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Do Advocacy Coalitions Matter? Crisis and Change in Swedish Nuclear Energy Policy

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ABSTRACT

This study applies the Advocacy Coalition Framework (ACF) to developments in Swedish nuclear energy policy in the 1970s and 80s. In an effort to contribute to the refinement and debate regarding the generalizability of ACF theory, the objective is to assess the utility of ACF assumptions when applied in this case. The study explores hypotheses about advocacy coalition stability and examines the motivations explaining policy change in the wake of the 1979 Three Mile Island accident and the 1986 Chernobyl disaster. Utilizing different sources of data, the study confirms patterns of coalition stability and shows that interests and political learning were important in explaining policy change in this case. Theoretical implications derived from this study call for further specification of basic ACF concepts (external perturbations, dominant coalitions, and skillful exploitation) and posit the intensity and breadth of political conflict and strategic action as critical factors contributing to the explanation of policy change in contested policy areas.

INTRODUCTION

In the last decades, a vast number of studies from different corners of the world have positioned the Advocacy Coalition Framework (ACF) as one of the most widely cited theoretical perspectives on the policy process. These studies (about 40 in total) provide an impressive empirical base for theory development. By continuously evaluating the implications of these case studies, the founder of the ACF, Paul Sabatier, has devoted much work in correcting and specifying the ACF (Sabatier and Jenkins-Smith 1993, 1999; Sabatier and Weible 2007). This study claims that although previous comparative work on ACF theory has overall increased its explanatory capability, it has partly missed the target, which is to identify and specify independent variables and causal mechanisms explaining change in policy-oriented belief systems and, ultimately, in public policy programs. Primarily, more conceptual work is needed to clarify causal variables and mechanisms explaining policy change in different political systems (Cairney 1997; Mintrom and Vergari 1996; Parsons 1995).

In order to further assess the applicability of ACF theory outside the United States, this study evaluates the utility of its assumptions in a case study of Swedish nuclear energy policy. The ACF adheres to the widespread claim in the public policy literature that external shocks and crises provide proverbial "windows of opportunity" predisposed to policy learning and change (Birkland 2006; Jones and Baumgartner 2004; Kingdon 1995; Sabatier and Weible 2007). Crisis events thus offer useful historical episodes to analyze policy change dynamics in detail (Boin, 't Hart, and McConnell 2009; Rosenthal and Kouzmin 1997). On this basis, the empirical analysis focuses upon the gradual development of the Swedish nuclear energy subsystem and devotes particular attention to its response to the 1979 Three Mile Island (TMI) accident and the 1986 Chernobyl disaster.

ACF is clearly not the only policy process theory with potential to explain developments in Swedish nuclear energy policy. Public policy research offers several viable alternatives, including multiple streams theory (Kingdon 1995), punctuated equilibrium theory (Baumgartner and Jones 1993), the institutional analysis and development framework (Ostrom 2007), and the model of event-based policy change (Birkland 2006). Other studies have contrasted the ACF with other lenses, such as Moe's politics of structural choice (Schlager and Blomquist 1996), policy network theory (Smith 2000), and negotiation analysis (Meijerink 2008). This analysis does not enable systematic comparison with these alternatives; yet, it sets out from the observation that ACF theory absorbs many of the explanatory variables advanced by other theories. Schlager (2007, 317) has argued that "the family resemblance among the policy process theories and comparative policy models has become more pronounced, to the point where they probably belong under a single roof, and that roof is the currently entitled advocacy coalition framework." Although the level of overlap between these theories remains subject to further debate (e.g., John 2003; Sobeck 2003; Zahariadis 1998), this study claims that important elements of the ACF—despite its popularity and alleged promise among European public policy scholars—still stand unchallenged.

EXPLORING THE GENERALIZABILITY OF ACF THEORY

It has been suggested that the ACF has wide applicability and that it is particularly suitable to explain policy developments in areas characterized by substantial political conflict and high technological complexity (Sabatier 1998; Sabatier and Jenkins-Smith 1999). Meanwhile, critics argue that ACF theory falls short in explaining policy making in political systems outside the United States due to fundamental differences in institutional and political contexts (Carter 2001; John 1998; Parsons 1995). Within the ACF case bank, about 30 studies cover cases from Europe and additional studies include policy issues in Asia, Africa, Australia, South America, and Canada. In aggregate, these studies have confirmed the utility of the ACF as a lens to simplify the policy-making process, particularly with respect to the interplay between advocacy coalitions in the process of policy learning and change. Studies have also located weaknesses in the ACF resulting in revisions to make a better fit with corporatist as well as authoritarian regimes (Sabatier and Weible 2007). However, one limitation in previous non-US studies is that they generally do not address the *explanatory* utility of the ACF lens; rather, these studies primarily address its descriptive validity. In return, the ACF has been utilized frequently as a descriptive device to trace changes in policy beliefs and advocacy coalition structures, whereas less empirical attention has been devoted to its causal hypotheses about policy change (see Zahariadis 1998).

These applications hereby deviate from the original submission of the ACF as a testable theory (see Sabatier 2007).

The objective with this study is to examine if assumptions and hypotheses offered by the ACF hold when applied to developments in Swedish nuclear energy policy. Nuclear energy policy is typically characterized by technological complexity, and the Swedish experience has been marked by intense societal and political confrontation. On this basis, this case would qualify as a "most likely test" of the ACF, which is further underlined by the fact that the ACF initially developed from studies of energy and environmental policy making in the United States. Thus, if the results turn out to be inconsistent with the ACF, this would cast strong doubts on its underlying assumptions. At the same time, the Swedish political system is generally classified as a consensual–corporatist regime whose basic characteristics differ from the pluralistic elements of the ACF, which in turn would make Swedish policy making a "least likely test." Yet, given the difficulty in determining the least likely–most likely distinction, this study takes a less deterministic approach to theory development. The objective is not to decide whether there is reason to reject or retain the ACF entirely, rather the study analyzes the conditions under which predicted mechanisms are activated (George and Bennett 2005, chap. 6). The findings of the study partly corroborate key ACF postulates but also identify weaknesses in the ACF that warrant more work to further advance its explanatory value in different political contexts.

ACF Assumptions and Hypotheses

Sabatier and Jenkins-Smith (1999, 151) describe the ACF as a scientific theory characterized by clearly defined terms, causal drivers, falsifiable hypotheses, and wide applicability. In the ACF, the policy subsystem is the unit of analysis for understanding policy change, with external changes and stable system parameters constraining and affecting it. A subsystem is composed by public and private actors that actively seek to influence public policy in any given area. The ACF aggregates subsystem actors into a number of advocacy coalitions consisting of "people from various governmental and private organizations that both (1) share a set of normative and causal beliefs and (2) engage in a nontrivial degree of coordinated activity over time" (Sabatier and Jenkins-Smith 1999, 120). A policy subsystem is generally composed of one dominating coalition controlling the executive branch and a number (usually two to four) of minority coalitions seeking to alter the direction of public policy.

Each coalition's belief system consists of a set of basic values, causal assumptions, and problem perceptions that are organized into a hierarchical structure: a deep core of fundamental normative and ontological axioms, a near policy core of basic strategies and policy positions for achieving deep core beliefs, and a set of secondary aspects comprising instrumental decisions and information searches necessary to implement the policy core in the specific policy area (Sabatier and Jenkins-Smith 1993, 30). The first hypothesis of the ACF postulates that these beliefs will remain stable over time:

> H_1 On major controversies within a policy subsystem when core beliefs are in dispute, the lineup of allies and opponents tends to be rather stable over periods of a decade or so.

From the hierarchical structure of belief systems, it follows that most members of a coalition will show substantial agreement on policy core issues but less so on instrumental beliefs:

H$_2$ Actors within an advocacy coalition will show substantial consensus on issues pertaining to the policy core, although less so on secondary aspects.

The ACF differentiates between minor and major policy change where the former is conceived as changes in the secondary aspects of a governmental program, whereas the latter refers to change in the policy core aspects. From the assumption that policy core beliefs are resistant to change, it follows that major policy changes are rare events, and thus, the ACF hypothesizes that

H$_3$ The policy core attributes of a governmental action program are unlikely to be changed in the absence of significant perturbations external to the subsystem, that is, changes in socioeconomic conditions, public opinion, system-wide governing coalitions, or policy outputs from other subsystems.

Mintrom and Vergari (1996) have faulted the ACF (the 1993 version) for neglecting the conditions under which policy change occurs, primarily by questioning the basic assumption of hypothesis 3. In their view, the ACF overlooks the process by which major policy change takes place (see also Cairney 1997; Kim and Roh 2008; Sato 1999). This criticism is only partially warranted. Mintrom and Vergari (1996, 425) are right in arguing that "not all exogenous shocks and not all instances of policy learning translate into policy change" and that we therefore "need to better understand why particular policy changes materialize." This is correct because hypothesis 3 does not specify a causal mechanism. In response to this criticism, Sabatier and Jenkins-Smith (1999, 148) argued that "perturbations provide an opportunity for major policy change, but such change will not occur unless that opportunity is skillfully exploited by proponents of change, that is, the heretofore minority coalition(s)." One key to the understanding of the policy impacts of crises is thus how such events affect the strategies and behavior of minority coalitions (Kwon 2002; Schlager 1995).

Following ACF's model of the individual as being instrumentally rational, one would expect that minority coalitions seek to maximize *resources* to advance their policy aims. Resources include formal legal authority, public opinion, information, membership base, financial means, and skillful leadership (Sewell 2005; Weible 2007). Second, it is also likely that they will attempt to exploit a variety of *venues* to influence public policy (Sabatier and Jenkins-Smith 1999, 142–4; see also Pralle 2003). Third, they can also be expected to seek to persuade the media, the public, and policy makers by different *framing tactics* aiming at magnifying or downplaying the seriousness of a policy problem depending on what their beliefs are (Sabatier and Jenkins-Smith 1993, 45; see also McBeth et al. 2007; Stone 1989). Hereafter, this study will refer to the combined effort of exploiting resources, venues, and framing tactics as "minority coalition mobilization" (Nohrstedt 2008).

The ACF identifies two explanations for policy change: policy-oriented learning and external shocks (Sabatier and Weible 2007; Weible 2007). But these are not necessarily treated as alternative explanations; they oftentimes work in tandem (Thomas 1999). Birkland's (2006) argument that crises are capable of generating instrumental, social, and political learning as reactions to revelation of policy failure underscores this point. Learning in the ACF is simply defined as altered policy core beliefs, and this may either occur over time with the gradual accumulation of evidence or as the result of new information arising from an external shock (Sabatier and Jenkins-Smith 1999, 122). Stated differently, if an influential coalition member or members revises core aspects of their belief

system in the wake of an external shock, it is likely to result in major policy change. Clearly, a distinctive focus on learning generates a point of comparison to evaluate the role of other motives guiding policy choice.

METHODS AND DATA

Most previous European ACF studies have employed qualitative methods of data acquisition and analysis, which raise concerns about reliability and validity in the documentation of policy coalitions (Sabatier and Jenkins-Smith 1999, 128). To not only remedy these problems but also to increase comparability with previous systematic ACF studies, this study is based on a systematic documentation of the Swedish nuclear energy policy subsystem. However, as a means to identify causal mechanisms, this method has been combined with process-tracing analysis of important policy decisions in this area (see Bäck and Dumont 2007). Collection and analysis of data proceeded in four steps.[1]

In the first step, all organizations were listed that participated repeatedly (three times minimum) in the referral process ('*remiss*' in Swedish), providing considerations and comments on legislative proposals and recommendations posted by commissions of inquiry in the nuclear energy policy area and in Parliamentary committee hearings on energy policy.[2] These data identified 116 regular participants including political parties, energy companies, interest organizations, research institutes, local, and national government agencies. Second, three types of official documents (government bills, statements of opinion, and party motions) were used to analyze these organizations' belief systems. Coding of testimonies (in five periods: 1975, 1981, 1983, 1986, and 1987–89) according to a 48-item belief coding scheme resulted in two rather stable belief coalitions and one cluster of organizations with inconsistent testimonies on policy core and secondary aspect beliefs. Third, principal component factor analysis (varimax rotation with Eigenvalues $\geq$ 1) was employed and identified two additive policy core belief scales among these 48 items. The first scale, "nuclear energy threat and reliability scale," included three items: level of threat posed by nuclear power, reliability of risk assessment methods, and viability of nuclear power (Chronbach's $\alpha = .74$). The second scale, "alternative energy resources viability scale," was based on two items: viability of wind power and viability of bioenergy ($r = .54$, significant at .01 level, two-tailed test). Two secondary aspect scales were identified. The "scientific information quality scale" included two items: quality of scientific information and allocation of research funding for the development of bioenergy ($r = .53$, significant at .05 level, two-tailed test). The "nuclear energy phaseout planning scale" was based upon two items: position on the nuclear power phaseout timetable and position on energy system conversion plans ($r = .51$, significant at .01 level, two-tailed test). Fourth, replicating methods developed by Zafonte and Sabatier (2004), coalition membership was determined according to high average membership scores obtained by fuzzy cluster analysis. In fuzzy cluster

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1   For further details on methods, see Nohrstedt (2007; forthcoming).

2   It should be noted here that according to the Swedish constitution, government agencies are required to respond to requests for comment while local authorities and interest organizations respond on a voluntary basis. Ministries decide which organizations should be sent requests for comments, but any group, organization, or individual may submit a commentary. Similarly, when preparing policies before decisions are made in the Chamber, parliamentary committees (in this case the Standing Committee of Industry and Trade) have the opportunity to invite organizations and individuals to hearings or informal meetings, but anyone is free to submit opinions.

analysis, membership scores (Euclidean distances) indicate how strongly an organization belongs to each cluster; values close to 1 indicate strong membership and values close to 0 indicate weak membership. Fuzzy clustering assigns multiple membership scores for each unit, which provides information on the level of "centrality" for each unit across all clusters (see also Kaufman and Rousseeuw 2005).

Previous ACF research do not offer standardized coalition stability measures. Consequently, in order to test ACF hypotheses (1 and 2) about coalition stability, this study employs two alternative measures. First, fuzzy clustering provides membership scores for each organization in all coalitions (clusters), which enable a test of hypothesis 2 predicting greater stability among policy core clusters compared to secondary aspect clusters. Membership scores are used to generate a measure of "coalition distance" providing an indicator of the extent to which organizations have been "linked to" other clusters (see Rousseeuw 1995, 283). Coalition distance is simply calculated by subtracting the average membership score for an organization within the cluster where it has the most substantial membership (over all periods) with its average membership score in the other opposing cluster. High coalition distance values thus indicate strong positioning in any given coalition (and long distance to the competing coalition) and belief system stability, whereas low values indicate weak positioning (and short distance to the competing coalition) and belief system instability.[3] Second, this study uses range as a measure of dispersion.

Data on coalition belief systems are insufficient to identify motives and mechanisms guiding decisions of policy choice. In fact, critics have argued that previous ACF research overlooks mechanisms conditioning policy change (Cairney 1997; Kim and Roh 2008; Mintrom and Vergari 1996; Sato 1999). To overcome this limitation, this study combines a systematic assessment of the coalition structure with in-depth process-tracing examination of the motives guiding policy choice in the area of Swedish nuclear energy policy. A variety of sources have been consulted for this purpose, including recently publicized internal party documents (Social Democratic Party 1979, 1986), memoirs of key decision makers (Carlsson 1999; Peterson 1999), and secondary sources. In addition, an interview was conducted (by the author, November 28, 2006) with former Social Democratic Minister of Energy, Birgitta Dahl.

CRISIS AND CHANGE IN SWEDISH NUCLEAR ENERGY POLICY

This study applies ACF assumptions to developments in Swedish nuclear energy policy from 1970 to 1991 since this period witnessed two major crises and some substantial policy changes. Within this time frame, Sweden took several major steps from nuclear power expansion, to limited expansion, to a decision to phase out nuclear power decisively. These shifts provide useful historical episodes to assess the explanatory utility of ACF theory.

In the 1950s and 1960s, nuclear power was not an issue in Sweden, except for some debate related to whether Sweden should develop nuclear weapons and the particular form of nuclear power to be developed. The Social Democratic government remained committed

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3   For example, nuclear energy production company Asea-Atom's average membership score in the pronuclear power coalition was 0.992 and 0.035 in the nuclear power opposition coalition. Thus, in the case of Asea-Atom, the membership score difference is $0.992 - 0.035 = 0.957$, which indicates that it had most of its membership in the pronuclear power coalition and a relatively stable belief system (see table 1).

to nuclear power development. Although polls indicated pronounced antinuclear tendencies among Swedish voters in the early-1970s, the 1973 oil crisis raised the need for domestic energy sources and in response the Swedish government proposed a "modest increase" from 11 to 13 nuclear reactors in 10 years. However, antinuclear sentiments grew stronger and brought the Social Democrats to fall in the 1976 elections (Carlsson 1999; Petersson 1978). Yet, the Center Party-led bourgeois coalition government failed to reach an agreement with the other government parties on their antinuclear policy agenda and resigned in 1978 (Vedung 1979).

Up to 1979, the Social Democrats had opposed putting the referendum on the ballot as a means to reach a long-term solution to the nuclear power controversy. The party leadership acted under the belief that a referendum was inconsistent with the basic principles of the parliamentary system (Carlsson 1999). The TMI accident changed this perception dramatically. The accident resulted in a sudden drop in public support for nuclear energy, from 43% in January 1979 to 26% in April 1979. Prior to TMI, the Social Democrats also faced falling party support and an increase in internal opposition against the pronuclear party policy (Jasper 1990; Sahr 1985). In an effort to heal the split within the party and prevent reiteration of the 1976 electoral defeat, the party leadership realized a referendum was the only feasible option.

The referendum established that the nuclear parenthesis should be closed and the Swedish Parliament (1980) eventually added the year of 2010 for the phaseout. The 1985 energy bill presented a strategy to complete the nuclear phaseout (Swedish Parliament 1985). Accordingly, Sweden's nuclear power plants should be phased out incrementally with respect to reactor safety and the development of renewable energy sources. Following the 1986 Chernobyl accident, which caused significant radioactive fallout over parts of Sweden, government policy makers predicted one reactor could be shut down within the time span 1993–95 and yet another between 1994 and 1996 (Swedish Parliament 1987). In 1991, a tripartite agreement was reached calling for increased state support for the development of renewable energy technologies. Nuclear power accounted for one half of the energy production capacity, and if the phaseout was to be initiated, new forms of energy production would have to be developed in addition to ambitious energy conservation initiatives. Since the oversight agencies concluded Sweden's nuclear plants met high safety standards, the final date of phaseout in 2010 was not altered (Swedish Parliament 1991).

Coalition Stability

To test hypothesis 1 and hypothesis 2, this section analyzes long-term belief coalition composition in the Swedish nuclear energy subsystem.[4] The data show that only a proportion of the 116 regular participants appeared in the coalitions. About one-third had repeated membership in policy core clusters and one-fourth appeared with some regularity in secondary aspect clusters. Although these patterns overall indicate coalition instability, previous ACF studies have analyzed stability patterns among organizations with repeated membership in a *combination* of policy core and secondary aspect clusters (Zafonte and Sabatier 2004, 97). Within this group of organizations (25 in total), there was a 68% overlap between membership in policy core and secondary aspect clusters, indicating fairly consistent testimonies

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4   This study uses the term "belief coalitions" (a term adopted from Zafonte and Sabatier 2004) since it lacks systematic evidence on coordination networks among actors espousing similar beliefs (see Nohrstedt, forthcoming).

over time. This observation, in combination with the fact that very few organizations shifted from one extreme position at one level to another extreme position at the other level, indicates stability and support for hypothesis 1 that coalitions will remain stable over time.

Table 1 presents two indicators of longitudinal coalition stability. The first measure—differences in membership scores across competing coalitions (coalition distance)—suggests that policy core clusters were more stable than secondary aspect clusters. On policy core beliefs, the distance was on average 0.592 in the pronuclear power coalition and 0.378 in the nuclear energy opposition coalition. On secondary aspects, the difference within the pronuclear coalition was 0.274 and 0.515 in the nuclear energy opposition coalition. These differences suggest that there was more overlap between the secondary aspect coalitions than between the policy core coalitions, indicating consistency with hypothesis 2. The second measure—range—provides an indicator of dispersion showing that secondary aspect clusters were clearly less stable on average (0.462 and 0.480) than policy core clusters (0.163 and 0.125).[5]

To conclude, these data suggest that ACF's hypotheses about belief system consistency hold when applied to the case of Swedish nuclear energy policy. The data also corroborate findings reported in other European ACF studies including, for instance, Swedish forest policy (Elliot and Schlaepfer 2001), Danish pharmacy policy (Larsen, Vrangbæk, and Traulsen 2006) and labor market policy (Compston and Madsen 2001), Swiss energy policy (Kriesi and Jegen 2001) and drug policy (Kübler 2001), and British trunk roads policy (Dudley and Richardson 1996). In aggregate, these findings indicate broad support for these hypotheses even outside the United States.

Crisis Events, Subsystem Disruption, and Policy Change

ACF theory postulates that various external shocks and crises can disrupt otherwise stable subsystems. Disruption takes place when new actors enter policy making, when actors change position from one coalition to another, or when policy resources are redistributed (Sabatier and Weible 2007, 199). Patterns of participation in the referral process and Parliamentary committee hearings on Swedish energy policy show that the level of crisis-induced change coincided with fluctuations in participation. Figure 1 combines data on organizations' participation in these venues (note that these data only include organizations participating regularly, i.e., three times minimum).

Figure 1 suggests that the number of organizations appearing with some regularity in Parliamentary committee hearings and the referral process increased in the aftermath of the TMI crisis (from 175 in 1975 to 240 in 1980). These changes coincided with the referendum decision to change course from limited expansion of the number of nuclear reactors to phase out of all reactors to 2010. In contrast, the number of organizations in the Swedish nuclear energy subsystem decreased substantially after Chernobyl (from 159 in total in 1985 to 84 in 1987), which was not followed by any major policy changes. These results indicate that the greater the number of subsystem participants (and hereby the more open the policy subsystem), the greater the propensity for major policy change in response to crisis events (see Howlett and Ramesh 1998, 475).

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5   On policy core coalitions, range is based upon the "nuclear energy threat and viability scale" except for cases marked by single asterisk, where range values have been derived from the "alternative energy resources scale." On secondary aspects, range is based upon the "nuclear energy phaseout planning scale."

Figure 1
Periodical Shifts in Subsystem Membership (Parliamentary Hearings and Referral Process Combined)
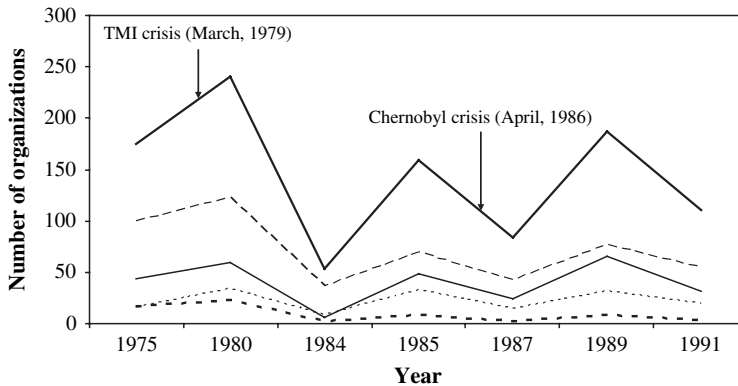
Note: Figure 1 displays combined patterns of participation among regular participants in Swedish Parliamentary committee hearings (Standing Committee on Industry and Trade) and by written comments on Government bills related to nuclear power. The figure shows trends at the aggregated level (bold), for government agencies (dashed), interest groups (simple), energy companies (dotted), and research institutes (bold dashed).

There is, however, reason to question the explanatory role of venue openness in this case. First, since energy policy making in the wake of TMI was ultimately determined by the 1980, referendum variability in venue openness did not have any direct effect on policy outcomes. Second, with respect to TMI, figure 1 suggests that like in the United States the peak of participation observed in Sweden in 1980 was the continuation of an upward trend that started before 1979 (cf., Baumgartner and Jones 1993, 79–80). Third, patterns of participation observed here might as well be the result of other intervening variables, such as gradual shifts in the nuclear energy regulation structure. Evidence suggests, however, that the growth of the environmental movement in the 1970s do not explain patterns observed in figure 1. When growing strong in the mid-1970s, the Swedish antinuclear movement was essentially composed of local *ad hoc* protest groups tied to the activist environmental movement with little concern for political strategy and formal organization (Flam and Jamison 1994; Jasper 1990). The decentralized structure of the antinuclear movement and its lack of faith in the ability of the political institutions to save the environment might explain that only a few environmental groups participated at single occasions in the fora studied here (and do therefore not meet the frequency criterion). Although more detailed data (e.g., annual developments) would be required for a more careful assessment, these findings corroborate insights made elsewhere that it is problematic to link policy change to the redistribution of resources in this case manifested by access to policy venues (see Börzel 1998).

Beliefs and Power

One criticism against the ACF has been that the interests of policy elites are subordinated to policy-oriented beliefs as motive for policy choice. Sabatier and Jenkins-Smith (1999, 130–1) view strategic interests as a special subcategory of belief systems but maintain that

Table 1
Coalition Stability Measures

Pronuclear Power Coalition			Nuclear Power Opposition Coalition		
Members	Coalition Distance	Range	Members	Coalition Distance	Range
Policy core coalitions					
Asea-Atom	0.957	0	Environment Protection Agency	0.186	0
National Industrial Board	0.980	0	Bioenergy Association	0.229	0*
Energy Agency	0.909	0	Society for Nature Conservation	0.274	0
Central Operating Management	0.797	0	Pulp and Paper Association	0.179	0*
Vattenfall	0.754	0	Liberal party	0.254	0.5
Federation of Swedish Industries	0.716	0	Left party	0.383	0
Association of Swedish Electric Utilities	0.764	0	Federation of Swedish Farmers	0.274	0.5
AB Atomenergi	0.597	0.3	Association of Local Authorities	0.480	0*
Concession Board for Environmental Protection	0.661	0	People's campaign against nuclear power	0.538	0
Steel Producers' Association	0.463	0	Green party	0.569	0
Radiation Protection Authority	0.552	0.4	Environmental union	0.821	0
County Administration Board of Halland	0.472	0.4	Center party	0.348	0.5
Conservative party	0.462	0.4			
Royal Swedish Academy of Sciences	0.467	0.4			
Royal Swedish Academy of Engineering Sciences	0.441	0.1			
Association of Graduate Engineers	0.430	0.7			
University of Agricultural Sciences	0.371	0			
County Administration Board of Malmöhus	0.334	0.4			
Association of Electricity Producers	0.130	0			
Secondary aspect coalitions					
Federation of Swedish Industries	0.639	0.9	Green party	0.773	0
Steel Producers' Association	0.572	0.9	Electricians Union	0.858	0.5
Gas Association	0.499	0	Bioenergy Association	0.780	0.9
Radioactive Waste Management	0.522	0	Society for Nature Conservation	0.674	0.9
National Industrial Board	0.435	0	People's campaign against nuclear power	0.560	0.5
Central Operating Management	0.354	0.9	Center party	0.394	0.12

Table 1 *(continued)*
Coalition Stability Measures

Pronuclear Power Coalition			Nuclear Power Opposition Coalition		
Members	Coalition Distance	Range	Members	Coalition Distance	Range
Pulp and Paper Association	0.282	0.7	Federation of Swedish Farmers	0.204	0.9
Agency for Civil Emergency Planning	0.184	0.4	Defense Research Agency	0.201	0.5
Association of Electricity Producers	0.257	0.9	Environmental Union	0.191	0
Energy Agency	0.181	0			
Vattenfall	0.177	0.9			
Oskarshamn Power Production	0.309	0.9			
National Board of Health and Welfare	0.101	0			
Association of Local Authorities	0.059	0.4			
Royal Swedish Academy of Engineering Sciences	0.052	0.05			
Lund University	0.029	0			
Royal Swedish Academy of Sciences	0.012	0.9			

the ACF "does *not* assume that actors are driven primarily by simple goals of economical/ political self interests." This claim is generally a questionable assumption in the context of politics (Hann 1995; Kim and Roh 2008; Schlager 1995) and it challenges the view that the primary goal of policy coalitions is to maximize the benefit of coalition members (see Konig and Bräuninger 1998; Riker 1962). It is further directly at odds with the prominent role of government in emergency situations (Rosenthal and Kouzmin 1997, 287). On this basis, this study compares the role of policy-oriented learning (altered core beliefs) with an interest-based explanation for policy choice. In the focus of this analysis is the decision by the Social Democrats to initiate a national referendum on nuclear power in the wake of the 1979 TMI crisis. Since the Social Democrats had previously opposed a referendum to settle the nuclear power issue (Carlsson 1999; Sahr 1985), this was defined as an instance of major policy change of the rules regulating participation of the public versus experts and elected officials (see Sabatier and Jenkins-Smith 1999, 133). The 1980 referendum established that Swedish nuclear power should be phased out, and the Swedish Parliament (1980) eventually set year 2010 as the deadline.

Process-tracing analysis suggests that Social Democratic core beliefs related to nuclear power played only a minor role in explaining the referendum initiative, which was instead influenced by party-strategic considerations (Nohrstedt 2005). When TMI occurred, electoral support for the Social Democrats was waning, whereas opposition against nuclear power was increasing within the party organization and among the general public (Flam and Jamison 1994; Holmberg, Westerståhl, and Branzén 1977; Jasper 1990; Palme 1987; Sahr 1985). In addition, the forthcoming 1980 electoral campaign was likely to be dominated by the nuclear power issue, which was an undesirable scenario in the context of the Social Democratic electoral defeat in 1976. Despite the fact that the use of referendums generally conflicted with core Social Democratic beliefs and even though the party leadership anticipated that the outcome of the referendum would be unfavorable to their nuclear energy policy, the party leaders decided that a referendum offered the only conceivable course of action (Carlsson 1999; Sahr 1985).

Because leading Social Democrats did not revised their beliefs about nuclear power or about the referendum as a means to settle the political controversy (Carlsson 1999; Peterson 1999), revised policy beliefs (i.e., learning) seem to be insufficient to explain policy choice in this case. The party leadership instead acted on the basis of strategic reasoning. By taking the initiative for a referendum, Social Democratic party leaders hoped to depoliticize the nuclear power issue before the election campaign, which in turn would increase their chances of regaining power (Carlsson 1999; Social Democratic Party 1979). As stated by party leader Olof Palme: "We must keep the party together! If we want to increase our chances of winning the election, then the type of measure I have suggested [a national referendum] is necessary" (Social Democratic Party 1979, 3, author's translation). Leading Social Democrats also hoped that a referendum would buy them time to overcome the split within the party organization over the nuclear power issue. Finally, the referendum was seen as an act of conscientiousness; leading Social Democrats believed it would be irresponsible toward the voters to run an election campaign with information lacking on the party's preferences one of the main policy issues (Carlsson 1999).

One implication emerging from these observations is that interests add to the explanation of postcrisis policy making and that sometimes policy makers may compromise policy core beliefs to preserve short-term political interests. But learning still adds to the explanation of crisis-induced policy change in this case. In the ACF, learning may refer

to alterations in the basic *strategies* adopted by coalition actors (see also May 1992). This appears to be an accurate description of the course of events in this case where the TMI crisis revised the Social Democrats' ranking of alternative courses of action. In return, this observation turns the attention to the conditions that make policy makers prioritize strategic action to prevent the loss of political capital above the ambition to realize policy core beliefs.

Minority Coalition Mobilization and Leadership Motivations

This section analyzes the Swedish policy response to the 1986 Chernobyl crisis with special attention devoted to three mechanisms explaining policy change: minority coalition mobilization, learning (both ACF variables), and political strategy (supplementary variable). Sweden was particularly hard hit by the Chernobyl disaster. Due to the wind direction, the total deposition was greater in Sweden than in most other European states (OECD 2002, 44). Various societal and political groups reacted forcefully to the crisis, and the pressure on the Social Democratic government to accelerate the Swedish nuclear phaseout process was overwhelming (Dahl 2006). What is particularly interesting about this case is that the Chernobyl crisis—despite its magnitude and impact on Sweden—was not followed by any major changes related to the Swedish nuclear power phaseout, which is inconsistent with the ACF proposition that major shocks are likely to be followed by major policy changes.

Birkland (1997, 128) notes that the nuclear power debate in the United States was polarized well before TMI, which reduced the importance of the accident as a focusing event. Similarly, evidence on Swedish nuclear energy policy shows that both camps were relatively well prepared to mobilize their troops in the wake of Chernobyl. In this respect, the post-Chernobyl debate followed a predictable pattern where representatives of the two minority coalitions defined the causes and consequences of the accident along with their preexisting policy core beliefs. Most organizations testifying repeatedly against nuclear power prior to Chernobyl claimed that the accident illustrated the risks of nuclear power in general, whereas nuclear power supporters resolutely opposed any changes in Sweden's nuclear energy program as a result of the crisis (Ministry of Energy and Environment 1987). Some organizations in favor of nuclear energy pushed the counterargument that Swedish reactor and safety systems were fundamentally different compared to Soviet systems, which justified continuous investments and even further development of Swedish nuclear energy technology (e.g., Swedish Parliament 1986, 52–5). These observations indicate coalition stability despite the occurrence of a major crisis. According to the ACF, the fact that the lineup of nuclear power supporters and opponents remained stable would have decreased the propensity for major policy change in Sweden's nuclear power program. Therefore, it is interesting that in the aftermath of Chernobyl, the Social Democratic government seemed prepared to revise position on the nuclear power phaseout if proven justified by additional expert evaluations (Dahl 2006).

ACF theory assumes that learning is obstructed because alternatives challenging core beliefs are generally screened out (Sabatier 1987, 1998). Contrary to this assumption, Social Democratic leaders were willing to reconsider their previous position to proceed with the phaseout incrementally and also to alter the deadline for the nuclear power phaseout if proven justified by the findings reported by crisis investigators. Acting under enormous pressure by various advocacy groups, the Social Democratic leadership had strong party-tactical motives to organize an independent crisis investigation (Dahl 2006).

In addition to Chernobyl, other domestic and international political events, including the assassination of Prime Minister Olof Palme, American air strikes on Libya and difficult wage negotiations, had created an atmosphere requiring firm political leadership in order to retain public trust. Appointing a crisis investigation was therefore perceived as a way to bolster the popular image of the party (Social Democratic Party 1986, 13).

Leading Social Democrats also saw the crisis investigation as a means to avoid renewed destabilization of the nuclear power issue by redefining the issue as part of a new environmental policy initiative (Dahl 2006). By analyzing public opinion trends related to nuclear power and party support and by anticipating the actions by the other national parties, the Swedish industry, and antinuclear groups after Chernobyl, leading Social Democrats concluded that the time had come to take the initiative for a broad energy policy compromise framed in the context of a new environmental policy agenda (Social Democratic Party 1986, 5). This goal derived from a combination of vote maximization, as manifested by an ambition to take environmental policy issues more seriously in the context of growing environmental concerns within the party organization and among the public and a Green party on the rise prior to the 1988 elections (Bennulf 1995), and policy pursuit (policy seeking) as indicated by the intention to realize environmental policy goals.

Besides providing additional evidence questioning the ACF assumption that interests are subordinated to policy core beliefs, post-Chernobyl developments underline the importance of studying policy making through the prism of ''politics.'' Most evidence cited here suggest that the Social Democratic decision not to accelerate the nuclear power phaseout was conditioned by a rational–scientific examination of the risks with nuclear power and its viability compared to alternative energy sources. At the same time, as one additional indicator of the key role of strategic action, the government proposed it would initiate the phaseout a few years earlier than previously planned in order to resist the pressure (see Nohrstedt 2008).

IMPLICATIONS FOR ACF THEORY

The sections below draw implications from the case of Swedish nuclear energy policy for ACF theory more generally. Developments in this case have generated mixed results for the explanatory utility of the ACF. A key question in terms of theory development is therefore what modifications or additions to the ACF might be needed to compensate for these inconsistencies? Proposed alterations include further development and specification of key ACF concepts as well as introduction of contextual variables.

System Events

The ACF qualifies the role of external shocks or crises as an independent variable explaining policy change. Sabatier and Jenkins-Smith (1999, 120) have defined external shocks quite broadly as pertaining to major socioeconomic changes, regime shifts, and policy spillover effects from other subsystems. This definition is too encompassing; these conditions are in constant flux, and it is difficult to see which developments would be sufficient to explain major policy change. But this list is also unnecessarily restrictive since it excludes other types of ''focusing events'' that have the potential to affect policy programs (see Birkland 2006). In return, Sabatier and Weible (2007) added internal shocks (accidents

and disasters) as an alternative path for major policy change. This conceptualization of internal shocks, however, tends to be static; it views policy implications of internal shocks as predestinated by postulating that the blame for a crisis will always fall on the dominant coalition. Yet, Sabatier and Weible (2005, 12) suggest that internal shocks may indicate monumental failures of the policies pursued by dominant coalitions, which in turn can re-affirm the beliefs pursued by minority coalitions who blame the internal shock on the dominant coalition. However, in practice, the nature and depth of the political aftermath of crises vary, and the external–internal dichotomy is not always easily discernible (see Parsons 1995). Most crises are rather fuzzy and indeterminate and whether or not they qualify as monumental failures raising the need for policy change depends on deliberate attempts by various stakeholders to influence public perceptions and emotions. In such "framing contests," the responsibility for the occurrence and escalation of crisis events commonly becomes the subject to intense public debate (Boin, 't Hart, and McConnell 2009; Bovens and 't Hart 1996; Brändström and Kuipers 2003; Kuipers 2004; Stone 1989).

Sabatier and Weible (2007, 210) argue a more fine-grained typology of different shocks is needed to further specify the ACF. But instead of resorting to the external–internal distinction, it would be more useful to focus on different dynamics of crisis termination that takes into consideration various states of operational and political "closure" (Boin et al. 2005, 98). This would not only introduce a more realistic conceptualization of crisis events as instances of external shocks; in return, it would also help in specifying the conditions under which minority groups mobilize in the quest for policy change and why such efforts become successful (see Goldfinch and Hart 2003).

Dominant Coalitions

In the ACF, "policy" is conceptualized in terms of core attributes of government programs controlled by a dominant governing coalition. But following the framework's basic premise that a focus on specific governmental institutions is insufficient to understand policy change and its view of the policy subsystem as the primary unit of analysis, the role of the executive branch remains unclear. The ACF treats "decisions by governmental authorities" mainly as a target for minority coalitions seeking change. Government representatives hereby appear to respond somewhat mechanically to actions taken by minority coalitions and to altered power relationships within a subsystem. This view is inconsistent with the observation that the number of relevant actors decreases with the progress of an issue to the stage of decision making. Aside from rules circumscribing the room for manoeuvre available to politicians, they still retain significant latitude to adopt whatever policy they wish (see Schmidt 1996, 170–1). Furthermore, following the fact that these individuals vary in terms of knowledge and backgrounds, one can expect some variability with respect to how they interpret problems and solutions (Dudley and Richardson 2000; Howlett and Ramesh 2003).

From this perspective, ACF theorists need to clarify the role of the executive branch of government in the process of policy change and how its behavior is linked to minority coalitions populating the policy subsystem. This issue relates directly to fundamental questions about the policy-making process, in particular the relative influence of out-of-power groups and the level of government autonomy from these groups (cf., Maloney, Jordan, and McLaughlin 1994). When seeking to expand the applicability of the ACF to corporatist systems, this issue is probably *the* most critical because it addresses the relative utility

of ACF's meso-level approach to policy making in relation to a more elite-centered perspective on policy choice.

Venue Access

Sabatier and Weible (2007, 199) argue that "the most important effect of external shock is the redistribution of resources or opening or closing venues within a policy subsystem." Hereby, the ACF adheres to the widespread assumption in the public policy literature that the propensity for major policy change is related to the "disturbance" and relative openness of policy subsystems (e.g., Forester 1984; Howlett and Ramesh 1998, 2003; Smith 1993). This assumption is the foundation of ACF's notion of "skillful exploitation" where the deliberate attempts of minority coalitions to exploit a crisis in their favor through recruitment of new members and/or exploitation of various policy-making venues might change the status quo (Weible 2007). Major changes in the basic structure of the policy subsystem are thus described as a prerequisite for major policy change. Developments in the Swedish nuclear energy policy subsystem indicate support for this assumption but still cast doubts on its validity in this case.

   Over time, changes in the openness of the Swedish nuclear energy policy subsystem coincided with policy changes in this domain providing tentative support for the hypothesis that the more open the policy subsystem, the greater the likelihood for major policy change (Howlett and Ramesh 1998, 475).[6] It can still be questioned, though, if subsystem openness affected policy making in this case. In Swedish policy making, the referral process (by which public and private organizations comment on government policy proposals) provides a venue for various groups to influence policy making in the preparatory phase (Elvander 1974). This well-established routine for policy management has generally ensured a relatively high degree of openness in the Swedish policy-making process.[7] However, it is less clear to what extent this procedure actually influences the *receptivity to new ideas* in any given policy sector. The design of this case study does not allow for a detailed analysis of the relative weight of the referral process (or parliamentary hearings) in determining nuclear energy policy outcomes. Further, the data do not allow for interpretation of other intervening variables affecting venue access. Nevertheless, following the extremely politicized nature of this issue, it is rather unlikely that ideas expressed in these fora outweighed other political concerns as the primary explanation for policy choice. Hence, although these observations are insufficient to disconfirm the subsystem configuration hypothesis, they call for further critical examination of its underlying assumptions (see Börzel 1998).

Partisan Cleavages

Despite the claim that the ACF is particularly useful in cases involving substantial political conflict, ACF theory does not specify how, more precisely, partisan rifts influence policy choice and the likelihood for policy change. To begin with, it is important to realize that the

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6   Note that this hypothesis is not made explicit in the ACF. Rather, it is stated implicitly through the assumption that the emergence of new subsystem members provides an important resource for minority coalition influence (Sabatier and Weible 2007).

7   This observation is inconsistent with the argument of Sabatier and Weible (2007, 199–201) that traditionally corporatist systems are characterized by low degrees of openness. In return, it calls into question the utility of the notion of "coalition opportunity structure" as a means of ensuring a better fit of the ACF with corporatist systems.

degree of political conflict varies from one policy domain to another (and sometimes also within domains over time), which in turn creates differing conditions to carry out policy changes in the wake of crisis (Birkland 1998, 73). Based upon findings reported here, it can be argued that when policy issues are subjected to intense political conflict, confrontation and sharp disagreements per se become one important precondition that affects policy making in that particular domain. That is, when societal cleavages issues become subject to large-scale conflict between (and within) political parties, ambitions to realize policy core beliefs are unlikely to be the primary motivation for policy choice. As an amendment to the ACF, this study therefore suggests that *partisan cleavages*—defined here as "a type of political division based upon major social divisions" (Zuckerman 1975, 234)—deserve a more prominent explanatory role.[8] More generally, this would be consistent with the observation that political climate is a decisive factor explaining policy change in the wake of crises and disasters (Birkland 1997; Swartz and Sulitzeanu-Kenan 2004).

From the mid-1970s, Swedish nuclear energy policy was subjected to deep partisan division cutting through the left–right spectrum (see Lewin 1988). Growing popular interest and strong opinions in the issue accompanied these developments. In return, nuclear power became an important electoral issue and contributed to the 1976 regime shift (Carlsson 1999; Petersson 1978) and to the fall of the new Center Party coalition government in 1978 (Vedung 1979). From these events, the political parties learned that a strong connection existed between positioning on nuclear power and electoral performance. Social Democrats in particular were concerned about how their nuclear energy policy initiatives would affect public opinion. Partisan cleavages are therefore an important background variable that delineates the range of policy alternatives available to political decision makers, which has obvious implications for policy choice.

Interests and Power

Paying closer attention to the level of partisan division also helps in understanding why strategic considerations become a key motive in policy making. One recurrent criticism against the ACF is that it underestimates the role of interests and power in the policy process. This analysis has demonstrated empirically that interests and political power can be critical in explaining policy choice—particularly in highly politicized policy subsystems—suggesting that it is valuable to maintain the distinction between beliefs and interests. As demonstrated by Swedish policy making in the wake of both TMI and Chernobyl, interests ultimately related to vote maximization constituted a key motive that helped in explaining policy choice related to Swedish nuclear energy. Phenomenologically, these motives differ from normative commitments related to the relative viability of nuclear power in relation to other energy sources. One basic although useful amendment to the ACF would therefore be to upgrade *interests* as a separate category of motives guiding coalition behavior. Besides, as Hoberg (1996, 143) notes, if beliefs and interests were held as inseparable it would be difficult to reject the null hypothesis that beliefs are not relevant to policy change.

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8   Sabatier and Weible (2005, 8–9) incorporate "societal cleavages" as part of coalition opportunity structures. Societal cleavages, however, is merely described as an underlying variable explaining which policy style is adopted. For instance, Sabatier and Weible (2005, 8) assume that overlapping societal cleavages "create a tremendous risk of major societal conflict and thus a strong incentive to adopt a corporatist policy style with strong norms of consensus, compromise and accommodation."

Closely related to the role of interests is ACF's view of learning as being concerned with revised understandings of basic strategies for achieving core values. Following findings reported here, it would be rewarding to expand this notion to revised preference orderings. Accordingly, the policy outcome of a crisis can be mediated through shifting perceptions regarding political consequences of different decision alternatives. While in the end, one might observe learning effects relating to beliefs as well as interests, this study shows that learning about *politics* is important in understanding the policy outcomes of crises (Birkland 2006; May 1992). As the Chernobyl case shows, learning about political tactics and the conduct of policy knowledge generation can shed light on how government officials handle pressing policy problems. In this case, the Social Democratic leadership leaned on previous experiences to anticipate the public reactions and to calculate the political risks. In return, they arrived at the conclusion that the crisis inquiry presented the most appropriate political response to the Chernobyl crisis. Similarly, previous experience significantly influenced the organization of the inquiry as well as the overall ambition to work toward clear and time-bound policy goals (Dahl 2006). In conclusion, these observations suggest that the strategic component incorporated in ACF's notion of learning is too narrow. Learning in the ACF partly refers to strategies related to attainment or revision of belief systems. What this study suggests is that there is also an inherently political–tactical side to learning that adds to the explanation of policy change.

Coalition Homogeneity

As pointed out elsewhere (Cairney 1997; Maloney, Jordan, and McLaughlin 1994), one problem in the ACF is that it does not discern the most important actors within each coalition and assumes that relatively homogenous coalitions contribute to policy formation. ACF authors have dealt with this problem by viewing formal legal authority to make policy decisions as an important resource that increases the chance of coalition success (Sabatier and Weible 2007, 201). One thing still missing in this picture is the role of informal power relations mediated through political and institutional traditions. Historically in Swedish politics, the relationship between the Social Democratic party and the labor movement has been particularly important in policy making. In many areas, the mutual support and coordination between the Social Democrats and the Trade Union Federation, has provided the foundation for advances in policy (e.g., Elvander 1974, 35; Heclo and Madsen 1987, 319). In nuclear energy policy making, Sahr (1985, 39) notes that the labor movement constrained the policy options available to the Social Democrats by underlining the employment–economic growth emphasis and by the party's general appeal to workers for voting support. The Trade Union Federation was thus in a favorable position to influence Sweden's nuclear energy policy (Jahn 1993, 72). To the Social Democrats, the trade unions' concern over employment contributed to the sense of threat of the nuclear phaseout to the Swedish welfare and labor market model, and in return, the Social Democrats sought to compromise between this position and the antinuclear views (Vedung 2001).

ACF theory adopts a decentralized concept of governance emphasizing problem-solving structures rather than formal political authorities and their decisions (Sabatier and Jenkins-Smith 1993, 17). Yet, the relationship between these two structures still remains fairly well hidden within the "black box" of policy making. Given these limitations, one implication for the ACF is that although minor conceptual adjustments and additions may help in making a better fit with non-pluralist systems, its bounds of applicability

ultimately depend on its ability to account for fundamental power relationships within the state. If the ACF is to offer a general theory capable of explaining policy change, part of the challenge is to develop analytical tools that help in evaluating coalitions' actual *influence* on policy choice. Unless this aspect is clarified, it will be difficult to demonstrate that coalitions matter in policy making.

Policy Legacies

ACF theorists make a strong case for studies of the policy process taking a time perspective of a decade or more. One underlying rationale has been the importance of the so-called "enlightenment function," which holds that policy analysis gradually alters the belief systems of policy makers over time (Sabatier 1991, 148). Although this case study presents some evidence in support of this mechanism, it provides one additional rationale for long-term studies of policy change processes.[9] Even if in-depth studies of relatively short decision-making processes are able to identify causal factors explaining instances of policy change, it is clear that historical events and decisions have substantial influence on these factors. Path dependency theory generally emphasizes how effects of earlier decisions (policy legacies) constrain subsequent policy choices (Peters, Pierre, and King 2005, 1287). Several observations reported in this study underline the importance of this logic. It has been shown here that past experiences were extremely important in accounting for policy choice in the wake of TMI and Chernobyl. The 1976 electoral defeat played a key role in explaining subsequent actions in this domain. Haunted by this political setback, Social Democratic party leaders continuously sought to avoid renewed destabilization of the nuclear power issue. This goal, in turn, appears to contribute to explaining why they generally preferred incremental change in nuclear energy policy making.

Path dependency can contribute to explain minority coalition success. The Swedish reaction to Chernobyl suggests that the prospect for minority coalition influence is conditioned by an issue's ideological salience, a prehistory of deep sociopolitical contestation, and resembling past crisis experiences within the same policy domain. In essence, these conditions increase the predictability of public crisis response patterns and hence the probability that policy making will not deviate from the current course (see Mahoney 2000). On the role path dependency, the ACF primarily takes a policy evaluation perspective focusing on policy analysis feedback loops in the formulation, implementation, and reformulation cycle (Sabatier and Jenkins-Smith 1993, 19). These feed loops tend to iterate existing policies and give rise to incremental adjustment by altering secondary aspects. This study suggests that past experiences have significant influence on policy making also by shaping the interests and strategies of political actors (see Steinmo, Thelen, and Longstreth 1992).

CONCLUSION

The objective with this study is to contribute to the development and generalization of ACF theory on the basis of a case study of Swedish nuclear energy policy. In support of the ACF, findings reported here indicate that coalitions remain stable over time and that policy core coalitions are more stable than secondary aspect coalitions. Meanwhile, developments in

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9   On example of the enlightenment function in this case is that the Social Democratic leadership gradually developed an understanding of the risks associated with nuclear power during the late 1970s largely influenced by technological information and public opinion.

this case cast doubts over the presumed importance of policy learning and minority co-alition mobilization as explanations for policy change in contested policy areas. To deal with these inconsistencies constructively, the study has outlined seven areas of the ACF that are in need of specification.

On the basis of these amendments, the relationship between subsystem coalitions and partisan elites stand out as a critical issue conditioning further theoretical progress in the ACF. ACF theory is originally founded on Sabatier's rejection of a focus upon single government institutions or single levels of government in favor of a meso-level approach to policy making (Sabatier and Jenkins-Smith 1993, 212). Swedish nuclear energy policy making sheds light on the weak spots in this approach by showing that political judgments have overshadowed policy-oriented beliefs as the primary motive for policy change. The political party scene has been more important than the policy subsystem as the primary battleground in policy making (see also Nilsson 2005). Various advocacy groups have been very active in their attempts to influence the direction of nuclear energy policy making, but these efforts have mainly deepened the political cleavages over the nuclear power issue. This qualifies the degree of insulation of political elites from other societal and political actors as a particularly important area of inquiry to be addressed in future ACF research (see Reenoch and Gerber 2008).

Is the prevalence of partisan politics consistent with the basic premises of ACF theory? Given the dominant role of beliefs and the perception of policy change as the outcome of events and interaction among various participants in the policy *process*, the short answer would be no. Greater emphasis on partisan politics to explain policy change would imply a shift of attention from subsystem dynamics and coalition interaction to the political elite and explain policy making as the result of elite preferences at the stage of decision making. Even if recent developments in the ACF indicate some possibility of overlap between these views (for instance, Sabatier and Weible [2007, 209] qualify the relative importance of self-interests compared to policy core beliefs as one area for future ACF research), some unclear points remain. Primarily, the perception of "decisions of governmental authorities" as the target for minority coalition influence and a rather formal step in the policy process under-estimates the importance of critical junctures in the policy process when decisions about change and stability are made. Furthermore, it overlooks the role of prominent individual policy makers in position to introduce policy innovation and even change in the composition of the policy subsystem itself (Dudley and Richardson 2000, 22).

Adhering to George and Bennett's (2005, 115) view of theory development, the objective with this analysis has been to explore if there is reason to expand or narrow the scope conditions of ACF theory instead of seeking to refute it decisively. In practice, this undertaking has been complicated by underdeveloped aspects of ACF theory blurring its assumptions of how the policy process develops. These uncertainties require supplementary clarification in order to enable further assessment of ACF's bounds of applicability. It is, however, troublesome that these gaps have been identified in a case that the ACF should have been particularly suited to explain, given its presumed applicability to cases involving substantial political conflict and technological complexity. At the same time, the findings of this study provide important pointers for specifications that would pave the way for more precise future "tests" of ACF postulates.

Results reported here suggest that further generalizability of ACF theory hinges on its ability to integrate partisan elite responsiveness and sensitivity to subsystem coalitions. Researchers should be encouraged to explore how subsystem-level interactions and

structures condition microlevel decision making and choice about policy programs. In-depth theoretical and empirical analysis of this relationship is particularly pressing when applying the ACF in majoritarian democracies where political parties exert substantial in-fluence on policy instruments and outputs (see Schmidt 1996). The key challenge is to clarify causal mechanisms translating subsystem dynamics into substantive decisions guid-ing the direction of policy programmes. This ambition would be consistent with the epis-temological base of ACF theory to "think causal process" (Sabatier 2007, 328). Meanwhile, it can be noted that the nexus between subsystem-level advocacy and elite-level decision making poses a generic problem to public policy theory more widely. On the development of theories of policy learning, Grin and Loeber (2007, 214) observe that the perspective has been broadened from an initial focus on governmental actors to societal actors. Although they note growing attention in this literature to the relations be-tween agency and structure, network theorists struggle to convincingly connect agency to policy change (Dowding 1995; Granados and Knoke 2005). The ontological problem of how to grasp the interaction between subsystem-level actors and partisan elites is hence not only confined to ACF theory but is part of a bigger challenge facing public policy research.

When exploring alternative ways of comprehending this relationship, it is crucial to stay alerted to political and societal developments explaining why partisan politics become so prev-alent in some policy areas. Freeman and Stevens (1987) take the argument halfway by arguing that the relative importance of subgovernment is linked to policy type. Likewise, Kim and Roh (2008) call for incorporation of "macrolevel factors," including institutions, state–so-ciety relationships, and national culture. Swedish nuclear energy policy suggests that the perceived importance of any given issue for electoral performance also explains the prevalence of partisan politics. ACF theory has potential to advance this argument further. By offering a model of the distribution of normative beliefs and political resources over time within a subsystem, ACF theory is a useful starting point to trace the gradual es-calation of political conflict and the movement of an issue on to the governmental decision agenda. But to further clarify the conditions for coalition influence within this framework, it would be rewarding to at least temporarily recognize the utility of the stages heuristics (Schlager and Blomquist 1996, 664). The objective would not be to reintroduce a "top-down bias" (Sabatier 2007, 7) in the study of the policy process but to provide alternative ways of assessing coalition influence in public policy making.

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