Triangular Relationship Between the Internet, Institution, and Political Participation

by

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Abstract

This study examines the triangular relationship between citizens' political participation, institutions, and the Internet proliferation. While the literature in the communication field has been studied the relationship between the Internet and political participation, the role of institutions has been a missing block. Conversely, while comparative studies from sociology and political science have contemplated the role of the institution, the impacts of digital media have not been seriously stressed. This study is an attempt to bridge the gap between these disciplines.

The study results are three-folded. First, by using ABM simulation models, the study has provided the hint that Internet mechanism of participation diffusion has the component to induce institutional path-dependency through the homophily and network externality effect.

Second, the study found that, compared with other political systems, the interaction between Internet proliferation and the proportional presentation system is stable while the plurality system is greatly affected by the level of Internet proliferation. Then, it is found that the interaction between the Internet proliferation and proportional representation system has relatively more positive impacts on voter turnout at the aggregate level. Regarding the modes of non-electoral participation, it is found that individual probability of participating in a demonstration and political meeting/rally gets higher in the proportional representation system as

the Internet proliferation increases.

Third, though its impacts are rather small, it is found that the interaction between Internet proliferation and the strength of political parallelism of the news media system has positive impacts on the institutionalized route of political participations. As Internet proliferation increases, the weaker level of political parallelism displays the relatively higher individual probability of participation in the mode of participation outside of institutionalized politics (express views online and demonstration on the streets).

Based on these findings, it is suggested that the interaction between the political system and the Internet is related to the distinction between collective and individualized modes of participation, whereas the interaction between political parallelism of media system and the Internet is related to the distinction between institutionalized and non-institutionalized politics.

1 Introduction

"The washing machine has changed the world more than the Internet has"
— Ha-Joon Chang, 2012

1.1 Washing Machine vs The Internet : Fundamental Change? Riding with the System?

The washing machine has changed the way we live. It has saved a vast amount of time and enabled women to join the labor market, which then furthered social changes, including the changes in the social status of women, family planning, and the social system of child care (Cowan, 1976; Chang, 2012; Greenwood, Seshadri, & Yorukoglu, 2005). An institutionalist economics professor once argued, "compared to the changes brought about by the washing machine (and company), the impact of the internet, which many think has totally changed the world, has not been as fundamental – at least so far" (Chang, 2012, p. 38). He added, "the emergence of household appliances, as well as electricity, piped water and piped gas, has totally transformed the way women, and consequently men live."

Two points are worth noting here. First, it was the infrastructure (or the entire system) that supported the operation of home appliances and furthered social changes. Electricity and water system allowed household appliances to replace labor-intensive work, not the washing machine alone.

The washing machine was merely a technological artifact that utilized the existing infrastructure. Second, fundamental changes mean the series of changes that disrupt the extant social system, not the changes in the basic way of doing the work. The washing machine changed neither the process of doing the laundry (washing, agitating, rinsing, drying) nor the operation of the labor market (the law of supply and demand). It was the process of the gradual and series of changes that influenced the operation of domestic works, the time management of women, its relation to the labor market, the gender composition of the labor force, social norms and expectation about women, and the following transformation of social institutions.

Unlike the washing machine argument, these two types of points are often missed by the pessimistic argument on Internet politics. When the pessimists argued that the Internet has not fundamentally changed politics, they tended to disregard the fact that fundamental changes are gradual and series of changes. Instead, they looked for a revolutionary or normatively ideal phenomenon. For instance, Hindman (2008) concluded digital democracy was a myth because the pattern of direct political speech on the Internet was not egalitarian. A scholar who claimed the Internet has not changed "politics as usual" (Margolis & Resnick, 2000) found no evidence for a 'direct' democratic process between public officials and individual citizens (Margolis & Moreno-Riano, 2009). These examples illustrate that the pessimists often looked for revolutionary ideal cases,

cases with a so-called democratizing effect (e.g. Groshek, 2009; Fredinana, 2000; Papacharissi, 2002). Benkler (2006) criticized the pessimists on this ground: "any consideration of the democratizing effects of the Internet must measure its effects as compared to the commercial, mass-media-based public sphere, not as compared to an idealized utopia that we embraced a decade ago of how the Internet might be" (p. 10).

The pessimistic argument also disregarded that fundamental changes emerge as the interaction between the existing social systems (e.g. political system, media system) and the Internet, a technological artifact. Without the entire transformation of the political system, it is highly unlikely that the Internet itself is an egalitarian medium for political speech or political process, simply because individual citizens are able to use it for political purposes. Neither is it likely that the Internet is the sole determinant of a direct democratic process. This is pertaining to the lesson we learned from the school of the social shaping of technology. It indicates that technologies are path-dependent, *lock-in* by prior technologies, and socially configured (David, 1985; MacKenzie & Wajcman, 1999; Pinch & Bijker, 1987). The Internet as technology has limited capability to revolutionize the way political institutions operate. A representative democracy system never becomes a direct e-democracy tomorrow because it is technologically possible today. Bimber (2003) made an excellent comment: "a set of technological changes becomes revolutionary when new opportunities or constraints associated with political intermediation make possible altered

distributions of power" (p. 20).

Thus, it is reasonable to suppose that the profound impacts of Internet politics lie in how the Internet has enabled us to utilize existing political and media system, not in revolutionizing the way we do politics in a form that we have never seen (Arge, 2001; Calhoun, 1998). Fundamental changes in politics do not imply new ways of doing political works. Rather, they are changes in the elements and processes embedded in the societal system of politics. Stating that there has been an absence of changes in the formality of the institutional arrangement/setting due to the Internet is far from sufficient to claim that fundamental changes have not been made by the Internet. The institutional form of Estates General (États généraux) of France in 1789 is the same as that in the 16th century, but the two have completely different meanings in history.

The Internet may not have revolutionized the institutional system of politics in a day. Nonetheless, it has brought and will continue to bring about the gradual and series of changes that transform the political system. In various political domains, such changes have already begun – collective action (Bennett & Segerberg, 2012; Howard & Hussain, 2013), political campaign (Kriess, 2012; Karpf, 2012), voting behavior (Bond, Fariss, Jones, Kramer, Marlow, Settle, & Fowler, 2012), and communicative public discourse (Dahlgren, 2005), to name a few. The effects of the Internet may not be always positive contributions to democratic politics. And yet, its political impacts are increasingly fundamental in many areas of politics.

1.2 The Internet and Institution : Infrastructure, Opportunity Structure, Action.

In what sense are the impacts of the Internet fundamental? How can one consolidate the multiple roles of the Internet in diverse contexts? More precisely, how can one study the role of the Internet pertaining to political processes?

Scholars suggest a mechanism-based approach which selectively describes the causal process of events in order to "capture the crucial elements of the process by abstracting away the irrelevant details" (Hedström & Ylikoski, 2010, p. 53). For instance, Farrell (2012) argued "one should not study the Internet as such. Instead, one should disaggregate it into more discrete phenomena, allowing scholars to research questions that they have some hope, however faint, of answering" (p. 36). For Farrell (2012), disaggregation means the micro-level "causal mechanism" by which the Internet influences individual behavior. However, his suggested mechanisms lack the explanation that how the Internet specifically influences political activities. Lowering transactional costs, reinforcing homophily and being more open in one's preference for others may be best described as the general characteristics of the Internet, not the Internet mechanisms for politics.

Other scholars find more specific mechanisms in the macro level routes of political processes, by which citizens and organizations utilize the Internet to influence institutionalized politics. In this scheme, the Internet is

considered as an empowering platform, intervening and bridging various traditional routes to the political system. The Internet can be employed: to tighten the relationship and networking between citizens, traditional advocacy, media organizations; to spur public deliberation by these organizations; and even to mobilize direct actions (Fung, Gilman, & Shkabatur, 2012). This type of description goes beyond a generic description of the Internet phenomenon and it also advanced the initial discussion of the role of Internet politics, dating back at least fifteen years. In the past, the Internet's impacts on politics were viewed under the three themes of the informed public, engaged public, and deliberative public (DiMaggio, Hargartti, Neuman, & Robinson, 2001) but it has not scrutinized that how these three themes can be combined with concrete paths of the Internet's impacts.

Yet, this still raises several questions. For instance, are these all the possible routes by which politics is influenced? In what circumstance is a specific route to institutionalized politics more activated? Is it pertaining to existing political and media systems? Interestingly, it is widely known that institutional differences influence the differences in the access, use, and contents of the Internet as well as its political impacts and outcomes. For instance, differences in political regimes bring about differences in the regulations on the Internet. The Internet is a socio-politically regulated media to which, not only the access, but also the contents are under social and political control, agreement, and negotiation (Goldsmith & Wu, 2006;

Kalathil & Boas, 2003; King, Pan, Roberts, 2013). It is also well-documented that the differences in political institutions, which usually dispersed across different geographical areas, brought about differences in the outcomes of Internet-mediated political activities. For instance, Internet-based political party movements have proliferated in Europe, whereas political advocacy for a political party and candidate has been invigorated in the USA and Britain (e.g. Bimber, 1998; Casero-Ripollés, Feenstra, & Tormey, 2016; Karpf, 2012). Institutional differences are not confined to the differences in political institutions. After the financial crisis in the mid 2000s, we witnessed that the impacts of the Internet on the newspaper market have varied across countries. While new digital players are making inroads in Australia, S. Korea, and Poland, traditional players are still solid online players in Finland, France, Germany, and Spain (Reuters Institute for the Study of Journalism, 2016). Namely, the different institutional settings/arrangements – and probably cultures – differentiate the impacts of Internet politics into different directions.

Thus, the issue here is not the existence of various routes for political process, but the relative preference for certain routes over others in the political process that may depend upon institutional arrangement of a society. The preference difference may be the result of the interaction between the Internet and institutions rather than an independent impacts from one of each. Not only the mechanism specifically related to political process but also the general mechanisms of the Internet may both involve

the interaction process. Of course, we are all aware that knowing how the general mechanisms work in the political process is one thing, and proving the evidence of actual process based on the mechanisms is another.

Analytically, however, these can be shown by : 1) which route gets more selection at the individual level, affected by the interaction between the Internet and the institutions, and 2) how the presence of the Internet's general mechanisms stimulates the selection to societal differences at the aggregated level. Instead of showing the dynamic political process from its beginning to the end, this analytical method dissects the process into a few facets, finding the impact points of Internet politics. For instance, it is difficult to collect systematic evidence from countries to countries in order to show that how the difference in the institutional arrangement of political system leads the different role of the Internet in each country, which may have contributed to the increase in the number of political petitions, demonstration on the street, and expressing one's political views. Thus, instead of collecting elusive statistics or evidence for all countries, a researcher can take a step by step approach. First, it is to ask whether individual level difference exists between countries with a existing survey. And then, second, it is to delve into the subject that how the difference at the individual level as the interaction between the Internet and institutional arrangement becomes a societal difference due to the characteristics of the Internet.

This research strategy will be employed here in order to examine the

triangular relationship between institutions, the Internet, and citizens' political participation. It is chosen for multiple reasons. First, the preference for a certain political route can be measured by the citizens' preference for the various modes of participation. It will be explained in the next section but, for now, it suffices to say that the modes of participation indicate the types of participatory activity that the citizens can choose. Second, the interaction between the Internet proliferation and institutional arrangement would culminate in a difference in citizens' preference for the various modes of participation. Previous studies on political opportunity structure have articulated that the difference in the institutional arrangement is related to the difference in the selection of a political action strategy, the mode of participation. Thus, it would be interesting to see how the Internet intertwines with this existing relationship. Third, as political participation is the most widely discussed area of Internet politics, the network externality in political actions – the net gain of political actions increases as others join the actions – seems to have become one of the most important general mechanisms of the Internet, particularly in the era of social media. In sum, by postulating the institutional arrangement/setting of a society as the opportunity structure that citizens can harness with the Internet medium, this study examines how the medium induces or is utilized for certain modes of political participation relatively more than others.

Before getting into the main topic, a few key terms deserve more atten-

tion. Most of all, in this study, institutional arrangement and setting will be used interchangeably, without distinction. The use of the term institutions generally follows the meaning "the humanly devised constraints that structure political, economic and social interaction" (North, 1991). As for institutional setting, it refers to the rules, resources, or environment of the institutions that constitute the current social system. The definition of institutional arrangement includes the institutional setting, as it refers to the coordinating or organizing structure of the institutions that support the sustainability of the current institutional setting. Thus, when the institutional arrangement/setting of political system or news media system is referred to in this study, it indicates the rules, resources, environment, and coordinating structure of institutions that support current social systems such as political system and news media system.

Second, the opportunity structure is proven to be a useful concept for examining how the institutional arrangement/setting pertains to citizens' political participation. In the studies of social movement, the political opportunity structure is referred to as "consistent – but not necessarily formal, permanent, or national – sets of clues that encourages people to engage in contentious politics" (Tarrow, 2011. p. 27). They find the political opportunity structure in the changes of rules, policy or political resources (Meyer & Minkoff, 2004). Many comparative studies have demonstrated the political opportunity structure as the formal structure of the political system. They explicated the differences in the political opportunity struc-

ture, comparing these with the institutional power (e.g., state capacity) or compositional difference in the constituents of institutions (e.g., proportion of left parties in parliament) across countries. As these institutional differences differentiate the political activities of citizens, the institutional arrangement, as the opportunity structure, constructs the action strategies of political agents. It also shapes how they employ the Internet as the infrastructure for their political actions and behaviors.

Lastly, defining the Internet as an infrastructure of political actions and behaviors emphasizes the technological capability of the Internet to enable people to act and interact with one another, making collective political outcomes. This is exactly what Zittrain (2007) called the "social layer" of the Internet: "where new behaviors and interactions among people are enabled by the technologies underneath" (p. 67). According to Zittrain (2007, p. 67), the conceptual architecture of the Internet has five layers: physical, protocol, application, content, and social. The physical and protocol layers are related to materialized electronic communication instruments. The application layer is similar to what is often referred to as a platform: "representing the tasks people might want to perform on the network" (p. 67). People can use the Internet for personal matters, business, politics, and so on. The Internet can be used for a variety of social activities because of its platform characteristic. Somewhere in between the application and the content layer, the Internet was coined with the term infrastructure in previous literature. As we may recall from the famous metaphor of the

"information superhighway", the Internet was considered the infrastructure (application platform) for information (content). Previous studies also recognized the Internet infrastructure in a similar way from its early days of mass diffusion (e.g., Neuman, 1996; Bimber, 2000). They linked the term with the political communication infrastructure of information. However, by referring to the source of information, previous literature and metaphors have the limitation that the Internet is also a platform for social interaction. The Internet is distinguished from other political communication tools by its networking feature of social interaction. The present emphasis on the Internet as infrastructure is more general in the sense that it does not discriminate between informative and communicative activity. In sum, the Internet as the infrastructure of political actions and behaviors means that the Internet is a platform that enables people to use its technology for political actions and behaviors, making collective outcomes.

This is not to say that the Internet is an autonomous object or agent penetrating the social structures of institutionalized politics. On the contrary, it is to suggest that the Internet is an embedded infrastructure that enables or constrains the opportunity structure of political actions and behaviors. The Internet alone does not create or exploit the opportunity structure. It is only a platform harnessing the opportunity structure as the result of the interaction between extant institutions and citizens. Different opportunity structures across countries may induce different mechanisms of action.

For instance, albeit the homophily mechanism of the Internet may be observed across several countries, for some countries, it may have resulted in the polarization of political discussion networks, deepening conflicts between partisans, but for others, it may have driven new political parties due to the institutional arrangement of rules and supports for creating new ones. Indeed, there are a few empirical analyses at the country level that political homophily is affected by political practice and the media environment (Benkler, Faris, Roberts, & Zuckerman, 2017; Colleoni, Rozza, & Arvidsson, 2014; Yardi & Boyd, 2010).

How citizens utilize the Internet as their action strategies may also be called as a part of the political culture. Given the institutional arrangement of a society, people and organizations in a civil society select certain ways of doing politics as cultural schemas. Cultural schemas provide "a given society fundamental tools of thought, (…) various conventions, recipes, scenarios, principles of action" (Sewell, 1992, p. 8). Swidler (1986) put it thus, "culture influences action not by providing the ultimate values toward which action is oriented, but by shaping a repertoire or toolkit of habits, skills, and styles from which people construct strategies of action" (p. 273). Indeed, literature on political culture has attempted to conceptualize political culture as the relationship between individual attitudes, political participation, and its relations to organizations and institutions in society (Almond & Verba, 1963; Verba, & Pye, 1965; Dalton & Russell, 2014). The political culture, as the habitual schema of actions, emerges

as the consequence of continuous political actions and will be realized through political phenomena. Fligstein & McAdam (2012) indicate that a culture – the entire system of structure and action – consists of strategic action fields: "a constructed mesolevel social order in which actors (who can be individual or collective) are attuned to and interact with one another on the basis of shared (which is not to say consensual) understandings about the purposes of the field, relationships to others in the field (including who has power and why), and the rules governing legitimate action in the field."

Note that delving into an exhaustive discussion on the duality of structure and action (e.g., Giddens, 1984) or arguing whether it is institutional arrangements or citizens who utilize the Internet for some political actions falls beyond the scope of this study. Instead, this study focuses how the Internet proliferation in a society differentiates the political actions or behaviors depending upon the institutional arrangement of the society. More generally speaking, this study is to reveal the Internet effects on politics as the interactive outcome between the opportunity structure and strategies of action in politics. For this purpose, the political actions or behaviors are contextualized as political participation, which will be discussed in the next section.

1.3 Political Participation : The Modes of Participation and the Internet

In a democratic society, participation is the key term defining political actions and behaviors. Participation is more than a republican concept of active citizenship. It defines how citizens involve in the decision-making process of public affairs and how the legitimacy of political institutions is viewed. Indeed, participation and representation are the two pillars of distinction between the variety of democracy models (Held, 1996).

Participation in a modern democratic society takes various forms. The seminal work by Verba, Nie & Kim (1978) studied seven countries and classified four modes of political participation: voting, campaigning, communal activity, and particularized contact. Since then, others have expanded the modes. Recently, using the concepts of 'voice' and 'exit' by Hirschman (1970), Toerell, Torcal, & Montero (2007) distinguished five modes of participation: contacting, party activity, protest activity, consumer participation, and voting. Dalton (2013) suggests six modes of participation, adding the Internet dimension: voting, campaign activity, contacting officials directly, communal activity, protest and other forms contentious politics, and Internet activism.

There have been debates on some modes of participation. For example, studies found that not all communal activities were related to the political mode of participation (e.g., Paxton, 2002). Recently, the contested terrain of the debate has been about Internet activism: whether the Internet

activity is independent, something different from other, traditional modes of participation. If the Internet participation has an independent and unique dimension of political participation, it means that this new mode of participation will have a unique trajectory in its development and be less integrated with traditional modes of participation. If not, though some rearrangements in the way the modes operate are expected, Internet activism would be only a part of the traditional modes of participation. It is not surprising that previous studies found that both are true. While the traditional modes of participation are affected by the Internet, online activity establishes a new dimension of citizens' political participation. The Internet activity, particularly expressive engagement – such as posting, commenting, and sharing in online media – consists of a new mode of political participation (Gibson & Cantijoch, 2013; Oser, Hooghe, & Marien, 2013; Theocharis & Van Deth, 2016; Velasquez & Rojas, 2017).

Particularly, Gibson & Cantijoch (2013) found the online and offline types were integrated for active types of participation activity such as contacting politicians or signing petitions, whereas the Internet mode of participation was separated and independent from the traditional modes for passive types of engagement such as news consumption and expressive actions. Thus, unlike Dalton (2013), who saw campaigning for Obama as an example of Internet activism, Gibson & Cantijoch (2013) were skeptical that it qualified as a new 'mode' of political participation. The use of a new medium does not automatically qualify as a new 'mode' of political

participation, even though the form and operating logic of the participation may have changed.

Table 1 summarizes the modes of participation discussed so far. It also exhibits the modes that will be investigated in Chapter 4 & 5. Except for voting, they represent non-electoral participation. On the far right, signing petitions and expressing views online have replaced communal activity and Internet activism, reflecting the debates mentioned above. This classification of the modes seems to be one of the best scheme for examining the impacts of the Internet on various modes of participation. It enumerates the participation from the most passive to the most active form and includes both institutionalized and non-institutionalized methods. Most importantly, it will serve as an example to show how the interaction between the infrastructure and the opportunity structure is related to citizens' actions. In fact, the general rationale behind this research setting resembles a classical question in sociology: utilizing infrastructure or resource for social actions, but it is enabled or constrained by the given opportunity structure.

1.4 Findings

This study started from the idea that the impacts of the Internet on citizens' political participation differ by the political system and the news media system. Particularly, it is suggested that institutional conditions of

Table 1. Modes of Political Participation

Verba et al. (1978)	Toerell et al (2007)	Dalton (2013)	Chapter 4 & 5
Voting	Voting	Voting	Voting
Campaigning	Party Activity	Campaigning	Political Meeting/Rally
Communal Activity	Consumer Participation	Communal Activity	Signing Petitions
Particularized Contact		Contacting Officials	Contacting Politicians
	Protest Activity	Protest/Contentious Politics	Demonstration
		Internet Activism	Express views online

the political system and the culture of the news media system enable or constrain the opportunity structure allowing the Internet to be used for various modes of political participation. As a result, the interaction between the Internet proliferation and the institutional arrangements of the two systems will differentiate the individual preference to participate in each mode of participation, depending upon the type of mode. The study examines three points to support this idea. The first examination uses agent-based model (ABM) simulations in order to show how the network externality effects of the Internet influences citizens' political participation. Note that the participation in ABM models denotes a general description that can be applied to any diffusive participatory activity. The simulation models largely make two claims: one pertains to homophily during the diffusion of political participation; the other, to the connection between individual probability and the aggregated outcome of the participation.

First, the first set of simulation models shows that the homophily effect in the participation diffusion is limited. The simulation results consistently indicate that homophily helps the rapid diffusion of participation in the relatively early stage of the diffusion, but it confines the participants into homophilous grouped clusters, not only making the diffusion become slower than the diffusion models without homophily, but also attenuating the overall diffusion rate of the models. It implies that other mechanisms, including the institutional settings/arrangements of social systems or specific networking patterns, are required to help a quicker and

continuous spread of participation. Purely from a network perspective, literature suggests some networking characteristics such as the existence of individuals connected to many other people and bridging group to group (e.g., Centola & Macy, 2007), or using a computerized automatic algorithm to feed or guide individuals into homophilous clustered groups – the practice often referencing social media like Facebook (e.g., Pariser, 2011). For this study, the agent-based models have not gone further to test these network viewpoints but briefly introduced the expansion of individual circle of influence in ABM simulation.

Second, the second set of simulation models demonstrates that the initial small difference between two competing political participation methods, either in the individual probability of participation or the individual probability along with the distribution of people's preference, lead the large difference in the participation rate between the two methods. This finding provides a useful ground that: one, the small individual difference in the probability to join in a political action becomes a large difference in the speed of the diffusion and in the overall rate of participation; thus, two, the small impacts of the Internet on political participation at the individual level do not remain small but rapidly expand in size at the societal level, when the network externality effect is considered.

The next examination asks how the interaction between the Internet proliferation and institutional arrangement/setting of a political system influences citizens' political participation. Using empirical data, two sta-

tistical analyses are conducted: one for voter turnout; the other for non-electoral participation. For voter turnout at the aggregated level, the analysis result provides evidence that compared to other political systems, majority/pluralism and hybrid (majority + proportional representation system), the interaction between the change in the Internet proliferation and the proportional representational system is positively related to a positive change in voter turnout. For non-electoral participation at the individual level, again compared to other political systems, the interaction between the proportional representation system and the Internet proliferation is more positively associated with collective gathering and confrontational non-electoral participation (demonstration in the street and participation in political meeting/rally) while the interaction is negatively associated with other modes of participation (contacting politicians, signing petitions, and expressing views online). This direction of the effects has, in fact, been emphasized by previous comparative studies that examined the relationship between the formal political opportunity structure and the movement strategy of the social movement. Thus, it is argued that the Internet reinforces the path-dependency of the political system in citizens' political participation.

The last examination explores how the interaction between the Internet proliferation and political parallelism of the news media system influences citizens' political participation at the individual level. Political parallelism of the news media system indicates the degree of party connection and

political partisanship of the news media system, both internally within news organizations and externally between the organizations in a society as a whole (Hallin & Mancini, 2004). The data analysis finds the fact that the interaction between the Internet proliferation and the level of political parallelism has differential effects depending upon the type of mode of citizens' political participation. In a nutshell, the interaction facilitates relatively moderate direct but institutionalized active modes of participation such as participating in political meetings/rallies and contacting politicians, whereas the interaction becomes negative for participation in demonstrations in the street and expressing one's views online.

1.5 Overview of Chapters

In the following chapters, the argument of this study will be theoretically reviewed, experimented with simulation, and empirically tested. In Chapter 2, the theoretical background of this study will be reviewed. The chapter begins with a critical assessment of the literature on political participation and Internet use. Although many studies have examined the Internet effect on participation, they were mostly concerned with the individual outcome or whether Internet use is related to the propensity to participate, but without consideration of the institutional contexts of the political system. By criticizing this trend, the role of the Internet as a network infrastructure linking institution and political actions will be dis-

cussed. Then, discussion on the political opportunity structure and news media system – particularly focused on political parallelism – will be reviewed. Recently, scholars have linked the news media environment with the discursive opportunity structure, the chance to diffuse one's message in public discourse, from the study of the political opportunity structure. Thus, using the concept of opportunity structure will be particularly useful for interpreting the analysis results in the following chapters.

The next three chapters are simulation and empirical data analysis chapters. Chapter 3 examines the impacts of the Internet proliferation on citizens' political participation. By employing ABM, a simulation method, the network externality effect of the Internet will be presented. Chapter 4 analyzes the triangular relationship between political participation, the institutional setting of the political system, and the Internet. This chapter empirically examines whether differences in the political system bring about differences in voter turnout and in the non-electoral modes of political participation in the interaction between the Internet proliferation and the system. Chapter 5 also analyzes the difference in the non-electoral modes of participation, but this time, how the level of political parallelism of the news media system influences the interaction between the Internet proliferation and the level of political parallelism is tested. Instead of using the typology of the news media system, political parallelism is used to indicate the role of the discursive (and media) opportunity structure. Chapter 6 is the final chapter, which discusses the findings and implications of this

study.

2 Theoretical Background & Research Design

"To become conscious of a concrete object [as a configuration of these attributes and] as a distinct conception is possible only when the idea [of the object] occurs in many different connections"
— Georg Simmel, 1955

2.1 Internet as Infrastructure for Political Participation : A Critique of Literature

The complexity of the relationship between the Internet and political participation stems from the fact that the Internet is an integrated information medium and social network (DiMaggio et al., 2001; Nah, Veenstra, & Shah, 2006). This integration has brought an uneasy tension to the traditional studies of political communication. The studies had examined citizens' political participation with two separate approaches. First, the "media information" approach explains that the use of media provides relevant political information to individuals, influencing their political knowledge or motivation to engage in politics. Relevant political information usually means exposure to news. Second, the "social network" approach explains that communicative activities between people influence individuals' political participation. Communicative activities often refer to talk and discussion about politics. This dichotomy of media information and social network also presumes several underlying dichotomies: individuals versus groups, media versus people, information versus communication.

As the Internet has integrated these dichotomies into one single medium of "the network of networks" (DiMaggio et al., 2001, p. 307), it has become complex issues of theory and measurement, particularly for studying its impacts on political participation. For instance, a simple survey question that asks Internet use for getting political information puts a variety of contexts in one basket (Thorson & Wells, 2016). Getting political information from the Internet can mean that a person: actively looked for news; was exposed to news when searching for other information; unexpectedly read/watched news in a friend's online posting; read/watched news in a reply-comment of others while reading a simple opinion of others; obtained news while chatting with others; subscribed to email news alert and so on. Thus, it is natural that when the Pew Research Center (2008) asked about Internet use for getting political information, they used the phrase "Do you ever use the internet to…/Did you happen to do this yesterday" (p. 5). In other words, political information can be delivered: from news online or from connected people; directly to an individual or indirectly to members of an online community (either in the form of a social network or membership-based forum); as a consequence of intended searches or unexpected exposures. Unlike old media use, in which the intention of getting political information mostly corresponds to the outcome of news exposure, Internet use for getting political information is not necessarily the intention of actions. On the contrary, it is the outcome of actions, either intended or not.

Nevertheless, political communication studies have maintained the previous research framework for studying the link between the Internet and political participation. Although some studies used the exposure measure for political information and news (e.g., Kenski & Stroud, 2006: Nisbet & Scheufele 2004; Xenos & Moy, 2007), many studies used the same media information approach and examined the relationship between active political information/news seeking behavior and political participation (Hardy & Scheufele, 2005; Johnson & Kaye, 2003; Kwak, Shah, & Holbert, 2004; Nah et al., 2006; Scheufele & Nisbet, 2002; Shah, Cho, Eveland & Kwak, 2005; Tolbert & McNeal, 2003). Often these studies also took the social network approach at the same time, but it was in the context of looking at whether this active information or news seeking behavior was related to online or offline political talk or discussion, then linked to political participation (Kwak, Shah, & Holbert, 2004; Shah, Cho, Eveland & Kwak, 2005).

This typical framework of 'two-step flow research' has been maintained for more than a decade, even after the introduction of social media, which blurs the boundary of information and communication (e.g., Gil de Zúñiga, Molyneux, & Zheng, 2014). Some studies considered various contexts of getting news or information in social media and probed exposure to political information or news rather than information or news seeking behavior. However, they still disregarded the fact that exposure in social media is based on the social structure of the personal network in the

first place, and then, political information is streamed to individuals, unless social media users separate their actions of getting news and social influence into separate domains of the Internet (e.g., getting news on news organization websites and talk in social media). If the two actions would have concurrently occurred in the same location within the social media domain, the construction of the social network on the Internet is a prior condition of the social diffusion of the political participation. In other words, in order to be affected by Facebook friends, the network of Facebook friends should be constructed before any relevant information is streamed to the user.

Political participation arises from the interactions between users around a social network that has already been formed (e.g., Lim, 2008). Empirical studies on the Twitter network confirm this condition in the cascade of information diffusion and recruitment of protestors. A research on Spain found that network position formed before the protest helped the mobilization of new participants (González-Bailón, Borge-Holthoefer, Rivero, & Moreno, 2011). The importance of prior network ties in information diffusion and protest recruitment is nothing new and is well-documented in social movement literature (e.g., Gould, 1991; McAdam, 1986). Nonetheless, by starting with the information approach rather than the network approach, studies seem to have only pursued traditional media effects for people actively and intentionally seeking information and talking with others, then participating. Some studies that asked about information ex-

posure, but without consideration of the social network structure, are not the exception to this criticism. If one follows their logic, the information exposure is dependent upon the pure chance of encountering information, not from existing network connections of ties. Thus, for them, Internet effects on political participation tend to be strongly associated with the political interest of individuals (e.g., Bimber, 2001; Boulianne, 2009; Xenos & Moy, 2007). The association is inevitable because, according to their research framework, the exposure is the result of intentional information seeking behavior.

On the contrary, studies of the social network approach to political participation, and more broadly social networks studies in general, have revealed several important aspects of network effects on political participation. First, information or messages from a personal network matter more than random information or messages. For example, structured information that a friend on one's Facebook personal network has voted increased voter turnout (Bond et al., 2012; Haenschen, 2016). Particularly for those new and infrequent voters, both indirect and direct social pressure had a positive impact (Haenschen, 2016). Vitak and her colleagues (Vitak, Zube, Smock, Carr, Ellison, & Lampe, 2011) described this process in the context of Facebook use as that "the more intensely people use Facebook, the more likely they will see friends engaging in political activity, and the more likely they will follow their friends' lead" and "exposure to friends' political activities on the site is positively related to both Facebook and

general political participation" (p. 112-113).

Second, the spread of behavior depends upon the type of information and the structure of personal network. People in multiple networks of locally clustered neighbors (this is the term from network study; in plain terms, it refers to people who are connected to diverse groups of people where people are gathered together) tend to adopt socially reinforced behaviors more quickly than people in a random small-world network (Centola, 2010; Centola & Macy, 2007). This network system spread social diffusion more quickly than the other, not only at an individual level, but also at a system level. Unlike simple contagion, such as spreading out a straightforward, non-arguable sports score, one requires multiple confirmation processes of trusted neighbors in a social network for social diffusion; how their friends would respond to their actions. This process not only reduces the risks involved, but it also stimulates individuals by giving assurance of the acceptance of the adapted actions. An empirical research found the more Facebook users engage in their Facebook community, the more likely they are to participate in political actions (Bode, 2012).

Third, the political homophily of the social network seems to increase selective exposure and to widen a political chasm, such as polarization, reducing interaction between people with different political orientations. Contents with ideologically similar views to their own are preferred and intentionally selected by people, even when cross-cutting contents are

available (Bakshy, Messing, & Adamic, 2015). People converse and network with people having the same ideology as themselves (Himelboim, McCreery, & Smith, 2013). The implication of these three findings is that as more people adopt the Internet, the personal networks of people on the Internet and the way people use the Internet will be more structured than random. The structure of the use will influence their information sources, interaction patterns, and, most of all, political participation. For instance, the band-wagon effect of political homophily will motivate and reinforce political identity, actions, and competition with other views. Hence, the proliferation of Internet users will induce network effects and it will structure the way people respond to various modes of political participation.

2.2 Three Assumptions to Break

The examination of the studies on social networks provides us with the fact that the studies on Internet use and citizens' political participation have not sufficiently examined the network effects within and outside of the Internet, influencing citizens' political participation. One might think of many reasons related to the issue, but at least the three following assumptions are responsible.

First, it is the assumption that the effects of the Internet on political participation occurs without the network externality effect, "the utility

that a given user derives from the good depends upon the number of other users who are in the same network as is he or she" (Katz & Shapiro, 1985, p. 424). In the media effect literature, the two-step flow research frame treated the participation process as the actions of isolated individuals, without any relational influence from others. Studies found that having political conversations increased the possibility of political participation, but they focused on "how many times or with how many others" they talked. Therefore, the interaction between individuals was treated as almost a proxy measure of personal interest, the level of interest being the extent to which one talked with others. Thus, not only intergroup interactions, but also societal level dynamics got lost in the analysis of political participation. Accordingly, the expectation of others to participate and its relation to the success of collective action are mostly absent from the previous research framework.

Second, there is the assumption that the Internet's impacts on citizens' political participation will be the same across all modes of participation. Many previous studies have consolidated the various modes of participation (using the term engagement) into the one dimension of political participation (Boulianne, 2009; 2015). In other words, while the previous studies were interested in the existence of the Internet's effects, its size, and mediating/moderating factors on the participation, they were little interested in revealing why a certain mode of participation was more salient than others. For example, although it is not exactly about the modes of

political participation previously discussed, Bimber & Copeland (2013) studied the longitudinal relationship between six political actions and online political information and yet they have not devoted their analysis to explaining why the effect of seeing the online information is stronger for voting and the act of persuading others than for other political actions such as attending an event or donating money.

This is related to the third assumption, that the Internet's impacts on citizens' political participation would not be influenced by exogenous factors. The assumption resulted that the varying degrees of the Internet's influence on the different modes of participation was only to be explained by the internal dynamic of using the Internet rather than by the social contexts. However, it is not only unrealistic but also unfeasible. The Internet is not a separate and independent domain of society. By contrast, comparative studies on political participation, mostly with the viewpoint of political opportunity structure, have developed the theory that the institutional system of a society influences the selection of political action strategy among various modes of participation. Therefore, there is a gap to be filled.

Then, the question is how one can show the network externality effects of the Internet and consider exogenous factors influencing the relation between Internet proliferation and the political participation. Another question is, if possible, how one can show the differentiated impacts of the Internet on the various modes of participation. This study finds its answer

in the discussion of path dependency and opportunity structure related to the political system and political parallelism of news media system.

2.3 The network logic of Infrastructure : Network Externality Driving Path-Dependency

Network externality effects of the Internet on political participation basically means the process by which the Internet effect on political participation increases as more people use the Internet. The mechanism behind the effect is widely known, as it is similar to that of other phenomena (e.g., self-fulfilling prophecy and bank run in economics). At the individual level, the externality effect can influence two decisions: the decision to participate and the decision of in which mode to participate, among possible options. The choice between different modes needs more explication.

Among many possible mechanisms by which to select one mode of participation in preference to others, the structural inertia or path dependency of the institutional arrangement is a powerful explanation, for at least three reasons. In the most rudimentary sense, people tend to reduce uncertainty and transactional costs by following institutional rules to influence politics. Institutions not only "reduce uncertainty by providing a structure" (North, 1990, p. 3), but also "define the choice set" (North, 1991, p. 97) of human interactions. The existing institutional framework is a reference for the participants in political actions, reducing transac-

tional costs to influence politics. Thus, while citizens on the Internet will network with homophilous like-minded people in the initial stage, when participation choices are given, they look for the mode of participation that appears to be the most successful. For example, in a two-party system country with majority/plurality electoral rule, building an interest group to participate in politics by citizens is much more feasible in the economic and political sense than establishing a new party. The same logic applies to politicians. Using existing rules and resources of the political system is more cost-efficient than creating new ones.

After the initial stage of the choice, second, the network externality effects that differentiate a certain mode of participation from others also amplify the path dependency. Studies on network effects and social inequality found the synergy of group interactions tends to benefit advantaged groups more than less advantaged ones (DiMaggio & Grip, 2011, 2012). This will increase the disparity between them "first by augmenting the impact of individual endowments, and second, by doing so disproportionately for the already advantaged" (DiMaggio & Grip, 2011, p. 100). The same logic applies to political participation. The initial preference for one mode of participation over other modes will be locked by path-dependency in the choice of participation method. In this sense, the network externality effects will be extended to more than individual probability to join the group for taking a certain mode of action. The positive feedback of actions and stronger in-group identity and commitment accelerates the

initial choice and it is expected that network externality effects, combined with homophily, will be higher for the practice that more people have chosen. The result will be that even when the number of participants is not increasing at the aggregate level, their choice to influence politics with a certain mode will be a highly effective means to engage in politics, compared to other choices that new participants would like to make. MoveOn and the Tea Party in the US, Five Star in Italy, and Podemos in Spain are good examples to show how network effects enhance and amplify institutional path-dependency. Compared to US movements, which chose to influence institutionalized politics from outside of political parties, European movements formed new political parties directly to engage inside of institutionalized politics.

Third, the structural environment of institutions sets favorable conditions to optimize "increasing returns." If a participant prefers a certain mode of participation to influence politics, the significance and voice of the path will be increased as more people join and the repeated use of the mode will reduce learning curves for future practices. Thus, the increase in Internet users means the Internet, as the infrastructure of actions, matures as people accumulate skill and experience in how to participate with a certain mode for influencing politics. This is learning and coordination effects according to Arthur (1994), which was also described as culture by Swidler (1986). Then, what would guide individuals or groups of individuals, particularly those who participate in the initial stage, to select a

certain mode of participation? The comparative studies on political participation have long theorized it as political opportunity structure, which will be discussed next.

2.4 Institutional Path Dependency, Political Opportunity Structure, the Internet

The political opportunity structure (POS) is based on the premise that "exogenous factors enhance or inhibit prospects for mobilization, for particular sorts of claims to be advanced rather than others, for particular strategies of influence to be exercised, and for movements to affect mainstream institutional politics and policy" (Meyer & Minkoff, 2004, p 1457-1458). Factors are exogenous if they exist as the environment, and the networked or collectively gathered individuals and/or social movement organizations are not responsible for its operation. The analytical distinction of exogenous factors is the relative openness of two opportunity structures: relatively stable and formal institutional arrangement/setting; and temporal and volatile political circumstance (Kitschelt, 1986; Kriesi, 1995, 2004; Kriesi, Koopmans, Duyvenak, Giugni, 1992; Meyer, 2004; Meyer & Minkoff, 2004; Van Der Heijden, 1997).

Whereas the institutional arrangement/setting of POS emphasizes forms or rules of the system in which relevant political agents are involved, the political circumstance of POS reflects the dynamic relationship between

the agents – and so the process these agents produce. Examples of the formal arrangement are policy or political alignment (Meyer & Minkoff, 2004), and the organizational structure of the political system and its configuration of power (Kriesi, 2004). As for the circumstances, they are the cultural dimension (Gamson & Meyer, 1996), signal (Meyer & Minkoff, 2004), and the prevailing strategy of protest (Kriest et al., 1992).

The studies with the POS perspective have different foci depending upon the interest of the studies. The studies interested in "how and why seemingly similar movements differ" pursue answers through comparative, cross-sectional examination of the institutional forms or rules. Those studies interested in "the stages and cycles of social protest moments" want to find lessons from longitudinal observation that can track the changes in the political circumstances (Meyer & Minkoff, 2004, p. 1459).

For comparative studies on social movements, particularly those with the POS viewpoint, the strategy differences between social movement organizations across countries mostly stem from the differences between the formal institutional rules and/or setting enabling or restraining the actions of the organizations. Kitschelt et al. (1992) has shown that the openness of institutional rules and the level of easy access to institutions differentiated the strategy of the anti-nuclear movement in four countries. The strategy in this context means various instruments of movement to accomplish their goals such as petitions, referendums, litigation in courts, or public demonstrations. Van Der Heijden (1997) has expanded the impli-

cation of POS by showing that difference in POS has also influenced the institutionalization of environmental organizations, their organizational structure, and their professionalism, as well as the strategies of the movement. The relationship between POS and the strategy of political actions is not limited to environmental movements. Koopmans (1996) examined how new social movements differed from traditional ones in terms of conventional and unconventional modes of participation. At the individual level, Vráblíková (2014) has investigated the relation between POS and citizens' non-electoral participation (NEP). The comparative analysis for 24 countries revealed that NEP is greater as the territorial and horizontal decentralization of political institutions increases. Power distribution and responsibility – such as the number of veto players and the number of political parties – have not increased NEP. The number of parties even had a negative relationship with mobilization, though the number of parties may contribute to more access points and the increase in the number of parties may provide more opportunity for wider representation of issues by the parties.

A study of Internet politics investigated different strategies of non-government organizations (NGOs) and citizen mobilization. Bennett & Segerberg (2013) linked personal action frames of NGOs and their connectedness to citizens. Their typology of connective and collective action networks on the Internet reflected how NGOs used digital media for the mobilization and incorporation of networked citizens. However, although

they provided different types of action networks (organizationally brokered, hybrid organizationally enabled, and crowd-enabled networks), they have not fully addressed that organizational goals of actions differentiated the methods of mobilization and action strategies through the Internet. They pointed out that German and EU-level environment issue networks seemed to have "an emphasis on strategies of institutional influence at the expense of public engagement" and that "when the political context offers institutionalization, issue advocacy networks seem less likely to develop or sustain connective action" (p. 145). Nevertheless, they ceased to develop further and to compare it with other organizations in different political contexts.

For individual-level voting, however, a study found how different political contexts are related to the Internet and citizens' political participation. Potter & Dunaway (2016) revealed that as the number of Internet users increased, the vote for small and new parties proportionally increased if the system was relatively more experienced in and already accustomed to a large number of parties.

In sum, the studies on Internet politics have not fully embraced the findings of the comparative POS studies. The comparative POS studies have focused on the relation between the openness or accessibility of the institutional setting/arrangement and various modes of participation as the strategies of social movement. Some Internet politics studies have had the potential to address how political contexts matter for various modes

of citizens' political participation, and yet, have not theorized how POS and the Internet interact with each other. One may argue that if Internet users meet relatively open POS, it may have synergistic effects on the modes of participation that press their demands through institutionalized routes to politics. On the other side of the coin, it can be argued that if Internet users are confronted with relatively closed POS, it may reinforce the modes of participation related to citizens' gathering or demonstrating to exercise their power or "show-off" outside of institutionalized routes. If the Internet has nothing to do with any path dependency with institutional rules of the game that previous POS literature revealed, then we may need to construct a new theory.

2.5 Political Parallelism, Mediation Opportunity Structure, the Internet, Participation

Media involve in the political process by influencing "the agendas as well as the triggering and framing of public issues" (Habermas, 2006, p. 415). The relation between media and political system (party and state) and the linkage between their issue contents and the system compose the "structural and dynamic element" in the political opportunity structure (Gamson & Meyer, 1996). The issue content influences the phase of political mobilization and the volatile element of the opportunity structure (i.e., dramatic changes in public support). The relation of media to party

and state is a stable and reproducible structural element of the structure. Traditionally, the structural element has been the main dimension that differentiates the models of media systems.

Studies on media systems seek "to identify major variations … in the structure and political role of the news media, … and think about their consequences for democratic politics" (Hallin & Mancini, 2004, p. 1). The seminal work on media systems dates back to the 1950s, when Sibert, Peterson, & Schramm (1956) classified four systems – authoritative, liberal, social responsibility, and communist system – of press around the world. As one can imagine from the naming of the systems, it is "a worldview," not a "theory" (Nerone, 1995, p. 17).

Almost 50 years later, Hallin & Mancini (2004) introduced four dimensions of media systems in order to reveal the variations in the structure and political role of the news media: media market, journalistic professionalism, political parallelism, and state intervention. Media market indicates the overall level of societal newspaper readership. Journalism professionalism is the dimension of the news media norm. The dimension of political parallelism is the degree of party connection to and political partisanship of the news media system, both internally within news organizations and externally in the system as a whole. The state intervention dimension is the autonomy of the news media, financially and politically, from the state. These four dimensions can be summarized into: 1) the autonomy from the political system, 2) journalism practice norm and culture, and 3) the

level of societal influence measured by overall news share. Then again, since their models are specific in the ways that journalism practice norm and culture are closely linked to the culture of the political system – with the dimension of political parallelism and state intervention – they are in fact models of the political system and the culture of journalism practice.

This leads to the political system of a society taking the most important position in their typology. As a result, their three models are in fact two models of democracy, but with one variant in one of the two. In particular, they are two representative liberal models (elitism and pluralism) and a social corporatist model. Table 2 shows the three media system models that Hallin & Manchini (2004) suggested: "Polarized pluralist", "Democratic Corporatist", and "Liberal" model.

Although the models provide guidance to understand the characteristics of the news media system, the typology itself does not provide much political implication, at least for the citizens' perspective. Studies using the typology have found much difference between news media across countries. However, finding evidence that the typology seems to explain the variety of news media systems is one thing, and how it is related to politics is another. The studies were mostly interested in how news under the different media systems differed, not in how this difference affected political decision-making or citizens' political participation. Hallin & Mancini (2004) state their study direction is from political system to media system: "the political variables discussed here as simultaneously

characteristics of political structure and of political culture. (…) These institutional structures shape the development of the media by creating constraints and opportunities to which media organizations and actors respond." (p. 297).

Table 2. Three Models of News Media System

	Liberal	**Democratic Corporatist**	**Polarized Pluralized**
	USA, Canada, UK, Ireland	Norway, Sweden, Finland, Denmark, Belgium, Germany, Austria, Netherlands Switzerland	France, Italy, Spain, Portugal, Greece
Development of mass-oriented press & large news audiences	Moderate	High	Low
Media parallelism with distinct political orientations	Low	Moderate	High
Journalists professional independence	Moderate	High	Low
State intervention in media policy	Low	High	Moderate

Source: Adapted from Esser & Pfetsch (2016, p 8) and modified based on Brüggemann, Engersser, Büchel, Humprecht, & Castro (2014, p. 1061).

By contrast, some studies have pushed the theory into empirical politi-

cal insights. By examining 15 European states for European parliament election in 1999, Van Kempen (2006) found that political parallelism, one dimension of the media system theory, seemed to increase voter turnout. Exposure to partisan news increased the party identity of individuals and mobilized partisan supporters (Van Kempen, 2005, 2006). Indeed, the more political parallelism a country's news media system has, the more citizens are exposed to likely-mind views (Goldman & Mutz, 2011). Strong political parallelism also means division between voters. The more political parallelism is observed, the wider the social cleavages between election winners and losers for satisfaction and legitimacy in democracy (Lelkes, 2016).

In fact, political parallelism is the most important dimension of news media systems. Table 3 is the empirical tests result of Brüggemann, Engersser, Büchel, Humprecht, & Castro (2014). They tested how much variance could be explained by each dimension of the media system. According to their tests, the explained variance with the political parallelism dimension was 62% for the original model and 83% for their modified models. It was also the highest, followed by journalistic professionalism. Considering the mutual interdependency between the two – strong political parallelism means the news media system is aligned with political views, whereas weak parallelism means the media system is relatively neutral – they essentially measure the same dimension. The correlation between the two also turned out to be -0.87 ($p<.01$) in their test.

Table 3. Explained Variance: Testing Media System

Dimension	Original Models (Hallin & Manchini, 2004)	Tested Models (Brüggemann et al.,2014)
Press market	.36*	.37*
Political parallelism	.62**	.83***
Journalistic professionalism	.61**	.72**
Public broadcasting	.29*	.56*
Mean	.33	.62

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

Source: Table 11 by Brüggemann et. al (2014), p. 1058.

Political parallelism is also the most relevant dimension for political participation. The opportunity to represent their political views shapes the motivation, strategy, and success of citizens' political actions (Benford & Snow, 2000; Ferree, Gamson, Gerhads, & Rucht, 2002b; Koopman & Olzak, 2004; McCammon, 2013). Scholars conceptualize the opportunity as discursive opportunity, "the aspects of the public discourse that determine a message's chances of diffusion in the public sphere" (Koopman & Olzak, 2004, p. 202). Thus, the existence of media that supports a specific political view is part of the structural aspect of society. However, POS literature usually treated this discursive opportunity as a volatile, temporal, and symbolic part of POS. From the viewpoint of collective action, the change in tone, narrative, and contents of issues in the public sphere for the duration of the action is dynamic in its nature, but the composition of each

agent in the public sphere to represent views is a structure of a society. This structure applies to the "framework of ideas and meaning-making institutions" (Ferree et al., 2002b). To make it short, political parallelism measures how this structure is aligned with the political views in a society.

One of the determinants of the discursive opportunity structure, political parallelism, will also influence citizens' political participation in the Internet era. Many studies have focused on the relation between political parallelism and the Internet. Vaccari (2011) found, in the highly political parallelism environment, news media actively mobilized citizens online for its political causes using various strategies. In addition, the Internet may change the landscape of political parallelism. Although evidence supporting a significant change in political parallelism has not been found, Power & Benson (2014) found more external pluralism was observed in online news than offline news for US newspapers, which was not seen in Denmark and France. Others have postulated to refine the theory about how digital politics and discursive opportunity structure work together. For example, Cammaerts (2012) conceptualized mediation opportunity structure, which has three components of networked opportunity structure, media opportunity structure, and discursive opportunity structure. He emphasized opportunities given by interactions between digitally connected citizens (networked opportunity), and mainstream media (media opportunity), and public discourse (discursive opportunity).

Despite these findings and efforts, however, it has not been clear how

the relation between the structure of the news media environment and the Internet influences citizens' political participation. The argument of Cammaerts (2012) was limited to content production and action tactics – namely, the repertoire of collective action – corresponding to each phase of the movement. It is unknown whether the interaction between political parallelism and the increase in digitally connected citizens encourages the political identity, views, and commitment of citizens, and in turn, facilitates more modes of participation related to institutionalized politics. Conversely, it is not documented whether a discursive opportunity structure with strong political parallelism of news media causes citizens to abstain from participation in more direct actions or not, due to relatively higher expectation on the role of existing news media. Institutional path dependency may exist between different forms of the system, but the overlapping functions as media may dampen the path dependency.

2.6 Contribution, Research Design & Questions, Method

2.6.1 Contribution of Research

This chapter reviewed the literature on media and political participation. The review showed that, in communication literature, the relation between media and political participation has long been dealt with in a two-step research framework: information exposure, communication, and then

participation. However, this framework needs to be reconsidered from the network perspective since the Internet has integrated the modality for information and communication.

Moreover, the communication literature has rarely been concerned with the relation between institutional arrangement and citizens' political participation. Social movement, more broadly collective action, literature has delved into the relation with the viewpoint of POS. Yet, the POS studies have not examined the Internet's impacts on the relation. This study is one attempt to overcome these limitations of communication literature and to gain insights from other disciplines.

Finally, this study will fill the gap between the theory of (news) media systems and Internet study from the citizens' perspective. It has been emphasized that the media system theory and studies that applied the theory lack the digital media dimension. Although their emphasis was given to the subject that how digital media affects their typology, this study first examines how existing news media systems interact with the new media, leading to differentiation in citizens' political actions.

2.6.2 Research Design & Questions

The contribution discussed will be made by bringing institutions back into the relation between political participation and the Internet. This chapter has examined how some of the key concepts are related: network exter-

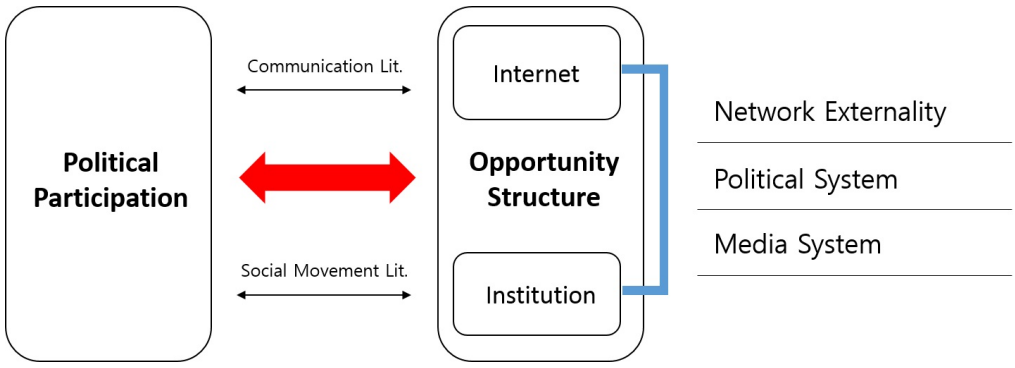


Figure 1. Research Design

nality, political opportunity structure, and political parallelism. Figure 1 depicts the research design of this study. Instead of looking at a one to one relation regarding the Internet and participation or participation and institutions, it attempts to integrate political participation as the interaction between the Internet and institutions.

More precisely, it asks the following overarching questions

1. How do network externality effects of the Internet influence the diffusion of political participation? Do small differences in the personal probability to participate between individuals at the initial stage bring larger differences in the later stages?

2. How do differences in political systems differentiate the impacts of the Internet on citizens' political participation? Between countries, do differences in the political systems differentiate the impacts of Internet proliferation on the various modes of participation?

3. How do differences in news media systems differentiate the impacts of the Internet on citizens' political participation? Between countries, do differences in the level of political parallelism of news media systems differentiate the impacts of Internet proliferation on the various modes of participation?

2.6.3 On Method

This study uses two research methods: agent-based model (ABM) simulation and quantitative statistical analysis. The ABM simulation is to examine the network externality effect and the quantitative analysis method is to investigate how the interaction between Internet proliferation and institutions – political and news media systems – influences various modes of citizens' political participation. There is a variety of ways to scrutinize the effect and the interaction. One may choose a laboratory experiment or qualitative method to research similar questions, however, the analysis method selected in this study is believed to be the most viable option, for two reasons.

First, the ABM simulation can examine a variety of contexts influencing the network externality effect. In a real world experiment, it is difficult to control several conditions related to the network externality effect. For example, it is probably unrealistic that a research finds a group of people whose individual propensities to participate in a political action are uni-

formly distributed across individuals so that it is controllable as a variable. In addition, as the research subject is related to political action, unless a political insurgency with massive participation is a common phenomenon, matching similar cases that are slightly different in a few respects will be extremely difficult. Therefore, a simulation is the best alternative to overcome the limitations that other methods have.

Second, the quantitative method is considered to be the most appropriate method. The method has been used by previous studies and these studies built reliable measures to test questions this study asks. For example, media system study has been one of the most successful cases in which a qualitative approach of theory building has succeeded in constructing measurable indexes (Hallin & Mancini, 2016). In addition, the study compares at minimum 13 countries and at its maximum 38 countries. As the purpose of a comparative study is to find a general pattern, quantitative data analysis seems to be the most appropriate method to compare many countries at the same time.

Nonetheless, these reasons do not negate the limitations these methods have. The methods in this study are not the most perfect methods, and yet, they are one of the best methods available for the subject.

3 Network Externality, Infrastructure, Participation

"Let me remind you of the particular characteristics of all of these behavior systems that I am trying to focus on. It is that people are impinging on other people and adapting to other people. What people do affects what other people do "

— Schelling, 1978

3.1 Introduction

The purpose of this chapter is two-folded. One, it is to augment empirical findings in following chapters through Agent-Based Model (ABM), a simulation method. This instrumental role can be achieved by two successful presentations. The first presentation is to show that the Internet user proliferation is a sufficient measure to investigate the triangular relationship between citizens' political participation, institutions, and the Internet. Using ABM simulation, it will be shown that the increase in the number of Internet users itself facilitates the relatively rapid diffusion of citizens' political participation if other conditions are being equal.

The second presentation pertaining to the instrumental role is to reveal that a small probability to participate in a political action at the individual level may not remain small at the aggregated level. It will be explained later that due to the interaction between people in the individual circle of influence and the network externality effect of the Internet, when in-

dividual probability to participate in a political action is translated into the overall participation rate at the societal level, the relatively larger level of participation is observed at the aggregated level, even in the case that individual probability of participating in political action is very small.

Two, the other purpose of this chapter is to suggest some of the Internet mechanisms related to citizens' political participation. The first mechanism to show is that how the more rapid diffusion of citizens' political participation becomes possible when Internet user proliferation increases. The basic line of argument is that the increased connections between individual citizens through the Internet will provide the advantage to influence and to be influenced by more numbers of people. This mechanism may not facilitate the more frequent level of citizens' political participation in a society, but once it is started for a certain cause, it provides a good environment to stimulate the rapid participation diffusion. Thus, the Internet effects on citizens' political participation go beyond the individual level, which tends to have not been adequately addressed in the communication literature on citizens' political participation.

The second mechanism to explicate is to provide a hint that how the initial preference among various modes of political participation could form a path dependency through the Internet. Using the concept of homophily and network externality, a possible route of the path development will be proposed. In the next, the chapter begins with more detailed aspects of Internet effects.

3.2 Internet Effects: Networking Effect, Local Structure Effect, & Network Externality Effect

From the viewpoint of seeing the Internet effects on citizens' political participation as the relational influence between individuals, the effects can be dissected into three interconnected but analytically distinct effects: first, the networking effect is simply produced by making connections or ties with others on the Internet; second, the effect of the local network structure comes next, which pertains to the composition of people connected and the pattern of networking – for instance, networking with whom, how many of them give positive feedback about adapting a social behavior, and whether people connect with others who are similar in terms of political orientation are typical subjects; third, the network externality effect connotes the degree that the overall aggregated level of participation influences the individual's decision to participate. This effect is predicated on the individual's decision-making process before joining the participation, which calculates the success probability of a political action based on the overall participation rate of the population (Klandermans, 1984; Marwell, Gerland, Pamela, & Prahl, 1988; Oliver, Pamela, Marwell, & Ruy, 1985). An empirical study showed the surprising outcome of the network externality effect: all non-violent government overthrow or territorial liberation resistance between 1900 and 2006 succeeded, if it surpassed the threshold that 3.5 percent of the population had participated (Chenoweth & Stephan, 2011). Namely, these three effects are the issues of social distance and

distribution: the distance from one's immediate connected neighbor to the macro-level population in a society; and the distribution or composition of people giving positive feedback or participating in social actions in the form of social reinforcement.

As the Internet expands our information and communication boundary, how these three effects are associated with citizens' political action is one of the key points to reveal the role of Internet on citizens' political participation. Because accessing and using the Internet means that individuals can reach information sources and communication counterparts beyond time-space constraints of individuals, the increasing opportunity of connections and interactions through the connections are one of the most important feature that the Internet plays a role. However, although the Internet effects consist of these three effects, many studies remained and focused on the individual circle of influence, without consideration of the externality effect. In the communication field, previous studies on political participation are likely to be focused on the networking effect, measuring the number of an individual's connections or the frequency of an individual's political conversations on the Internet. Then, conceptualizing it as social capital, its influence on political participation was examined. By contrast, in other disciplines such as sociology and physics, the local network structure effects have attracted much attention. Recently, Bond et al. (2012) tested in Facebook how an individual responded to the information that people in the individual's neighbor (denoted as Face-

book friends) had voted. The experiment of Centola (2010) also showed that the distribution of the local network structure – whether the majority of immediate connected ties or neighbors agreed with one's view – was an important factor that determined one's behavior as an information spreader.

The structural dynamic at the local network level is based on three principles about individuals (Kim & Bearman, 1997). They are: the inter-dependency of participation decisions; the intention to influence neighbors; and homophily. First, inter-dependency means the fact that individuals consider others' decisions. Individuals do not make a decision alone whether or not they participate as it is widely known and well-documented by previous studies (e.g., Oliver, Marwell, & Teixeira, 1985). The aforementioned experiment of Bond et al. (2012) with 8.1 million study subjects is simply a recent example. Second, individuals attempt to influence others, particularly those who are immediate neighbors in their social networks. Social interaction between people usually makes people share their views, finding a common ground (Walsh, 2004). Throughout this process, "people's attitudes, values, and behaviors become increasing similar" (Kim, & Bearman, 1997, p. 73), which is referred to as balancing acts of social interaction. Accordingly, third, homophily emerges as the natural consequence of social interaction. Homophily can be the result driven by actively pursuing similarity in the interpersonal relationship. Or, as explained, it can be the outcome of making the balance in social

relations.

While considering the local network structure effect is a development from the simple account of the networking effect, these effects are bounded by two conditions. The first condition, which may be recalled from Chapter 2, is that individuals need to be connected through the Internet in the first place. The spread of the Internet allows individuals to form various dimensions of mobilizing structure, for instance, from existing former social ties to new ties made after joining in political participation (e.g., Gould, 1991). When the Internet spreads across regions around a country, the Internet allows individuals to connect with social ties, either formerly known or new, which may not formerly have been possible at all. Once these ties are connected through the Internet, the social ties will soon function as the initial structure for mobilizing social actions, and it is a starting point of the Internet effects on political participation.

The second condition is the composition or distribution of individuals in a social space such as the Internet, which affects the intensity of the networking and the local network structure effects (Friedland, 2016). Fisher (1982) gave us an excellent example: for majority ethnicity individuals, their individual probability to interact with those of minority ethnicity in a city is higher than for the majority in a small town. Scholars have named this distributional effect using various terms. For instance, Blau (1977) called this condition of social space "social density," the average number of associates per person divided by a theoretical maximum. Since these two

conditions are structural aspects beyond the individual and local network level, they can be referred to as global parameters of Internet participation. In the context of this chapter, these parameters are operationalized into the distribution (or proportion) of Internet users in a society or of Internet participants who prefer a certain mode of participation to other modes.

The global parameters are directly related to the network externality effect. As many people participate in a political action, or the distribution of people who prefer a certain mode of participation becomes larger, it will exhibit "unexploited gain" through network participation. Unexploited gain means that the gain of individuals by taking part in the network exceeds an individual gain, but exists as a collective good. If the gain remains at the individual level, it is a simple network effect. Thus, the network externality effect is "a specific kind" of network effect where the network effect means "the net value of action is affected by the number of agents taking equivalent actions" (Liebowitz & Margolis, 1994, p. 135).

In sum, the Internet effects as the infrastructure of political action and behavior consist of three effects: networking, local network structure, and the network externality effect. Once one has adopted the Internet, the networking effect is dependent upon personal traits, as it is individual efforts to connect to others, either formerly known or new. However, the local network structure and the network externality effect are process-based relational effects, beyond personal control. Of course, these three types of effects are found in daily lives. However, compared to old media, the

Internet is the sole media platform associated with these effects. Using old media is not necessarily linked to networking patterns of individuals and feedback loop as the result of social interactions. In addition, the Internet user proliferation makes it easier these effects to happen by increasing connections and expanding the boundary of the connections. Thus, the role of the Internet for citizens' political participation needs to be studied in the relation of the boundary beyond individual level.

In this chapter, local network effects and network externality effect of the Internet on citizens' political participation will be the main concern of investigation. As these two effects are the most commonly indicated direct mechanisms by which Internet proliferation influences political participation, the examination of the effects would show us why Internet is significantly different from other forms of media and how it contributes to citizens' political participation. For this, ABM will be used to present this communication infrastructure logic of citizens' political participation.

3.3 Modeling Strategy: Agent-Based Model

3.3.1 On Agent-Based Model

The agent-based model (ABM) is a simulation modeling method using computer demonstration that tests whether a given micro-specification is sufficient to generate a macro-structure of interest (Epstein, 1999). The cornerstone example of ABM in social science is Schelling's segregation

model (Schelling, 1971). Schelling showed that residential segregation (macro-structure) naturally occurs, without the interference of a central institutional agency, if every individual household prefers: a) to live in an environment where a certain proportion of its neighbors should be the same ethnicity as the household; and b) to move to another place if this condition is not satisfied (micro-specification).

The finding of Schelling is a classic example to show how a micro-motive (individual preference) becomes a macro-phenomenon (segregation). The model demonstrated that change in the proportion of the satisfying condition at the individual level determines the number of segregation clusters and the average size of these clusters at the aggregated level. The complex version of a classic ABM example is "Artificial Society" by Epstein and Axtell (1996), which constructed a society explaining wealth, poverty, war and other social phenomena with ABM.

To construct an ABM model, one needs to consider three components – agents, environment, and rules of interaction. An agent in ABM is set as a social actor interacting with other agents as well as an environment that surrounds all agents. The environment, which occasionally is constructed in a two-dimensional space of grids, is the social space where the agents are located and where they interact. The rules of interaction determine how the agents interact. Using the above example of Schelling, agents are households (agents) who live in a huge residential area (environment) and want to move to another residence if the personal preference is not satisfied

(rules of interaction). Running a model means applying and operating rules for the agents in the environment, and consequently, examining how and what patterns emerge and evolve as changes occur in model parameters – such as the proportion of individuals of the same ethnicity in the context of Schelling's model.

The agents are assumed to have four key characteristics (Macy & Willer, 2002). First, they are autonomous. Their actions in the ABM are not intervened in by a central coordination. Each agent decides how to act based on rules that specify their behaviors. Thus, second, agents follow rules. These rules can be interaction rules between agents, between agent and environment, and even the follow-up action as the consequence of prior interactions. This means that, third, agents are interdependent. They influence and/or are influenced by each other. Lastly, they are adaptive and backward-looking. They change their attitudes, beliefs, and behaviors as the results of the interactions. The adaptive action is the basis of making a macro-phenomenon.

Since ABM is a modeling strategy to get a simulated outcome from interactions between agents, it is often argued that it is a third way of building social science models (Gilbert and Terna, 2000; Macy & Willer, 2002). Whereas equation-based models – either statistical models or simulation models – infer a causal relationship between variables, ABM wants to infer a mechanism from the interaction between agents (Cederman, 2005). In addition, ABM can specify the complex behaviors of the agents,

whether personal traits of the agents or interactions between agents. Table 4 compares several simulation techniques. It indicates that ABM is the most suitable simulation modeling strategy to model the self-organization of the agents and their adaptive behaviors, especially with the complexity of social agents and interactions between them.

Table 4. Comparison of Social Science Simulation Technique

	Number of of levels	Communication between agents	Complexity of agents	Number of agents
System dynamics	1	No	Low	1
Microsimulation	2	No	High	Many
Queuing models	1	No	Low	Many
Miltilevel simulation	2+	Maybe	Low	Many
Cellular automata	2	Yes	Low	Many
Agent-Based Models	2+	Yes	High	Few
Learning models	2+	Maybe	High	Many

Source: Nigel & Troitzsch (2005), p. 13

In this sense, ABM is selected to examine the Internet effect on political participation. Most of all, the network externality effect is a macro-level outcome but they are predicated on individual decision to participate. This is what is called 'emergent property' at the global system level that cannot be reduced into individuals (Mitchell, 2009; Sawyer, 2005). Second, as some may notice, the similarity between the assumptions about the

ABM agents and the three principles about individuals regarding local network effect provides the best opportunity to test a mechanism behind the participation diffusion. This leads, third, ABM simulation is a few feasible methods that can test interaction between social agents because, in the real world, a researcher is unable to examine social phenomenon by changing conditions of its process. For instance, ABM can test that how homophily influences the diffusion process of a political participation by making models with the homophily rule of interaction and without the rule, while other conditions are equal. However, this type of test by changing its condition is simply not possible in the real world.

3.3.2 Modeling & its Implications

Three themes of ABM simulation will be tested. The first theme is to see the network externality effect by changing the condition of the local network structure, more precisely, the homophily condition. While it is frequently pointed out that one of the most distinctive mechanisms of Internet participation is homophily (e.g., Farrell, 2012; Benkler, 2006), the network externality effect has not been seriously considered. By testing the network externality effect along with the homophily phenomenon, the relationship between homophily and network externality will be examined. Practically, ABM models under three conditions will be tested. Political participation diffuses: with homophily only; with network externality only; with both of homophily and network externality. These conditions

will elucidate the Internet's infrastructure logic of connections.

The second theme, and its variant as the extension of the second, test how an initial small difference between individual members of the two disparate groups with even number of people develops into a relatively larger group difference beyond individuals. To elaborate, imagine a society divided into two groups of people with competing strategies for political action. Each group has its own preference to act – say, Group A wants to sign a petition, while Group B wants to hold a political convention for a certain issue. The question to ask here is how much difference in their participation diffusion will be observed if one group's members are slightly more likely to participate than the other group's members. By setting one group of people as slightly more likely to participate than the other group, how this initial difference brings difference in the speed and scope of the participation diffusion will be tested. If the difference between groups grows more than the original level of difference, it can be said that the initial difference between individuals would not remain at the individual level, but can be considered as the aggregated group difference. The variant of the second theme uses the same simulation setting to the second theme, but this time, distributional difference between groups will be added. Instead of the testing models that the number of people in each group is equal, the group with the relatively small but higher level of individual value of participation will have slightly more people than the other group.

The third theme of ABM simulation is to test how the increasing connections via Internet facilitates the participation diffusion. In here, not only the basic interaction rules used in the previous ABM themes are applied (e.g. homophily and network externality) but also other assumptions used for building previous ABM models will be relaxed. The key setting in this theme is that Internet users have larger boundary for personal circle of influence than non-users so that the increasing number of the Internet users drastically improves the diffusion of political participation.

By showing these models, it is expected that the models tested will hint at how Internet proliferation encourages path-dependency and how Internet facilitates the political participation diffusion. Particularly, the model will show that once the Internet stimulates individual citizens to participate in a certain mode of political participation over another, even if its impact is small, the speed and scope of the participation diffusion at the societal level could lead significantly larger difference to be used between the two modes at the societal level.

3.3.3 Model Specification

As previously stated, setting an ABM model requires agents, environment, and rules of interactions. The environment of ABM models is defined by the social space in which the maximum population capacity is 2,500 people (50 by 50 grids). Then, it is assumed the space has 50% population density, meaning there are 1,250 people. The 50% population density

is set to guarantee a sufficient level of interaction between individuals. If the density is too low, individuals become social isolates. If it is too high, not only it is unrealistic, but also individual opportunity to interact with a variety of people will deteriorate given the limited resources of the interaction, such as time and space.

In each model, there are two types of agents. For the first theme, the agents are classified into two groups, Internet users and non-users and it is assumed that only Internet users participate in political actions. In this case, the diffusion only happens between Internet users. The application of this assumption considers two points. One is to examine the effect of Internet proliferation in its purest form. Other things being equal, the increase in the proportion of Internet users itself should bring a relatively more rapid and wider spread of political participation when the level of Internet proliferation increases. If it is not found, the Internet proliferation would not have any effect on the political participation. The other consideration, which is the other side of the former point, is that the non-users play the role of buffering the interaction between the users. Put differently, as the number of Internet users increases, the impacts of the Internet naturally increase because the absolute number and proportion of users increase, while the number of non-users shrinks.

For the models testing the difference between groups, the agents are all assumed to be Internet users. People in these two groups share the same characteristics except there are differences between groups in terms of

participation strategy (preference of participation method) and individual probability of participation at the aggregated level; on average, one group consistently have more probability of participation than the other. The variant model of the second theme includes the difference in the number of people between the two groups (compositional difference).

For the third theme of ABM simulation, the agents are again classified into two groups of Internet users and non-users but there is no restriction on who can participate in the political action. While relaxing the participation restriction, it is set that Internet users have the wider range of personal boundary of influence. Using the Internet means that individuals will have more tools to connect others. Thus, by setting wider boundary of interactions for Internet users, how the increase in the number of Internet users is associated with the rapid participation diffusion. Practically, while individual boundary of ABM model includes four immediate neighbors, Internet users in this modeling theme will have 9 or 28 people in their neighbors - technically, it is two or three radius distance from the individual in the ABM model.

Before moving on to the rules of interactions, the characteristics of individuals require more description. To begin with, each Internet user participates in a political action based on personal calculation. The calculation is the personal value estimation comparing the benefit of the participation as opposed to its risks. Each individual user may have their own minimum value standard of participation. Some people simply take

more risks than others. This minimum value is referred to as the individual threshold of participation.

The individual value calculation is the conjuncture of personal traits, the influence from the personal circle of influence, and the network externality effect. An individual has their own personal trait to participate in political actions. Some individuals are more likely to participate than others, for example, due to the difference in their political interests, social economic status, and so on. In addition, everyone has their own propensity to be affected by interpersonal relationships. Some individuals simply weigh others' opinions more heavily, compared to others. Furthermore, the local network structure also influences the individual value of participation. Some people get a large level of positive feedback about their participation, while others do not. For simplicity, the local network structure will be called here the neighbor effect. Lastly, there is the influence from the network externality effect calculation: an increase in the overall participation rate increases the individual value of participation.

Then, the individual value of participation in any political action can be given by

$$Value(P) = G * N_i * [(P_{i,i} + P_{i,n})/2]$$

$$\text{where } P_{i,i} \sim U(0,1) \quad \text{and} \quad P_{i,n} \sim U(0,1),$$

$$G = 2 - \exp[-k * (B/A)], \qquad N_i = floor(D_v/C)$$

$P_{i,i}$ is the personal trait probability that one is willing to participate in a political action. It is assumed that the probability is uniformly distributed from zero to one and randomly assigned to all agents in the model. In the second theme and its variant, each group has own probability that uniformly distributed and randomly assigned. The value property of $P_{i,n}$ is the same to $P_{i,i}$ but it is the probability that an individual is affected by others. The formula above shows that the individual trait to participate is the sum of $P_{i,i} + P_{i,n}$ divided by two so that it ranges from zero to one. G and N_i are the externality and local structure effect parameters that influence the individual's decision to participate.

A is the total number of people and B is the number of participants in political actions. Therefore, (B/A) stands for the population participation rate in the ABM space. Constant k is an arbitrary value that adjusts the effects of the network externality. In this chapter, it is fixed to 0.8. Table 5 exemplifies the change of G value with $k = 0.8$ based on B/A value. By fixing $k = 0.8$, G becomes a modest multiplier. It also exhibits G value when $k = 0.5$ and $k = 1.0$. Compared to $k = 0.8$, $k = 0.5$ makes the externality effect multiply less in the higher bound of the population participation rate (e.g., $(B/A) = 0.5$ or $(B/A) = 0.7$), whereas $k = 1.0$ makes the externality effect almost the same as the population participation rate. $k = 0.8$ avoids these two limitations. The formula for G is adopted and modified from Epstein (2002), which originally used it as the individual probability to rebel based on the calculation of the probability of being

arrested.

The C is the number of people who are not participants or people having a different preference around one's immediate neighbor. D_v is the number of participants within one's vision area who are participants. Hence, (D_v/C) is basically the ratio of participants in vision area compared to the number of non-participants around one's neighbor. Except the third theme of ABM models, (D_v/C) is simply (D/C) which is the ratio of participants in one's immediate neighbor. In the third theme of ABM models, the vision area of the Internet users is wider than non-users.

The floor function makes N_i take the value of the greatest integer less than or equal to (D/C). For instance, if my neighbor consists of three people who are participants in a political action and five people who are not, then $N_i = 0$. If the distribution is four to four or five to three, $N_i = 1$ or $N_i = 2$, respectively. Thus, the neighbor effect is only meaningful when D is greater than C. The boundary neighbor of an individual is defined by the v vision area. In the model, Internet user agents look around within a vision area to see if other agents are within the area. If an agent finds other users, the agent calculates the neighbor effect. The increase in v usually tend to accelerate the participation diffusion because it expands the personal circle of influence. For the third theme of ABM, the Internet users have more wider vision area than non-users as explained earlier.

When a model starts, only one agent participating in a political action

Table 5. G value based on Participation Rate & k value

k = 0.5		k = 0.8		k = 1.0	
B/A	G	B/A	G	B/A	G
0.001	1.000	0.001	1.001	0.001	1.001
0.100	1.049	0.100	1.077	0.100	1.095
0.200	1.095	0.200	1.148	0.200	1.181
0.500	1.221	0.500	1.330	0.500	1.393
0.700	1.295	0.700	1.429	0.700	1.503

for each group enabled to participate in ABM simulations. It means that for the first theme of ABM simulation, there is one participant in the beginning stage of the participation diffusion while other themes will have two participants. The initial agent is randomly selected. When the model runs, each agent moves to find an empty spot at each time unit, say T. For an Internet user agent, there is one more step to follow before moving. The agent calculates G and N_i and puts it into the formula of an individual value calculation before finding the empty spot. After the calculation, the agent compares the personal value of participation against the individual threshold value of participation. Note that these two values are uniformly distributed and randomly assigned to Internet users. Then, the agent decides whether to participate or not.

Once the agent has decided to participate and the proportion of participants around the neighbor area is more than 50% with at least three participants, they do not move and stay on the grid until these conditions

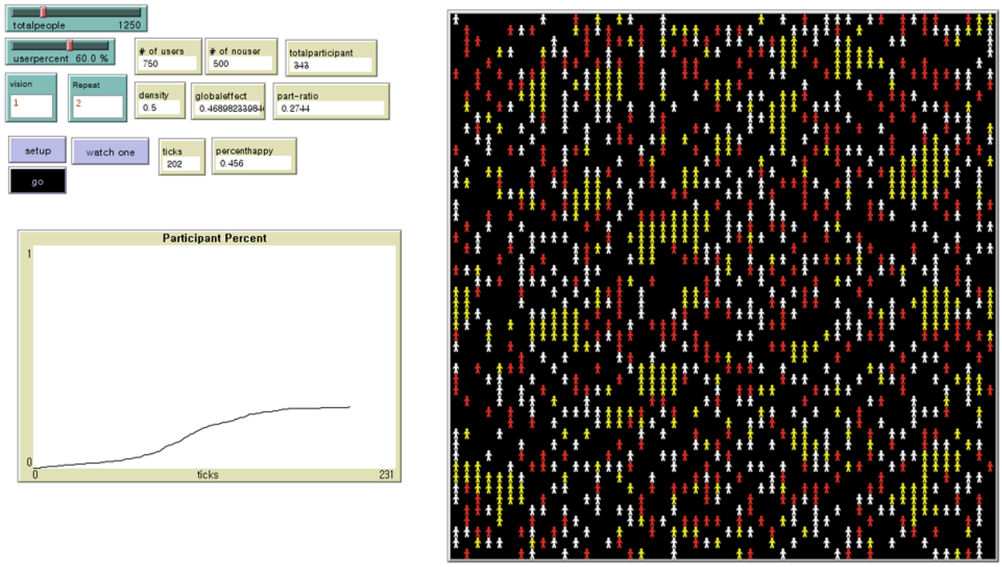


Figure 2. Interface of ABM Model

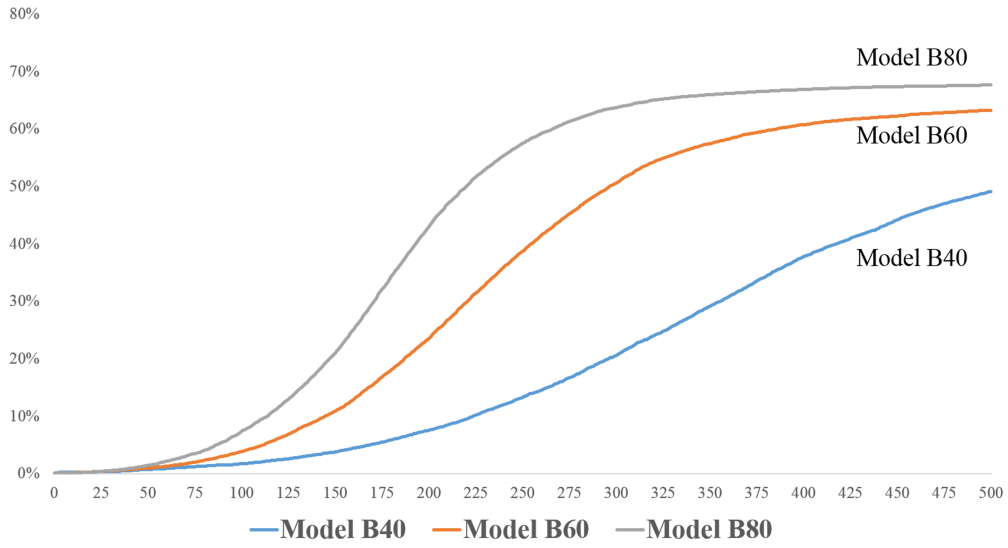
change. This is the application of homophily or the group formation principle because these agents stay in the grid forming clusters and communicating with those participants around their neighbor. Those who are not participants will leave this newly formed group because they are non-users or non-participants, who do not have any rule to stay or will not be satisfied to stay under their condition being surrounded by participants with the same preference. While an agent decides to stay, however, other participants within the agent's neighbor may want to leave because they may not have enough participants to stay or less than the majority of people around them are not participants. Therefore, it may lead to consecutive moves of other agents who once stayed at the grid but now need to meet the "stay at the grid" condition because others have left.

The model runs until the time unit T reaches 500 or all Internet users become participants. The ABM model is constructed and executed by the NetLogo 6.0 program, developed by Wilensky (1999).

3.3.4 On Models Tested

A basic modeling test was conducted before running the models in which this study was interested. By changing the proportion of Internet users from 10% to 90%, whether any unusual pattern emerges was examined. Figure 3 depicts the curves of participation diffusion for three settings at which the proportion is set at 80% (Model B80), 60% (Model B60), and 40% (Model B40), respectively. In this basic example, the increase in the rate of Internet proliferation indeed increases the speed and scope of the participation. The "take-up", where the diffusion rate follows a relatively stable linear function during the diffusion, of Model B80 is much earlier than for other models.

Each model of ABM is repeated 500 times for the consistency of the simulation results. All the results reported in this chapter are based on the mean value of 500 repeated simulations for each model.



- Model B80 – Internet Users 80% (1000 users, 250 non-users, Top)
  Model B60 – Internet Users 60% (750 users, 500 non-users, Middle)
  Model B40 – Internet Users 40% (500 users, 750 non-users, Bottom)
- A. X-axis: Time Y-axis: Percent of Participants among the defined Internet users

Figure 3. Internet Proliferation & Participation Diffusion Curve

3.4 Result

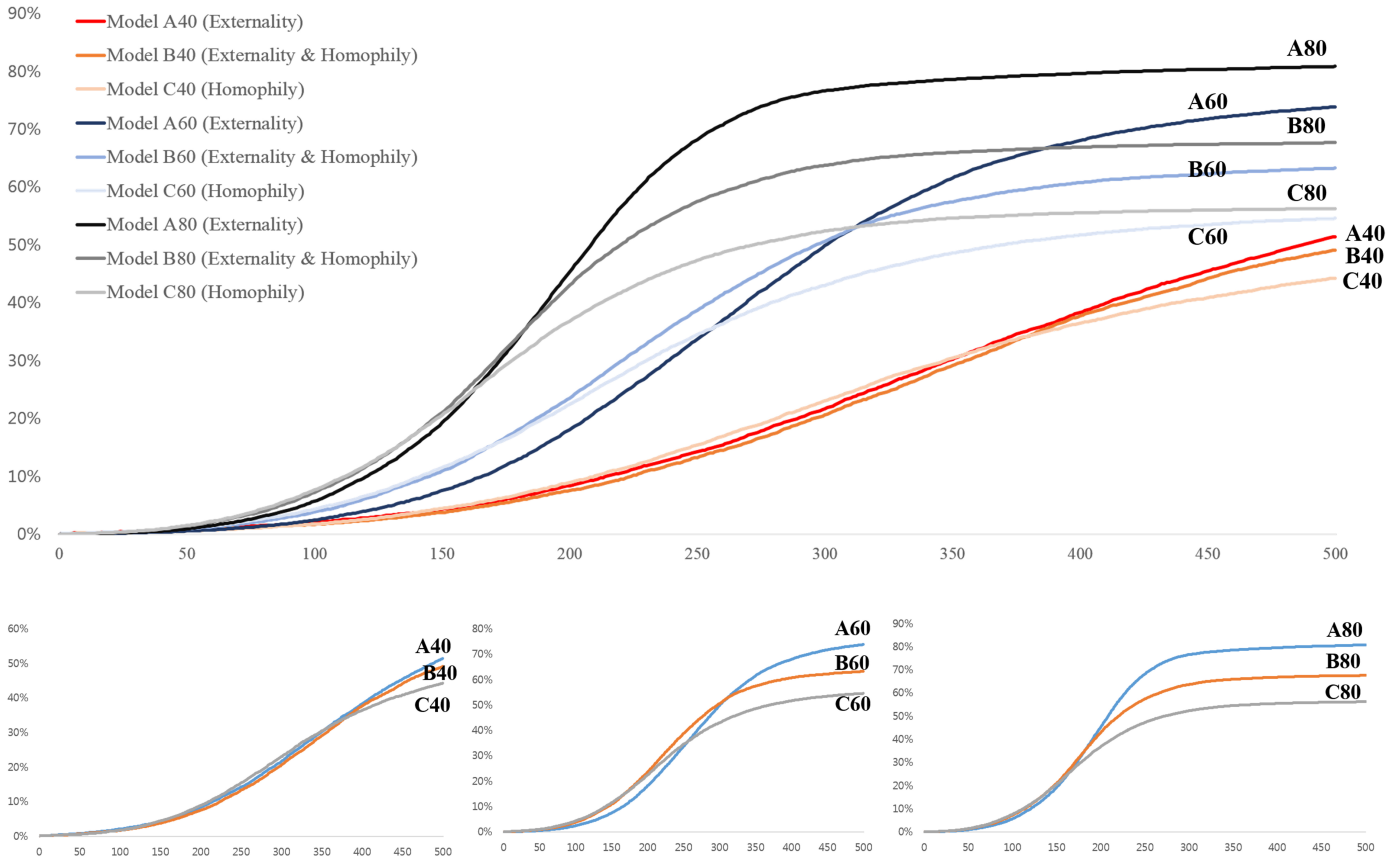
3.4.1 Network Externality & Homophily

Figure 4 depicts the participation diffusion curves of the nine models, varying the percent of Internet users (each three models for a given percent of Internet users – for example, Model A40 indicate 40% of Internet users model). In each level of Internet users, three models comparing the homophily and network externality effect are presented. A first look at Figure 4 indicates that, unlike the common belief that homophily increases the diffusion of participation, homophily tends to attenuate the

speed and range of people during the “take-off” period. In the bottom of Figure 4, models with the homophily condition (Model B and Model C of each graph) display relatively slower diffusion compared to the model A without homophily condition. The modest level of the network externality effect that was set earlier (i.e., $k = 0.8$) enabled Model A and Model B to have faster diffusion than Model C but it was only after passing the middle stage of "take-off" in the diffusion.

It is interesting to see the role of homophily. As the homophily effect tends to prevent a further diffusion, some models with homophily and network externality effect exceed the level of diffusion tht happens at the higher level of the Internet user proliferation. While Model C80, the diffusion model with homophily principle applied at the Internet user 80% level, displays a flattened diffusion curve, Model A60 and B60, the diffusion model with network externality is applied at the Internet user 60% level, has passing the diffusion rate of Model C80.

However, a close look at the diffusion curves shows that the role of the homophily effect is highly important in the initial diffusion process. Figure 5 shows the case with the Models at Internet users 80% level. During the time period from T+1 to T+160, the participation diffusion of Model B80 and C80, the models with homophily effect, are faster than that of Model A80, which has only the externality effect. Figure 5–B exhibits the precise point that the participation rate of Model C80, the homophily effect model, becomes lower than the other models. The Model B80 and C80 are



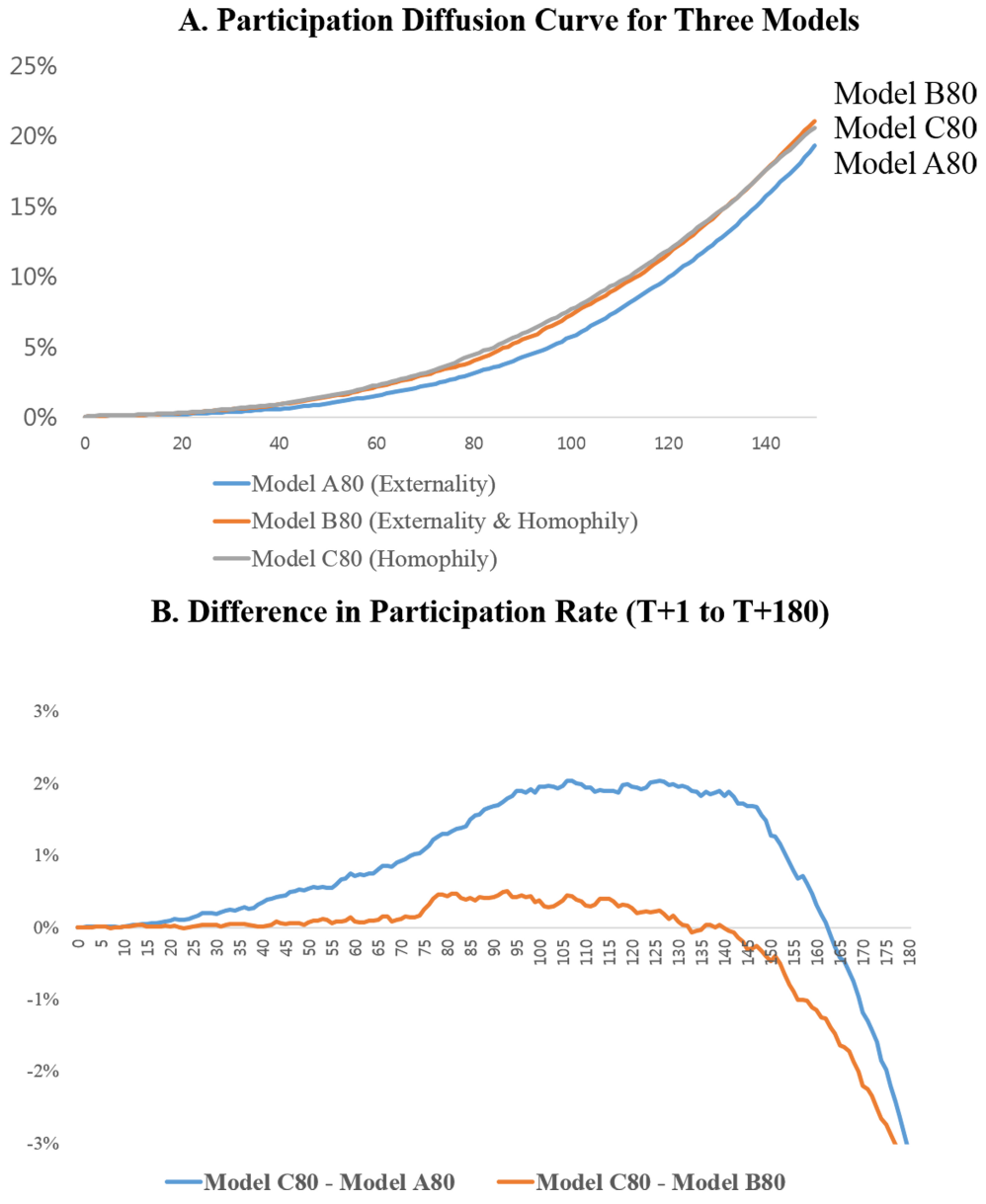
- X-axis: Time Y-axis: Percent of Participants among the defined Internet users.

Figure 4. Comparison: Network Externality & Homophily Effect

almost similar till T+132 and Model C80 gets lower than Model A80 after passing the time point T+163. In other words, before reaching T+163, the participation rate of Model C80 was lower than all other models.

While the homophily effect is clearly visible, its relation to the network externality effect becomes a complex phenomenon. Since the homophily effect enables relatively rapid participation diffusion at the relatively early stage but later impedes the diffusion process by making people clustered around homiphilous groups, homophily indirectly helps the increase of the network externality effect in the early stage but suppresses its effect from the diffusion "take-off". However, the externality effect is too small to make a difference at the early stage as it is observed by the comparison of Model B80 and C80 in Figure 5-A; the network externality is only visible from the middle of "take-off" period. This is exactly seen in Figure 4 that the diffusion curve of Model B and C are started to diverge at around the T+160 time point for Internet user 80% models.

Proceeding from what has been analyzed above, three points can be made. First, homophily helps relatively rapid participation diffusion in the relatively early stage of its diffusion course but impedes wider diffusion, thereby making the diffusion slower than the participation diffusion without homophily. Second, the network externality effect of the Internet has no room for its impact in the early stage until a sufficient number of people participate. This observation is based on the comparison with the model with the homophily effect rather than a simple account of the externality



- A. X-axis: Time Y-axis: Percent of Participants among users.
- B. X-axis: Time Y-axis: Difference in the participation curve.

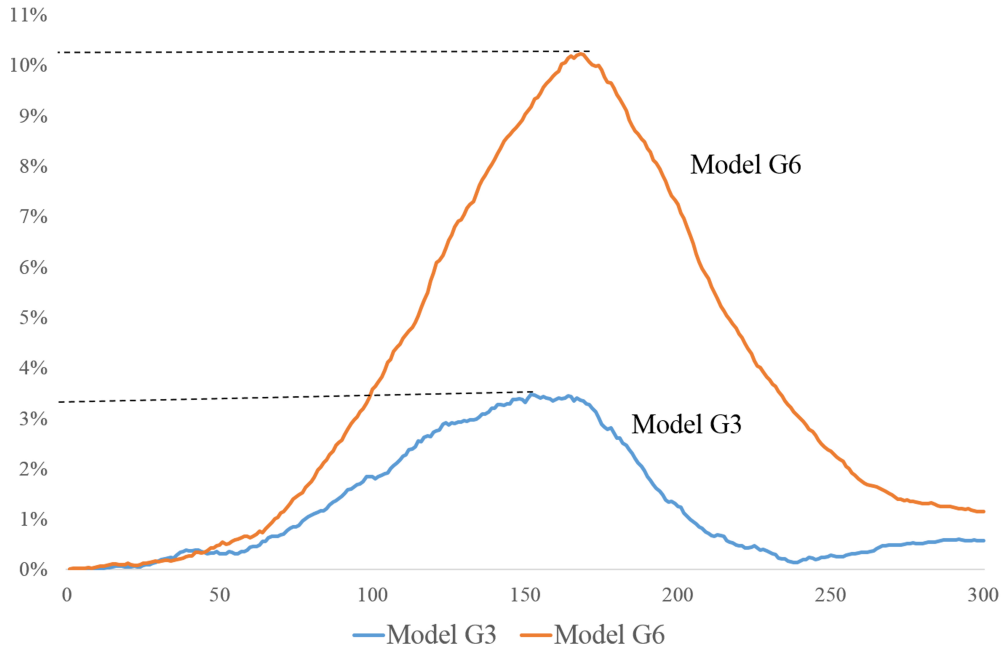
Figure 5. Comparison: Early Stage of Partcipation Diffusion

effect – whether the effect is simply present or not. Finally, from these two points, there is the potential that the a successful mobilization of citizens' participation is driven by a small number of like-minded individuals in the early stage, who flock together, then later diffuses into people who are relatively heterogeneous, at least to the extent that they join the political action and later flock together.

3.4.2 Small Difference between Groups

The small difference in the individual probability to participate can induce relatively larger difference in the participation rate. Figure 9 portrays the difference in the participation diffusion rate between two groups of the investigation. One group is given more probability to participate than the other group, by 3% for Model G3 and 6% for Model G6. Although it is natural that the wider difference in the initial setting between the two models will bring a bigger difference in the model outcome, the maximum size of the participation rate difference between the groups at a given time is larger than the size of the probability difference.

Indeed, Figure 9 displays the trend of the participation rate difference between groups for each model and confirms the wider difference than the difference in the individual probability. Since the number of people in each model is limited, the difference between two groups in the models quickly decays as the model saturates with participants. However, looking at the maximum difference, it is observed that a small probability difference

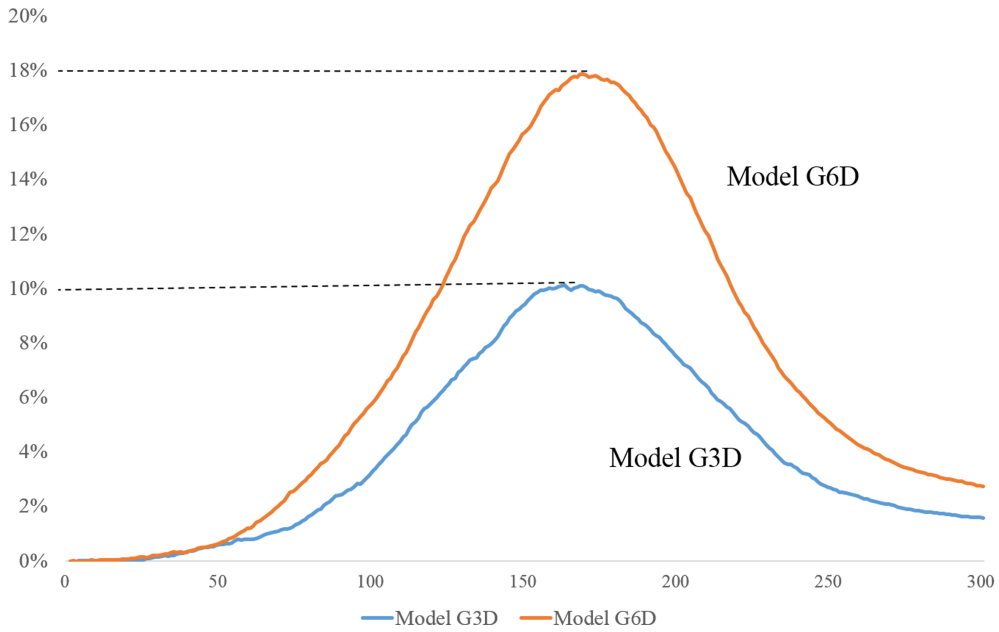


- Model G3: Participation Diffusion Rate Difference
  3% Individual Probability Difference
- Model G6: Participation Diffusion Rate Difference
  6% Individual Probability Difference
- X-axis: Time Y-axis: Percent of Participants among users.

Figure 6. Individual Probability Difference Models

becomes a larger difference in the diffusion curve. For Model G6, the maximum difference in the diffusion rate between the two groups was 10.2%, and for Model G3, it was 3.5%.

Although these maximum differences are more than the initial difference between the two groups, 10% for Model G6, and particularly 3.5% for Model G3, they seem to be smaller. However, this may be predicated on the unrealistic assumption that the number of people in the two groups



- Model G3D: Participation Diffusion Rate Difference
  3% Individual Probability & 3% Distributional Difference between Two Groups
  (51.5% of users, 644 users) vs (48.5% of users, 606 users)
- Model G6D: Participation Diffusion Rate Difference
  6% Individual Probability & 6% Distributional Difference between Two Groups
  (53.0% of users, 663 users) vs (47.0% of users, 587 users)
- X-axis: Time Y-axis: Percent of Participants among users.

Figure 7. Probability & Distributional Difference Models

is exactly the same. Thus, by relaxing the assumption, two additional models are tested. At this time, the distributional difference between the two groups in each model is added to the existing models: 3% for Model 3G and 6% for Model 6G.

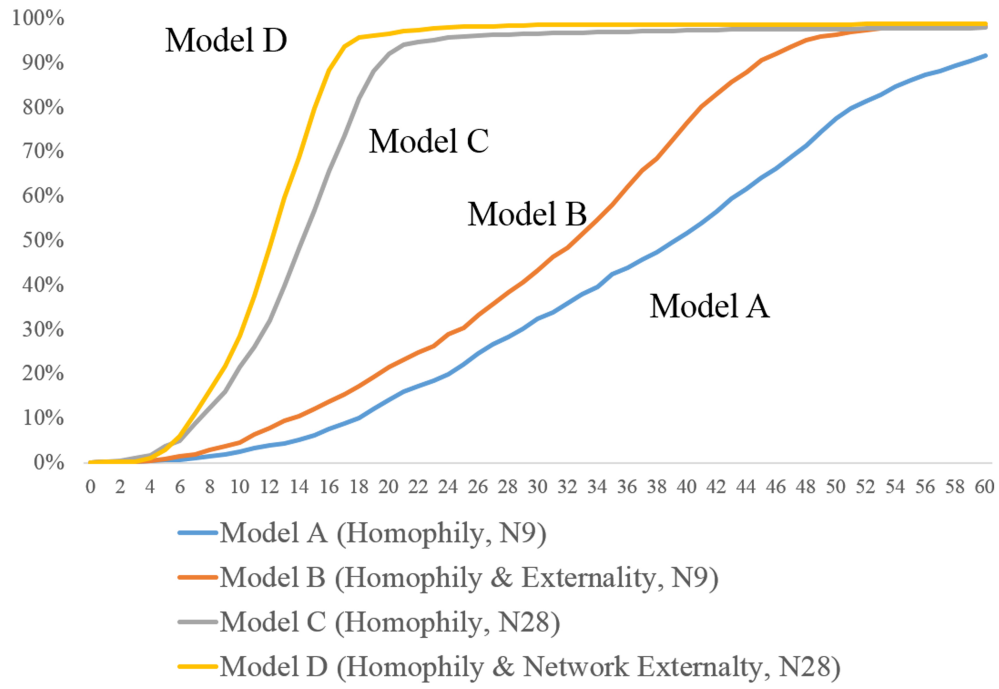
Figure 7 shows the diffusion curve difference between these models. The difference between the groups for 3% probability and the distribu-

tional difference model, Model G3D, became 10.1%, more than triple the earlier Model G3. For Model G6D, the difference is 17.9%, which is 7.7% more increase than Model G3.

In sum, when the probability difference is combined with the distributional difference, a small individual probability difference in participation between two group members engenders a larger societal difference in political participation during the participation diffusion process. The tested models provide one step closer implication for the path-dependency of political participation. More precisely, if the political culture of a country prefers a certain participation method to other methods and it is supported by a relatively larger number of people, the potential that it will become a major strategy of political participation will be higher than for other methods. This may be seen as the interaction between Internet proliferation and institutional systems in a society.

3.4.3 Expansion of Personal Boundary of Influence

The final ABM model deals with the difference in the boundary of personal circle of influence between Internet users and non-users. As the Internet proliferation has expanded the reachable range of Internet users in their connections to information and communication, the ABM model in this section has built to reflect the difference in the personal boundary of influence between Internet users and non-users. At this time, both of Internet users and non-users can participate political action but Internet



- X-axis: Time Y-axis: Percent of Participants among users.

Figure 8. Impact of Boundary on Political Participation

users are set to have a wider boundary of personal circle of influence. The models in this section are set at the 60% Internet user proliferation level. Figure 8 depicts the participation diffusion curve by the difference in the boundary between models. The models compared are two cases that when Internet users has 9 neighbors or 28 neighbors to be influenced.

As the Figure 8 shows, when the boundary of personal circle of influence expands, the participation diffusion becomes drastically faster than the model with the smaller boundary. Thus, even in the case that Internet proliferation may have been stagnant, the increasing interaction between

the Internet users can facilitate citizen's participation.

3.5 Discussion

This chapter has examined the infrastructure logic of the Internet on citizens' political participation. By laying out various levels of Internet effects on the participation, it attempted to reveal the characteristics, the pattern of impacts, and the outcome of the network externality effect. The attempt was made through the ABM simulation method.

The study in this chapter is distinguished from other studies in several points. To begin with, while many studies underscored and were only interested in the homophily effect of the Internet, the study has examined the homophily and network externality effect, simultaneously. In addition, the study has investigated how a small difference between people in the participation method at the individual level turns out to be a relatively larger difference in the overall participation rate at the societal level. Additionally, the ABM models in this study dealt with the role of the Internet that increases individual connections to and boundary of information and communication activity.

The results of these ABM simulations show quite interesting findings. First, the homophily effect of the Internet induces a rapid diffusion of political participation in the relatvely early stage of the diffusion, but it restrains further diffusion in the later stage, particularly during the

"take-off" period. Second, the network externality effect of the Internet is significantly visible only after passing the middle period of the "take-off." Third, small difference between Internet users at the individual level may not remain difference between individuals, but it may expand into societal group difference. Lastly, the increase in the range of interaction through the Internet also facilitates citizens' participation.

Although many implications can be drawn from this chapter, the most interesting implication is its relation to the path-dependency of political actions. To elaborate, the first two findings open up the possibility that the selection of a political action strategy by a small number of like-minded people becomes a national selection. If a small number of like-minded people initiates a political action through the Internet and carries it until the action takes off, we can expect that the network externality effect will do the rest of the spreading process from the take-off, even though the homophilous group does not develop. Then, combined with the third finding that small individual difference turns out as relatively larger group difference, the spread of this political action ultimately locked in the selection as the major strategy of political action. Many citizens who prefer the action strategy will join the group, while the speed and range of citizens who prefer other strategies deteriorate.

It may not be always the case but, with the help of the initial homophilous core of like-minded individuals, if the institutional arrangement of a society induces the selection of a certain mode of participation

and the network externality effect of the Internet diffuses this selection, the interaction between Internet proliferation and the institutional arrangement of the society will show path-dependency in the use of the participation method. Nevertheless, the question is whether the interaction effect exists, and if so, which mode of participation is selected, and in what type of country, which are the subjects of the next two chapters.

4 Political Institution, the Internet, Participation Dynamics

"The tradition of all the dead generations weighs like a nightmare on the brain of the living"
— Karl Marx, 1852

4.1 Introduction: Institution, Participation, and Internet

How is the increase in Internet users associated with citizens' political participation? According to the literature on Internet politics, the Internet has reduced the cost of political communication, and, in turn, increased the opportunity for political coordination and mobilization. For example, studies on Internet politics, particularly interested in citizens' viewpoint, found that the increase in Internet users has invigorated citizens' political participation. From the studies with politicians' perspective, studies mainly delved into electoral campaigns and mobilizations of citizens for supporting individual politicians (e.g., Karpf, 2012). Organizations in civil society is another area of interest regarding how these organizations have used' the Internet for mobilization (e.g., Bennett & Segebeg, 2012). These studies illustrate that the Internet has influenced politics in variety of ways and every aspect of politics.

However, it is barely found that studies on Internet politics have examined the relation between the extant institutional arrangement/setting and citizens' political participation. When the studies do refer to the relation,

they tend to frame it as an issue of controlling efforts by the state such as privacy, censorship, and surveillance that prevent the mobilization of citizens (Goldsmith & Wu, 2006; King, Pan, & Roberts, 2013). Otherwise, the studies are interested in the instrumental use of the Internet by institutionalized politics or interest-group organizations (Bennett & Segebeg, 2012). Thus, institutions, in this context, are agencies in a political system. This articulation has led the studies to concentrate on the identification of actions taken by these agencies and to draw implications for generalization. For instance, Internet trolling by the Chinese government has been studied with the question of how the agency operated the practice, but not with inquiry into why such an effort was chosen over other methods under their social and political structures (e.g., King, Pan, & Roberts, 2013). In a similar vein, a study on advocacy organizations explored the organizational forms of networked actions but did not probe why the organizations selected specific action strategies under the political structure they confronted. As a result, the relation between institutions and citizens, which is one of the built-in structure of the political process, is not explored. Continuous interactions between citizens on the Internet and extant institutional structure evaporate in the literature of Internet politics.

By contrast, traditional political participation literature, more precisely comparative studies on political participation, has revealed how different institutional settings differentiate the institutional route to participation. There are two different but essentially similar arguments. The first line

of argument came from historical institutionalism. It argued that the difference in the historical trajectory of the political system has produced different "institutional rules of the game" (Pierson & Skockpol, 2002), and thus, varying degrees of participation (e.g., Lipset and Rokkan, 1967; Powell, 1981). For example, it is argued that the party system characterized by strong party-group linkages tends to have successfully channeled citizens' political demands and increased voter turnout (Jackman, 1987; Powell, 1981, 1982).

The second line of argument uses the concept of the political opportunity structure. It is an argument emphasizing the dynamic between the political structure of institutions and the actions of political agents. As the process of political actions is influenced by various institutional conditions and their relation to political actors (Goodwin, 2002; Meyer & Minkoff, 2004), citizens can select specific tactics from "a spectrum of possibilities within a 'repertoire of contention' (Tilly, 1987)" (Meyer, 2004, p. 128). Not surprisingly, the political opportunity structure is a condition affected by the historical trajectory and cultural values of a society (McAdam, 1996). The interactive outcome between the actions and structure influences citizens' political participation.

And yet, the comparative studies on political participation disregarded the impacts of the Internet. As indicated earlier in Chapter 2, the media environment composes one of the political opportunity structures coordinating and mobilizing political participation. If new media has changed

the information and communication environment, it would be reasonable to think that the newly changed environment incorporates existing institutions, and in turn, influences individuals as a structural enabler or constraint of their actions. However, this consideration is not seen in the comparative literature on political participation. Just as studies on Internet politics miss the interaction between institutional arrangement/settings and citizens' participation, the literature rarely considers the Internet as the infrastructure of mobilization affected by existing conditions.

These limitations from both sides of the studies allow us to reformulate the initial question: Do differences in the political system bring differential effects on how the Internet influences citizens' political participation? As Internet users increase in a society, are some channels of citizens' participatory inputs more likely to be preferred under the certain political system? Does it change the institutional inertia or reinforce the already-preferred institutional route for citizens' political participation? Do Internet effects vary by the type of participation? Since studies of Internet politics that account for institutional arrangement/setting are rare, let us begin with looking at the traditional comparative studies on citizens' participation on voter turnout.

4.2 Political Institution & Internet: Voter Turnout

Traditional comparative studies found the cross-national difference in voter turnout is explained by the difference in institutional structure (Blais, 2006; Jackman, 1987; Powell, 1982, 1986). The seminal work of Powell (1982) identified that the GNP (gross national product), proportional representation system, mobilizing voting laws, and party-group linkage (political parallelism) increased the voter turnout. Indeed, the institutional arrangement of the political system carried more weight for differentiating voter turnout than individual attitude. Examining the lower voter turnout in the United States compared with 19 other countries, Powell (1986) found that the combined effects from institutional arrangement and political system accounted for up to 27% disadvantages to voter turnout in the United States, though the individual attitude and educational level of U.S. citizens provided 5% advantages to voter turnout compared to the other countries. Jackman (1987) delineated institutional arrangement as an embedded competition system to explicate the difference in voter turnout. He used competitive district, electoral disproportionality, multipartyism, unicameralism, and compulsory voting law as explanatory variables. The basic tenet of his argument was that, except for compulsory voting laws, the more decisive role a vote plays or the more competitive the election is, the more the increase of voter turnout is expected. Applying rational choice theory, Jackman posited, as electoral competition increases, parties

and candidates have more incentives to mobilize voters. From the voters' perspective, voters also evaluate their votes as being more valuable in a highly competitive circumstance. Many studies afterwards tested whether these initial findings were consistent (Blais, 2006).

In general, the proportional representation system and compulsory voting law are by far the most consistent institutional settings showing relatively higher voter turnout (Blais, 2006; Geys, 2006). Unicameralism and party systems showed mixed results (Blais, 2006; Blais & Carty, 1990; Geys, 2006). However, the effect of the party system – the number of parties – is particularly "perplexing finding" (Blais, 2006, p. 118). The proportional system, which increases turnout, tends to increase the number of parties in the political system, but it was found that the increase in the number of parties does not necessarily increase the turnout. Geys (2006) noted that this may be associated with the systematic difference in voters' reasoning that "whereas votes for smaller parties may easily be considered 'wasted votes' in majoritarian electoral systems, this is not so in systems of proportional representation" (p. 650).

Note that the effect of institutions varies across the mature level of the institutions and the unit level of analysis. A comparison between full and less democratic countries found proportional representation systems showed an increase 5 to 10 percent increase in voter turnout compared to plurality-majoritarian systems, whereas this effect was not seen in less democratic countries (Endersby & Krieckhaus, 2008). The individual level

approach also produced different outcomes. Indeed, a meta-analysis at the individual level concluded that the electoral system and the number of parties were not found to be significant indicators of increased voter turnout (Smets & van Ham, 2013). As mentioned, these research results are disconnected from studies on Internet politics. While the approach to voter turnout which treated media as the resource for information and communication has proliferated, the studies rarely concern institutional factors and the interaction between institutions, and the Internet has been "*black-boxed (Latuor, 1987)*".

The study of Potter & Dunaway (2016) is probably by far the only study that contemplated the interaction between institutional arrangement/setting and the Internet. They found that in a political system where the number of parties is already high, the vote share of niche parties, such as small or extreme parties, increased over time as Internet user proliferation increased. The condition of permissive setting (a setting with already high number of parties in a political system) takes on an important meaning. The structure of the political system has to be open in advance to observe this effect. According to their analysis, however, the Internet effect was not sufficient to change the party system as a whole. The increase in the number of parties was not statistically significant as Internet user proliferation increased.

The above study by Potter and Dunaway (2016), hints at the direction of the interaction between institutional arrangement/setting and Internet

proliferation for voter turnout. That is, as Internet users increase in a society, it reinforces the structural path of an institutional route to the political system rather than a break-through to the institutionalized system. For example, hard liners under proportional representation system tend to form a new party (Europe) while those who under plural-majortarian system tends to organize an advocacy group pressing a political party, such as The Tea Party(US). Similarly, although it is not tested, cases are reported that, under the proportional representation system, newly-emergent parties gained support from Internet users and entered the political system (e.g., Pirate Party, Five Star Movement, Podemos), whereas the plural-majoritarian system encouraged the Internet as the supporting network and tool for extant parties (e.g., MoveOn and Nosamo). Note that this difference is not solely driven by citizens, but as the interaction between agents in the political system as a whole.

Based on previous studies and recent cases, one might expect that the permissiveness of the institutional system will be reinforced by the Internet. In proportional representation system, the Internet may amplify and facilitate citizens' participation through the institutionalization of citizens' actions and the more traditional and institutional method to influence politics. In other words, proportional representation system will encourage citizens more to vote as the Internet has proliferated, compared with the plurality system.

This permissiveness is distinguished from the accessibility of POS,

which implies distance from institutionalized political power, rather than being a member of the institution. The accessibility will be discussed more below in how various modes of participation are impacted by the Internet under the different institutional arrangements/settings.

4.3 Political Opportunity Structure & Internet : Non-Electoral Participation

Examining the relation between citizens' modes of participation and accessibility to the institutionalized political process is an attempt to explain the action strategy of citizens' political participation given the formal institutional structure of the political system. The institutional structure "reinforces patterns of interaction" (Kitschelt, 1986, p. 61) between agents in the public sphere, unless the resilience of the structure is fractured by the actions of political agents, such as revolution. Note that the formal structure configures the ways agents in the system interact, but it is not predetermined.

The patterns of interaction are affected by the efficacy of the citizens' participation, which hinges upon the openness of the political opportunity structure (De Moor, 2016; Kitschelt, 1986; Koopman, 1996; Kriest et al., 1995; Vráblíková, 2014). Vráblíková (2014) found decentralization of institutional power invites an increase in non-electoral participation at the individual level. With regard to the type of strategy, if the political system

is relatively more open to citizens' input, but its executive capacity is weak, participation from civil society tends to use "assimilative" strategies that "work through established institutions," whereas if the political system is relatively closed and the capacity is strong, the participation is likely to bring "confrontational" strategies that "orchestrated outside established policy channels" (Kitschelt, 1986, p. 66). More detailed analysis of specific action forms (e.g., signing petitions and contacting politicians) has shown that there is the difference in how perceived opportunity and expectation about institutional capacity work when citizens decide which mode of participation they will use: only the expectation is linked with signing petitions, whereas both the perception and the expectation are connected to contacting politicians (De Moor, 2016).

Looking at the Internet as an action infrastructure for political coordination and mobilization, the Internet would accelerate the findings of POS literature. POS literature revealed that having more access points to influence the political process is associated with the assimilative strategy of political participation. Access points are structural positions in the system and the assimilative strategy requires political agents, the incumbent agents, in the system for citizens to demand. The "accelerated pluralism" of Bimber (1998), the emergence of more fragmented issue groups through the homophily mechanism of the Internet, also supports the positive impacts of the Internet on the assimilative strategy of non-electoral participation in the plurality-majoritarian system. Instead of making a new

political party (e.g., issue party) for handling their issue, many diverse issue groups will voice their demands through institutionalized politics (lobbying is a good example). Unless the institutional environment is permissive as proportional representation system, they are less likely to decide that they become a party, thereby institutionalize themselves in the system. The interaction between Internet user proliferation and institutional arrangement/setting would also differentiate various modes of non-electoral participation. For example, as the Internet users proliferated, one might expect signing a petition would be more likely to be conducted in a plurality system, but demonstrating in the street would be less likely to be preferred as the Internet allows citizens to voice their demands, not to exit the institutional structure.

On this ground, it is expected that the interaction between political system and the Internet will amplify the relation between the participation action strategy (assimilative and confrontational strategy) and political system. As theoretical reasons and supporting cases for the amplifying effect have been reported, the Internet will enhance the environment to exploit a given POS.

4.4 Data & Method

4.4.1 Data

In order to examine the interaction between the Internet proliferation and political system for citizens' political participation, two studies are conducted. The first study, Study 1, examines the interaction effect on voter turnout. The second study, Study 2, investigates the effect on non-electoral participation. For these studies, two datasets are analyzed. They are originated and constructed in a different way. The first dataset employed multiple sources in order to construct a completely new dataset (Study 1). The second dataset added some of the variables from the first dataset to an existing survey data (Study 2). Thus, they are different datasets but share some of data sources for the variables used.

Three categories of databases were used. First, they are databases about political institution and system. Historical data for voter turnout and compulsory voting regulation were drawn from the Voter Turnout Database of the International Institute for Democratic and Electoral Assistance (International IDEA). The variables of political systems and electoral settings, such as parliamentary system, mean district magnitude, and plurality/proportional representation system, were obtained from the Database of Political Institutions 2015 (DPI 2015) in the Inter-American Development Bank (Cruz, Cesi, Keefer, & Scartascini, 2016), the updated version of DPI 2012 from World Bank Research (Beck, Clarke, Groff, Keefer,

& Walsh, 2001). The last political institution variable, the effective number of parties at the electoral level, came from Election Indices developed by Gallagher & Mitchell and updated on 2 April 2015. Second, the DataBank of the World Bank (2015) was a valuable source for Internet user data (the number of Internet users per 100 inhabitants across countries) and Gross National Income per capita (GNI), PPP (purchasing power parity, current international dollar). Since these two variables of the Internet user and GNI are highly correlated, the analysis required transforming values of the two variables. GNI is transformed by squared root of its value for the linearity assumption of analysis method and the number of Internet users is transformed by centering on its means. After these transformations, the level of correlation between the two became trivial. Third, the survey dataset from the International Social Survey Programme (ISSP) is the database used for the second dataset. The ISSP is an annual survey on a specific topic through international survey collaboration. Each year, the survey asks questions on a certain topic to individuals across countries. The 2014 topic was Citizenship II, which included the variables on non-institutionalized political participation.

Details of constructing the dataset are as follows. With the data from the first and second database categories, a new longitudinal comparative dataset at a country level was made for Study 1. As Study 1 delved into long-term interaction effects between the Internet and political institution on voter turnout, the selection of countries and the range of time duration

had to be set. The range of time was decided upon as the period of Internet diffusion from 1994 to 2014. For country selection, it was decided to study countries with a stable democratic regime and economy, following the finding of previous literature on the maturity of the democratic system (e.g., Endersby & Krieckhaus, 2008). Using the World Bank classification of high-income countries in 2014, high-income countries from the International IDEA database were initially selected. Then, using the Democracy Index 2014 by the Economist Intelligence Unit (EIU), only countries belonging to the “full" and “flawed” democracy categories of the Index were included. The inclusion of remaining categories, "hybrid" and "authoritarian" regimes would yield a very different result, but it is presumed that these countries are not politically and economically stable enough systematically to test the interaction between the Internet proliferation and political institution. If either the World Bank or the EIU had no data on a country, the country was excluded from the constructed dataset. Additionally, some countries were dropped from the constructed dataset due to lack of data for key variables to be used either in Study 1 and 2, or less than three observation frequencies in DPI 2015 for Study 1. Since Study 1 addresses the change in voter turnout with long-term observation, at least four time-point observations were required for statistical analysis. The final condition to draw the data was that the analysis should only deal with parliamentary elections that had not been voted on concurrently with presidential elections. Not all countries had a presidential system

or concurrently voted with the parliamentary elections. Therefore, for data consistency, the data point of voter turnout for presidential elections and parliamentary elections occurring concurrently with presidential elections were excluded. After the selection of countries and the time range for applying these rules, values for each variable were filled by country and the time of the election. For instance, if an election occurred in 1994 for country A, the number of Internet users at the time and the effective number of parties at the electoral level in 1994 were inserted in the row of the voter turnout rate for country A and the same was done for the other variables. This entire process resulted in a dataset for Study 1 with 212 observations from 38 countries. However, the Study 1 analysis was conducted with 173 observations due to the use of lagged values.

The Study 2 dataset was made by merging the country level data with the ISSP individual survey dataset. The ISSP dataset is a cross-sectional dataset across 24 countries. The same criteria of stable economy and democratic regime were applied. In addition, for data consistency, 121 Danish individuals who were interviewed in 2015 were dropped from the dataset since 1,637 other individuals in the country were interviewed in 2014. Then, as contextual variables, the country level data was merged with the ISSP 2014 dataset. The final baseline dataset for Study 2 contained 29,152 individuals across 21 countries. Table 6 shows the list of countries analyzed in Study 1 and Study 2.

Table 6. List of Countries & Number of Samples in Study 1 & Study 2

Country	*Study 1*	*Study 2*	*Country*	*Study 1*	*Study 2*
Australia	7	-	Korea, Republic of	7	-
Austria	7	-	Latvia	5	-
Belgium	6	-	Lithuania	7	1,119
Canada	6	-	Luxembourg	5	-
Chile	4	1,432	Netherlands	5	1,638
Croatia	5	1,000	New Zealand	5	-
Cyprus	4	-	Norway	7	1,459
Czech Republic	6	1,532	Poland	7	-
Denmark	6	1,637	Portugal	5	-
Estonia	5	-	Russia	-	1,600
Finland	5	1,505	Singapore	5	-
France	4	1,211	Slovakia	6	1,156
Germany	6	1,718	Slovenia	6	1,010
Greece	6	-	Spain	6	1,755
Hungary	4	1,007	Sweden	5	-
Iceland	-	1,497	Switzerland	6	1,235
Ireland	6	-	Trinidad and Tobago	5	-
Israel	4	1,204	United Kingdom	6	1,580
Italy	7	-	United States	4	1,264
Japan	6	1,593	Uruguay	6	-
Study 1 Total					212
Study 2 Total					29,152

Note: (Study 1) Number of Voter Turnout records initially used to construct dataset
(Study 2) Number of individual records initially used to construct dataset

4.4.2 Variable

Table 7 lays out the variables used in Study 1 and Study 2. Some variables were transformed to reduce the variance between cases and to meet the linearity assumption of statistical models. The transformation method depended upon the distribution of the variables. For example, the GNI variable was transformed with square root whereas the value of the means district magnitude was logged to fit the data.

The dependent variable for Study 1 was the change in voter turnout between elections in a country. It was the value obtained by subtracting the turnout at a prior election from the turnout at the following election. Since the research seeks to find the long-term differential effect of the Internet due to the difference in the political system, the use of the change in value is more appropriate than simple voter turnout. If the study had asked the cross-sectional difference between countries with different political systems, simple voter turnout would have been a more adequate dependent variable. In addition, voter turnout between elections tends to be highly correlated, which will bias the model estimator. Therefore, the change variable is preferred over the simple turnout. In a similar vein, the change in the number of Internet users was used as an independent variable and was preferred over the number of Internet users. Particularly as the dependent variable is the value of a change, it also requires the value of the independent variable as a change.

Study 2 used various dependent variables for examining the Internet's

effects on non-institutionalized political actions. These actions are signing petitions, demonstration participation, contacting politicians, and finally expressing political views on the Internet. These variables were originally the four categories of "done it in the past year," "done in the more distant past," "not done it but might do it," and "not done it and would never do it," but dichotomized to two categories of "done in the past year" as one and other categories as zero.

Independent variables for Study 2 consists of individual variables and contextual variables. The contextual variables had the same combination as Study 1, but the values were extracted to match with the survey year for each country. Individual variables includes control variables of socio-demographic characteristics, memberships, media use, political interest and discussion frequency. The number of Internet users variable was used as it was in the given year because Study 2 was a cross-sectional analysis.

4.4.3 Method

Three methods were used. For Study 1, hierarchical mixed linear model with robust standard error was used to control country specific effects as a random effect. The model was interested in the fixed effect, the constant effect across countries as the average among countries, or to put it differently, population average.

For Study 2, first, logistic regression with clustered standard errors was used. This regression controls a country-specific clustered effect among

Table 7. Description & Descriptive Statistics of Variables

	Variable	Description	Type	N	Mean	SE	Min.	Max.
S1	Change in Voter Turnout	Difference between Elections	Continuous.	180	-1.33	5.17	-16.44	13.51
	Interval Between Elections	Years passed since prior elections	Continuous.	180	3.62	0.93	1.00	5.00
	Gross National Income	Square root value, PPP (current Int'l dollars)	Continuous.	174	168.38	32.8	92.57	259.81
	Compulsory Voting	Yes/No	Binary	180	0.17	0.37	0.00	1.00
	Diff. in Internet Users	Difference in the number of Internet users between elections	Continuous	180	15.68	10.78	0.50	48.49
	Parliamentary System	1: No President 0: President System	Binary	180	0.83	0.37	0.00	1.00
	Means District Magnitude	The weighted average of the number of representatives elected by each constituency size (logged)	Continuous.	180	2.02	1.28	-0.11	5.01
	Effective Size of Party	Effective number of parties at the electoral level	Continuous	176	1.48	0.38	0.66	2.33
	Political System	Plurality: Winner-take-all/ first past the post rule	Categorical	180	0.13	0.34	0.00	1.00
		Hybrid: Plurality + PR		180	0.36	0.48	0.00	1.00
		Proportional Representation (PR): Elected based on the percent of vote received by their party		180	0.51	0.5	0.00	1.00
S2	Age	Age	Continuous.	29,126	49.63	17.59	15.00	99.00
	Female	1: Female 0: Male	Binary	29,152	0.53	0.5	0.00	1.00
	Education	Highest completed education (degree)	Ordinal	28,875	3.47	1.49	0.00	6.00
	Married	1: Married 0: Not Married	Binary	28,815	0.52	0.5	0.00	1.00
	Employed	1: Employed 0: Not Employed	Binary	28,322	0.92	0.26	0.00	1.00
	Media use	for political news/information	Continuous	28,736	4.53	1.85	0.00	6.00
	Political party membership	Member either actively participate or not	Binary	28,433	0.09	0.29	0.00	1.00
	Civic membership	Four categories of organization/associations (1 to 4)	Continuous	26,521	1.10	1.14	0.00	4.00
	Political interest	Degree that personally interested in politics, (1 to 4)	Ordinal	28,540	2.47	0.87	1.00	4.00
	Political discussion	Frequency discuss politics (1 to 4)	Ordinal	28,780	1.47	0.91	0.00	3.00
	Petition	Signed a petition, done it in the past year	Binary	28,101	0.23	0.42	0.00	1.00
	Demonstration	Took part in a demonstration, done it in the past year	Binary	28,347	0.06	0.23	0.00	1.00
	Political Meeting	Attended a political meeting or rally, done in the past year	Binary	28,228	0.07	0.25	0.00	1.00
	Contact Politician	Contacted, or attempted to contact, done in the past year	Binary	28,307	0.07	0.26	0.00	1.00
	Contact Media	Contacted, or appeared in the media, done in the past year	Binary	28,294	0.04	0.19	0.00	1.00
	Express views	Expressed political views on Internet, done in the past year	Binary	28,265	0.08	0.27	0.00	1.00
	Number of Internet Users	Number of Internet users per 100 habitats	Continuous.	29,152	83.8	9.4	69.8	98.16
	Parliamentary System	1: No President 0: President System	Binary	29,152	1.63	0.78	0.00	2.00
	Means District Magnitude	The weighted average of the number of representatives elected by each constituency size (logged)	Continous.	29,152	2.18	1.62	0.00	6.11
	Effective Size of Party	Effective number of parties at the electoral level	Continuous	29,152	5.01	1.65	2.14	8.68
	Political System	Plurality: Winner-take-all/ first past the post rule	Categorical	29,152	0.19	0.39	0.00	1.00
		Hybrid: Plurality + PR		29,152	0.38	0.48	0.00	1.00
		Proportional Representation (PR): Elected based on the percent of vote received by their party		29,152	0.44	0.5	0.00	1.00

individuals. However, after the jack-knife test, which found some outlier countries, for certain modes of participation, mixed logistic regression was used. When these outlier countries were controlled with a dummy variable in the logistic regression with the clustered standard errors, it was short of degrees of freedom for the logistic regression with the clustered standard errors, which biased the estimators in the regression. Thus, mixed logistic regression was selected to overcome this issue in the analysis with outlier countries.

4.5 Result

4.5.1 Study 1: Voter turnout

The analysis result in Table 8 shows that the interaction between the institutional setting of the political system and the increase of Internet users is associated. Compared to the plurality-majoritarian system, the interaction between positive change in the number of Internet users and other electoral systems (hybrid and proportional representation) has a positive impact on voter turnout. Note that this relation is not the cross-sectional difference between institutional systems, but the average change within each system is compared.

Figure 9 shows that this positive impact is due to the relatively higher level of decline in voter turnout in plurality-majoritarian system, com-

Table 8. Mixed Effect Model: Interaction between Change in the number of Internet Users & Change in Voter Turnout

	Model 1				Model 2			
Dependent Variable: Change in voter turnout	**Coeff.**		**Robust SE**	**P>|z|**	**Coeff.**		**Robust SE.**	**P>|z|**
Constant.	-0.86		(2.95)	0.771	0.96		(2.49)	0.702
Years from Prior Election	-0.12		(0.42)	0.779	-0.09		(0.41)	0.823
$\sqrt{\text{GNI}}$[a]	0.02		(0.01)	0.107	0.02		(0.01)	0.073
Institutional Environment								
Compulsory Voting	-0.06		(0.86)	0.949	-0.13		(0.82)	0.87
Parliamentary System (No President)	-0.54		(1.44)	0.706	-0.52		(1.49)	0.728
Means District Magnitude (House, logged)	0.02		(0.53)	0.971	0.85		(0.66)	0.2
Political System[b]								
Hybrid (Plurality & Proportional)	1.40		(1.10)	0.205	-2.82		(2.09)	0.176
Proportional Representation	1.97		(1.38)	0.154	-3.68	*	(1.87)	0.049
Party Politics								
Effect numbers of Parties (logged)	-2.21	*	(1.06)	0.037	-1.77		(0.98)	0.069
Internet User								
△ Number of Internet users	-0.01		(0.08)	0.923	-0.16	***	(0.05)	0.001
Interaction (△ Number of Internet users)								
△ Number of Internet users								
× Mean District Magnitude (House)	-0.01		(0.04)	0.757	-0.07		(0.05)	0.702
× Hybrid System[b]					0.27	*	(0.13)	0.042
× Proportional Representation[b]					0.35	**	(0.12)	0.004
Random-effects (country)								
Intercept	-22.62		(30.28)	0.455	-23.10		(32.57)	0.478
Residual	1.60	***	(0.07)	0.000	1.59	***	(0.08)	0.000
Wald χ^2				15.82***				43.12***
-2 Log Pseudo Likelihood				1045.87				1046.05
AIC				1071.87				1070.52
BIC				1112.86				1117.82
No of Observation								173
Min. No of Observation								3
No of Groups (countries)								38

*p<.05 **P<.01 ***p<.001

Note: a. Transformed for linearity b. Baseline: Plurality system

pared to other systems. While other systems (hybrid and proportional representation system) exhibit relatively stable marginal effects of the Internet, the plurality system shows that the larger decline in voter turnout is associated with the change in the number of Internet users.

Generally, the Internet proliferation has not changed the decline in voter turnout and even accelerated it. The change in the number of Internet users is negatively associated with the positive change in voter turnout as shown in 8. Although it was not significant effect in Model 1, it became statistically significant in Model 2 which has the same direction of the impact as in Model 1.

Also, note that institutional variables that have been found to be significant in the cross-sectional analysis are not significant as a longitudinal trend. It seems natural in the sense that this analysis traces within country variation over time rather than variation across countries. In addition, a sudden shift of these variables in a country is seldom expected, as the data has been analyzed with countries that are economically and politically mature.

Overall, the differential effects of the Internet that vary by institutional setting are found. Particularly, countries with plurality system have been more strongly affected. Whereas the marginal effect of the interaction between positive change in the number of Internet users and the proportional presentation system tend not to change voter turnout, the size of the negative effect on voter turnout under the plurality system increased

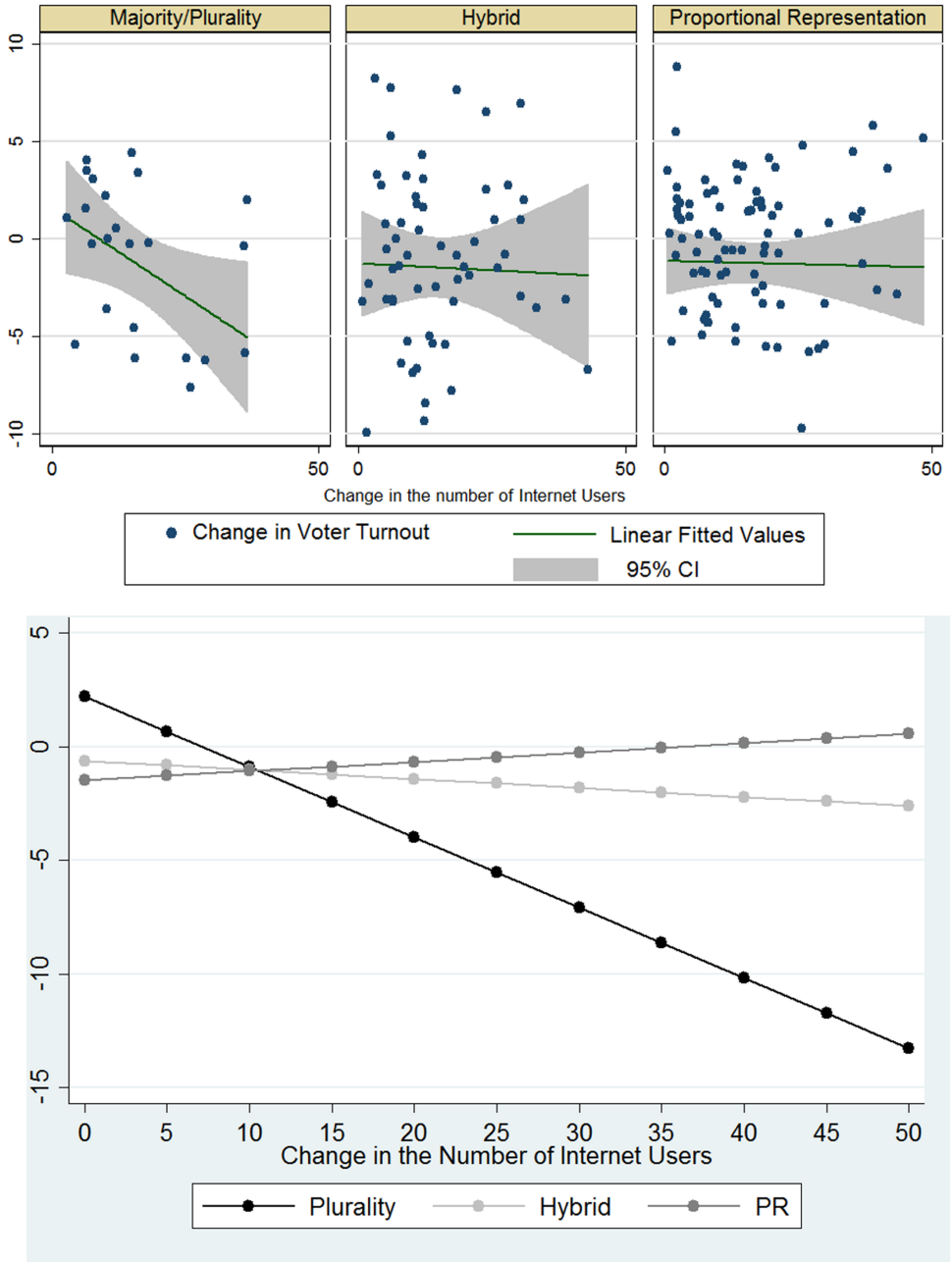


Figure 9. Marginal Effect: Relationship between the Change in Voter Turnout & the Change in the Number of Internet Users, By Politicial System

as the change in the number of Internet users has increased.

4.5.2 Study 2: Non-Electoral Participation

The interactive relation between the number of Internet users and three types of non-electoral participation is shown from Table 9 to Table 11. Compared to the plurality-majoritarian system, interaction effects between Internet user proliferation and the hybrid and proportional representation system tend to reduce the probability of participating in three types of non-electoral participation – contacting politicians, signing petitions, and expressing one's views online. The difference in the interaction effect is the highest in petition participation and lowest in expressing views on the Internet. For signing petitions, if an individual is in a proportional representation system, the individual probability to participate become lower by 13% as Internet user proliferation increases, compared to the one tied to the plurality/majority system. This pattern is also found in the other modes of participation, contacting politicians and expressing one's views online, with 14% and 7%, respectively.

For participating in a political meeting/rally and demonstration, the logistic regression with clustered robust standard error has not found any significant interaction effect. During jackknife test to validate the robustness of previous regressions, however, it is found that some outlier countries may adversely affect the regression results. Indeed, Table 12 shows that the interaction term becomes significant by removing the

Table 9. Logistic Regression Result with Clustered Robust Standard Errors: Relationship between Non-Electoral Participation (Contact Politician) of Individuals and Number of Internet Users (I)

	Contact Politician					
	Model 1			Model 2		
	Odds Ratio		Robust SE.	Odds Ratio		Robust SE.
Constant.	0.006	***	(0.002)	0.005	***	(0.002)
Individual Attribute						
Age	1.000		(0.002)	0.999		(0.002)
Female	0.808	***	(0.047)	0.803	***	(0.048)
Education	1.139	***	(0.021)	1.142	***	(0.021)
Married	1.225	**	(0.079)	1.226	**	(0.079)
Media use for political news/information	1.098	***	(0.026)	1.106	***	(0.027)
Political party membership	3.298	***	(0.380)	3.161	***	(0.380)
Union Membership	1.262	*	(0.128)	1.289	**	(0.132)
Political interest	1.821	***	(0.076)	1.806	***	(0.076)
Political discussion	1.431	***	(0.076)	1.441	***	(0.080)
Contextual Variable						
Institutional Setting						
Parliamentary System (No President)	1.021		(0.141)	0.858		(0.100)
Means District Magnitude (House, logged)	1.119		(0.179)	1.228	†	(0.143)
Electoral Rule [a]						
Hybrid (Plurality & Proportional)	0.420	*	(0.162)	0.459	*	(0.153)
Proportional Representation	0.353	†	(0.190)	0.438	†	(0.202)
Party Politics						
Effect numbers of Parties (logged)	0.832		(0.283)	0.963		(0.249)
Internet User						
Number of Internet users (centering)	0.969		(0.020)	0.998		(0.014)
Interaction (Internet Users)						
× Mean District Magnitude (House)	1.019	*	(0.009)	1.057	***	(0.012)
× Hybrid[a]				0.907	**	(0.028)
× Proportional Representation[a]				0.862	***	(0.030)
Log Pseudolikelihood			-5855.144			-5813.465
Wald χ^2			13485.09***			6681.08***
Pseduo R^2			0.156			0.163
N			26325			

† p <.10 *p<.05 ** p <.01 *** p <.001
a. baseline: Plurality system

Table 10. Logistic Regression Result with Clustered Robust Standard Errors: Relationship between Non-Electoral Participation (Sign Petition) of Individuals and Number of Internet Users (II)

	Sign Petition					
	Model 1			Model 2		
	Odds Ratio		Robust SE.	Odds Ratio		Robust SE.
Constant.	0.073	***	(0.047)	0.046	***	(0.018)
Individual Attribute						
Age	0.982	***	(0.002)	0.982	***	(0.002)
Female	1.490	***	(0.037)	1.484	***	(0.038)
Education	1.163	***	(0.018)	1.175	***	(0.020)
Married	1.007		(0.047)	1.011		(0.046)
Media use for political news/information	1.045	**	(0.017)	1.045	**	(0.018)
Political party membership	1.877	***	(0.267)	1.671	***	(0.175)
Union Membership	1.526	***	(0.111)	1.479	***	(0.099)
Political interest	1.193	***	(0.042)	1.218	***	(0.038)
Political discussion	1.365	***	(0.045)	1.342	***	(0.036)
Contextual Variable						
Institutional Setting						
Parliamentary System (No President)	1.985	**	(0.437)	1.771	***	(0.278)
Means District Magnitude (House, logged)	1.189		(0.147)	1.100		(0.158)
Electoral Rule [a]						
Hybrid (Plurality & Proportional)	0.364	***	(0.098)	0.441	***	(0.079)
Proportional Representation	0.213	***	(0.072)	0.349	**	(0.115)
Party Politics						
Effect numbers of Parties (logged)	0.848		(0.325)	1.151		(0.430)
Internet User						
Number of Internet users (centering)	1.006		(0.036)	1.105	***	(0.019)
Interaction (Internet Users)						
×Mean District Magnitude (House)	1.008		(0.012)	1.025	*	(0.011)
× Hybrid[a]				0.834	***	(0.021)
× Proportional Representation[a]				0.867	***	(0.030)
Log Pseudolikelihood	-12591.893			-12404.232		
Wald χ^2	1769.32***			6099.86***		
Pseduo R^2	0.115			0.128		
N	26133					

*p<.05 ** p <.01 *** p <.001
a. baseline: Plurality system

Table 11. Logistic Regression Result with Clustered Robust Standard Errors: Relationship between Non-Electoral Participation (Express views online) of Individuals and Number of Internet Users (III)

	Express views online					
	Model 1			Model 2		
	Odds Ratio		Robust SE.	Odds Ratio		Robust SE.
Constant.	0.030	***	(0.013)	0.029	***	(0.010)
Individual Attribute						
Age	0.957	***	(0.002)	0.957	***	(0.002)
Female	0.858	**	(0.051)	0.856	**	(0.051)
Education	1.106	***	(0.022)	1.112	***	(0.020)
Married	0.835	**	(0.052)	0.833	**	(0.051)
Media use for political news/information	1.144	***	(0.031)	1.147	***	(0.032)
Political party membership	2.526	***	(0.189)	2.403	***	(0.198)
Union Membership	1.144	†	(0.089)	1.148	†	(0.091)
Political interest	1.893	***	(0.089)	1.899	***	(0.088)
Political discussion	1.737	***	(0.064)	1.740	***	(0.058)
Contextual Variable						
Institutional Setting						
Parliamentary System (No President)	1.014		(0.119)	0.911		(0.121)
Means District Magnitude (House, logged)	1.175	†	(0.105)	1.215	*	(0.101)
Electoral Rule [a]						
Hybrid (Plurality & Proportional)	0.420	**	(0.117)	0.422	**	(0.111)
Proportional Representation	0.544	†	(0.186)	0.624		(0.199)
Party Politics						
Effect numbers of Parties (logged)	0.758		(0.230)	0.825		(0.245)
Internet User						
Number of Internet users (centering)	0.955	**	(0.016)	0.980		(0.017)
Interaction (Internet Users)						
× Mean District Magnitude (House)	1.022	**	(0.008)	1.038	***	(0.011)
× Hybrid[a]				0.930	**	(0.026)
× Proportional Representation[a]				0.926	*	(0.028)
Log Pseudolikelihood	-5860.696			-5845.307		
Wald χ^2	3849.18***			3514.45***		
Pseduo R^2	0.189			0.191		
N	26291					

† p <.10 *p<.05 ** p <.01 *** p <.001
a. baseline: Plurality system

United States from the analysis for political meeting/rally participation. It also shows that the interaction coefficient shows a positive value when Chile, Spain, and the United States are not included in the analysis. Thus, additional analyses were conducted in order to consider the outlier effect from these countries.

The result is presented in Table 13 and Table 14 and it shows that the interaction effect between Internet user proliferation and the electoral system is positive for participating in a political meeting/rally and demonstration. For individuals in the proportional representation system, the probability to participate in a political meeting/rally and demonstration increases by 12% and 26% as the internet proliferation increases, as compared to individuals in the plurality system.

The contextual effect carried by the number of Internet users is significant for participating in a political meeting/rally, demonstration and signing petitions. The number of Internet users increases 10% in the probability of signing a petition, but it reduces by 12% and 26% for participating in a political meeting/rally and demonstration in the plurality system, respectively. Considering the contrast between assimilative and confrontational strategies of participation, this is quite an interesting finding. Particularly, it seems that the interaction between the Internet proliferation and political system greatly affects the plurality system than the hybrid and proportional representation system.

Indeed, according to Figure 10, the plurality system tends to be more

Table 12. Jackknife Test of Interaction Effect: Demonstration & Political Meeting/Rally

	Political Meeting/Rally		**Demonstration**	
	Internet		Internet	
	Hybrid	PR	Hybrid	PR
Chile	1.06	1.03	1.16***	1.14***
Croatia	1.01	0.99	0.94***	1.03†
Czech	1.01	0.99	0.97*	0.96†
Denmark	1.01	1.00†	0.97*	0.97
Finland	1.00	0.98	0.96**	0.95**
France	1.00‡	0.97	0.96**	0.95**
Germany	1.00	0.98	0.98	0.97
Hungary	1.01	0.99	0.97†	0.97
Iceland	1.01	0.98	0.97*	0.94***
Israel	1.00	0.98	0.93***	0.93***
Japan	1.04*	1.01	1.00‡	0.99
Lithuania	1.00	0.99	0.97†	0.97†
Netherlands	1.01	0.99	0.97†	0.98
Norway	1.01	0.99	0.97†	0.97
Russia	1.02	1.00	0.97*	0.97†
Slovakia	1.01	0.99	0.97*	0.94**
Slovenia	0.98	0.94*	0.93**	0.91**
Spain	1.02	1.00‡	1.03†	1.01
Switzerland	1.01	1.01	0.97*	0.96†
United Kingdom	1.00	0.99	0.97*	0.97
United States	1.13***	1.13***	1.03	1.03

† p<.10 * p <.05 ** p<.01 *** p<.001

‡ Value less than 1.0 but more than 0.995

Note: Models are estimated by excluding each country at a time.
Wald Chi-square test statistics of all models are significant at p<.001

Table 13. Mixed Logistic Regression Result: Relationship between Non-Electoral Participation of Individuals (Political Meeting/Rally Participation) and Number of Internet Users (IV)

	Political Meeting/Rally					
	Model 1			Model 2		
	Odds Ratio		Robust SE	Odds Ratio		Robust SE
Constant.	0.001	***	0.000	0.010	***	0.000
Individual Attribute						
Age	0.992	***	(0.002)	0.992	***	(0.002)
Female	0.863	**	(0.047)	0.864	*	(0.048)
Education	1.065	**	(0.021)	1.065	**	(0.021)
Married	0.948		(0.054)	0.947		(0.054)
Media use for political news/information	1.058	*	(0.024)	1.059	***	(0.024)
Political party membership	5.501	***	(0.350)	5.495	***	(0.350)
Union membership	1.502	***	(0.092)	1.502	***	(0.092)
Political interest	1.898	***	(0.085)	1.895	***	(0.085)
Political discussion	1.688	***	(0.069)	1.693	***	(0.069)
Contextual Variable						
Institutional Setting						
Parliamentary System (No President)	1.565	***	(0.199)	2.078	***	(0.359)
Means District Magnitude (logged)	1.126		(0.118)	1.124		(0.111)
Political System [a]						
Hybrid (Plurality & Proportional)	0.696		(0.186)	0.695		(0.164)
Proportional Representation	0.717		(0.280)	0.632		(0.221)
Party Politics						
Effect numbers of Parties(logged)	1.141		(0.273)	1.215		(0.262)
Internet User						
Number of Internet users (centered)	0.948	**	(0.018)	0.883	***	(0.029)
Interaction (Internet Users)						
× MDM (House)	1.021	**	(0.007)	1.005		(0.011)
× Hybrid				1.118	**	(0.049)
× Proportional Representation				1.124	*	(0.059)
Outlier						
USA	2.117	†	(0.906)	6.842	**	(4.203)
Country						
Level-2 Residual Variance	0.062	*	(0.024)	0.044	*	(0.018)
Log likelihood			-5157.336			-5154.33
Wald χ^2			1914.52***			1935.60***
N			26,258			

† p <.10 *p<.05 ** p <.01 *** p <.001
a. baseline: Plurality system

Table 14. Mixed Logistic Regression Result: Relationship between Non-Electoral Participation of Individuals (Demonstration Participation) and Number of Internet Users (V)

	Demonstration					
	Model 1			Model 2		
	Odds Ratio		Robust SE	Odds Ratio		Robust SE
Constant.	0.003	***	(0.003)	0.012	***	(0.012)
Individual Attribute						
Age	0.980	***	(0.002)	0.980	***	(0.002)
Female	1.126	*	(0.066)	1.127	*	(0.066)
Education	1.107	***	(0.023)	1.107	***	(0.023)
Married	0.724	***	(0.044)	0.724	***	(0.044)
Media use for political news/information	0.984		(0.020)	0.983		(0.020)
Political party membership	1.575	***	(0.132)	1.590	***	(0.133)
Union membership	1.981	***	(0.133)	1.984	***	(0.134)
Political interest	1.516	***	(0.068)	1.516	***	(0.068)
Political discussion	1.603	***	(0.066)	1.602	***	(0.066)
Contextual Variable						
Institutional Setting						
Parliamentary System (No President)	1.689	*	(0.424)	1.365		(0.360)
Means District Magnitude (logged)	0.968		(0.174)	0.976		(0.173)
Political System [a]						
Hybrid (Plurality & Proportional)	0.435	†	(0.210)	0.248	**	(0.127)
Proportional Representation	0.792		(0.531)	0.439		(0.294)
Party Politics						
Effect numbers of Parties(logged)	1.446		(0.659)	1.266		(0.530)
Internet User						
Number of Internet users (centered)	0.930		(0.041)	0.735	**	(0.086)
Interaction (Internet Users)						
MDM (House)	1.010		(0.016)	1.013		(0.020)
Hybrid				1.288	*	(0.152)
Proportional Representation				1.261	*	(0.145)
Outlier						
USA/Spain	5.347	***	2.635	8.157	***	(3.997)
Chile	2.863		3.015	0.069		(0.137)
Country						
Level-2 Residual Variance	0.218	**	(0.074)	0.174	**	(0.061)
Log likelihood			-4711.381			-4709.321
Wald Chi2			905.04***			916.45***
N	26,347					

† p <.10 *p<.05 ** p <.01 *** p <.001
a. baseline: Plurality system

largely affected by the Internet proliferation. Figure 4 depicts the marginal effects of the interaction for each mode of political participation. Either it is positive or negative impact, plurality system shows relatively wider range of fluctuation in the marginal effects. However, this fluctuation should not be understood that individual probability to participate in each mode of political participation is always high in the plurality system. As the Internet proliferation matures and when the marginal effects tend to decrease as the Internet proliferation increases, individuals in the hybrid and proportional representation system have higher probability to participate - though its level of higher probability is small. In the future, further investigation is necessary to examine whether this difference is also found at the aggregate level.

4.6 Discussion

In this chapter, it is examined that how the interaction between the political system and Internet user proliferation brings about differential effects of political participation. According to the previous literature, citizens' political participation is influenced by the institutional setting of the political system. Historical, static, and structural aspects of POS indicate that the proportional representation system tends to have higher voter turnout than the plurality system. The dynamic action-strategy aspect of POS also indicates a difference between the proportional representation system and

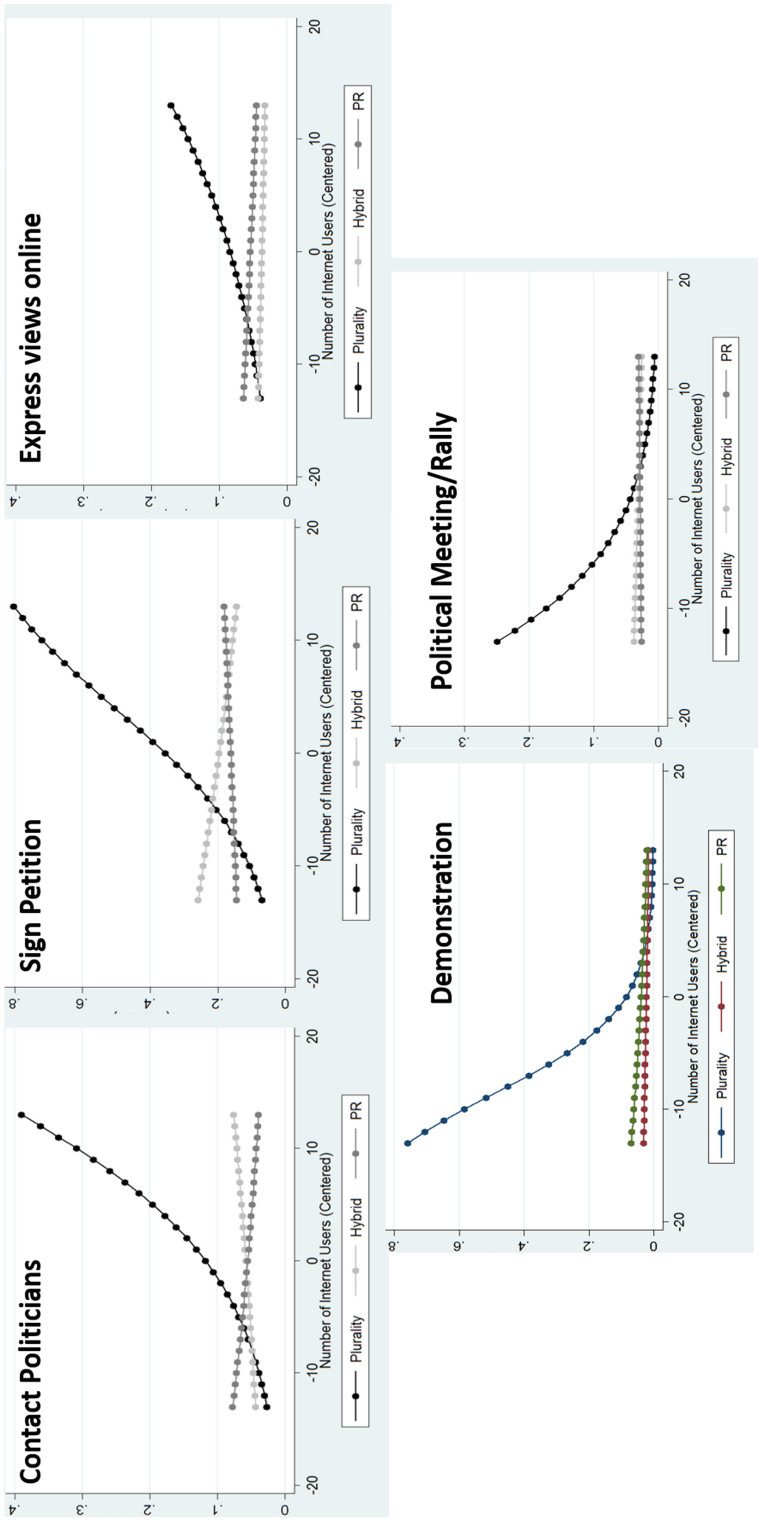


Figure 10. Marginal Effects of the Interaction between Political System and Internet proliferation

the plurality system. In short, the literature points out that the proportional representation system is more likely to accompany a confrontational mode of participation, whereas the plurality system has an assimilative mode of participation for non-electoral participation method.

As the Internet facilitates the coordination and mobilization of citizens' political actions but within the boundary of institutional constraints, it is expected that these differences would be extended through the proliferation of Internet users. Thus, it is proposed that the interaction between Internet user proliferation and political systems with the proportional representation will have the positive effect of the interaction , compared to the plurality system. For non-electoral participation, it is suggested that the interaction between the Internet user proliferation and political system would induce the assimilative mode of participation for the plurality system and the confrontational mode of participation for the systems with proportional representation.

Indeed, the analyses on voter turnout and non-electoral modes of participation have shown that the interaction between Internet user proliferation and the proportional representation system tends to have more positive impact on voter turnout. For non-electoral participation, the interaction has a positive impact on participating in political meeting/rally and demonstration, but a negative impact on signing petitions, contacting politicians, and expressing one's views online. Thus, in the plurality system, citizens are more likely to use an assimilative strategy of participation and to in-

fluence established, institutionalized political agents with non-electoral participation. On the contrary, citizens in a proportional representation system are more likely to participate in voting, an electoral mode of participation, along with a confrontational strategy of participation. These results not only show that the institutional path-dependency of POS literature seems to be reinforced by Internet user proliferation, but also, in fact, corresponds to several empirical cases around the world. In countries with a proportional representation system, we have seen the route of electoral participation often settled with a new political party, which was not seen in the plurality system (e.g., pirate party, Five Star movement, Podemos) where new advocacy online organizations (e.g., MoveOn or Tea Party) are highly active around the extant parties.

The analysis also shows that the impacts of Internet politics are stronger in the plurality system than in the political system with the proportional representation. In every political participation method, voter turnout and individual probability to participate various modes of non-electoral participation, the plurality system has shown the wider range of changes in the level of participation or individual probability to participate, compared to the hybrid and proportional representation system. This may be another interaction between citizens and political agents in the polity, which can be one of promising venue for a future study.

5 Political Parallelism, the Internet, Participation

"The real political task in a society such as ours is to criticize the workings of institutions that appear to be both neutral and independent, to criticize and attack them"
— Michael Foucault, 1971

5.1 Introduction: Media Environment & Political Parallelism

Differences in the news media environment influence differences in news provision, flow, and its effects. For instance, the news media environment influences the locality of news contents and citizens' political learning (Carpini, Keeter, & Kennamer, 1994; Zukin & Snyder, 1984), the news consumption pattern along the line of geography (Althaus, Cizmar, & Gimpel, 2009) and media platform (Aalberg, Van Aelst, Curran, 2010; Prior, 2007; Willaims & Carpini, 2011), and political knowledge gaps (Sheata & Strömbäck, 2011). In short, the news media environment constitutes another structural dimension influencing citizens' political knowledge, thoughts, and actions.

At the individual level, the effects from the news media environment are exhibited through selective exposure. There are two types of selective exposure. One is de facto selectivity in which individuals are involuntarily exposed to news media and the other is intended selectivity in which an individual actively seeks news media one favors (Seas & Freedman, 1967).

According to previous literature (e.g., Frey, 1986; Sears & Freedman, 1967), two outcomes are predicted. Voluntary exposure will reinforce individuals' prior orientation. And involuntary de facto exposure to news against one's prior orientation will decrease the strength of the prior disposition. The result of these outcomes yields that people increase voluntary exposure favorable to their views and avoid involuntary exposure against them (Iyengar & Hahn, 2009). This implies that, at the system level, the diversity of news media in the system allows individuals to find news media that fits their views and avoid news media opposed to them (Cotton & Hieser, 1980; Goldman & Mutz, 2011). When diversity is not presented at the system level, the ideological gaps between individuals will be reduced as the news media environment is set in a no-choice condition with de facto selective exposure (Frey, 1986).

Hence, it is expected that a strong political parallelism of the news media system strengthens citizens' partisanship, and in doing so, encourages their political support. Earlier in Chapter 2, it is explained that political parallelism is basically the degree of political connection and partisanship of news media system. This concept has developed from the notion of *press-party parallelism* (Seymour-Ure, 1974) which refers the direct link between the press and political party. Then, the concept has expanded its boundary to the television media through the term *media-party parallelism* (Van Kempen, 2007). Compared to these concepts, political parallelism is not necessarily directly linked to a specific political party but connected

to political views and orientations. Thus, a strong political parallelism of news media implies that citizens are in the rich environment of choosing media based on their political preference, thereby strengthens their political identity.

Previous literature indicates that this relation is found not only at the individual level in a country (Brynin & Newton), but also at the system level across countries (Horwitz & Nir, 2010). In fact, the structural effect of political parallelism is striking. After controlling for news exposure at the individual level, the high political parallelism environment strengthens partisan identity, while the moderate and low parallelism environments do not present such an effect (Horwitz & Nir, 2010). Furthermore, higher level of political parallelism is related to higher voter turnout across countries, even after controlling for news exposure and political interest at the individual level (Van Kempen, 2007). This mobilization effect is particularly meaningful as the effect brings individuals with low political interest to participate.

Nevertheless, it has not been systematically explored that how the Internet mediates this relation between news media environment and citizens' participation. From the supply side, consistent evidence is not found that online media has changed the political parallelism of the national media system, though there are some changes happening (Benson, Blachørsten, Powers, Willig, & Zambrano, 2012; Powers & Benson, 2014). From the demand side, the structural effects from the news media environment

have not been examined, while studies are interested in whether Internet use is related to political participation. This is an interesting point in the sense that although most of the news people read online is originated from traditional news organizations (Grueskin, Seave, & Graves, 2011), the contexts in which they are distributed, cited, and seen make "news routinely serve as raw material rather than finished product" (Goode, 2009, p. 1239). Thus, it would be a first step to understand how the media system interacts with digital media if we examine the question of whether the political parallelism environment mobilizes citizens or not, and if so, then, which mode of participation is impacted.

5.2 Political Parallelism, Non-Electoral Political Participation, & the Internet

As previous literature has not systematically explored the triangular relationship between political parallelism, non-electoral participation, and the Internet, verisimilar conceptual models of the relation need to be set. By reviewing the literature, two dimensions of the relation can be suggested. One dimension is the relation between political parallelism and citizens' participation. The other dimension is the relation between the parallelism and the Internet.

As a starting point, take the models pertaining to the relation between the political parallelism of news media and citizens' political participation.

The first model of this dimension, which introduced earlier in Chapter 2, may be the exposure and reinforcement model. When Van Kempen (2007) uncovered the positive association between political parallelism and voter turnout, she stated that "regular exposure to partisan news may reinforce party attachment and reduce the ambiguity of political opinion building" (p. 305). This model links political parallelism and participation. And yet the role of the Internet is absent from the model. A variant of this model would be the exposure and mobilization model. As partisan media employ the collective action frame, "action-oriented sets of beliefs and meanings that inspire and legitimate the activities and campaigns" (Benford & Snow, 2000, p. 614), it would stimulate citizens' participation. Vaccari (2011) showed that in the high parallelism environment of Italy, partisan news media used the online petition tool and Internet broadcasting for a political event and drew a massive number of petition signatures and viewership. Although this was a study on the link between political parallelism and the Internet, it is just the case that the news media has transited their mobilization method from traditional to online methods, not the case that the Internet has spurred citizens' participation. Put differently, while the exposure and reinforcement/mobilization model introduces the direct relationship between news media and its reader/audience citizens, the mediating role of the Internet is still in a vacuum.

The second model related to parallelism and citizens' participation is the voice delegation model, which considers the role of news media

in the political system instead of articulating the relationship between news media and citizens. In this model, political parallelism may decrease the citizens' non-electoral participation. As the political orientation of news media parallel institutionalized politics (Hallin & Manchini, 2004), the discursive opportunity structure is open in the way that public discourse is framed and resonates with political demands and requests from citizens, which may be achieved through political actions in a closed opportunity structure (Benford & Snow, 2000; Ferree, Gamson, Gerhards, & Rucht, 2002a; McCammon, Muse, Newman, & Terrell, 2007). Therefore, citizens may think their views and opinions are reflected in the public discourse and delivered to institutionalized politics via news media since the news media supporting their views actively engage in the discourse, in which the citizens regard that their voices are always heard through the public sphere. As a result, instead of increasing citizens' political participation, the political parallelism of the news media system may discourage participation.

Next, for the dimension of the relation between parallelism and the Internet, again, two models can be posited depending upon how to set the interaction between political parallelism and the Internet user proliferation. The first model to posit is the amplification model, which supposes the interaction simply amplifies the relation between political parallelism and citizens' participation. In this model, by reducing the costs of information and communication, the Internet reduces the distance between partisan

media and citizens and provides more chances to be affected by the news media system. Therefore, whatever direction the model for the relation between news media and citizens' participation follows, the Internet does not change its direction.

The second model is the balancing model that the interaction reverses the relation between political parallelism and participation. For instance, the political parallelism of the news media system may increase citizens' political participation by exposing citizens to partisan media, but when this parallelism environment intertwines with the Internet user proliferation, it may decrease participation as citizens would have more chances to encounter other views against theirs or would look for other options. Conversely, political parallelism may decrease political participation, but the communication between peers on the Internet would foster participation or interaction with others and would raise awareness of political competition. In sum, the amplification model basically implies that the Internet plays an instrumental role. On the contrary, the balancing model implies that the Internet has an independent logic to influence citizens' political participation.

Table 15 summarizes the four models (two for the relation between parallelism and participation, two for the relation between parallelism and the Internet). The first symbol is the dimension for political participation and the second symbol is that of the Internet. For example, (+) – (-) at the cross-section between exposure & mobilization and balancing denotes

Table 15. Hypothesis of the Interaction between Political Parallelism and the Internet

		Political Parallelism	
		Exposure & Mobilization	Voice Delegation
Internet	Amplification	(+) — (+)	(–) — (–)
	Balancing	(+) — (–)	(–) — (+)

the relation that while the increase in the political parallelism of news media increases citizens' political participation, the relation between the parallelism and the Internet reduces this impact.

Table 15 has not included a no-effect case. For the relation between political parallelism and participation, political participation may not be related to the political parallelism of news media in terms of electoral participation. Or, the division between participants and non-participants may lead to no effect overall. Citizens with a high level of political interest tend to participate while others have no interest in participation, which may be seen as the elite-dominance model of the public sphere (c.f., Ferree et al., 2002a; 2002b).

5.3 Modes of Participation, Internet, Political Parallelism

Each mode of participation may belong to a different model in Table 15. While all models in Table 15 are possible, previous literature suggests three patterns. First, participating in political meeting or rally and petition may be driven by the amplification and exposure/mobilization model in the high political parallelism environment (e.g., Vaccari 2012). Second, previous literature on discursive opportunity structure indicates that contacting politicians or expressing views online may follow the voice delegation model with the amplification effect of the Internet (e.g., Ferree et al., 2002b). In a highly paralleled environment, news media may invite the voices of partisan politicians and citizens in their media which reduces the necessity to make voices through digital media and to contact politicians. Third, The balancing model may be the best fit for the country case where digital democracy functions as "counter-publics" (Dahlberg, 2011), mostly likely countries with an authoritarian regime. In this countries, highly paralleled environment does not necessarily mean the diversity of political views so that either digital media functions as an alternative source for political participation (voice-delegation and balancing model) or the polarization between citizens depending upon the media they use (old media users vs new media users, often associated with the gap between generations).

And yet, one may find the difference between collective physical participation and relatively more individualized participation. Under the

news media environment that political parallelism is highly present, the collective action frame may function to mobilize citizens with the help of the Internet only when direct actions are essential or political conflicts are intensified. In this case, the Internet will have synergistic effects to mobilize citizens along with partisan news media. Individualized modes of online and offline participation such as contacting politicians or online expression may be increased in countries that have relatively less parallelized news media systems as the public sphere in these countries is closer to the participatory liberal system, which encourages empowerment of citizens in public discourse (e.g., Ferree et al., 2002b).

Conversely, this argument can be reversed in that "networked individualism" (Rainie Wellman, 2012) leads to more individualized actions and it will be relatively weel fit into highly-parallelized news media environment, as citizens are fragmented along the line of their own issues (Kim, 2012). In addition, collective actions in the digital era may be influenced more by self-organized networked individuals than traditional news media outlets (e.g., Shirky, 2008). The self-organized coordination of the Internet may increase participation in the collective action form of the participation, but not by the parallelized partisan media. Therefore, as the level of political parallelism in the news media system increases, political participation in collective action forms may decrease, whereas more individualized forms of political participation may increase.

5.4 Data & Method

5.4.1 Data

The dataset in this chapter used the ISSP 2014 survey data and contextual variables made from various sources in the same way used in the previous chapter. From the ISSP 2014 data, the dependent variables on non-institutionalized political participation and individual trait variables are used. The original dataset contains data for 24 countries. However, due to the availability of the political parallelism data, 19,182 individuals from 13 countries are dataset to be analyzed. The number of individuals reflects the removal of 121 Danish individuals interviewed in 2015 unlike 1,637 other Danish individuals interviewed in 2014, and the removal of 16 Belgians interviewed in 2016, unlike others. Those 13 countries are Austria, Belgium, Denmark, Finland, France, Germany, the Netherlands, Norway, Spain, Sweden, Switzerland, the United Kingdom, and the United States. Table 16 shows the number of individuals from each country used in the analysis.

The data for political parallelism index is drawn from Brüggemann et al. (2014) which is based on 2010 European Media System Survey (EMSS) and World Press Trends (2008-2010).

The contextual variables for the institutional settings were merged into the survey data. The same databases for political institution used in the previous chapter were used: Database of Political Institutions 2015 (DPI

Table 16. The number of individuals and Political Parallelism Score for Countries

	Number of Individuals	Percent (%)	Political Parallelism*
Austria (AT)	1,033	5.39	0.35
Belgium (BE)	2,248	11.72	-0.7
Denmark (DK)	1,637	8.53	-1.32
Finland (FI)	1,505	7.85	-1.36
France (FR)	1,211	6.31	0.62
Germany (DE)	1,718	8.96	-0.56
Netherlands (NL)	1,638	8.54	0.19
Norway (NO)	1,459	7.61	-1.04
Spain (ES)	1,755	9.15	2.1
Sweden (SE)	899	4.69	-0.39
Switzerland (CH)	1,235	6.44	-0.5
United Kingdom (UK)	1,580	8.24	-0.29
United States (US)	1,264	6.59	-0.12
Total	19,182	100	-3.02

* standardized score

2015), Election Indices developed by Gallagher Mitchell (2015). For the Internet user data, the DataBank of the World Bank was used to obtain the data. Political parallelism was drawn from Brüggemann et al. (2014).

5.4.2 Variable

Table 17 exhibits the descriptive statistics for the variables used. For the dependent variables, various modes of political participation are used. These are demonstration and petition participation, politician contact, and online opinion expression. These participation variables were di-

chotomized from original values of which "done in the past year" as one and other categories as zero. The independent individual trait variables are socio-demographic variables of individuals such as age, gender, the level of education, marital status, frequency of using media for political news, party membership and civic organization membership, level of political interest and frequency of political talks with others. The contextual variables are plurality/proportional representation system, mean district magnitude, effective number of parties at the parliamentary level, and number of Internet users per 100 inhabitants across countries.

The value for political parallelism is the value of Brüggemann et al. (2014) that was calculated based on several indices from Popescu, Toka, Gosselin, & Pereira (2011), Hanretty (2009), and van Kempen (2007). Although the calculated index is not up-to-date for 2014 and 2015, this index is the best value available at this time. For instance, the 2013 European Media System Survey (EMSS) has just released the public version of the dataset but required indices to calculate the political parallelism are not yet included, unlike the 2010 EMSS. The calculated score for each country is displayed in Table 16.

5.4.3 Method

The analysis was conducted in the following order. First, logistic regression was used to examine the interaction effect between political parallelism and Internet user proliferation. However, the small number of clusters in

Table 17. Description & Descriptive Statistics of Variables

Variable	Description	Type	N	Mean	SE	Min.	Max.
Individual Variable							
Age	Age	Continuous.	19,173	49.94	17.33	15.0	99.0
Female	1: Female 0: Male	Binary	19,182	0.52	0.5	0.0	1.0
Education	Highest completed education (degree)	Ordinal	18,996	3.67	1.59	0.0	6.0
Married	1: Married 0: Not Married	Binary	18,998	4.69	1.77	0.0	1.0
Employed	1: Employed 0: Not Employed	Binary	18,478	2.6	0.84	0.0	1.0
Media use	for political news/information	Continuous	18,869	2.59	0.87	0.0	6.0
Political party membership	Member either actively participate or not	Binary	18,572	0.1	0.3	0.0	1.0
Civic membership	Four categories of organization/associations (1 to 4)	Continuous	17,064	0.66	0.86	0.0	4.0
Political interest	Degree that personally interested in politics, (1 to 4)	Ordinal	18,714	2.6	0.84	1.0	4.0
Political discussion	Frequency discuss politics (1 to 4)	Ordinal	18,871	2.59	0.87	1.0	4.0
Petition	Signed a petition, done it in the past year	Binary	18,466	0.29	0.45	0.0	1.0
Demonstration	Took part in a demonstration, done it in the past year	Binary	18,549	0.07	0.25	0.0	1.0
Political Meeting	Attended a political meeting or rally, done in the past year	Binary	18,480	0.08	0.27	0.0	1.0
Contact Politician	Contacted, or attempted to contact, done in the past year	Binary	18,539	0.1	0.3	0.0	1.0
Contact Media	Contacted, or appeared in the media, done in the past year	Binary	18,472	0.05	0.22	0.0	1.0
Express views	Expressed political views on Internet, done in the past year	Binary	18,442	0.09	0.29	0.0	1.0
Contextual Variable							
Number of Internet Users	Number of Internet users per 100 habitats	Continuous.	19,182	87.6	6.84	73.0	96.3
Means District Magnitude	The weighted average of the number of representatives elected by each constituency size (logged)	Continuous	19,182	7.83	5.23	1.0	20.3
Effective Size of Party	Effective number of parties at the electoral level	Continuous	19,182	5.43	1.91	2.14	9.62
Electoral System	Plurality: Winner-take-all/ first past the post rule Hybrid: Plurality + PR Proportional Representation (PR): Elected based on the percent of vote received by their party	Categorical	19,182	2.33	0.8	1.0	3.0
Political Parallelism	The level of political parallelism of news media system	Ordinal	19,182	0.14	0.94	-1.37	2.14

the dataset resulted in the lack of enough degree of freedom to calculate the robust clustered standard errors. Thus, logistic regression with classical standard errors and that with Huber-White sandwich robust standard errors were compared first as a simple presentation of the robust errors is not a "magical cure-all" and the classical and the robust standard errors should "approximately coincide" (King & Roberts, 2015, p. 177). As the comparison shows, standard errors between the two were approximately the same.

Second, the jackknife test was conducted to examine whether the result was based on a few outlier countries. The jackknife test was run on each model by removing one country at a time. Therefore, each mode of participation was repeated 13 times (total 65 times) to examine whether any significant outlier impacted the result and was reported. Two modes of participation showed stable results without any significant outlier, whereas three other modes of participation were either impacted by outliers or not shown as significant in the models.

Thus, instead of using logistic regression with robust standard errors – but not clustered robust standard errors – the result of the mixed logistic model, which was conducted to show the interaction effect of political parallelism and Internet user proliferation on political participation, are reported. In the cases where outlier countries impacted the result, which were found in the jackknife test, it was adjusted by adding country variables.

5.5 Result

Table 18 shows the result of the jackknife test of logistic regressions. The result shows that the interaction effects in the two modes of participation, demonstration and contacting politicians, are stable across the models. Although the interaction coefficients by excluding the Netherlands for the demonstration and the United States for contacting politicians are not significant, the direction of the coefficients are the same as others. However, the interaction effects in three other modes of participation show possible outlier effects. For participating in political meeting or rally, the interaction effect is significant only by excluding either the Netherlands or the United States. This means that these two countries are possible sources of biased estimators. In fact, the United States seems to be an outlier in the other modes of participation. When the United States is not included in the model, the interaction coefficients for petition and expressing views online become negative values, so that it is less than 1.0 for the odds ratio. Another possible outlier country is Spain, for petition.

Based on these jackknife tests, the interaction effects of political parallelism and Internet user proliferation have been tested through mixed logistic models. Table 19, 20, and 21 exhibit the results of the mixed models. According to these tables, the interaction between political parallelism

Table 18. Jackknife Test of Logistic Regression: Participation, Political Parallelism, Internet

	AT	BE	DK	FI	FR	DE	NL	NO	ES	SE	CH	UK	US
Political Meeting, Rally													
Political Parallelism	1.62***	1.49***	1.53***	1.61***	1.52***	1.71***	2.03***	1.65***	1.67***	1.56***	1.62***	1.42***	1.37***
Internet Interaction	1.00‡	1.00	1.00‡	1.01	1.00	1.01	**1.03****	1.01	1.00‡	1.00	1.00	1.01	**1.03*****
Pseudo R2	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.21
Contact Politician													
Political Parallelism	1.03	1.14*	1.03	1.12†	1.15*	0.94	0.90	1.06	0.94	1.05	1.06	1.22**	1.25***
Internet Interaction	1.05***	1.03***	1.03***	1.03***	1.03***	1.03***	1.02**	1.03***	1.07***	1.03***	1.03***	1.03***	1.01
Pseudo R2	0.14	0.15	0.15	0.14	0.14	0.15	0.15	0.15	0.15	0.15	0.14	0.15	0.14
Petition													
Political Parallelism	1.06***	1.10*	1.09*	1.07†	0.99	0.94	1.29***	1.04	1.28***	1.04	1.06	1.23***	1.18***
Internet Interaction	1.01**	1.01**	1.02***	1.01**	1.01*	1.01**	1.02***	1.01*	**0.98****	1.01*	1.01**	1.01	**1.00‡**
Pseudo R2	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.06	0.07	0.07	0.07	0.07
Express Views Online													
Political Parallelism	0.93	1.08	0.95	0.97	1.02	0.87†	0.92	0.98	0.91	0.94	0.96	1.11	1.16*
Internet Interaction	1.02*	1.00	1.01**	1.00	1.01**	1.00	1.00‡	1.00	1.02	1.00‡	1.00	1.00‡	**0.98****
Pseudo R2	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.17	0.16	0.17	0.17
Demonstration													
Political Parallelism	1.50***	1.70***	1.51***	1.40***	1.06	1.15	2.53***	1.62***	1.75***	1.41***	1.50***	1.54***	1.38***
Internet Interaction	0.96***	0.97***	0.97***	0.96***	0.96***	0.96***	0.99	0.98***	0.90***	0.96***	0.97***	0.97***	0.98**
Pseudo R2	0.14	0.16	0.15	0.14	0.15	0.15	0.15	0.15	0.14	0.14	0.14	0.14	0.15

† p<.10 * p <.05 ** p<.01 *** p<.001
‡ Value less than 1.0 but more than 0.995

Note: Models are estimated by excluding each country at a time.
Wald Chi-square test statistics of all models are significant at p<.001

Table 19. Mixed Logistic Regression: Participation, Political Parallelism, Internet (I)

	Political Meeting/Rally						Contact Politician					
	Model 1			Model 2			Model 1			Model 2		
	Odds Ratio		Robust SE	Odds Ratio		Robust SE	Odds Ratio		Robust SE	Odds Ratio		Robust SE
Constant.	0.000	***	(0.000)	0.001	***	(0.000)	0.004	***	(0.002)	0.005	***	(0.002)
Individual Attribute												
Age	0.992	***	(0.002)	0.992	***	(0.002)	1.003		(0.002)	1.002		(0.002)
Female	0.818	**	(0.052)	0.817	**	(0.052)	0.839	**	(0.047)	0.839	**	(0.047)
Education	1.069	**	(0.023)	1.069	**	(0.023)	1.172	***	(0.023)	1.172	***	(0.023)
Married	0.959		(0.063)	0.963		(0.063)	1.278	***	(0.074)	1.281	***	(0.074)
Media use for political news/information	1.067	*	(0.029)	1.069	*	(0.029)	1.126	***	(0.027)	1.127	***	(0.027)
Political party membership	6.141	***	(0.459)	6.174	***	(0.462)	2.978	***	(0.207)	2.972	***	(0.206)
Union membership	1.484	***	(0.099)	1.492	***	(0.099)	1.314	***	(0.078)	1.326	***	(0.079)
Political interest	1.915	***	(0.102)	1.893	***	(0.101)	1.718	***	(0.078)	1.701	***	(0.078)
Political discussion	1.842	***	(0.092)	1.853	***	(0.093)	1.520	***	(0.064)	1.526	***	(0.064)
Contextual Variable												
Institutional Setting												
Means District Magnitude	0.981		(0.012)	0.996		(0.012)	1.005		(0.016)	1.013		(0.012)
Party Politics												
Effect numbers of Parties	2.392	**	(0.681)	1.524		(0.458)	0.488	*	(0.152)	0.447	**	(0.104)
Internet User												
Number of Internet users (centering)	0.930	*	(0.031)	0.887	***	(0.031)	1.016		(0.025)	1.019		(0.018)
News Media System												
Political Parallelism	1.418	**	(0.167)	1.385	***	(0.135)	0.878	t	(0.11)	1.041		(0.111)
Interaction (Internet Users)												
× Mean District Magnitude (House)	1.012	***	(0.003)	1.017	***	(0.004)	0.994		(0.004)	0.995	t	(0.003)
× Political Parallelism				1.024	*	(0.010)				1.030	**	(0.009)
Outlier												
USA	0.473		0.268	0.164	**	(0.106)						
Country												
Level-2 Residual Variance	0.023		(0.014)	0.022		(0.014)	0.055	*	(0.025)	0.025	†	(0.014)
Log likelihood			-3795.892			-3793.445			-4779.805			-4775.932
Wald χ^2			1497.31***			1506.37***			1263.75***			1272.39***
N			17121						17171			

† p<.10 * p <.05 ** p<.01 *** p<.001

Table 20. Mixed Logistic Regression: Participation, Political Parallelism, Internet (II)

	Express Views Online						Demonstration					
	Model 1			Model 2			Model 1			Model 2		
	Odds Ratio		Robust SE	Odds Ratio		Robust SE	Odds Ratio		Robust SE	Odds Ratio		Robust SE
Constant.	0.013	***	(0.006)	0.007	***	(0.003)	0.003	***	(0.003)	0.002	***	(0.002)
Individual Attribute												
Age	0.959	***	(0.002)	0.959	***	(0.002)	0.979	***	(0.002)	0.979	***	(0.002)
Female	0.848	**	(0.049)	0.850	**	(0.049)	1.121		(0.074)	1.122		(0.075)
Education	1.070	***	(0.022)	1.071	***	(0.022)	1.064	**	(0.024)	1.064	**	(0.024)
Married	0.806	***	(0.05)	0.804	***	(0.05)	0.776	***	(0.055)	0.774	***	(0.055)
Media use for political news/information	1.134	***	(0.027)	1.133	***	(0.027)	1.006		(0.025)	1.006		(0.025)
Political party membership	2.140	***	(0.169)	2.139	***	(0.169)	1.578	***	(0.155)	1.586	***	(0.156)
Union membership	1.175	*	(0.074)	1.171	*	(0.074)	2.076	***	(0.15)	2.070	***	(0.15)
Political interest	1.793	***	(0.087)	1.803	***	(0.087)	1.573	***	(0.083)	1.578	***	(0.083)
Political discussion	1.860	***	(0.085)	1.851	***	(0.084)	1.538	***	(0.076)	1.535	***	(0.076)
Contextual Variable												
Institutional Setting												
Means District Magnitude	1.012		(0.011)	1.000		(0.011)	0.979		(0.026)	0.970		(0.023)
Party Politics												
Effect numbers of Parties	0.737		(0.197)	1.053		(0.301)	1.965		(1.018)	2.222		(1.01)
Internet User												
Number of Internet users (centering)	1.030		(0.031)	1.074	*	(0.035)	0.963		(0.04)	0.959		(0.034)
News Media System												
Political Parallelism	1.104		(0.125)	1.125		(0.108)	1.730	**	(0.363)	1.404		(0.297)
Interaction (Internet Users)												
× Mean District Magnitude (House)	0.999		(0.003)	0.995		(0.003)	1.000		(0.006)	0.998		(0.005)
× Political Parallelism				0.982	*	(0.009)				0.966	*	(0.017)
Outlier												
USA				6.673	**	(4.149)						
Country												
Level-2 Residual Variance	0.016		0.006	0.008		0.008	0.162	*	0.073	0.002	*	0.002
Log likelihood			-4363.925			-4362.199			-3533.771			-3532.064
Wald χ^2			1340.79***			1349.35***			665.42***			674.87***
N				17121						17168		

† p<.10 * p <.05 ** p<.01 *** p<.001

Table 21. Mixed Logistic Regression: Participation, Political Parallelism, Internet (III)

	Sign Petition					
	Model 1			Model 2		
	Odds Ratio		Robust SE	Odds Ratio		Robust SE
Constant.	0.128	***	(0.052)	0.139	***	(0.055)
Individual Attribute						
Age	0.984	***	(0.001)	0.984	***	(0.001)
Female	1.495	***	(0.054)	1.494	***	(0.054)
Education	1.155	***	(0.015)	1.155	***	(0.015)
Married	0.964		(0.036)	0.965		(0.036)
Media use for political news/information	1.042	***	(0.013)	1.042	***	(0.013)
Political party membership	1.416	***	(0.084)	1.414	***	(0.084)
Union membership	1.430	***	(0.058)	1.433	***	(0.058)
Political interest	1.212	***	(0.034)	1.210	***	(0.034)
Political discussion	1.369	***	(0.036)	1.370	***	(0.036)
Contextual Variable						
Institutional Setting						
Means District Magnitude	0.964	**	(0.012)	0.967	**	(0.012)
Party Politics						
Effect numbers of Parties	0.916		(0.233)	0.887		(0.218)
Internet User						
Number of Internet users (centering)	1.023		(0.02)	1.024		(0.02)
News Media System						
Political Parallelism	1.000		(0.103)	1.060		(0.119)
Interaction (Internet Users						
× Mean District Magnitude (House)	0.994	*	(0.003)	0.994	*	(0.003)
× Political Parallelism				1.010		(0.009)
Country						
Level-2 Residual Variance	0.039	*	(0.017)	0.035	*	(0.015)
Log likelihood			-9579.79			-9579.23
Wald χ^2			1187.32***			1188.86***
N			17076			

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

and Internet user proliferation is positive for participating or contacting institutionalized politics. The interactions for participation in political meeting/rally and contacting politicians are positive. As the level of po-

litical parallelism of the news media system increases, the effects of the number of Internet users on the participation gets stronger. Therefore, it partially supports the exposure/mobilization and amplification effects for participating in institutionalized politics. Although the effect of political parallelism for contacting politicians is not significant, it is a positive effect on participation. Note that the effect from the outlier country, the United States, is adjusted in the participating in political meeting/rally model. The previous jackknife test observed the Netherlands as one of the two possible sources of outliers, but the control variable for the Netherlands was not statistically significant when both the United States and the Netherlands were included. For a parsimonious model, Table 19, only included the result with the United States variable.

However, the interaction effects for political participation outside of institutionalized politics, expressing political views online and demonstration, become negatively stronger (Table 20. Put it differently, as the number of the Internet users increases, the effect from political parallelism on the probability of citizens' participation in the two activities becomes weaker. The effect of the political parallelism itself is positive, but not statistically significant, meaning the model partially supports the exposure/mobilization and balancing model. The United States is again an outlier for the online mode of participation, expressing views online. Citizens in the United States are highly likely to express their political views online compared to citizens in other countries. The United States citizens are 6.67

times more likely to express their political views online than others (odds ratio = 6.67, p<.01).

The interaction effect between political parallelism and the Internet user proliferation for the participation of signing petitions is not found (Table 21). Mixed logistic models were tested by using the previously identified possible outliers, Spain and the United States. Nevertheless, neither the interaction effect nor the country control variables are significant at all. Table 21 reports the result without the country-specific control variables. Probably, as signing a petition is at the edge of the boundary of institutionalized politics and most prevalent method across countries, no interaction effect is found.

Note that the difference in the effects of interaction between political parallelism and the Internet user proliferation is observed across various levels of political parallelism. Figure 11 shows the difference in the changes of the predictive margins as the level of political parallelism differs. This is again confirmed by the three dimensional graphs in Figure 12, which shows the linear trend between Internet user proliferation and various modes of political participation.

Yet, the interaction effects discussed appear to be small compared to the previous chapter. The interaction coefficient shows that the lowest effect is 2% and the highest 4%. Fortunately, the analysis in this chapter is individual level effects. The agent-based model simulations in Chapter 3 showed how a small individual difference becomes a larger difference

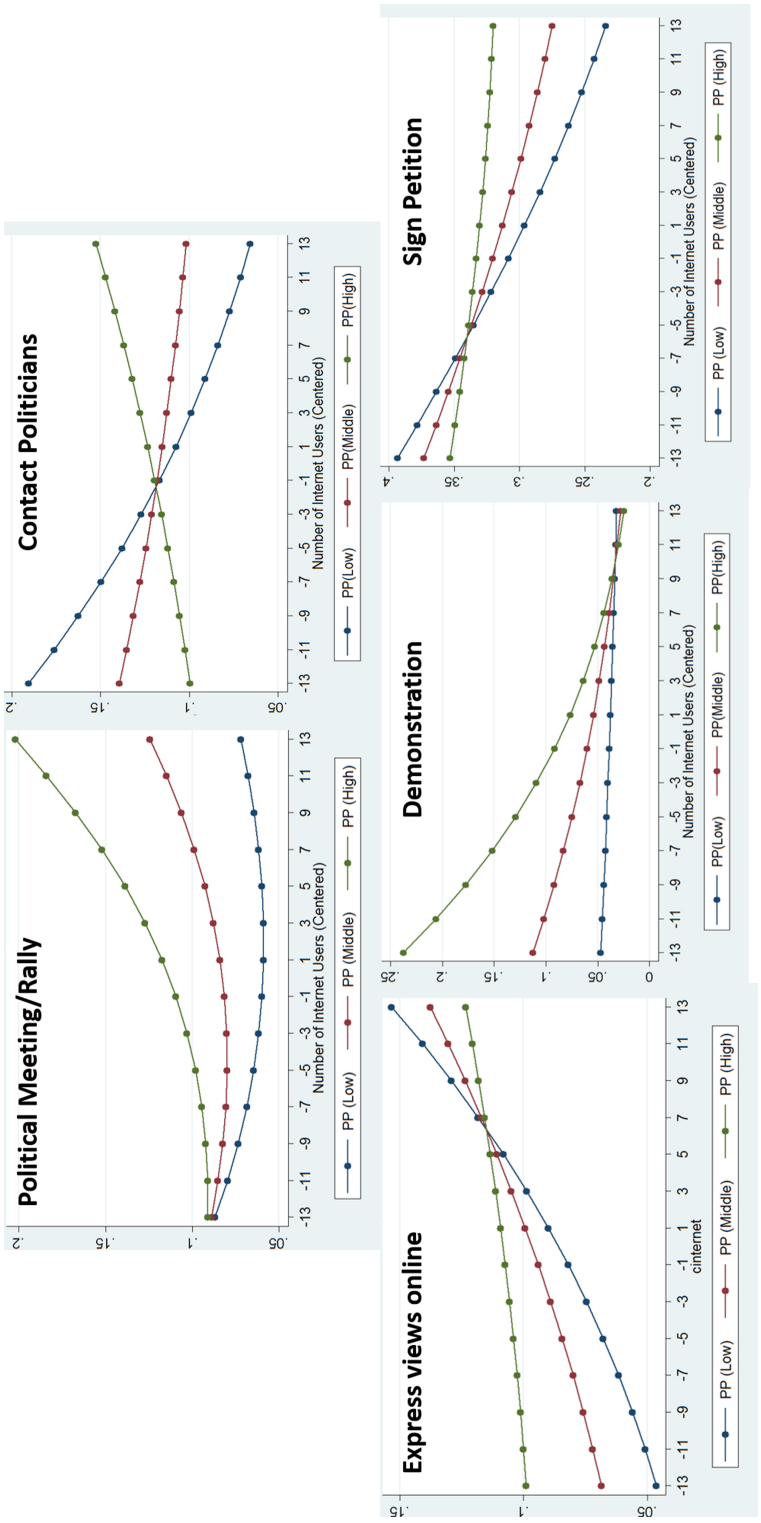


Figure 11. Marginal Effects of the Interaction between Political Parallelism and Internet proliferation

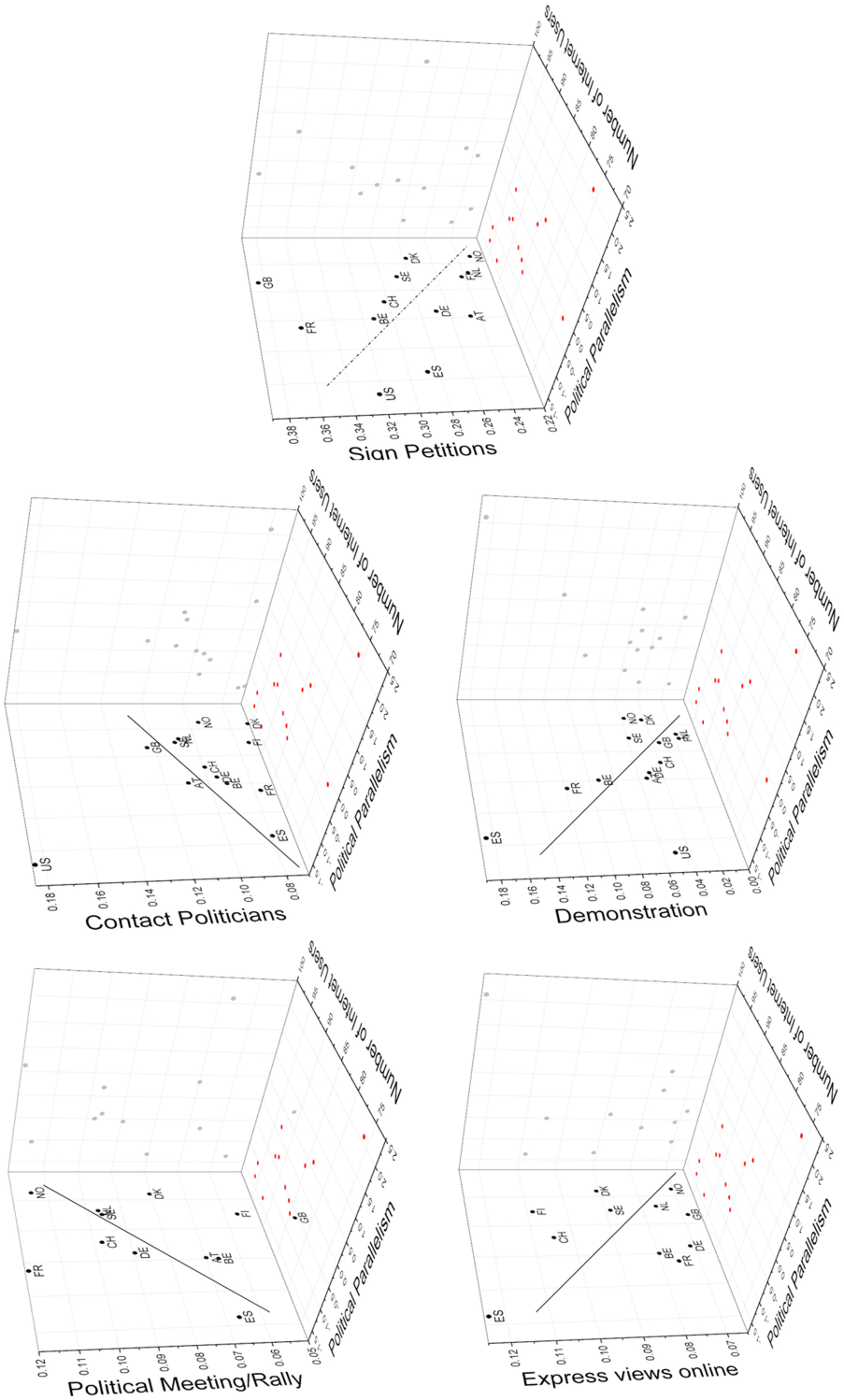


Figure 12. Three Dimensional Scatter Plot: Political Parallelism, Internet, Political Participation

between groups. In addition, as it is the interaction of the political parallelism index and Internet user proliferation, the actual size of the effect would be significantly large. For instance, the difference between Spain and Finland will be 6.9% at the individual level even if we assume there is no difference between the two countries for the Internet user proliferation. If other conditions are being equal, from the ABM simulation in Chapter 3, we know that this difference will at least more than tripled (at min. 21.7%) at the aggregated level, as the size of Spain population is 8.5 times larger than that of Finland.

5.6 Discussion

This chapter used ISS 2014 data in order to analyze the triangular relationship between the political parallelism of the news media system, Internet user proliferation, and modes of political participation at the individual level. Although many studies on political participation have examined the Internet effects on political participation, the studies tend to disregard the contextual effect of the news media system, along with the mediation role of the Internet between them. The studies on media systems also lack interest in political participation. This chapter attempted to fill this gap by analyzing the relation with non-electoral modes of participation across 13 countries.

The analysis result shows that Internet user proliferation has a syner-

gistic effect with the political parallelism of the news media system for the modes of political participation related to institutionalized politics. The more political parallelism is exhibited in the news media system, the stronger the Internet effects on the two modes of participation, political meeting or rally and contacting politicians, is expected. Previously, Vaccarri (2011) has shown with a case study from Italy that partisan media mobilizes citizens under the relatively high parallelized news media system and the Internet is used as an instrument. This study expanded the finding with the comparative analysis that the increase in the number of Internet users is positively associated with the probability to participate. Nevertheless, the Internet effects on modes of participation outside of institutionalized politics, expressing political views online and demonstration, become weaker as the political parallelism gets stronger. Previous studies have found expressing one's views online increases the more one uses the Internet (e.g., Kushin & Yamato, 2010). However, as POS literature has shown, it depends on the contextual opportunity and political agents that voice one's opinion. High political parallelism of the news media system means that citizens have media that represent their views in the public sphere, which would result in them participating less in more individualized political actions outside of the institutionalized political boundary mediated by the Internet. One exception to this trend is the United States, where individualized participation is extremely high. In sum, it is found that the modes of participation that has relative affinity to the institution-

alized politics seems to follow the exposure/mobilization-amplification model. However, the distinction of individualism in citizens' political participation was not useful for studying the triangular relationship between Internet user proliferation, political parallelism of news media, and citizens' political participation.

On the other hand, the result leads the possibility that citizens may utilize the Internet more to participate in more individualized (expressing views online) as well as confrontational political activities (demonstration) where citizens do not have any media to represent their views. As indicated in Chapter 2, Cammaerts (2012) has described this as a mediation structure composed of a discursive opportunity structure with a networked opportunity structure that employs differentiated repertoires and logics of contentious actions. This chapter has just shown this with non-electoral participation at the individual level by the comparison of 13 countries.

6 Conclusion

"All I know is that the hours are long under these conditions, and constrain us to beguile them ... which may at first sight seem reasonable, until they become a habit. You may say it is to prevent our reason from foundering. No doubt. But has it not long been straying in the night without end of the abyssal depths? That's what I sometimes wonder."
— Vladimir, Act 2, "Waiting for Godot" by Samuel Beckett

6.1 Summary of the Study

This study has examined the Internet effects on citizens' political participation. It first examined how Internet is different from other media platform. By enriching and connections between individuals, The network externality effects of the Internet on political participation makes political mobilization easier than before. As a result, the homophily combined with network externality effect of the Internet induces more rapid and higher rate of participation diffusion. Then, the study examined the differentiated effects of the interaction between the Internet and institutions on the participation. The political system and the media system are the two institutions. The study has argued that the study on the relation between the Internet and citizens' political participation requires considering institutions in the equation of studying the relation. Political participation in this study mainly means five non-electoral participations: participating

in demonstration and in political meeting/rally, contacting politicians, signing petitions, and expressing political views online.

After laying out the basic framework and argument of the study in Chapter 1, in Chapter 2, the literature on media effect and institutional effect on political participation has been reviewed. According to the review, first, it is suggested that the study of media effect needs to consider the unique characteristics of the Internet. Communication literature has long studied the effect of the Internet on citizens' political participation, but they have conducted the studies on the Internet and citizens' political participation in the same way they have studied other media such as newspapers and television. As a result, the research framework of the literature tend to be framed in "two-step" research that individuals participate political actions by, first, exposure to relevant political information, and second, having conversations with others. However, this framework requires a change, as the Internet is distinguished from other media in that it has integrated information and communication and in that it has network effects such as network externality and homophily. In short, the study suggests that as the Internet functions as the infrastructure of the connections, a study need to pay its attention to the network effects.

Second, it also suggests studying the interaction between the Internet and the institutional arrangement of a society needs to be considered in the relation between the Internet and citizens' political participation. The difference in the institutional arrangement differentiates the impacts of the

Internet on political participation. POS (Political Opportunity Structure) literature in sociology and political science has already shown that different institutional arrangements of the political system have influenced the differences in voter turnout and non-electoral participation (NEP). They argued that the system with more accessibility and openness to the political system provides the opportunity structure to use an assimilative strategy of participation, whereas the relatively closed system directs advocacy organizations and citizens to a confrontational strategy. In addition, the electoral system differentiates the difference in the rate of voter turnout. These insights have not been examined in the study of Internet politics.

And lastly, the study suggests that the difference in the news media system needs to be considered in studying the relation between the Internet and the political participation. The theory of media system limited itself to the typology of the media system as much as that the studies on political parallelism of news media have remained in the realm of studying the political participation without its relation to the Internet. This study uses political parallelism as the representative index to delineate the national news media system and examined how the interaction between political parallelism and the Internet user proliferation affects various modes of political participation.

From Chapter 3 to Chapter 5, each chapter examined these three suggestions in order. In Chapter 3, ABM simulations were conducted to point out the network externality effect of the Internet as the infrastructure

of attracting political participation. The results of 500 simulation runs per each model have shown that, unlike others' proposition (e.g., Farrell, 2012), the homophily characteristic of the Internet is only strong factor of the diffusion in the relatively earlier stage of participation diffusion but it restrains the further mobilization of citizens in the later stage. The network externality – information that how many others participate in a political action at the societal level increases an individual's calculation to participate – also contributes to faster participation diffusion, but only when the participation rate has reached the stage of diffusion take-off. Another finding of the ABM simulation is that the initial small difference in the participation probability between individuals whose preference for participation modes is different can bring a larger difference in the participation diffusion at the aggregated level. In sum, these simulation results show that, ceteris paribus, the network externality effect of the Internet not only explains the increase in citizens' political participation at the aggregated level, but it also plays a role in inducing path-dependency in the political participation.

With empirical datasets, Chapter 4 examined how the interaction between the Internet and institution brings differential effects on voter turnout and non-electoral participation. The interaction effect on voter turnout was examined by constructing a new longitudinal dataset for 38 countries from 1994 to 2014. A mixed effect model was employed to analyze the dataset. For the examination of NEP, the International Social

Survey Programme (ISSP) 2014 for 21 countries was used. This dataset was analyzed by the logistic regression method with robust clustered standard error for three modes of participation. After the jackknife statistical test, mixed logistic regression was used for the other two modes of participation. The results showed that, compared to the plurality/majority system, the interaction between the Internet and the proportional presentation system has more positive impacts on voter turnout at the aggregate level and on the modes of NEP for collective gathering and confrontational participation (e.g., demonstration and political meeting/rally) at the individual level. The interaction effects in the proportional representation system are negative for the more assimilative modes of participation – contacting politicians, signing petitions, and expressing political views online. These results imply that the Internet reinforces the findings of POS literature.

Chapter 5 analyzed how the interaction between the Internet and the political parallelism of the news media system impacts various modes of NEP at the individual level. Again, ISSP 2014 data was used, but only for 13 countries. For the data analysis, the mixed logistic regression method was used. The result shows that despite its impacts being smaller than the interactions that arise from the relation between the Internet and the political system, the interaction is positive for the relatively assimilative mode of participation, participating in political meeting/rally and contacting politicians. In other modes of participation, the interaction effect

is negative. From the viewpoint of the discursive opportunity structure, it can be understood that the existence of news media supporting one's view reduces the necessity to express one's opinions and participate in demonstration. However, the increase in the participation in political meeting/rally and contacting politicians is unexpected and can be considered as a unique aspect of the interaction between the Internet and the political parallelism. A previous study has found the news media in part promotes this type of participation through the Internet in the highly parallelized system (Vacarri, 2011) but it is slightly different modes of participation – it was political meeting/rally and signing petitions. Overall, the interaction effect between the Internet and the political parallelism of the news media system was found to be significant and it has differential effects on people's preference over different modes of participation.

6.2 Discussion: Implications of Findings

6.2.1 Implications

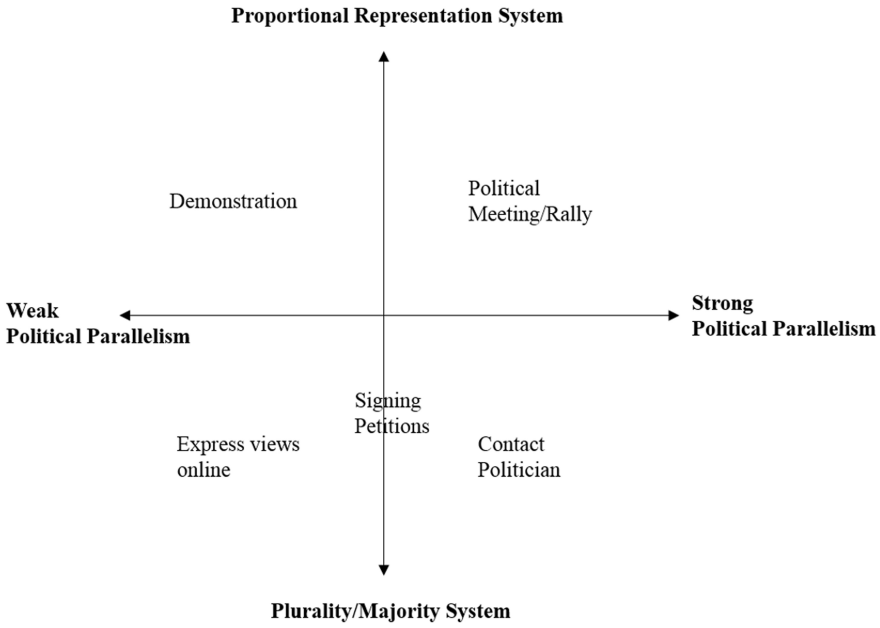
The findings of the chapters have shown that the institutional arrangements of a society differentiate the Internet's impacts on various modes of citizens' political participation. Figure 13 plots (A) empirical analysis results and (B) a typology from them. In fact, Figure 13-(B) is the graph that rotated the axes of (A) in order to classify the different impacts of institutions. Although this quadrant tends to simplify the relation, it is useful

to draw the relation between Internet proliferation and institution. In the quadrant, each mode of participation is placed on the dimension where the interaction between Internet proliferation and institution indicate a positive relation.

For example, in Figure 13–(A), participation in political meeting/rally is placed in the axes of proportional representation system and strong political parallelism. It is due to the fact that: 1) compared to individuals in the plurality system, individual probability to participate in the political meeting/rally will increase more for individuals in the proportional representation system as the Internet user proliferation increases; and then 2) individual probability to participate in the political meeting/rally will increase more as the Internet user proliferation increases if individuals are in the country with strong political parallelism than ones are in the country with weak political parallelism. Thus, each dimension denotes the relative strength of each participation activity when it is combined with institutional arrangement.

From Figure 13 and the result on voter turnout in Chapter 3, three implications are worth noting. First, the interaction between the political system and the Internet is related to the distinction between collective and individualized modes of participation. Participating in demonstration or political meeting/rally is a collective and direct action, mainly occurring offline. However, expressing one's views online, contacting politicians (and perhaps signing petitions) are individualized and online/connective modes

(A) Empirical Analysis Result: Internet, Institution, Participation



(B) Typology: Internet, Institution, Participation

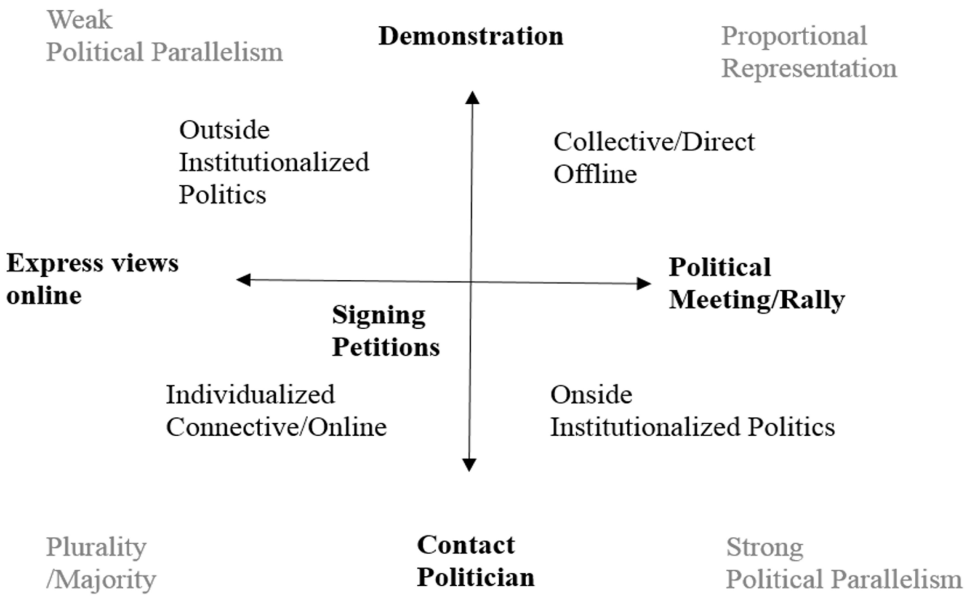


Figure 13. Empirical Finding & Typology

of participation. Note that this tendency is the relative strength. Second, the interaction effect on voter turnout analyzed in Chapter 3 shows that the interaction between the Internet and the proportional system has been stable over time, the plurality system has shown the negative marginal effects of the interaction. Thus, the interaction between the Internet and institution seems to drive individualized connective actions more for the plurality system. Third, the political parallelism of the news media system is related to the boundary of institutionalized politics. Strong political parallelism promotes the types of participation that are relatively more used for pressing institutionalized politics. It's closer to what Hirschman (1970) referred to as the "voice" strategy. By contrast, the modes of participation linked to the weak political parallelism seem to be related to the "exit" strategy, the types of participation outside of institutionalized politics, which may be referred to as "counter public" (Dahlberg, 2011).

6.2.2 Three Speculative Models from the Implications

These implications can be further developed by speculating three models of citizen participation differentiated by the Internet's role in institutionalized politics. These models operate under certain institutional conditions, which prioritize a specific route to institutionalized politics in the society in which each model is embedded.

The first model of participation is "participation through institution."

This model can be referred to as the "on-side model," in which participation usually reinforces the existing dynamics of the political system rather than structural change in the system. It's "on-side" because the participation occurs around existing political institutions. Nonetheless, the model does not imply that the participation simply reinforces existing political institutions. Changes more likely occur within the institutions rather than at the structural level of the system. For example, the two-party system without the emergence of a new party may be strengthened, but the political parties themselves would experience unprecedented political pressure from citizen organizations or organizational changes. The political opportunity structure in this model systematically supports party-to-citizen dynamics. The institutional arrangement of this opportunity structure is often seen with the plurality/majoritarian system, relatively strong political parallelism of the news media system, and possibly the associative principle of civic organizations.

The second model of participation is called "participation for institutionalization." This model is more frequently found in the political opportunity structure that is open to more fluid structural changes in party-to-party politics, either by a coalition between parties or formation of a new party. The institutional arrangement of this political opportunity structure usually accompanies the proportional representation system that systematically supports the multi-party system, strong political parallelism of the news media system, and the statism/corporatism principle of

civic organizations. The electoral system under this opportunity structure provides a relatively more open environment for competition between parties and the formation of a new party, in which citizens and politicians can harness the Internet to mobilize votes at the party level or to form party supporters. Strong political parallelism of the news media system supports the political party ecology of competition and yet, when this traditional political parallelism has a limited coverage for newly emerging party politics, the newly emerging party is supported from Internet mobilization instead of existing news media. For example, existing news ecology in Germany and Sweden was unable to show the news coverage that supported the view against digital copyright (so called copy-left), direction collective actions occurred and it stimulated the rise of a new political party, pirate party.

The statism/corporatism principle of civic organizations shows a similar pattern as the news media system. The tradition of cooperation between political parties or government reduces the necessity of the Internet as an alternative organizational network and source for a newly emerging organization. Newly emerging issues or the gap between existing organizations and the issues leads the Internet as vital resources of citizen mobilization. The opportunity structure in this model encourages the role of the Internet as a stimulant of participation that is institutionalized in the political system. In this sense, it can be referred to as an "inside model."

The third model of participation is "participation for institutional

change." This model uses the Internet as a challenging instrument against the institutionalized political system from outside of institutionalized politics ("outside" model). In this model, the political opportunity structure is in the making rather than institutionally open for participation. The institutional arrangement of the political system has much less weight than in other models. Instead, the political regime, usually an authoritarian regime, has much more relevance to observe the rise of the participation for institutional change. As the ruling power of the regime also fears mobilization by the Internet, the state largely intervenes in Internet activities with censorship and restrains freedom of speech on the Internet. The traditional news media system is in line with political or economic clientelism, which is technically weak political parallelism because limited views are available. This weak political parallelism based on clientelism is nourishment for developing the Internet as a source of alternative news media. Elitism against state power is often observed in civil society organizations. These organizations use the Internet for mobilizing citizens in an event-driven campaign, but the newly emerged network-based activism rarely develops into advocacy associations. This is related to the way that network-organizing collective actions are taken by citizens. The network-organizing collective actions arise usually from the online gathering of everyday practices (e.g., personal social networks or online forums not related to politics) that individuals regularly visit. After collective actions are eroded, the organized networks are also eroded. In other words,

the organized, networked forms of the citizens take non-institutionalized paths to express their opinions and to take actions from start to end. This is vastly different from the first model. In the first model, direct action usually is linked to institutionalization.

6.2.3 Limitations

This study is not free from limitations. Most of all, the ABM model is indirectly linked to other chapters. ALthough it provides several considerations how the difference at the individual level probability is associated with the difference at the societal level, it heavily focuses on the Internet characteristics of participation diffusion. Second, the limited availability of the dataset prevents further analysis beyond the current analyses taken. For instance, the political parallelism index was only available for European countries and the United States. In addition, longitudinal datasets were mostly unavailable. Neither the index for political parallelism nor the participation data for non-electoral modes of participation were systematically constructed for a longer duration of time. Instead of the cross-sectional analysis at the individual level conducted in Chapter 4 and Chapter 5, any use of longitudinal data with the coverage of more geographical regions may change the analysis results in this study. Third, this study leaves the impacts of digital news media and how they change (or changed) the news media system intact, not to mention of civil society

dimension. Although any systematic evidence that the digital news media environment has changed the current landscape of the news media system, it may not be that the change has not occurred, but that the change has not been reported. Finally, the study has not delved into the exceptional case. The analysis results in Chapter 4 and 5 find the United States seems to be an exception to findings of this study, but simply left it as an unanswered question.

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