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Advocacy Coalition Framework: The Mediating Effect of Coalition Opportunity Structures on the Relationship between External Shocks and Policy Change

Abstract

The Advocacy Coalition Framework (ACF) is a theoretical framework for studies of policy change. Since its introduction in the late 1980s, it has undergone three revisions in 1993, 1998, and 2007. The 2007 revision has contributed to expanding the applicability of the ACF to policy processes in both pluralistic and non-pluralistic political systems by creating a new category of variables: coalition opportunity structure. However, very little research has been conducted to examine whether and how opportunity structures affect the policy process. This study examines whether, to what extent, and in what ways external shocks cause policy change in different coalition opportunity structures. To do this, I investigate the effects of three global nuclear accidents on Korea's nuclear energy policy. The findings suggest that coalition opportunity structures mediate the effect of an external shock on the policy process. In an authoritarian structure, a policy subsystem is monopolized, so external shocks cannot lead to policy change but instead are exploited by a dominant coalition to further strengthen its power in the policy process. In a pluralistic structure, external shocks bring policy change as the ACF predicts because they serve as an opportunity for minority coalitions to challenge a dominant one. The relationship between an external shock and policy change is not a simple stimulus-response reaction.

Key word: advocacy coalition framework, coalition opportunity structure, external shocks, policy change, nuclear energy policy

Introduction

Since Sabatier and Jenkins-Smith introduced the Advocacy Coalition Framework (ACF) in the late 1980s and the early 1990s, it has developed as one of the most promising and widely used theoretical models for understanding the public policy process (Jenkins-Smith et al. 2014; John 2003; Schlager and Bloomquist 1996; Weible 2005). The ACF initially emerged as an alternative to the stages model (Sabatier 1998; Nohrstedt 2009). The main criticism of the stage model is that it does not identify any causal mechanisms for policy development and neglects the historical and temporal dimension of change (Burton 2006). However, by revealing that policy evolution involves various interactions of coalitions in a policy subsystem and recognizing the need to take a long term view of policy change, the ACF has attracted the attention of many scholars who are interested in a variety of causal drivers for policy change over a period of a decade or more.

In proportion to its theoretical attractiveness, the ACF has been critically evaluated and examined by other policy scholars. However, most of these criticisms have stemmed from the belief that the framework is useful for studying the policy process (Hsu 2005; Kübler 2001; Nohrstedt 2005; Sato 1999), and served as an opportunity to develop and refine the framework. Sabatier and Jenkins-Smith in 1993 and 1998, and Sabatier and Weible in 2007 produced three major revisions. The revisions consequently provide theoretical solidity to the ACF, and above all, extend the applicability of the ACF from a pluralistic society like the U.S. to corporatist regimes in Europe and authoritarian executive regimes in developing countries (Sabatier and Weible 2007). To put it more concretely, by adding the new category of variables, “coalition opportunity structure,” in the 2007 revision, the ACF can be employed to understand and explain the policy process in a non-pluralistic society. The ACF supposes that the variables in the new

category directly and indirectly affect policymaking within a policy subsystem. However, because the variables were recently included in the framework, very little research has been conducted to examine whether and how the variables affect the policy process.

The main questions investigated in this paper are whether, to what extent, and in what ways dominant and opposing coalitions deal with or utilize external shocks in different coalition opportunity structures. In trying to answer these questions, I analyze the nuclear power policy in the Republic of Korea (hereafter "Korea"). The history of nuclear energy use in Korea dates back to the early 1950s, when the Korean government began to send young engineers and researchers to the U.S. and other developed countries to acquire nuclear power technology. In the mid-1980s, the Republic of Korea experienced the transition from a dictatorial and authoritarian political system to a democratic and pluralistic society. Consequently, the coalition opportunity structure related to Korean nuclear power policy also changed from authoritarian to pluralist. In addition to the political change, three catastrophic global nuclear accidents happened: the Three Mile Island accident in 1979, the Chernobyl nuclear accident in 1986, and the Fukushima nuclear accident in 2011. Therefore, the Korean nuclear power policy serves as an ideal case for a study exploring the role of the political system in the relationship between an external shock and policy change.

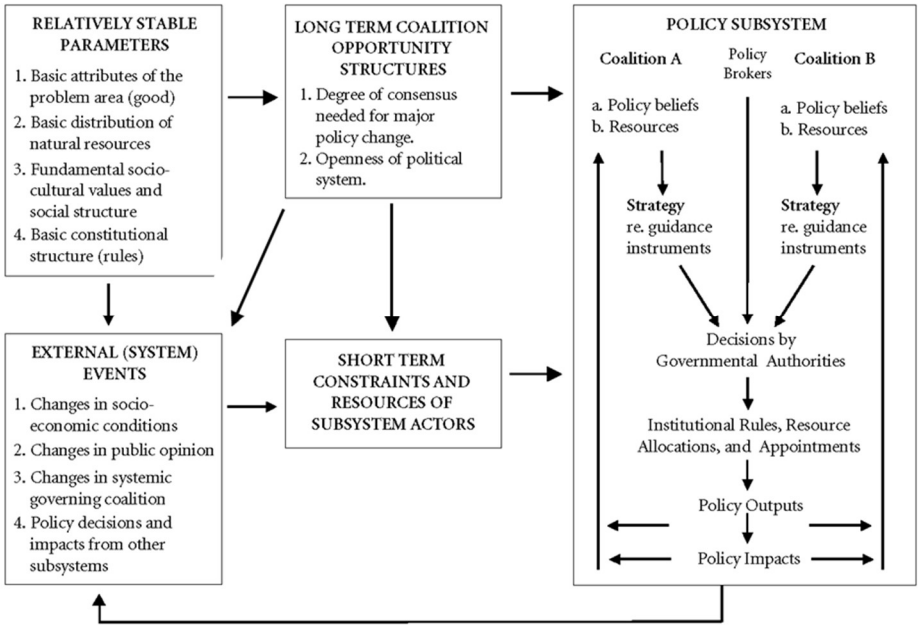
The subsequent discussion proceeds as follows. In the second and the third sections, I provide overviews of the ACF and coalition opportunity structures, respectively. Next, I detail the history of South Korea's nuclear energy policy and political systems. Subsequent sections examine whether, to what extent, and in what ways the external nuclear accidents affected Korea's nuclear energy policy in different coalition structures. Section 7 closes with a brief summary and conclusion.

An Overview of the Advocacy Coalition Framework

The ACF views policymaking or policy change as a product of competition among at least two advocacy coalitions: a dominant coalition and minority ones. The concept of advocacy coalition is one of the trademarks of the ACF. And advocacy coalition is composed of people from a variety of governmental and private organizations who (1) share a set of normative and causal beliefs and (2) engage in a nontrivial degree of coordination (Sabatier and Jenkins-Smith 1999, p. 120). In other words, an advocacy coalition is conceived of as an alliance of policy participants who are motivated to translate their beliefs into actual policies. The coalition membership includes journalists, researchers, and judges as well as the traditional "iron triangle" of legislators, bureaucrats, and interest groups (Sabatier and Weible 2007).

Within a policy subsystem, a dominant coalition perpetually confronts the challenges of other minority coalitions' attempts to participate in the policy process to advocate their beliefs. The replacement of a dominant coalition by minorities can lead to a major policy change. Since the vast majority of policy change occurs as a result of coalition competition within a policy subsystem, the unit of analysis for understanding the policy process in the ACF is a policy subsystem. Subsystems are classified as either mature or nascent (Sabatier 1998, p. 111). A mature subsystem has existed for a decade or more, and the participants regard themselves as a semi-autonomous community and seek to influence policy and practice for an extended period. In addition, in a mature policy subsystem, government agencies, interest groups, and research institutions have their own sub-units specializing in and dealing with a policy of interest. A nascent subsystem, in contrast, is a newly developing subsystem, so is likely to exhibit instability and fluidity. Meanwhile, a policy subsystem is characterized by both a functional (e.g., nuclear power policy) and territorial dimension (e.g., Korea).

Figure 1. The Advocacy Coalition Framework Flow Diagram



Source: Sabatier and Weible (2007, p. 202)

In the ACF, beliefs are defined as the causal drivers for individuals' political behavior and for the formation of coalitions (Matti and Sandström 2011). Each coalition has its own belief system, so policy participants from different coalitions perceive the same information in different ways (Sabatier and Weible 2007). As suggested by the concept of the devil shift borrowed from prospect theory,[1] belief systems cause and escalate policy conflict across advocacy coalitions. The belief system of each coalition is organized into a hierarchical and tripartite structure: deep core, policy core, and secondary beliefs. At the broadest level are deep core beliefs, which span an entire policy subsystem. The deep core of a belief system involves fundamental normative

[1] The prospect theory assumes that actors value losses more than gains. Consistent with the theory, the devil shift is the tendency for coalition members to regard their opponents as less trustworthy, more evil, and more powerful than they actually are. This tendency increases the bond between members within the same coalition.

and ontological axioms that define a person's underlying political philosophy (Fischer 2003), such as relative valuation of liberty versus equity, and relative concern for the welfare of present versus future generations (Weible and Sabatier 2009). Deep core beliefs are in large part the product of childhood socialization, and are thus highly resistant to change.

In the middle of the belief system hierarchy are policy core beliefs, which are perceptions of the seriousness of a problem and the appropriateness of institutional arrangements to deal with a problem. These beliefs also contain basic strategies and policy positions for achieving deep core beliefs in a policy subsystem in question. Policy core beliefs are cardinal in coalition dynamics because they serve as the primary perceptual filter for policy participants to determine their perceived allies and potential sources of coordination (Weible and Sabatier 2005). In short, policy core beliefs are the "glue" that holds participants within a policy subsystem together to form an advocacy coalition and work closely on a policy problem. Compared to deep core beliefs, policy core beliefs are resistant to change but are more likely to adjust in response to verification and refutation from new experience and information (Weible et al. 2009, p. 123).

At the final level are secondary beliefs, which are more substantively and geographically narrow in scope, and more empirically based than policy core beliefs (Weible et al. 2009). More specifically, secondary beliefs involve a multitude of instrumental decisions and information searches necessary to implement policy core beliefs (Fischer 2003). Hence, secondary beliefs are more likely to be adjusted to the policy environment compared to the other two types of beliefs. It should be noted, however, that the beliefs of policy participants are basically assumed, to a

greater or lesser extent, to be very stable over time.[2] Therefore, the power structure of a policy subsystem composed of a dominant coalition and other minorities is relatively unchanging.

Belief change can lead to policy change. If the beliefs of a dominant coalition are changed or a dominant coalition is replaced by a minority, then policy change occurs. Policy change is divided into minor policy change following changes in secondary beliefs and major policy change following changes in policy core beliefs or replacement of a dominant coalition (Sabatier and Jenkins-Smith 1999).

Coalition Opportunity Structure and External Shocks

The initial ACF originated in American pluralism and was not suited to understand the policy process in a non-pluralistic society (Sabatier and Weible 2007). So, with a view to expanding the applicability of the ACF to corporatist regimes in Europe and authoritarian executive regimes in developing countries, the 2007 revision created a new category of variables, which Sabatier and Weible (2007) called "coalition opportunity structure" (see Table 1). This category includes two variables: (1) degree of consensus needed for major policy change and (2) openness of political system. The first variable is related to the density and membership of coalitions. For example, in a political system where a high degree of consensus is required for policy change, coalitions have strong incentives to coordinate and compromise with others in order to secure as many allies as possible (Sabatier and Weible 2007). The second variable, openness of political system, is the function of two intermediate variables: the number of decision-making venues and the accessibility of each venue (Sabatier and Weible 2007). For

[2] Fischer (2003, p. 96) explains the reason why the beliefs are so resistant by using Kuhn's notion of "paradigm change."

instance, the U.S. has numerous decision-making venues and multiple access points due to its checks-and-balances system and federalist structure. That is to say, the U.S. has created a very open system under which different actors participate in the policy process. By contrast, a corporatist regime or an authoritarian executive regime has a relatively closed system in terms of centralized decision-making and restricted participation. The degree of openness of political system is one of the criteria for distinguishing corporatism or authoritarianism from pluralism.

Table 1. Typology of Coalition Opportunity Structure

Openness of Political System	Degree of Consensus Needed for Major Policy Change		
	High	Medium	Low
High	Pluralist	Pluralist	
Medium	Recent Corporatist	Westminster	
Low	Traditional Corporatist		Authoritarian Executive

Source: Sabatier and Weible (2007, p. 201)

Based on these two variables, the ACF identifies four types of coalition opportunity structures: pluralist, corporatist, Westminster, and authoritarian executive. Pluralistic structure is characterized by a multitude of receptive decision-making venues and either a high or medium degree of consensus for major policy change. Corporatist structure generally features strong norms of agreement and emphasizes a supermajority for policy change. It has relatively restricted decision systems compared to pluralistic structure. In authoritarian executive structure, on the contrary, the policy process is monopolized by small elite groups, and the decision-making process is centralized and exclusive. Westminster structure is located between pluralistic and

authoritarian structures and has modest norms for consensus and compromise, along with less open but not centralized decision systems.[3]

The most recent version of the ACF can distinguish different types of political systems and serve as a theoretical framework for studying the policy process in a non-pluralistic system. Nevertheless, it is still necessary to examine whether and how opportunity structures affect the policy process. To put it more concretely, the ACF identifies four paths to policy change: policy-oriented learning, external shock, internal shock, and negotiated agreement (see Sabatier and Weible 2007 for more details). External shocks include changes in socioeconomic conditions, regime change, and disaster. They attract a high level of attention to policy agendas and trigger increased discussion of a policy or ideas (Albright 2011; Birkland 2006; Sabatier and Weible 2007). External shocks can also lead to the redistribution of critical political resources such as public or financial support. This redistribution can provide an opportunity for a minority coalition to take the dominant position in a policy subsystem. However, it should be noted that shocks are a necessary but not sufficient condition for major policy change. There is not a simple stimulus-response relationship between external shocks and policy change (Nohrstedt 2005). Although they provide "focusing events," shocks cannot generate policy change by themselves (Nohrstedt and Weible 2010). Minority coalitions should skillfully exploit shocks as an opportunity to replace a dominant coalition or to reflect their policy core beliefs in a policy (Nohrstedt 2009; Sabatier and Weible 2007).

According to the 2007 revision of the ACF, coalition opportunity structures not only impact short-term constraints and resources, but they also affect external events (Sabatier and

[3] Openness of a political system seems to have a positive relation with the degree of consensus needed for major policy change. In other words, a highly open political system generally requires a high degree of consensus in order to bring about major policy change.

Weible 2007). Thus, I hypothesize that the structures have a mediating effect on the relationship between external shocks and policy change. This study tests the hypothesis by examining the history of Korea's nuclear energy policy, which experienced the transition from authoritarian executive to pluralistic structures. Because of the clear difference in political system between pluralistic and authoritarian structures, comparative analysis of the two structures allows a straightforward and obvious investigation of the effect of opportunity structures. Although a single-unit case study can be criticized for its weak generalizability, it can allow for in-depth analysis and is less likely to suffer from omitted variable bias because changes in a single case are less significant than differences among different cases. Thus, this study employs a case study approach.

Nuclear Power Policy and Democratization in Korea

The History of Nuclear Energy Development in Korea

During World War II, the science and technology of nuclear physics advanced dramatically with high levels of political and funding support for projects to develop a nuclear weapon. After the war, attention turned to the peaceful use of nuclear energy. In 1953, U.S. President Eisenhower delivered his "Atoms for Peace" at the United Nation, in which he proposed the civilian use of nuclear power, especially for electricity generation. The 1950s marked the start of civil nuclear energy development.

After its liberation from Japanese colonial rule in 1945 and the Korean War ceasefire in 1953, Korea emphasized the advancement of science and technology as a strategy for national reconstruction, and the development of nuclear energy was identified as a principal national goal. The history of Korean nuclear energy development is broadly classified into two stages:

preparation and operation. In the preparation stage from 1954 to 1968, Korea focused on building the social and institutional foundation for peaceful use of nuclear power. In 1958, the Atomic Energy Act of Korea (AEAK) was enacted to provide a legal foundation not only for nuclear development activities, but also for the regulation and licensing of nuclear power plants. The Atomic Energy Department (AED) was established in 1959 as a government ministry to organize and manage everything to do with the development of nuclear power. In the early 1960s, the Korean government focused on developing the ability to operate a nuclear reactor, establishing the Korea Electricity Power Corporation (KEPCO) in 1961 and assigning it the task of constructing and operating nuclear power plants.

Table 2. The History of Nuclear Energy Development in Korea

Preparation Stage (1954 - 1968)	Operation Stage (1969 - present)
• Overseas training (1955-1964)	• Contract for the first NPP, Kori-1 (1969)
• ROK-US Atomic Energy Agreement (1956)	• Start of the commercial operation of Kori-1 (1978)
• Foundation of the domestic training system (1958)	• Eight NPPs opened and operated in the 1980s
• Enactment of the Atomic Energy Act of Korea (1958)	• Seven NPPs opened and operated in the 1990s
• Establishment of the Atomic Energy Department (1959)	• Construction of the first KSNNP (1998)*
• Construction of the first research reactor (1962)	• Four NPPs opened and operated in the 2000s
• Formulation of the national nuclear plan (1968)	• Five NPPs opened and operated in the 2010s

* The Korean Standard Nuclear Power Plant (KSNNP) design was first applied to the 15th nuclear power plant (Ulchin-3), which went into commercial operation in 1998.

The Korean government also started a campaign to glorify the development of nuclear energy as the path to prosperity (MEST and KAERI 2009). Nuclear power was globally considered to be an economical energy source in the 1950s and 1960s (Char and Csik 1987; Hsu 2005; Nohrstedt 2009) and was depicted as a liberating force particularly in Korea because the two atomic bombs dropped on Hiroshima and Nagasaki in August 1945 had forced Japan to surrender, ended World War II, and simultaneously liberated Korea from 36 years of Japanese

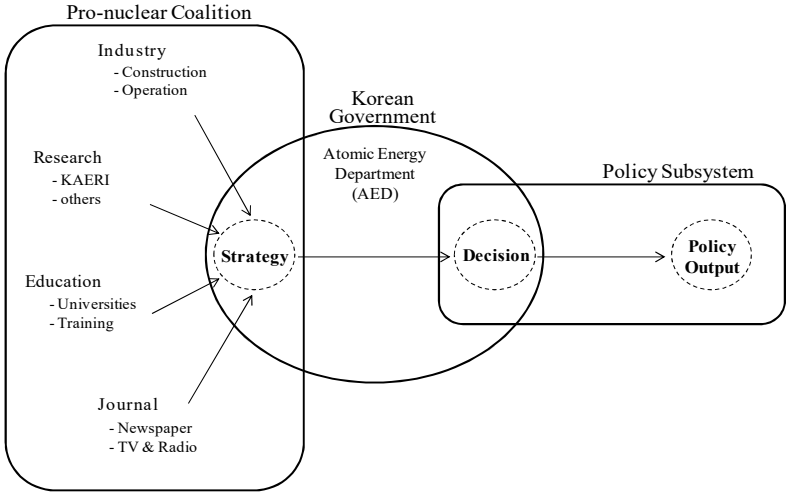
colonial rule (Hong 2011). With this nuclear-friendly atmosphere, the Korean government formed a back-scratching alliance with journalists in order to secure permanent and stable support of the public for nuclear energy. Government-owned and pro-government mass media, such as TV, radio, and newspapers, strengthened and maintained positive images of nuclear energy. This strategy seems to have been successful until the early twenty-first century. Table 2 shows a brief synopsis of the major events in the development of nuclear technology in Korea.

Since 1969, when the first nuclear power plant in Korea (Kori-1) was ordered, the Korean nuclear industry has expanded continuously and rapidly, and Korea has also built its reputation as one of the leading countries in nuclear energy production. In 1978, the Kori-1 plant was built and started to generate commercial-scale electricity, and Korea became the 21st nation in the world to operate nuclear power plants. The construction of nuclear power plants continued, especially after the 1973 and the 1979 oil price shocks compelled the Korean government to further invest in nuclear energy in order to reduce dependence on petroleum and diversify energy sources (MEST and KAERI 2009). The second (Kori-2) and the third nuclear power plants (Wolsong-1) began their commercial operations in 1983, and the other six plants were built and generated electricity in the 1980s (see Appendix 1). In response to the rapid growth of electricity consumption, the Korean government built and operated seven nuclear power plants in the 1990s and four in the 2000s. The 24th nuclear power plant launched its commercial operation in 2015, at which time Korea had the 6th highest number of nuclear power plants in the world, generating 149.2 billion kilowatt-hours (BkWh), slightly less than one-third of total national electricity consumption as of 2014 (Nuclear Energy Institute 2016). As of this writing in 2016, four plants are currently under construction, and plans to build four more plants are under consideration. In addition to the construction of nuclear power plants, the Korean government has heavily invested

in developing nuclear power technology. Because research and development to obtain the technology is so expensive and the end result so uncertain, government-owned research institutes, especially the Korea Atomic Energy Research Institute (KAERI), have played a crucial role in acquiring the technology through their own research and cooperation with international companies.

The role of the Korean government was crucial for the exploitation of nuclear energy. Nuclear power technology was developed and acquired by government-owned research institutes with government funding, and a nuclear industry was created and has grown under government protection. Above all, the government positioned the development of nuclear power as the centerpiece of national reconstruction policies and organized a pro-nuclear coalition which is able to not only provide expertise and human resources in constructing and operating nuclear plants, but also draw public support for nuclear energy (see Figure 2). The pro-nuclear coalition enjoyed a monopoly in the nuclear policy subsystem until the democratization of 1987 because no one was allowed to oppose nuclear power and the pro-nuclear coalition.

Figure 2. The Role of the Korean Government in Nuclear Policy



Korea's Democratization in 1987

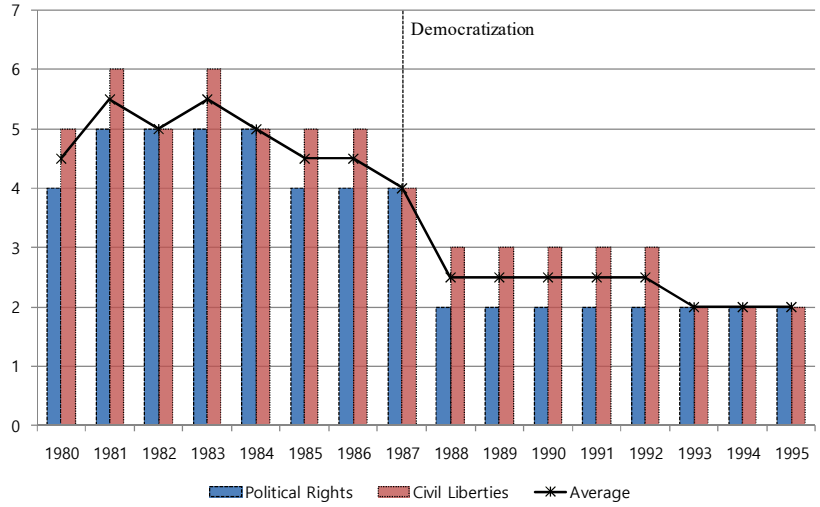
The Korean War (1950-53) was the result of the conflict between two hostile ideologies: communism and capitalism. North Korea, sponsored by the Soviet Union, invaded South Korea to unify and communize the Korean Peninsula in 1950. After this attempt was defeated by the U.S.-led United Nations (UN) forces, South Korea was rapidly transformed into a strong anti-communist society in which the government was given massive coercive power. Consequently, the Korean War and anti-communism caused the emergence of an authoritarian dictatorship in South Korea, which lasted until the late 1980s (Jung and Kim 2009; Kihl 2005; Saxer 2002). After General Jung-hee Park staged a military coup d'état in 1961, Korea was under a military dictatorship in which the legislative and the judiciary branches were subordinated to the executive one. For example, the 1972 amendment of the Korean Constitution (*Yushin* Constitution) gave the president the power to appoint all judges and one-third of the Korean National Assembly members.

As the military dictatorship continued, Korean citizens' desire for democracy was leading to an upsurge of anti-authoritarian movements. In early 1987, the dictatorship attempted to turn the presidency over to a successor. However, the attempt infuriated the Korean public who had constantly demanded a constitutional amendment and a direct presidential election, and millions of citizens took to the streets in anti-government protests. On 29 June 1987, the military regime yielded to the public and proclaimed a democratization package including fair and direct presidential elections, promotion of freedom of the press, and protection of human rights. The congress and the judiciary were no longer a mere rubber stamp of the executive, but acted as checks and balances on executive power. This system of separation of powers attenuated the government's paternal role in the policymaking process and formulated a set of policy channels

though which the Korean public could participate in or exert an influence on the decision process.

The transition from authoritarianism to pluralism is also verified by the Freedom House Index, which has annually estimated the degree of democracy in the world by measuring political rights and civil liberties (Freedom House 2013). Figure 3 shows the Freedom House index for South Korea. According to the index, Korea was globally considered as an electoral authoritarian system through the early and mid-1980s.[4] However, since the democratization of 1987, Korea has been ranked as a free country with political pluralism and participation (Freedom House 2013). In short, 1987 is the year in which the authoritarian regime collapsed and Korean democracy started.

Figure 3. Freedom House Index of South Korea: 1980-1995



Source: Freedom House's Freedom in the World Reort (http://www.freedomhouse.org).
Note: A seven-point scale is used to evaluate the two dimensions, and a highest ranking country (recorded as 1-1) is considered as having the highest degree of democracy. Countries with an average of 2.5 or less are considered free, and those with ratings from 4.25 to 6.5 are classified as an electoral authoritarian systems.

[4] Holding an election is a necessary but not sufficient condition for democracy. An election can only function as an indicator of democracy when it is competitive, free, and fair so that the public is given the ability to choose their leader among candidates (Schumpeter 1946; Sørensen 2010).

External Shocks and Authoritarian Executive Structure

The Three Mile Island (TMI) Accident in 1979

Previous literature on the relationship between the 1979 TMI accident and policy change has shown that the accident was exploited by opponents to attract high negative attention of the public and politicians to nuclear energy, and nuclear policy sharply lost public support (Baumgartner and Jones 1991; Nohrstedt 2005; Wikdahl 2008). After the accident, most countries became reluctant to keep their nuclear power policies (Nelkin and Pollak 1981; Wikdahl 2008), and some countries, such as Sweden, even decided to phase out their nuclear power plants by 2010 (Nohrstedt 2009). However, it should be noted that the TMI accident promoted the replacement of a dominant coalition supporting nuclear power energy by anti-nuclear coalitions only in the pluralistic or corporatist structures in which stakeholders are able to participate in negotiations to draw a policy consensus.

Far from not making any impact on nuclear policy in Korea, the TMI accident produced a result opposite to that in pluralistic structures. The nuclear power policy subsystem in Korea was monopolized by the government and the pro-nuclear coalition until the democratization of 1987 (see Table 3). In 1979, the accident was not enough to overturn the prevailing dogma that there was no way to provide sufficient energy without relying on nuclear power (Sung and Hong 1990). The Korean public were still of the opinion that the utility of nuclear power was greater than its potential risk.

Meanwhile, on the recommendation of the pro-nuclear advocacy coalition, the Korean Nuclear Safety Center (KNSC) was established in 1981 as one of the Korean nuclear government agencies. The Korean government and the pro-nuclear coalition convinced the public that by

establishing the agency, the Korean nuclear power plants would be operated safely and could avoid a nuclear accident. In other words, the KNSC is a sub-unit of the Korean government intended to assuage public concern over nuclear power as well as to upgrade nuclear safety. In this context, the ongoing construction of the second (Kori-2) and the third nuclear plant (Wolsong-1) proceeded without any opposition, and within about two years after the TMI accident happened, four new nuclear plants started construction and two more plants were ordered (see Appendix 1). In addition, considering the construction cost of a nuclear power plant in Korea,[5] the amount and proportion of the budget invested in building nuclear power plants dramatically increased after the TMI accident. In short, the monopoly status of the pro-nuclear coalition in the subsystem was not at all affected by the accident.

Table 3. Characteristics of Korea's Nuclear Policy Subsystem

	Type	Governing Coalition	Challenging Coalition	Core Aspects of Nuclear Energy
1954–68	Monopoly	Korean Government	–	Start-up
1968–87	Monopoly	Korean Government Gov't-owned Research Institutes Media (TV, newspaper) Education Institutes/Universities Nuclear Industry	–	Expansion
1987–2011	Limited Participation	Korean Government Gov't-owned Research Institutes Media (TV, newspaper) Education Institutes/Universities Nuclear Industry	Residents, whose community will be affected by nuclear facilities Environmental organizations	Expansion
2011–present	Competition	Korean Government Gov't-owned Research Institutes Media (TV, newspaper) Education Institutes/Universities Nuclear Industry	Opposition party* Environmental organizations Anti-nuclear civic organizations Researchers	Maintenance of the Status Quo/ Natural Phase-out

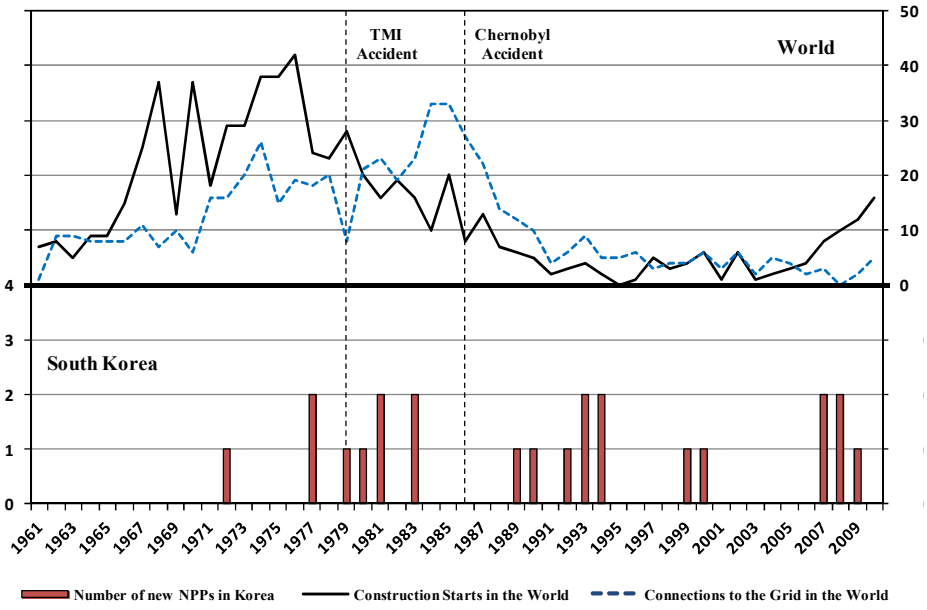
[5] The construction cost of the first Korean nuclear power plant was US$320 million in 1978 dollars, which accounted for about 3% of the yearly budget of the Korean government at that time (MEST and KAERI 2009).

* There has been no change in the executive branch of the Korean government since the 2011 Fukushima accident.

The Chernobyl Accident in 1986

It took about seven years for the world nuclear industry to show signs of recovery (Char and Csik 1987). As evident from Figure 4, the number of nuclear plants starting construction each year began to increase from 10 in 1984 to 20 in 1985. The next and more obvious statistic to show a rally is the annual number of plants to be connected to the grid. Although there was a temporary fall-off immediately after the TMI accident, the number of new connections to the grid had increased in the early 1980s and reached its peak in 1984 and 1985, with 33 new annual connections. The catastrophic memory of the TMI accident seemed to be wiped away. However, the Chernobyl accident in 1986 delivered a knockout blow to the world nuclear industry. The numbers of annual construction starts and connections to the grid started to sharply decline, and it appeared to be impossible for the world nuclear industry to regain its former glory.

Figure 4. Nuclear Power Plants in the World and South Korea



Source: The data on the numbers of NPPs starting construction and those connected to the grid world-wide are drawn from IAEA (2011).
Note: The line graph with the right vertical axis and the bar graph with the left vertical axis present the number of nuclear power plants under construction in the world and South Korea, respectively.

However, some countries were immune from the negative effect of the Chernobyl accident, and Korea was one of them. The Korean government continuously constructed nuclear power plants in the 1980s and 1990s. Two plants began commercial operations in 1986, and the other three plants have generated electricity in late 1980s. Two more plants were ordered in the following year after the accident and completed in 1995 and 1996 (see Appendix 1). Meanwhile, not only did the pro-nuclear coalition continue the construction of nuclear plants, they also exploited the Chernobyl accident as a chance to increase the competitiveness of the domestic nuclear industry. The accident pushed global nuclear companies to the brink of bankruptcy, and the Korean pro-nuclear coalition took advantage of the situation to acquire core nuclear technology. The Combustion Engineering Company was one of the leading global nuclear companies at that time. While making a contract to build two new nuclear reactors in 1987, Korean government demanded the transfer of nuclear technology, and the global company had to accept the request because of the worldwide industry slump (Hong 2011; Sung and Hong 1999).

External Shocks and Authoritarian Policy Subsystem

The case study of the Korean nuclear policy in an authoritarian system shows the possibility that an external shock may be exploited by a dominant coalition to further strengthen its power as well as to maintain the ruling position in the policy subsystem. This paradoxical consequence comes about due to certain features of authoritarian executive structure. First, in an authoritarian executive structure, it is risky to publicly oppose a government and its policy. The Korean pro-nuclear coalition was founded and supported by the authoritarian government, and

there was no other coalition to attract public concern about an existing policy and challenge the dominant one. As a result, the possibility that an external shock triggers policy change by reallocating political resources away from a dominant coalition and toward minor ones is excluded in an authoritarian executive regime.

Second, policymaking is generally monopolized by a government in an authoritarian system (see Table 3). The Korean government was the founder and leader of the pro-nuclear coalition and exercised exclusive authority in the nuclear policy subsystem. So, the two nuclear accidents notwithstanding, criticism of nuclear energy and its risks was not reflected in the policymaking process. In contrast, the Korean government and the pro-nuclear coalition overestimated their ability to prevent an accident and increased their investment in nuclear power (Sung and Hong 1999). Thus, the external shocks did not lead to policy change.

Finally, a country with authoritarian executive structure may manipulate public opinion in its favor. As the world recognized the risks of nuclear power utilization from the TMI accident, the 1979 oil crisis simultaneously forced nations to reduce their dependency on oil and look for alternatives. By more strongly emphasizing the damage a sharp rise in oil price did to economic growth, the Korean government took advantage of the oil crisis to make the Korean public accept the necessity of nuclear power as an alternative energy source in spite of the potential of a nuclear accident. This solution was in sharp contrast with those of pluralistic countries, which focused on the seriousness of the accident and abandoned or suspended their nuclear policies (Nelkin and Pollak 1981; Nohrstedt 2005; Wikdahl 2008).

Korea is not the only case showing that an external shock may not cause policy change in an authoritarian executive regime. As Hsu (2005) found, the TMI accident notwithstanding, the authoritarian political system of Taiwan allowed the government and its allies to defend its

dominant position and further promote nuclear energy policy.[6] The participation of policy actors outside the ruling alliance in the policy subsystem was continuously restricted, and thereby there was no other coalition able to defeat the dominant one. The TMI accident was discounted as international news without any policy implications in Taiwan.[7]

Some advanced countries with free and pluralistic systems sometimes have an authoritarian policymaking process in certain policy areas such as nuclear energy, and a government-monopolized policy process attenuates the impact of an external shock on policy change. Japan traditionally has had a technocratic and authoritarian policy process (Johnson 1982; Nakamura 2002). Government officials, especially highly educated civil servants with technical expertise, monopolize decision-making authority, and public opinion does not play a major role in the policy process (Kotler and Hillman 2000). The TMI and Chernobyl accidents notwithstanding, the authoritarian policy-making empowered the government, a leader in the pro-nuclear coalition, to protect the interests of the nuclear industry and stick to the energy policy for the expansion of nuclear power. Japan opened 16 new nuclear power plants in 1979 and the 1980s.[8]

The French nuclear energy policy was also never damaged by the TMI accident. The political structure in France rarely provided channels for the public to participate in the policy process (Nelkin and Pollak 1981). In particular, the nuclear policy subsystem was insulated from

[6] The average Freedom House Index of Taiwan in 1979 was 5, indicating that the political system at that time was considered electoral authoritarian (Freedom House 2013).

[7] The 1986 Chernobyl accident seemingly contributed to the rise of the anti-nuclear movement in Taiwan. However, it should be noted that an internal shock, a fire incident at the Third nuclear plant in 1985, had already provoked public opposition to nuclear energy. In other words, the Chernobyl accident just intensified public opposition initiated by the internal shock.

[8] Japan had 50 nuclear power plants in 2012 (the 3rd highest number in the world after the U.S. and France). However, most of them have been shut down for inspection and maintenance since the 2011 Fukushima accident.

the rest of society by scientists and politicians with technical expertise, and opposition to nuclear energy was considered unpatriotic (Sovacool and Valentine 2010). Access of the public including anti-nuclear activists to the policy process was blocked. As a result, the French government continued to promote ambitious plans for rapid expansion of nuclear energy on schedule regardless of external shocks (Nelkin and Pollak 1981). Of the 58 nuclear power plants in France, 44 started their commercial operation in 1979 and the 1980s.[9]

The dominance of government in the policy process is the main criterion for identifying the statist type of policy network, which is characterized by strong state intervention without the involvement of societal actors (Harman 1996; Van Waarden 1982). Statism may result from authoritarian characteristics of the political system (e.g., Korea and Taiwan) or the policymaking process (e.g., Japan and France). In a policy subsystem monopolized by a government and its allies, external shocks cannot lead to policy change mainly because minority coalitions are not allowed to challenge the subsystem.

Democratization, Pluralism, and External Shocks

The Effect of Democratization on Policy Subsystems

Until 1987, Korean nuclear energy policies sometimes caused friction with local residents who complained about the meager compensation they received for being ejected due to the building of nuclear power plants, but they did not and could not object to nuclear power per se. Above all, they were prevented from participating in the process of deciding where a nuclear plant would be built, and opposition to nuclear energy was perceived socially as unpatriotic.

[9] As of August 2011, nuclear energy provides 421.1 billion-kilowatt hours (BkWh) in France, more than three-fourths of the total electricity. France has the highest reliance on nuclear power of any country in the world.

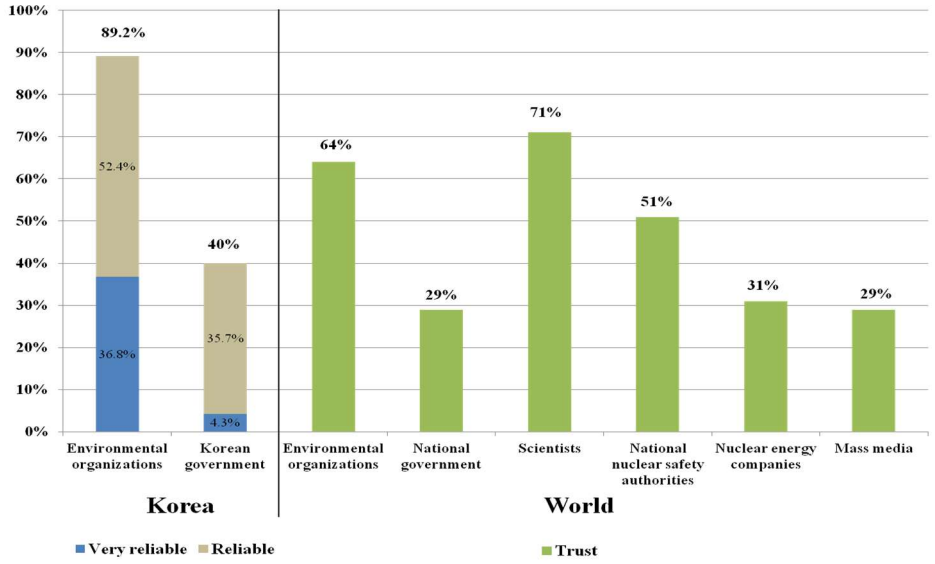
They had to sacrifice their livelihoods and move out of their residences to make way for the construction.

The democratization of 1987 undermined the monopolistic structure of the Korean nuclear policy subsystem. First of all, it stimulated the principle of no legitimacy without public participation, and public opinion emerged as a new channel through which criticism and opposition against existing policies were heard in the policymaking process. If opponents of nuclear power won the public's consent, they could suspend or at least delay nuclear power projects. Especially, attitudes of local residents toward nuclear power are the most crucial because the government could no longer push them to sacrifice their homes for nuclear energy. In practice, nuclear energy policies without local residents' approval were frustrated, which was unthinkable before democratization. A key example of this is a government plan to build a nuclear waste repository. As nuclear power accounted for a more significant portion of electricity generation, the amount of nuclear waste increased at an alarming pace. Thus, the Korean government decided to build a nuclear waste dump in the mid-1980s. This project was top-secret, as previous policies had been.[10] However, the plan was revealed to the public in 1989 by the assemblyman of the constituency, where the repository was finally scheduled to be built. This disclosure unleashed a storm of protests from the local residents and led to the formation of a new coalition. Although it did not replace the ruling coalition, the challenger succeeded in breaking the monopoly structure of the policy subsystem and thwarting the government plan to build a nuclear waste dump.

[10] For instance, researchers whose mission is to locate a site for a nuclear waste dump disguised themselves as hikers while investigating several nominated areas.

The role of the 1987 democratization was not limited to the transformation of the Korean opportunity structure. Information on nuclear power has been also produced and disseminated to the public by anti-nuclear groups in the democratic society, so expertise in nuclear engineering was no longer a barrier to participation of non-members of the pro-nuclear coalition in the policymaking process. Anti-nuclear groups highlighted negative aspects of nuclear power such as radiation exposure, nuclear waste, and the likelihood of a catastrophic accident, which had already occurred twice in the U.S. and Ukraine. These shocking revelations, which had been suppressed in the authoritarian executive regime, provoked public concern about the risk of nuclear energy. In addition, the Korean public perceived the uncomfortable truth as more reliable and accurate than government reports harping on the expansion of nuclear energy (see Figure 5), and withdrew their unconditional support for nuclear energy. This tendency has been also witnessed across the world.

Figure 5. Comparisons of Public Confidence in Information Sources about Nuclear Energy



Source: The attitude of the Korean public toward information sources was investigated by the Sungkyunkwan Research Survey Center in 2003, and the global attitude is sourced from OECD (2010).
Note: Whereas OECD (2010) compared public confidence in the six information providers, only two sources – environmental protection organizations and the Korean government – were contrasted in Korea.

Failure to control a policy's images can lead to loss of control over the policy itself (Baumgartner and Jones 1991), so control over knowledge is linked to power (Nelkin 1979). The emergence of anti-nuclear groups as an alternative information source demoted the status of the pro-nuclear coalition in the policymaking process. For instance, in the case of the nuclear waste repository, information about the perils of radioactive waste prevented the local residents from being manipulated by government propaganda insisting that nuclear waste would be permanently and safely isolated. Moreover, anti-nuclear information attracted public attention and elevated the conflict between local residents and the Korean government from a NIMBY (not-in-my-backyard) action to a nationwide policy agenda. As Baumgartner and Jones (1991) found, the increased attention generally focused on negative effects of the facility, and the Korean public sympathized with the residents' resistance to the building of a nuclear waste dump. The Korean government eventually withdrew the construction plan.[11] Given that the Korean government and its allies had exercised policy authority strong enough to begin construction of nine nuclear plants from 1972 to 1983 (see Appendix 1), taking more than 20 years to decide a site for a nuclear waste dump represents a great change in the policy process. The democratization of 1987 was a key driver of this conversion, transforming the Korean opportunity structure from an authoritarian executive to a pluralistic regime. The breakdown of the monopoly of nuclear energy policies is one of the reasons why nuclear energy is no longer an expansive industry in Korea and other pluralistic societies (Sovacool and Valentine 2010; Yun 2015).

[11] Since the failure in 1989, the Korean government and its allies experienced frustration seven more times in large part due to lack of public participation and transparency. Gyeong-ju was finally selected as a site for the first repository in 2005 with approval of local residents (see Lee and Lim (2010) for more details).

External Shocks and Pluralistic Policy Subsystems

The democratization of 1987 also made the nuclear policymaking process responsive to an external shock. The 2000s was a so-called "nuclear renaissance," when nuclear energy was again spotlighted as a solution to rising fuel costs and the greenhouse effect.[12] In this favorable environment, the Korean government proposed a plan to move the share of nuclear capacity from 26% of electricity generation in 2006 to 41% in 2030 by constructing more new plants.[13] Different from the process of building a nuclear waste dump, the Korean government had reserved some lands in the vicinity of existing nuclear plants for constructing new ones so it could avoid the controversial process of determining sites. These sites were not seriously challenged by anti-nuclear coalitions. What is more, nuclear energy again garnered overwhelming support from the Korean public, who believed at that moment that nuclear power would be the best option to provide sufficient energy without causing global warming (IAEA 2005; Kim and Yun 2010).

In 2011, which was the 25th anniversary of the Chernobyl accident, the nuclear renaissance across the world quickly subsided in light of the nuclear catastrophe in Fukushima, Japan. German and Switzerland announced plans to phase out nuclear power by 2022 and 2034, respectively (Joskow and Parsons 2012). The U.S. nuclear industry was also shaken by the shock. More stringent regulatory requirements to raise the bar on safety standards were imposed on owners of nuclear plants, which thereby increased the costs of building new nuclear plants

[12] Even several developed countries with strong anti-nuclear movements, such as Germany, Sweden, and Italy, seemed to be moving away from their earlier decisions to phase out their nuclear plants and were discussing the expansion of the use of nuclear power (Joskow and Parsons 2012).

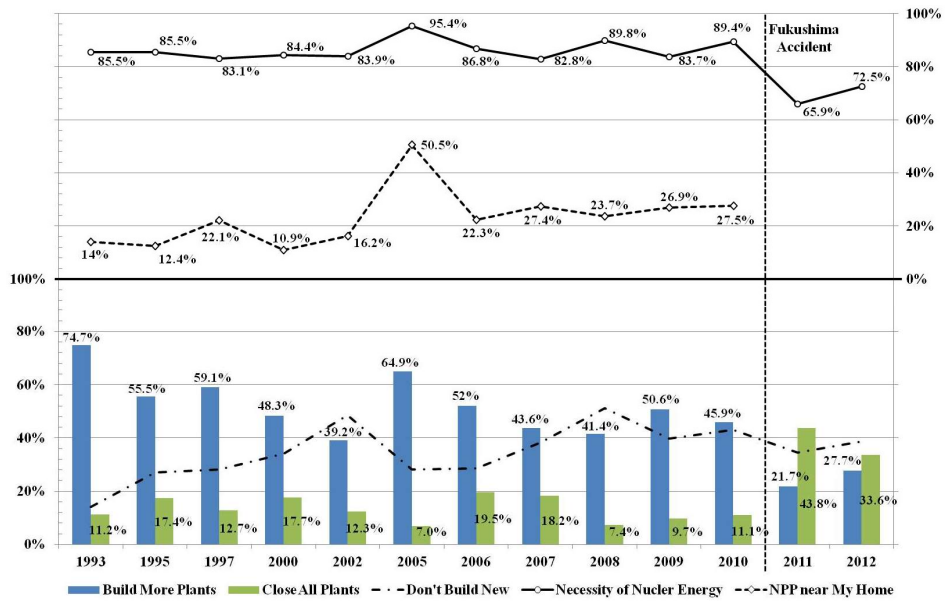
[13] The construction of 8 or 9 more plants was laid out to increase nuclear capacity (MKEconomy 2008).

and operating existing ones (Joskow and Parsons 2012; Schneider et al. 2011). When the nuclear energy craze cooled down, citizens could again see the risks of nuclear power.

The Korean nuclear energy policy was no exception this time. The 2011 Fukushima accident brought about a change in the policy environment surrounding nuclear power. First, the accident caused a subtle but very significant change in the Korean public's attitude toward nuclear power. Although Korea is still considered to be the country with the strongest public support for nuclear power (IPSOS Global Advisor 2011; Squassoni 2012), a closer look reveals a loss of public support toward nuclear power and an ambivalent attitude of the Korean public, which now seems to support the use of nuclear energy but resistance to new nuclear plants. As seen in Figure 6, the proportion of Korean citizens who perceive nuclear power as a necessary energy source was still 72.5% in 2012, even though it had declined from 89.4% in 2010 (see the continuous line in the above graph). However, most of the Korean public has consistently opposed the building of a nuclear power plant near their homes.[14] In 2010, a little more than one-fourth of the respondents answered yes to the question "Do you support the building of a NPP near your home?" (see the dashed line in the above graph). It is not difficult to infer from a Korean newspaper poll that because of the Fukushima shock, increasingly more citizens do not want a nuclear plant to be built near where they live (see the bottom graph).

Figure 6. The Trend of Public Opinion on Nuclear Power in Korea

[14] The first Korean nuclear waste repository to be built with local residents' approval was located in Gyeong-ju and built in 2005. This compromise might affect public perception of nuclear energy and make this exception.



Source: Data on public opinion are drawn from KAIF (2011) for the years 1993 to 2010, and *Donga Ilbo* (2012b) for years 2011 and 2012.
Note: The KAIF, sponsored by the Korean government, conducted polls to estimate public opinon about nuclear power over the years, but it has not carried out a poll after the Fukushima accident in order to suppress negative public opinion (Cho 2013). Instead, *Donga Ilbo*, a Korean newspaper, estimated how public opinion had changed since the shock suing similar questions.

The bottom graph in Figure 6 also shows that after the 2011 Fukushima accident, the Korean public has more strongly backed closing nuclear plants than building more new plants, which is in stark contrast to the general public attitude during the nuclear renaissance in the 2000s. This change in public attitude has been reflected in the policy process. The Korean government announced in June 2015 that the first nuclear plant (Kori-1) will be closed in 2017 (see Appendix 1). In short, opinions about nuclear power have been downgraded by the Fukushima accident from an inevitable energy source into a risky one which should be replaced by other safer energy sources in the long term (IPSOS Global Advisor 2011). Given that the Korean public opposes the construction of new nuclear plants and the extension of the operating life of old ones, Korea is entering a natural phase-out of nuclear energy generation.

Meanwhile, the change in Korea's nuclear policy shows how a pluralistic structure mediates the effect of an external shock on the policy process. Korean nuclear policy was not immediately affected by the Fukushima accident. The pro-nuclear coalition, including the Korean government, wanted to maintain the glory of the nuclear renaissance regardless of the loss of public support for nuclear power. One and a half years after the disaster, the Korean government made a surprise announcement that two new nuclear complexes with at least 8 plants would be built in the two regions, Sam-cheok and Young-duk (*Yonhap News Agency* 2012). However, the government's unilateral decision unleashed public protests and led to the formation of an anti-nuclear coalition with researchers, environmental organizations, and others who object to the expansion of nuclear energy. In an open democratic society, anti-nuclear opinion does not end in mere gesture any more. Anti-nuclear activists are also armed with expertise in nuclear technology, so there are no barriers which prevent them to participate in policy debates on nuclear energy, and their opposition is no longer easily subdued by nuclear engineers' professionalism or government suppression. Furthermore, strong public support enables the anti-nuclear coalition to exploit the pluralistic opportunity structure, which has matured since the 1987 democratization.

Most of all, the anti-nuclear coalition put the brakes on the expansion plan through legislative channels as public conflict over the plan aroused controversies in the Korean National Assembly. In particular, the opposition parties pointed out a lack of public consensus on the plan and issued a statement urging the government to reexamine the plan. In the current pluralistic system, the expansion plan could not be financed and implemented without the approval of the Assembly.

In addition to the legislature, the anti-nuclear coalition has one more channel to halt the government's plan: the judiciary. For example, the Korean government had not provided local residents with full information on their expansion plan and had refused to hold a local referendum during the policymaking process. This procedural defect served as ammunition for the anti-nuclear coalition, which sued the government for the fault. The Korean judiciary ruled against the government, forcing it to gain agreement on the building of a nuclear power plant through a local referendum (*Donga Ilbo*, 2012a).

The pro-nuclear coalition's expectation that they could overcome the negative feeling caused by the Fukushima accident and expand nuclear energy as they did under the authoritarian regime was eventually defeated by the anti-nuclear coalition and its strong public support. Less than five months after the expansion plan was announced, the Korean government pronounced that the plans would be deferred and that they would replace the scheduled nuclear plants with coal or natural gas power plants if the public continued to object to nuclear energy by the end of the year 2013 (*Donga Ilbo* 2013). Although the pronouncement may be deemed minor, it should be emphasized that in the history of nuclear policy in Korea, (1) public support proved to be a critical political resource in policymaking, (2) an external shock brought about policy change, and (3) the pro-nuclear coalition including the government was defeated by the challenger. The pluralistic opportunity structure was the starting point from which the first policy change began to happen.

Conclusion

Since being introduced by Sabatier and Jenkins-Smith in the late 1980s, the Advocacy Coalition Framework has been continuously revised and updated to become a more sophisticated

and better-understood model. The introduction of the coalition opportunity structure variable in 2007 is one of the significant revisions and allows the ACF to be employed in a corporatist or authoritarian society as well as in a pluralistic society. The aim of this study is to shed light on whether and how the coalition opportunity structure affects the policy process by analyzing nuclear policy in Korea, which experienced the transition from authoritarianism to democracy in the late 1980s.

Nuclear policy involves conflicts and technical disputes among multiple actors even in an authoritarian structure. However, several characteristics of authoritarianism allow the pro-nuclear coalition to keep the dominant position in the policymaking process. Most of all, the nuclear policy subsystem is isolated from outsiders who are concerned about the risks of nuclear power, under the pretext that only those with expertise in nuclear engineering can participate in the subsystem. Furthermore, the pro-nuclear coalition prevents negative images of nuclear energy from being spread by concealing its unfavorable aspects. In short, the pro-nuclear coalition led by an authoritarian government monopolizes the nuclear policy subsystem.

In a pluralistic structure, however, an external shock is exploited as an opportunity or a pressure to inspect nuclear facilities and reexamine nuclear policies. The Korean public in a democratic society can no longer be manipulated by the pro-nuclear coalition, and the devastating consequences of the Fukushima accident triggered public opposition to the expansion of nuclear energy. In addition, a pluralistic structure gives weapons to anti-nuclear coalitions to defeat pro-nuclear policies. First, it enables an anti-nuclear coalition to form so that it may unify anti-nuclear activities and challenge to the pro-nuclear coalition. Second, and foremost, strong public support for anti-nuclear coalition can mobilize the legislature and the judiciary, which function as checks and balances to the government in a democratic society and

stop attempts to expand nuclear energy. As a result, the pro-nuclear coalition's monopoly in policymaking collapsed, and the nuclear policy subsystem in Korea became sensitive to an external shock.

Nuclear energy has a distinct feature: its development is strongly related to an authoritarian or non-pluralistic policy subsystem. For example, even in the U.S., the nuclear energy program was most successful during the early years when development was closely supervised by the military and conducted in secret (Jasper 1996). No countries can disregard the catastrophic costs of a nuclear accident and therefore they have to conceal the risk of nuclear power in order to maintain their nuclear energy programs. A nuclear accident can become a path to policy change as an external shock only when it is combined with a pluralistic opportunity structure.

The development of the ACF has been accompanied by efforts to examine the characteristics and influence of advocacy coalitions in different political systems (Nohrstedt 2011). This study contributes to the ACF literature by providing evidence that opportunity coalition structures mediate the relationship between external shocks and policy change. Nevertheless, this study is limited by its case-study design. Future research in different countries with different cultures and socio-economic conditions is required to better understand the effect of opportunity structures on the policy process.

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Appendix 1. The Operation and Construction of Korean Nuclear Power Plants

	Name	Order of NSSS and TG*	Date of Construction Start	Date of Commercial Operation	Planned Close
1	Kori-1	1969	Apr. 1972	Apr. 1978	2017
2	Kori-2	1974	Dec. 1977	July 1983	2023
3	Wolsong-1	1975	Oct. 1977	Apr. 1983	2022 or 2036
4	Kori-3	1978	Oct. 1979	Sep. 1985	2025
5	Kori-4	1978	Apr. 1980	Apr. 1986	
6	Yonggwang-1	1979	June 1981	Aug. 1986	
7	Yonggwang-2	1979	Dec. 1981	June 1987	
8	Ulchin-1	1980	Jan. 1983	Sep. 1988	
9	Ulchin-2	1980	July 1983	Sep. 1989	
10	Yonggwang-3	1987	Dec. 1989	Mar. 1995	
11	Yonggwang-4	1987	May 1990	Jan. 1996	
12	Wolsong-2	1990	June 1992	July 1997	
13	Ulchin-3	1991	July 1993	Aug. 1998	
14	Ulchin-4	1991	Nov. 1993	Dec. 1999	
15	Wolsong-3	1992	Mar. 1994	July 1998	
16	Wolsong-4	1992	July 1994	Oct. 1999	
17	Yonggwang-5	1995	June 1997	May 2002	
18	Yonggwang-6	1995	Nov. 1997	Dec. 2002	
19	Ulchin-5	1996	Oct. 1999	July 2004	
20	Ulchin-6	1996	Sep. 2000	Apr. 2005	
21	Shin-Kori-1	2002	June 2006	Feb. 2011	
22	Shin-Kori-2	2002	June 2007	July 2012	
23	Shin-Wolsong-1	2002	Nov. 2007	July 2012	
24	Shin-Wolsong-2	2002	Sep. 2008	July 2015	
25	Shin-Kori-3	2006	Oct. 2008	May 2016	
26	Shin-Kori-4	2006	Aug. 2009	(Feb. 2017)	
27	Shin-Ulchin-1	2009	July 2012	(Apr. 2017)	
28	Shin-Ulchin-2	2009	June 2013	(Feb. 2018)	
29	Shin-Kori-5		(Sep. 2016)	(Mar. 2021)	
30	Shin-Kori-6		(Sep. 2017)	(Mar. 2022)	
31	Shin-Ulchin-3		(2018)	(Dec. 2022)	
32	Shin-Ulchin-4		(2019)	(Dec. 2023)	

* Scheduled date in parentheses.
** The Nuclear Steam Supply System (NSSS) consists of a reactor and all of the components necessary to produce high pressure steam, which will be used to drive a turbine generator (TG).