 1975 and 1995. We can use it as a basis for a brief overview of the mobilization of these movements during the period considered in our analyses. The late 1970s witnessed a strong but declining mobilization of the ecology movement. In fact, protests addressing environmental issues were quite sustained already in the decade’s first half and, in spite of several ups and downs, remained rather stable all along the period under study.

Figure 5

The declining trend displayed under the Carter’s administration reversed during the years of Republican presidency. The substantial cuts made by Reagan in the environmental policy domain in favor of military spending, particularly during his first mandate, provoked a reaction by environmentalist groups and organizations, though a moderate one. In particular, a strong and nationwide “toxic waste movement” emerged during this period (Szasz 1994) and after the case of Love Canal in 1978 attracted the attention of the national media. The relative renewal of mobilization sped up under the Bush’s administration. Finally, when the Democrats seized the power once again, the level of mobilization went down to reach its lowest level since the 1970s. Incidentally, it is interesting to remark that this pattern of mobilization is consistent with the political opportunity model proposed by Kriesi et al. (1995), according to which when their principal institutional ally (in this case, the Democratic party) is in the opposition, social movements have more room to mobilize that when the ally is in power.

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4 In order to keep our discussion as simple as possible, we do not present the results concerning levels. In some cases, we mention them because they strengthen our findings or because they display differences that may be interesting from a theoretical point of view.

5 Our sample also includes data for 1970. We find 52 ecology movement events for that year.
The mobilization of the antinuclear movement displays a very different pattern over time. Antinuclear protests were relatively rare in the first half of the 1970s, but went up abruptly between 1976 and 1979. Acts of civil disobedience at the Seabrook (New Hampshire) and Diablo Canyon (San Luis Obispo, California) planned facilities acquired national attention and stimulated further actions across the country. However, the peak of mobilization was reached in the aftermath of the accident that occurred at Three Mile Island (Harrisburg, Pennsylvania) on 28 March 1979. After this abrupt and short-lived wave of protest, the mobilization of the antinuclear movement declined rapidly and stabilized at a very low level. This decline is in part a result of the “successes” obtained by the movement as the U.S. nuclear energy industry nearly collapsed.

The mobilization of the peace movement shows a pattern similar to that of the antinuclear movement, with a huge but short-lived protest wave. Of course, peace actions were at their peak in the late 1960s and early 1970s. However, after end of the Vietnam war, mobilization went down considerably. It resumed in the late 1970s, when the nuclear weapons issue came back onto the agenda of pacifist groups and organizations. Reagan’s election worsened the international climate, already in a bad shape after the Iran hostages crisis of 1979. The military buildup planned and operated by the Republican administration and the president’s hostility toward the Soviet Union provoked an impressive wave of protest between 1979 and 1984. This mobilization, which was carried above all under the banner of the Nuclear freeze movement, reached its peak in 1982 with the June 2 demonstration in New York, probably the large ever with its estimated one million participants.

The Freeze movement was soon co-opted by the political elites (Meyer 1990, 1993) and the level of mobilization declined as fast as it had risen. During the second half of the 1980s, peace actions focused upon the foreign policy carried by the Reagan administration in Central America (Smith 1996) and to military spending issue, but only rarely did they involve large numbers of participants. A last outburst of popular mobilizations occurred in 1990 and above all 1991, when thousands of people protested against U.S. intervention against Iraq aimed at driving the latter out of Kuwait after it invaded the small emirate. This protest wave was as short-lived as the Gulf war itself and left the peace movement to its lowest level, confirming a sort of abeyance of these three movements during the years of the Clinton administration.

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6 Only 2 events are reported in our sample for 1970.
7 We found 122 events in our sample for 1970.
**Social movements and public policy: the direct-effect model**

During the two decades considered in this paper, public policy in the three areas targeted by the movements evolved sometimes in a positive direction, sometimes in a negative direction (from the movements’ perspective). These changes are expressed mainly in new pieces of legislation and in variations of expenditures in the corresponding policy areas. Furthermore, these changes both preceded mobilization and followed it. Here we examine changes in public policy as expressed in expenditures (and energy production) and as a response to variations in social movement activity. We first test the most straightforward relationship between these two terms: a possible direct effect of the movements on public policy. Table 1 presents the results of bivariate regressions between two indicators of mobilization (the number of protest events and the number of participants) and the selected measures of policy change. Like all the following ones, this table shows standardized regression coefficients estimated through the Prais-Winsten method, assuming a model that follows a first-order autoregressive process, that is, a model of a time-series in which the current value of the series is a linear combination of previous values of the series, plus a random error. As the time-series are rather short, we consider a 10 % level of confidence in addition to the more common 5 % and 1 % levels.

Table 1

The table divides in two parts. The upper section presents regression coefficients with both the dependent and the dependent variable measured at the same moment in time, while the lower section shows the corresponding coefficients with lagged variables, that is, with the independent variable at time t-1. If we look first at the simultaneous relationship between social movement mobilization and public policy, we see that this relationship is significant only in two cases out of the eight statistical tests we conducted. However, only in the case of spending for environmental protection is the coefficient consistent with the hypothesis of a positive effect of the movement on policy. The significant effect of the antinuclear movement on the total number of nuclear plants cannot be taken into account, for it means that the movement’s mobilization would provoke an increase in the number of plants. In addition, the number of participants does not seem to matter, as no significant correlation can be observed.

However, we are most interested in the relationship between lagged variables, that is, between protest at time t-1 and public policy at time t0. The only significant effect that implies a positive impact of social movements on policy is the effect of the number of antinuclear protest events on the total number of nuclear plants. It is important to keep in

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8 Coefficients were generated with the AREG procedure in SPSS. Prais-Winsten is a generalized least-squares method for estimating a regression equation whose errors follow a first-order autoregressive process.
mind that here we are looking at a possible relationship between variations in both the dependent and independent variables. Specifically, decreases in the number of nuclear plants (as expressed in annual percentage change) during the current year seems to be related to increases in the mobilization of the antinuclear movement during the preceding year (as expressed in the difference from the previous year in the number of protest events). In this case, however, taking the absolute levels in the independent variables yields even better results, for both the number of events and those of participants are significantly correlated with nuclear policy. This might be due to the fact that, contrary to our argument, political elites react more to levels than variations, but it could as well be a simple statistical artifact.

Thus, the results of these first analyses suggest that there is no or at best only little direct impact of social movements on public policy. No effect is found for ecology and peace movements. The only exception is the antinuclear movement. Even in this case, however, there is evidence supporting our claim that movements can hardly affect policy directly. In fact, as a measure of change in the nuclear energy policy domain, the total number of nuclear plants can lead to biased interpretations. This indicator includes operating units as well as those on order or under construction. The number of operating units, however, depends on how many were under construction in the previous years. In other words, it is unlikely that antinuclear protests can prevent a plant that is under construction (and for which much money has already been invested) from being finished and hence starting operation. A more appropriate indicator is the number of units on order, since protest activities can directly and more easily translate into the decision of reducing the amount of orders. According to this indicator, even the antinuclear movement does not seem to have had a direct positive impact on policy.

Social movements and public policy: the mediated-effect model

We can now turn to a more likely path of social movement influence: the mediated-effect model. As we said in the theoretical discussion, we can distinguish between two variants of the argument that the policy impact of movements is mediated by some intervening factor (see Figure 4). According to the first variant, social movements alter public opinion about a given issue (by increasing public awareness toward the issue or by making the latter more salient). Shifts in public opinion, in turn, incite the powerholders to modify policies accordingly (for electoral reasons or for a authentic feeling that policy should follow the citizens’ preferences). In the second variant, established political allies within the institutional arenas take up the issues raised by social movement and then facilitate the process through
which such issues are translated into substantive policy changes. We test these two models by looking at each causal relationship along the reverse path, that is, starting from the link between public policy and the intervening variable. Results regarding the impact of policy on public opinion are shown in Table 2.

Table 2

The findings are quite straightforward. There is a significant correlation between the two indicators of shifts in public opinion bearing on environmental issues and government spending for environmental protection, as measured through the budget of the Environmental Protection Agency, both with lagged and non-lagged variables. In contrast, no significant effect can be observed for antinuclear and peace movements. What is most interesting for our purpose here is that the changes in the amount of money devoted to protecting the environment are related to changes during the previous year in the public concern over governmental efforts to improve the state of the environment. In contrast, public opinion does not seem to have influenced the decision-makers in the nuclear energy and national defense policy areas.

The negative sign regarding non-lagged variables could indicate that people respond with diminished concern when the political authorities increase their policy efforts, rather than the less plausible other way around. Yet, additional analyses (not shown) that assess the impact of policy on public opinion provide only limited support to this interpretation. It is likely that either the relationship between public opinion and policy changes, as Costain and Majstorovic (1994) have pointed out, is more complex and non-recursive or it implies a reaction period shorter than the one-year lag considered here. Probably, both explanations are correct. Here, however, we must consider that there is a strong effect of the levels reached by policy efforts at time t0 and the levels of public concern in the respective domains at time t-1. This holds for all three movements. This opens up an additional interpretation. It may be argued that public opinion is more sensitive to the absolute levels reached by government expenditures and energy production than to variations thereof. While we cannot provide an answer to this question, if this interpretation should prove correct, it might suggest that people are in fact more concerned about expenditures that go beyond (or below, depending on the issue at hand) a certain threshold. Although this aspect would deserve careful attention, we do not discuss it here.

We are more interested in testing whether the mediated-effect model outlined above finds some support from the data at our disposal. The second step in doing so consists of looking at the impact of social movements on public opinion. Table 3 shows the results of the
corresponding time-series analyses. Contrary to the often made claim that one of the major consequences of social movements is to sensitize the general public toward certain issues, our data provide little support to such claim. If we look at lagged variables, only the effect on the number of ecology protest events is significant and only at the 10% level. All other coefficients are not statistically significant.\textsuperscript{9} Thus, it appears that, while the simultaneous relationship between mobilization and public opinion is statistically significant for all three movements (either in terms of number of protest events, number of participants, or both), the movements’ actions at time t-1 had little impact on shifts in the position of American citizens with regard to the issues at hand. The only exception regards the effect of protest events on those people who think that current spending for the environment is too little.

\textbf{Table 3}

The fact that we find a strong simultaneous relationship between social movements and public opinion, while virtually no effect is found with lagged variables, could be a result of the one-year lag. It is possible that public opinion reacts more quickly to shifts in protest activities and that shorter time units would produce significant effects also with lagged variables. However, it could also be that we only have a simultaneous correlation because social movements are in a way a “barometer” of public opinion, the manifest expression of more latent attitudes and opinions among the population. Unfortunately, here we cannot give a clear-cut answer to this question.

If we now turn to the second variant of the mediated-effect model, which focuses upon the intervening role of political alliances, we can anticipate that it performs somewhat better than the first variant just discussed, but not as one might have expected. Going once again backwards from the explained variables, Table 4 shows in a first step the impact of political allies on public policy. We use four measures of the presence and behavior of allies (see above). The first three refer to the configuration of power in the two branches of the parliament as well as a combined measure of the power of the Democratic party in the legislative and executive arenas, while the fourth consists of the public statements made by political elites and dealing with environmental, nuclear energy, or peace issues.

\textbf{Table 4}

The most consistent finding in this table regards the effect that the number of Democratic seats in the Senate has on federal spending for the national defense. A stronger

\textsuperscript{9} The Durbin-Watson test could suggest the presence of serial correlation in the error terms. However, neither the number of events nor that of participants are statistically significant once we control for the lagged dependent variable in a OLS regression.
presence of the Democratic party in this branch of the Congress seems to more important cuts in this policy area’s expenditures. The strength of the Democrats in the Senate is also positively correlated with spending for environmental protection, but only when we consider non-lagged variables. However, in this case it makes more sense to look at simultaneous relationships. For it is difficult to justify theoretically that a shift in the configuration of power in a given year affects changes in public policy in the following year, while it has no impact on current spending. Rather, the formal position of movement allies should produce their effects at the moment when they decide.

The same could be said of pro-movement statements, our fourth measure of political alliances. However, one should also consider that allies, in this case, also act as “outsiders” by pressuring the government and other decision-makers to intervene in a given policy. Also considering this indicator, the results are not consistently in favor of the mediated-effect model. For we observe a significant relationship only with respect to the antinuclear movement. Yet, there is evidence of some impact of political alliances on public policy. Unlike that of public opinion, this impact is not only of a single movement (i.e., the ecology movement), but is distributed over all three movements, depending on the indicator considered.

For the impact of social movements on political allies, it would make little sense to look at the formal configuration of power. Therefore, we must rely upon our crude measure of behavior by the allies favorable to the movements’ claims. Results, shown in Table 5, point to a lack of impact by ecology and antinuclear movements, while a significant coefficient can be observed in the case of the peace movement. There is also a strong effect of the number of antinuclear protest events on the number of antinuclear statements by established actors, but this effect disappears when we look at lagged variables. Going back to the peace movement, it should be stressed that national security and defense issues are salient issues that often become the object of a sort of “framing struggle” among political elites. When a strong mobilization occurs addressing such issues, the elites take them up in the public space, a phenomenon that becomes particularly intense during electoral campaigns. It is probably in this sense that this relationship has to be interpreted. This was clearly the case, for example, in 1984, when the nuclear arms issue was at the center of the debates during the presidential election that offered Reagan a second mandate. This occurred shortly after the Nuclear freeze movement had produced one of the most striking protest waves in American history.
Table 5

In sum, our analyses provide only limited support to both variants of the mediated-effect model of policy change. The variant that sees public opinion as mediating the relationship between social movements and public policy lacks a consistent path that leads from the former to the latter. The variant that focuses upon the intervening role of political alliances seems to score a little better. Yet, here too, no consistent pattern is discernable. In this case, antinuclear and peace movements might have received some help from institutional allies, attesting to a greater salience of the issue they raised as compared to the ecology movement, which does not seem to have benefited from the presence and behavior of allies. In general, however, the poor data at our disposal as regards the impact of movements on allies might have prevented us from finding more solid results in this respect.

Social movements and public policy: the joint-effect model

Indeed, we think that both public opinion and political alliances play a crucial role in the process through which social movements are able to bring about policy changes. Yet, we would like to suggest that they do so in strict connection with protest actions. Movements take advantage of the existence of a favorable public opinion and the presence of powerful allies in the institutional arenas (mainly, among parties) during the phases of mobilization. This increases the chances that the movements’ claims are translated into policy changes, for the movements’ political allies are in the decision-making arenas and, in addition, public opinion tends to be favorable to the movements. That is the idea of the joint-effect model of social movement outcomes.

To empirically test this model, we introduced a series of interactive terms as described in the methodological section. The interactive terms are measured as absolute levels instead of variations, for the interpretation of results would otherwise be too difficult. We first present findings regarding the joint impact of social movements and public opinion on public policy, which can be seen in Table 6. We observe a clear dividing line between the ecology movements and the other two movements. The coefficients regarding the joint impact of the number of protest events raising environmental issues and public opinion in favor of environmental protection are statistically significant, whereas none of the other coefficients are so.

Table 6

However, it is important to note that shifts in public opinion on environmental issues affect the spending for environmental protection alone (see Table 2). The effect that we now
find in combination with the number of protest events could therefore be due exclusively (or at least mainly) to public opinion. This would weaken our argument about the joint impact of these two factors. In part it does. However, we must stress two things. First, the Durbin-Watson test is rather low. Although this does not allow us to affirm for sure that there is serial correlation among the error terms, when one is dealing with short series such as those we are using here, even a minor change in the statistical test can produce significant variations in the regression coefficients. In our case, it is likely that the strength of the relationship between public opinion and environmental spending is lower than it appears and, therefore, the joint effect explains policy changes in this area better than public opinion alone. Second, what is most important from the point of view of the study of the consequences of social movements is that there is a joint impact of these two factors, while no effect can be observed for the movements alone.

Next we examine the joint impact of social movements and political alliances on public policy. Again, we do so by regressing our indicators of policy change on three interactive terms, each one representing a combination of the number of protest events and three measures of alliances. The results, shown in Table 7, support the idea that movements must have political allies in the institutional arenas (and vice versa). However, this holds only as far as domestic policy is concerned. All the coefficients with lagged variables for ecology and those for the antinuclear movements regarding the total number of nuclear plants are statistically significant. Regarding the ecology movement, if we compare this result with the lack of correlation when we considered the single variables separately (see Tables 1 and 4), this indicates that the movement and public alliances are needed together to provoke changes in spending for environmental protection. The same remark applies to the antinuclear movement, although in this case there also is some evidence of a direct impact of the movement on the total number of nuclear plants. Finally, there seems to be no reinforcing effect between peace movement actions and public alliances against defense spending. Two out or three coefficients are significant, but the sign is positive, indicating an increase in spending instead of a decrease, which would have shown an impact.

Table 7

The last analyses we would like to show regards the joint effect of social movements, public opinion, and political alliances. We did so by regressing the four measures of policy change on a series of three-way interactive terms. Results are presented in Table 8 and mainly confirm what we have found so far. First, the ecology movement has an impact on
environmental spending together with the support of a favorable public opinion and the presence of political allies in the institutional arenas. Second, the antinuclear movement was able to produce changes in the total number of nuclear plants when it was backed by public opinion and by its institutional allies. Again, however, no effect is found on the number of units ordered. Finally, the lack of impact of the peace movement is confirmed by this analysis, attesting to the difficulty for social movements to affect policies that imply the core interests of the state, even in presence of a favorable public opinion and of political allies.

Table 8

To summarize, the joint effect model is generally supported by our data. However, some qualifications are in order. First of all, a significant effect is observed only in the case of ecology and antinuclear movements. The peace movement remains without an impact. Secondly, changes in spending for environmental protection are influenced by the interactive terms, but shifts in public opinion may be the crucial factor. For we observe a significant effect of public opinion alone. Thirdly, the antinuclear movement has an influence on the total number of plants, but not on the number of units ordered, which should be the best indicator of policy change in this domain. We try to make sense of all this in the paper’s final section.

Discussion and conclusion

As a way of summarizing our findings, we can reasonably say that the three movements studied here did not have a substantial impact on public policy, confirming that the direct-effect model has little explanatory power. Second, the mediated-effect model, too, is not supported by the empirical evidence, both in its public opinion and political alliances variants. Third, the joint-effect model is that which fits our data the best. We tested three such models. That combining social movement actions and public opinion, in fact, works only for the ecology movement. Nevertheless, if we look closer to the date, we realize that public opinion alone influences the spending for environmental protection. Therefore, we cannot speak of a joint effect in this case. In contrast, the combination of movement actions and political alliances has a significant effect both for ecology and antinuclear movements. Finally, the three-way interactive terms simply confirms the lack of impact of public opinion, for it does not add to that of the combination of movements and their allies, which hence remains the most important joint effect.

These findings suggest two reflections about the social movements-public opinion-political alliances nexus. The first reflection regards the possibility of a direct impact of

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10 We left out the combined power of the Democratic party.
movements. In another paper (Giugni and Passy 1998) on the impact of the solidarity movement on political decisions in Switzerland, we found that protest activities positively influence political decision on immigration issues directly and by itself. This might seem contradictory, as here we find no direct impact. How can we make sense of this difference? Is this due to the different issues addressed? Or is there something else involved? The nature of the dependent variables in the two studies may give us a clue. In the aforementioned paper, it was represented by all decisions by state actors on those issues. Most of these are in fact legislative or, above all, administrative decisions that can be seen as formal concessions to the movement’s claims. In contrast, in the present paper, we look at substantial changes in the form of increase in spending or production in a given policy area. This suggests that protest can have a direct impact on formal or minor concessions, while it is much more difficult to obtain major substantial changes.

Related to that, the second reflection regards precisely the need for social movements to benefit from the presence of a strong social support to be able to bring about substantial policy changes. In this respect, our analysis provides two main findings: the minor impact of public opinion and the crucial role played by political alliances. To begin with the first of these two results, contrary to what several previous works have maintained, public opinion is generally not a strong support for social movements. At least in the case of ecology, antinuclear, and peace movements in the United States during the past few decades, public opinion did not necessarily facilitate the task of these movements. Nor it has a direct effect on policy, except for the ecology movement. We shall return to this exception below.

Now, the question is: Why does public opinion have so little impact? In fact, there are two ways of answering this question depending on the underlying democratic model. Following a pluralist view of democracy, political authorities only respond to shifts in public opinion if the issue at hand has an electoral saliency. This occurs when public opinion is perceived by decision-makers as a visible and bounded social category, which represents a “good” market in electoral terms. The examples mentioned in the introductory section (Burstein 1985; Costain and Majstorovic 1994) are a case in point. Both African-Americans and women, indeed, form such bounded social categories. Similarly, recent studies of social welfare have shown a direct impact of public opinion on public policy (Devine 1985; Fording 1997; Hill and Hinton-Andersson 1995). Here, too, people claiming for more welfare state form a social category that can clearly be perceived and defined as having a strong electoral saliency. This is not the case with the three movements discussed in our study, which do not
form a bounded social category with electoral saliency. This may explain why public opinion does not matter when it comes to antinuclear, or peace issues.

The elitist view of democracy suggests a different answer to the question why public opinion has little impact. In this perspective, public opinion cannot play but a minor role because the political elites are generally not responsive to the shifts in public opinion (or social movement activities, for that matter). Elites would respond to public opinion only when it deals with minor or peripheral issues and would do so by means of concessions with a low political cost. Our data provide some support to this argument. In addition, this might explain why, in our study, public opinion on environmental issues did have an impact on environmental policy. Public opinion gave the ecology movement a hand and facilitated its impact in the little threatening environmental policy area.

The stronger and most consistent result of our analysis regards the crucial role of political alliances. Specifically, we can raise three points in this respect. First, when the movements’ potential allies increase their institutional power, they do not necessarily make policies that reflect the aims of the movement’s constituency. In order to do so, the movements must mobilize and thus put some pressure on decision-makers. Here we see the explanatory power of the joint-effect model. Both social movement actions and the presence of powerful allies in the institutional arenas are needed to bring about substantial policy changes. Second, nevertheless, the type of issues raised by the movements is important. Threatening issues dealing with foreign policy are much more difficult to influence. As our data show, even in the presence of allies, the peace movement was unable to affect the spending for the national defense. Third, authors such as Tarrow (1993, 1994) and Piven and Cloward (1979) point out that reform stems from particularly threatening cycles of protest or from periods of serious turmoil. Powerholders respond to such protests in order to abate the protest and restore the public order. While we agree with this view, our study suggests that social movements can produce substantial policy change also in the absence of a cycle of protest that endangers the public order. When they dispose of strong political alliances, even reformist movements, which only rarely resort to disruptive or violent actions, can have an impact on public policy.

To wrap up our discussion, we can reiterate, on the one hand, the relevance of the political opportunity structure approach to social movements. In particular, we were able to make a strong case for the role of political alliances. This factors is not only important to understand the movements’ emergence, but also their consequences. Only that, while allies seem to be a facilitating factor when they are left out of the institutional arenas, or at lest out
of the government (Kriesi et al. 1995), they are more likely to help the movements when they are inside of such arenas. On the other hand, our study agrees with the elitist criticism of the pluralist view of democracy (e.g., Bachrach and Baratz 1970; Edelmann 1964, 1977; Gamson 1990; Lowi 1969, 1971; Schattschneider 1960; Shorter and Tilly 1974), at least as far as American ecology, antinuclear, and peace movements in recent years are concerned.
References


Table 1: Impact of social movements on public policy

<table>
<thead>
<tr>
<th></th>
<th>Ecology movement</th>
<th>Antinuclear movement</th>
<th>Peace movement</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Spending for</td>
<td>Nuclear plants</td>
<td>Total</td>
</tr>
<tr>
<td></td>
<td>environmental</td>
<td>on order</td>
<td>nuclear</td>
</tr>
<tr>
<td></td>
<td>protection</td>
<td></td>
<td>plants</td>
</tr>
<tr>
<td>Number of events</td>
<td>.414*</td>
<td>-.232</td>
<td>.391*</td>
</tr>
<tr>
<td></td>
<td>[1.832]</td>
<td>[1.920]</td>
<td>[2.118]</td>
</tr>
<tr>
<td>Number of participants</td>
<td>.253</td>
<td>.025</td>
<td>.251</td>
</tr>
<tr>
<td></td>
<td>[1.920]</td>
<td>[1.944]</td>
<td>[2.265]</td>
</tr>
<tr>
<td>Number of events (t-1)</td>
<td>-.278</td>
<td>.196</td>
<td>-.609***</td>
</tr>
<tr>
<td></td>
<td>[1.609]</td>
<td>[1.970]</td>
<td>[2.178]</td>
</tr>
<tr>
<td>Number of participants (t-1)</td>
<td>-.128</td>
<td>.193</td>
<td>-.008</td>
</tr>
<tr>
<td></td>
<td>[1.501]</td>
<td>[1.950]</td>
<td>[2.324]</td>
</tr>
</tbody>
</table>

NOTES: Bivariate standardized regression coefficients. Generalized least-squared method of estimation (Prais-Winsten) with first-order autoregressive process assumed. Durbin-Watson test for serial correlation in brackets. All variables were differenced, except for the number of nuclear plants on order and the total number of nuclear plants, which are expressed in terms of percentage change.

*** p ≤ .01; ** p ≤ .05; * p ≤ .1
Table 2: Impact of public opinion on public policy

<table>
<thead>
<tr>
<th></th>
<th>Spending for environmental protection</th>
<th>Nuclear plants on order</th>
<th>Total nuclear plants</th>
<th>Spending for defense</th>
</tr>
</thead>
<tbody>
<tr>
<td>Favors environmental protection</td>
<td>-.568**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>[1.699]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Say spending for the environment</td>
<td>-.818***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>[1.731]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Is against more nuclear plants</td>
<td></td>
<td>-.039</td>
<td>.300</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[1.952]</td>
<td>[1.775]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Says spending for defense is too much</td>
<td></td>
<td></td>
<td></td>
<td>.394</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>[1.968]</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Favors environmental protection (t-1)</td>
<td>.641**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>[1.464]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Say spending for the environment</td>
<td>.548**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>[1.474]</td>
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<tr>
<td>Is against more nuclear plants (t-1)</td>
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<td>-.192</td>
<td>-.067</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[1.953]</td>
<td>[2.103]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Says spending for defense is too much (t-1)</td>
<td></td>
<td>.086</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>[1.973]</td>
</tr>
</tbody>
</table>

NOTES: Bivariate standardized regression coefficients. Generalized least-squared method of estimation (Prais-Winsten) with first-order autoregressive process assumed. Durbin-Watson test for serial correlation in brackets. All variables were differenced, except for the number of nuclear plants on order and the total number of nuclear plants, which are expressed in terms of percentage change.

*** p ≤ .01; ** p ≤ .05; * p ≤ .1
Table 3: Impact of social movements on public opinion (percentage of favorable answers)

<table>
<thead>
<tr>
<th></th>
<th>Ecology movement</th>
<th>Antinuclear movement</th>
<th>Peace movement</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Favors environmental protection</td>
<td>Says spending for the environment is too little</td>
<td>Is against more nuclear plants</td>
</tr>
<tr>
<td>Number of participants</td>
<td>-.644** [1.931]</td>
<td>-.452 [1.986]</td>
<td>-.593** [2.044]</td>
</tr>
<tr>
<td>Number of events (t-1)</td>
<td>.141 [1.363]</td>
<td>.520* [1.662]</td>
<td>.029 [1.631]</td>
</tr>
<tr>
<td>Number of participants (t-1)</td>
<td>.120 [1.308]</td>
<td>.290 [1.532]</td>
<td>.431 [1.858]</td>
</tr>
</tbody>
</table>

NOTES: Bivariate standardized regression coefficients. Generalized least-squared method of estimation (Prais-Winsten) with first-order autoregressive process assumed. Durbin-Watson test for serial correlation in brackets. All variables were differenced.

*** p ≤ .01; ** p ≤ .05; * p ≤ .1
Table 4: Impact of political allies on public policy

<table>
<thead>
<tr>
<th></th>
<th>Spending for environmental protection</th>
<th>Nuclear plants on order</th>
<th>Total nuclear plants</th>
<th>Spending for defense</th>
</tr>
</thead>
</table>

NOTES: Bivariate standardized regression coefficients. Generalized least-squared method of estimation (Prais-Winsten) with first-order autoregressive process assumed. Durbin-Watson test for serial correlation in brackets. Pro-movement statements were differenced. The other independent variables are measured as absolute levels. Dependent variables were differenced, except for the number of nuclear plants on order and the total number of nuclear plants, which are expressed in terms of percentage change.

*** p ≤ .01; ** p ≤ .05; * p ≤ .1
Table 5: Impact of social movements on political allies (number of public statements)

<table>
<thead>
<tr>
<th></th>
<th>Ecology movement</th>
<th>Antinuclear movement</th>
<th>Peace movement</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number of events</strong></td>
<td>-.313</td>
<td>.833***</td>
<td>.070</td>
</tr>
<tr>
<td></td>
<td>[2.121]</td>
<td>[2.368]</td>
<td>[2.149]</td>
</tr>
<tr>
<td><strong>Number of participants</strong></td>
<td>-.295</td>
<td>.291</td>
<td>.104</td>
</tr>
<tr>
<td></td>
<td>[2.135]</td>
<td>[2.112]</td>
<td>[2.118]</td>
</tr>
<tr>
<td><strong>Number of events (t-1)</strong></td>
<td>-.039</td>
<td>.156</td>
<td>.476**</td>
</tr>
<tr>
<td></td>
<td>[2.026]</td>
<td>[2.280]</td>
<td>[2.541]</td>
</tr>
<tr>
<td><strong>Number of participants (t-1)</strong></td>
<td>.013</td>
<td>-.140</td>
<td>-.105</td>
</tr>
<tr>
<td></td>
<td>[2.043]</td>
<td>[2.086]</td>
<td>[2.055]</td>
</tr>
</tbody>
</table>

NOTES: Bivariate standardized regression coefficients. Generalized least-squared method of estimation (Prais-Winsten) with first-order autoregressive process assumed. Durbin-Watson test for serial correlation in brackets. All variables were differenced.

*** p ≤ .01; ** p ≤ .05; * p ≤ .1
Table 6: Joint impact of social movements and public opinion on public policy  
(two-way interactive terms)

<table>
<thead>
<tr>
<th></th>
<th>Spending for environmental protection</th>
<th>Nuclear plants on order</th>
<th>Total nuclear plants</th>
<th>Spending for defense</th>
</tr>
</thead>
<tbody>
<tr>
<td>SM * PO 1</td>
<td>0.479* [1.853]</td>
<td>-0.357 [2.007]</td>
<td>-0.136 [1.923]</td>
<td>0.305 [1.939]</td>
</tr>
<tr>
<td>SM * PO 2</td>
<td>0.509* [1.833]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SM * PO 1 (t-1)</td>
<td>0.512* [2.033]</td>
<td>-0.262 [1.960]</td>
<td>-0.394 [1.978]</td>
<td>0.358 [1.900]</td>
</tr>
<tr>
<td>SM * PO 2 (t-1)</td>
<td>0.553** [2.060]</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

NOTES: Bivariate standardized regression coefficients. Generalized least-squared method of estimation (Prais-Winsten) with first-order autoregressive process assumed. Durbin-Watson test for serial correlation in brackets. Dependent variables were differenced, except for the number of nuclear plants on order and the total number of nuclear plants, which are expressed in terms of percentage change. See Appendix B for a description of the interactive terms.

*** p ≤ .01; ** p ≤ .05; * p ≤ .1
Table 7: Joint impact of social movements and political allies on public policy
(two-way interactive terms)

<table>
<thead>
<tr>
<th></th>
<th>Spending for environmental protection</th>
<th>Nuclear plants on order</th>
<th>Total nuclear plants</th>
<th>Spending for defense</th>
</tr>
</thead>
<tbody>
<tr>
<td>SM * PA 1</td>
<td>.553**</td>
<td>-.424*</td>
<td>-.130</td>
<td>.373</td>
</tr>
<tr>
<td></td>
<td>[1.869]</td>
<td>[2.001]</td>
<td>[2.135]</td>
<td>[1.924]</td>
</tr>
<tr>
<td>SM * PA 2</td>
<td>.585***</td>
<td>-.426*</td>
<td>-.122</td>
<td>.326</td>
</tr>
<tr>
<td></td>
<td>[1.890]</td>
<td>[2.003]</td>
<td>[2.144]</td>
<td>[1.930]</td>
</tr>
<tr>
<td>SM * PA 3</td>
<td>.405*</td>
<td>-.345</td>
<td>.004</td>
<td>.467**</td>
</tr>
<tr>
<td></td>
<td>[1.931]</td>
<td>[2.002]</td>
<td>[2.216]</td>
<td>[1.910]</td>
</tr>
<tr>
<td>SM * PA 1 (t-1)</td>
<td>.397*</td>
<td>-.189</td>
<td>-.605***</td>
<td>.481**</td>
</tr>
<tr>
<td></td>
<td>[1.958]</td>
<td>[1.983]</td>
<td>[1.912]</td>
<td>[1.870]</td>
</tr>
<tr>
<td>SM * PA 2 (t-1)</td>
<td>.389*</td>
<td>-.193</td>
<td>-.596***</td>
<td>.480**</td>
</tr>
<tr>
<td></td>
<td>[1.967]</td>
<td>[1.984]</td>
<td>[1.916]</td>
<td>[1.878]</td>
</tr>
<tr>
<td>SM * PA 3 (t-1)</td>
<td>.441*</td>
<td>.091</td>
<td>-.464**</td>
<td>.302</td>
</tr>
<tr>
<td></td>
<td>[1.929]</td>
<td>[1.925]</td>
<td>[1.960]</td>
<td>[1.921]</td>
</tr>
</tbody>
</table>

NOTES: Bivariate standardized regression coefficients. Generalized least-squared method of estimation (Prais-Winsten) with first-order autoregressive process assumed. Durbin-Watson test for serial correlation in brackets. Dependent variables were differenced, except for the number of nuclear plants on order and the total number of nuclear plants, which are expressed in terms of percentage change. See Appendix B for a description of the interactive terms.

*** p ≤ .01; ** p ≤ .05; * p ≤ .1
Table 8: Joint impact of social movements, public opinion, and political allies on public policy (three-way interactive terms)

<table>
<thead>
<tr>
<th>Interaction</th>
<th>Spending for environmental protection</th>
<th>Nuclear plants on order</th>
<th>Total nuclear plants</th>
<th>Spending for defense</th>
</tr>
</thead>
<tbody>
<tr>
<td>SM * PO * PA 1</td>
<td>.555**</td>
<td>-.355</td>
<td>-.127</td>
<td>.292</td>
</tr>
<tr>
<td></td>
<td>[1.871]</td>
<td>[2.005]</td>
<td>[1.930]</td>
<td>[1.939]</td>
</tr>
<tr>
<td>SM * PO * PA 2</td>
<td>.565**</td>
<td>-.359</td>
<td>-.125</td>
<td>.247</td>
</tr>
<tr>
<td></td>
<td>[1.887]</td>
<td>[2.007]</td>
<td>[1.933]</td>
<td>[1.946]</td>
</tr>
<tr>
<td>SM * PO * PA 3</td>
<td>.527*</td>
<td>-.314</td>
<td>-.100</td>
<td>.439*</td>
</tr>
<tr>
<td></td>
<td>[1.950]</td>
<td>[2.028]</td>
<td>[1.947]</td>
<td>[1.917]</td>
</tr>
<tr>
<td>SM * PO * PA 4</td>
<td>.577**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>[1.866]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SM * PO * PA 5</td>
<td>.581**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>[1.881]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SM * PO * PA 6</td>
<td>.566**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>[1.949]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SM * PO * PA 1 (t-1)</td>
<td>.613**</td>
<td>-.228</td>
<td>-.510**</td>
<td>.363</td>
</tr>
<tr>
<td></td>
<td>[2.127]</td>
<td>[1.721]</td>
<td>[1.854]</td>
<td>[1.893]</td>
</tr>
<tr>
<td>SM * PO * PA 2 (t-1)</td>
<td>.552**</td>
<td>-.230</td>
<td>-.584**</td>
<td>.354</td>
</tr>
<tr>
<td></td>
<td>[2.073]</td>
<td>[1.720]</td>
<td>[1.855]</td>
<td>[1.905]</td>
</tr>
<tr>
<td>SM * PO * PA 3 (t-1)</td>
<td>.596**</td>
<td>.131</td>
<td>-.473*</td>
<td>.264</td>
</tr>
<tr>
<td></td>
<td>[1.928]</td>
<td>[1.686]</td>
<td>[1.835]</td>
<td>[1.911]</td>
</tr>
<tr>
<td>SM * PO * PA 4 (t-1)</td>
<td>.617**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>[2.120]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SM * PO * PA 5 (t-1)</td>
<td>.554**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>[2.067]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SM * PO * PA 6 (t-1)</td>
<td>.597**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>[1.919]</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

NOTES: Bivariate standardized regression coefficients. Generalized least-squared method of estimation (Prais-Winsten) with first-order autoregressive process assumed. Durbin-Watson test for serial correlation in brackets. Dependent variables were differenced, except for the number of nuclear plants on order and the total number of nuclear plants, which are expressed in terms of percentage change. See Appendix B for a description of the interactive terms.

*** p ≤ .01; ** p ≤ .05; * p ≤ .1
Figure 1: Public opinion mediation models

1. Burstein’s model

   social movements → policy changes
   media coverage

2. Costain and Majstorovic’s model

   social movements
   ↓
   public opinion ← policy changes
   ↑
   party activities
Figure 2: Political mediation models

1. Tarrow’s model
   social movements → political allies → policy changes

2. Amenta et al.’s model
   social movements → policy changes
   ← political opportunities
Figure 3: Types of political issues

<table>
<thead>
<tr>
<th>Threat of the issue</th>
<th>High profile</th>
<th>Low profile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domestic</td>
<td>Antinuclear</td>
<td>Ecology</td>
</tr>
<tr>
<td>Foreign</td>
<td>Peace</td>
<td>Solidarity</td>
</tr>
</tbody>
</table>
Figure 4: Tested models

1. Direct-effect model
   social movements ───────> public opinion ───────> policy changes

2. Mediated-effect model
   a. social movements ───────> public opinion ───────> policy changes
   b. social movements ───────> political allies ───────> policy changes

3. Joint-effect model
   a. social movements * public opinion ───────> policy changes
   b. social movements * political allies ───────> policy changes
   c. social movements * public opinion * political allies ───────> policy changes
Figure 5: Number of protest events by ecology, antinuclear, and peace movements
### Appendix A: Description of variables used in the regression analyses

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Min</th>
<th>Max</th>
<th>Mean</th>
<th>Standard deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Social movements:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of events by the ecology movement</td>
<td>20</td>
<td>-30.00</td>
<td>21.000</td>
<td>-2.250</td>
<td>14.8100</td>
</tr>
<tr>
<td>Number of events by the antinuclear movement</td>
<td>20</td>
<td>-70.00</td>
<td>59.000</td>
<td>-0.200</td>
<td>21.5900</td>
</tr>
<tr>
<td>Number of events by the peace movement</td>
<td>20</td>
<td>-66.00</td>
<td>90.000</td>
<td>-0.600</td>
<td>29.1100</td>
</tr>
<tr>
<td>Number of participants in the events by the ecology movement</td>
<td>20</td>
<td>-5.4200</td>
<td>5.3900</td>
<td>-2.3200</td>
<td>2.3894</td>
</tr>
<tr>
<td>Number of participants in the events by the antinuclear movement</td>
<td>20</td>
<td>-7.9400</td>
<td>12.5100</td>
<td>-8.0500</td>
<td>4.4958</td>
</tr>
<tr>
<td>Number of participants in the events by the peace movement</td>
<td>20</td>
<td>-10.5200</td>
<td>7.6000</td>
<td>-0.5429</td>
<td>4.5144</td>
</tr>
<tr>
<td><strong>Political alliances:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of Democratic seats in the House of Representatives</td>
<td>21</td>
<td>203.0000</td>
<td>292.0000</td>
<td>263.7600</td>
<td>20.5600</td>
</tr>
<tr>
<td>Number of Democratic seats in the Senate</td>
<td>21</td>
<td>46.0000</td>
<td>62.0000</td>
<td>54.1900</td>
<td>5.7700</td>
</tr>
<tr>
<td>Combined executive and legislative power of Democratic party (categorical)</td>
<td>21</td>
<td>1.0000</td>
<td>4.0000</td>
<td>2.2857</td>
<td>1.1892</td>
</tr>
<tr>
<td>Number of pro-ecology conventional events by political elites</td>
<td>20</td>
<td>-10.0000</td>
<td>12.0000</td>
<td>-0.6500</td>
<td>4.9400</td>
</tr>
<tr>
<td>Number of antinuclear conventional events by political elites</td>
<td>20</td>
<td>-6.0000</td>
<td>6.0000</td>
<td>-4.1600</td>
<td>3.3900</td>
</tr>
<tr>
<td>Number of pro-peace conventional events by political elites</td>
<td>20</td>
<td>-22.0000</td>
<td>20.0000</td>
<td>-0.2500</td>
<td>8.2500</td>
</tr>
</tbody>
</table>

Continues on next page.
Continued from previous page.

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Min</th>
<th>Max</th>
<th>Mean</th>
<th>Standard deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Public opinion:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percentage of people who favor environmental protection</td>
<td>15</td>
<td>-9.0000</td>
<td>6.0000</td>
<td>0.8670</td>
<td>3.7560</td>
</tr>
<tr>
<td>Percentage of people who say spending for the environment is too little</td>
<td>15</td>
<td>-7.0000</td>
<td>5.0000</td>
<td>1.2000</td>
<td>3.1670</td>
</tr>
<tr>
<td>Percentage of people who are against more nuclear plants</td>
<td>15</td>
<td>-10.5000</td>
<td>6.5000</td>
<td>-2.0670</td>
<td>4.4320</td>
</tr>
<tr>
<td>Percentage of people who say spending for defense is too much</td>
<td>18</td>
<td>-13.0000</td>
<td>26.0000</td>
<td>0.1110</td>
<td>7.8340</td>
</tr>
<tr>
<td><strong>Public policy:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total budget of the Environmental Protection Agency</td>
<td>20</td>
<td>-0.1800</td>
<td>0.2300</td>
<td>-1.7100</td>
<td>9.0760 [E-02]</td>
</tr>
<tr>
<td>Number of nuclear power plants on order</td>
<td>20</td>
<td>-8.0000</td>
<td>2.0000</td>
<td>-0.7000</td>
<td>2.0000</td>
</tr>
<tr>
<td>Total number of nuclear plants</td>
<td>20</td>
<td>-19.0000</td>
<td>1.0000</td>
<td>-4.8500</td>
<td>5.7900</td>
</tr>
<tr>
<td>Defense outlays</td>
<td>20</td>
<td>-3.2500</td>
<td>1.6200</td>
<td>-4.0560</td>
<td>1.2953</td>
</tr>
</tbody>
</table>

NOTE: All variables are expressed in terms of difference from the value of the previous year, except for the number of Democratic seats in the House of Representatives, the number of Democratic seats in the Senate, and the combined executive and legislative power of the Democratic party.
Appendix B: Description of interactive terms (Tables 6 to 8)

Ecology movement:

SM * PO 1: number of protest events
% people who favor environmental protection

SM * PO 2: number of protest events
% people who say spending for the environment is too little

SM * PA 1: number of protest events
number of Democratic seats in the House of Representatives

SM * PA 2: number of protest events
number of Democratic seats in the Senate

SM * PA 3: number of protest events
number of pro-ecology public statements by allies

SM * PO * PA 1: number of protest events
% people who favor environmental protection
number of Democratic seats in the House of Representatives

SM * PO * PA 2: number of protest events
% people who favor environmental protection
number of Democratic seats in the Senate

SM * PO * PA 3: number of protest events
% people who favor environmental protection
number of pro-ecology public statements by allies

SM * PO * PA 4: number of protest events
% people who say spending for the environment is too little
number of Democratic seats in the House of Representatives

SM * PO * PA 5: number of protest events
% people who say spending for the environment is too little
number of Democratic seats in the Senate
SM * PO * PA 6: number of protest events
* % people who say spending for the environment is too little
* number of pro-ecology public statements by allies

**Antinuclear movement:**

SM * PO 1: number of protest events
* % of people who are against more nuclear plants

SM * PA 1: number of protest events
* number of Democratic seats in the House of Representatives

SM * PA 2: number of protest events
* number of Democratic seats in the Senate

SM * PA 3: number of protest events
* number of antinuclear public statements by allies

SM * PO * PA 1: number of protest events
* % of people who are against more nuclear plants
* number of Democratic seats in the House of Representatives

SM * PO * PA 2: number of protest events
* % of people who are against more nuclear plants
* number of Democratic seats in the Senate

SM * PO * PA 3: number of protest events
* % of people who are against more nuclear plants
* number of antinuclear public statements by allies

**Peace movement:**

SM * PO 1: number of protest events
* % people who say spending for defense is too much

SM * PA 1: number of protest events
* number of Democratic seats in the House of Representatives

SM * PA 2: number of protest events
* number of Democratic seats in the Senate
SM * PA 3: number of protest events
* number of pro-peace public statements by allies

SM * PO * PA 1: number of protest events
* % people who say spending for defense is too much
* number of Democratic seats in the House of Representatives

SM * PO * PA 2: number of protest events
* % people who say spending for defense is too much
* number of Democratic seats in the Senate

SM * PO * PA 3: number of protest events
* % people who say spending for defense is too much
* number of pro-peace public statements by allies