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# The political consequences of elite and mass polarization

Jae Mook Lee  
*University of Iowa*

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# THE POLITICAL CONSEQUENCES OF ELITE AND MASS POLARIZATION

by

Jae Mook Lee

## An Abstract

Of a thesis submitted in partial fulfillment  
of the requirements for the Doctor of  
Philosophy degree in Political Science  
in the Graduate College of  
The University of Iowa

July 2012

Thesis Supervisor: Professor Vicki L. Hesli

## ABSTRACT

Is the American electorate as ideologically polarized as its representatives are polarized in Congress? How have ordinary citizens responded to growing elite polarization? The goal of this dissertation project is to answer these two questions. I conceptualize polarization here as having multi-dimensional characteristics and distinguish between polarization as a state and polarization as a process. Based on the conceptualization of polarization, I argue here that most existing literature has not only focused on polarization as a state, but the empirical strategies adopted by previous research are more appropriate for assessing the existence rather than gradual change in polarization as a process. I assume that the degree of ideological polarization among the mass public would not be dramatic, thus scholars are more likely to be divided regarding the existence of popular polarization due to the less apparent changes in public opinion distributions. Therefore, I use the relative distribution method developed in the other fields of social science to evaluate changes in the level of opinion polarization. Using the alternative method, I assess how a comparison cohort of a recent period is more or less polarized compared to a reference cohort of a previous period. I first apply the relative distribution method to congressional roll-call data (DW-NOMINATE) to demonstrate the distributional comparison analysis on a quantile bases. Then I analyze the cumulative American National Election Study (ANES) 1948-2008 survey to assess changes in the relative degree of mass ideological polarization. As I analyze ideological preference of individuals, I construct two ideological measures based on a factor analysis, rather than using a combined single indicator.

In addition to the analysis of mass opinion polarization as a whole, this dissertation also examines some political consequences of ideological polarization both at the elite and mass levels focusing on mass political awareness and engagement. In particular, I test if heterogeneous effects of a polarized political environment exist on

citizens conditional on their existing levels of political resources such as political knowledge or formal education. Just as many detailed characteristics of a distribution are untapped by summary measures (e.g., mean), the behavior of extremists cannot be explained properly by the conventional regression analysis based on conditional mean effect. While ordinary regression analysis focuses on the representative characteristics of a majority in the sample, in polarization analysis we are more often interested in the behavior of extremists placed far from the mean. So I adopt a quantile regression to account for differential responses of the mass public to polarized politics depending on their positions in the distribution of a dependent variable.

Empirical evidence suggests that a polarizing political environment has brought about several significant changes in mass political attitudes and behavior. I demonstrate that the distributional center of measures of political ideology have progressively declined in later periods, though the opinion distribution of the later periods do not dramatically exhibit a text-book style polarized distribution (e.g., bimodal distribution). In addition, I find that the majority of the mass public has responded to the changing political environment by becoming politically more aware. Therefore, the overall findings of this project indicate that the electoral link between the elite and the masses became transformed and is transforming as the mass public assimilate to polarized politics.

Abstract Approved: \_\_\_\_\_  
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Graduate College  
The University of Iowa  
Iowa City, Iowa

CERTIFICATE OF APPROVAL

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PH.D. THESIS

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This is to certify that the Ph.D. thesis of

Jae Mook Lee

has been approved by the Examining Committee  
for the thesis requirement for the Doctor of Philosophy  
degree in Political Science at the July 2012 graduation.

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Wenfang Tang

To my parents, B. S. Lee and the late J. P. Kim who sacrificed their entire lives for their children.



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## ABSTRACT

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## CHAPTER I

### INTRODUCTION

We have been witnessing a growing argument about political polarization among scholars in recent decades. Besides the ongoing scholarly disputes over the phenomenon (Brady, Ferejohn, and Harbridge 2008; Hetherington 2009; McCarty, Poole, and Rosenthal 2006; Sinclair 2006), popular debate has also been focused on the so-called “culture war” in American society (Hunter 1991; Fiorina, Abrams, and Pope 2006). Indeed political polarization is undeniably a central issue of contemporary American politics among citizens as well as scholars. In the following section, I briefly review some of the important findings in political science literature that show why the polarization problem holds such importance in a democratic polity.

#### Why polarization? Is it necessarily bad for democracy?

We are concerned with increasing polarization because of its political consequences in the working of democracy. I introduce the existing discourse in terms of its consequences on political institutions, public policies, and the electorate (See, Nivola and Brady 2008). To begin with, from an institutional perspective, we are concerned with increasing elite polarization because Galston and Nivola (2006) warned that polarization may threaten the stability of democracy by endangering the health of vital political institutions such as Congress, the courts, and the news media. Polarization has shaped the legislative process and influenced legislative outputs in the Congress (Sinclair 2008). Also, increased polarization can lead to more contentions in judicial confirmation processes in legislatures, and the polarized debate over the Court can undermine public confidence in judicial branch (Binder

2008). Second, polarization might lead to more gridlock (or stalemate) in the national policy-making process, and partisan use of restrictive rules and tactics in Congress. Brady et al. (2008) find empirical evidence that the presence of polarization in the energy and environmental areas reduces the magnitude of the percentage change in budgets from year to year (pp.199-200). These are institutional consequences of partisan (elite) polarization. Finally, from the electorate's side, polarization may also be linked to reduced trust in government since Americans generally do not like the confrontational nature of politics (Brady et al. 2006, 187-9; Galston and Nivola 2006). As parties and political elites move toward ideological extremes with increasing divisions, moderates and ambivalent voters, which account for more than half of American citizens according to Fiorina et al. (2006), may feel alienated from politics (Hetherington 2008). Thus citizens can be disengaged or less engaged by political polarization. Further, when strong partisan division is increasingly associated with negative campaigns in elections, negative advertising can also demobilize the electorate, especially unaligned voters (Ansolabehere and Iyengar 1995).

On the other hand, while many scholars have argued the detrimental effects of polarization on the democratic polity, some have challenged the conventional view and highlight the beneficial side of polarization (Hetherington 2008, Hetherington 2009, see also Abramowitz and Saunders 2008; Levendusky 2010). In fact, the idea that polarization has potentially beneficial effects on civic engagement in politics is not totally new as Brooks and Geer point out (Brooks and Geer 2008, 34-5). Brooks and Geer discuss that the most obvious benefit of polarization is to offer more clearly differentiated positions between the parties, and the need for "party responsibility" might date back to more than half a century ago when a task force of American Political Science Association led by E. E. Schattschneider devised suggestions for a failing party system. In this regard, Hetherington

demonstrates that the electorate is now able to clearly differentiate party positions since party polarization has resulted in the development of party government with a sharper distinction. With increasing polarization of party positions, parties appear to be more responsible than before, thus he continues to argue that elite polarization has stimulated political engagement at the mass level (Hetherington 2008).

Abramowitz and Saunders also demonstrate that intense polarization increased the level of public engagement in the 2004 presidential election rather than turning off voters. According to their arguments, people tend to participate more with increased polarization because voters consider the election as being important if they perceive greater differences between the candidates and the parties (Abramowitz and Saunders 2008, 552). Thus we are still uncertain about the influence of polarization on the general political landscape or on the public engagement, whether it is pernicious or not.

### Elite and mass polarization

The scholarly work on polarization has paid separate attention to elite and mass polarization. For both dimensions, polarization generally means expanding extremists and diminishing moderates in a certain distribution or across an ideological spectrum. With this definition, a recognized scholarly consensus exists regarding a growing polarization in the U.S. Congress, but less agreement exists about polarization of mass attitudes (Abramowitz and Saunders 2008, 543; Baldassarri and Gelman 2008; Fiorina and Abrams 2008; Hetherington 2009). The disagreement among scholars arises in part due to different understandings of the characteristics of mass polarization. Whereas Fiorina et. al. (2006) do not consider partisan polarization or party *sorting* as valid evidence of growing attitudinal polarization, Abramowitz and Saunders (2008) regard increased partisan sorting

among the masses as a compelling sign of growing ideological polarization (see also Fiorina et. al. 2008; Abramowitz 2010). Along with different understandings of the same phenomenon, disagreements can also occur due to differences in analytical methods that scholars adopt to empirically evaluate a degree of public opinion polarization. The conceptualization of polarization is directly associated with the measurement strategy of the term. Moreover different measurement strategies can yield different analytical diagnoses of the existence of polarization. Myers (2007, 6) notes that the picture of mass polarization is still unclear because the measures used in previous research of opinion polarization have not truly captured the concept. Yet, most scholars have relied largely on the same or similar analytical strategies (e.g., a difference of means test) despite their different positions in the debate (for notable exceptions, see Levendusky and Pope 2011; Myers 2007).

According to the well-known public opinion literature (e.g., Zaller 1992), elite opinion often shapes mass attitudes and behavior. In addition, according to the theoretical literature on representation and electoral competition (for a classic on this position, see Mayhew 1974), elite policy positions correspond to public opinion. So, given this reciprocal relationship between elite and mass behavior, it is somewhat puzzling that elite polarization has not been transferred to mass attitudes. In a recent book, Fiorina and Abrams (2009) examine the widening *electoral disconnect* between polarized elected officials and moderate citizens, and show how representative democracy in America is being threatened with the increasing elite polarization.

How can the electorate remain ideologically undivided or insignificantly polarized when the elected officials who are supposed to reflect the constituencies' preferences are ideologically polarized? In other words, why the mass public appears to be polarized although their ideological preferences have not substantially shifted to extreme positions? This is truly an empirical puzzle in its nature. I have

found three possible answers from existing literature. The first two candidate explanations come from the idea of sorting, either partisan or geographic. According to the claim of partisan sorting, the electorate might be seen as being polarized if their party affiliation has changed, even though ideological positions of people remain unchanged. Thus, even with the increased partisan sorting, the electorate may not have become significantly polarized, unless their ideological positions has changed or moved to the extremes. Indeed, Fiorina and Abrams (2008, 54) note that “the party sorting that has occurred over the past generation has moved the parties further apart from one another, but has not produced bimodal distributions of aggregate opinion.” The next possible scenario for the puzzling phenomenon is geographic clustering of partisanship, which focuses on spatial compositional changes in partisan or ideological preferences (Bishop and Cushing 2008; Hui 2010 and McDonald 2009). That is, polarization-like phenomenon can be observed among the public even when individuals’ ideological preferences remain unchanged over time if people have changed location of residence, especially following their political and socio-demographic characteristics. In this regard, Hui (2010) claims that the increasingly skewed spatial distribution of partisan preferences provides the key to the empirical puzzle posted above. In particular, she focuses on “selective migration” where migrants’ relocation decisions are influenced by their socio-demographic characteristics. That is, by demonstrating that residential mobility and residential choices are *not random*, she argues that the pattern of selective migration is deeply entrenched in the electorate. In a similar vein, McDonald also examines the effect of migration on partisan polarization. He argues that polarization can be understood as the sum of the effects of sorting (partisan and geographic) and individual preferences changes (McDonald 2009, 15). Thus, without actual changes to individual preference changes, polarization process can be driven by sorting processes, such as migration, or legislative redistricting. Therefore, according to the

geographic sorting argument, congressional polarization can be maintained without actual polarization of the electorate at the national-level as long as partisan preferences are geographically sorted at constituency-level since federal elections are geographically-based (Hui 2010).

While the two accounts described above are trying to explain how come we have observed elite polarization without changing individual ideological preferences, the last possible answer focuses more on the real presence of genuine ideological polarization among the mass public. That is, individual ideological positions have truly changed to perpetuate political polarization, though we have failed to empirically detect the trend. Yet there is little to no evidence of ideological polarization in the mass attitudes according to a few of the most exhaustive studies (DiMaggio, Bryson, and Evans 1996; Fiorina et al. 2006). This dissertation project concentrates on the last possibility and argues that the presence of mass polarization can be identified when more adequate empirical measurement strategies are applied.

Therefore, using alternative empirical strategies, this project challenges the existing empirical puzzle regarding the presence of public opinion polarization and contends that mass attitudes in terms of policy and ideological preferences must have been polarizing in the late twentieth century and the early twenty first century corresponding to the growing elite polarization since mid-1960s or 1970s. Substantially I draw upon the theoretical insights and empirical evidence from the extant literature that indicates the presence of mass polarization. In particular, I focus on the *reciprocity* or interactive relationship between the elites and the masses in terms of their opinion formation. By reciprocity, this study is based on the premise of the two-way opinion flows model between the elites and the mass in that the elites shape mass attitudes on the one hand while public opinion significantly influences elite behavior on the other hand. Adopting various estimation methods

developed for distributional analysis, I demonstrate that the mass public has responded to growing elite polarization by becoming more polarized.

Actually, scholarly discourse is less active on a proper empirical strategy for measuring mass polarization compared to the heated debate on the existence of polarization. Given this paucity of scholarly argument regarding the measurement strategy for ideological polarization, this dissertation attempts to make contributions to the polarization debate by introducing some alternative methods that have not previously been applied to the problem. Thus, in this dissertation I contend that the use of an alternative statistical approach will not only make a difference in terms of assessing levels of polarization, it will also enlighten the substantive polarization dispute. In particular, this dissertation demonstrates that polarization measurement precision and sophistication can be improved considerably by the application of various methodologies of distributional analysis. To analyze ideological distributions of the elites and masses, this project utilizes the “relative distribution method,” which is a nonparametric statistical tool for comparing two or multiple distributions (Handcock and Morris 1999; Hao and Naiman 2010). The method can visually demonstrate changes in the relative density at extreme quantiles or in the middle of a distribution when a recent cohort is compared with a baseline distribution of a previous period. In addition to the overall analysis of relative distributional polarization, the method allows researchers to decompose distributional changes into shape and location shifts.

In addition to the distributional analysis, this dissertation also investigates the effects of polarized political environment on mass political attitudes and behavior especially focusing on political awareness and engagement. As a corresponding analytical tool to the distributional analysis, this dissertation employs quantile regression (Koenker and Hallock 2001) that produces different coefficient estimates for each conditional quantile of the dependent variable to examine

potentially heterogeneous responses of citizens to the changing environment.

Therefore, using these empirical methods we can more precisely evaluate the exact nature of changes in levels of polarization in recent years. With this information in hand, using the cumulative 1948-2008 ANES (American National Election Study) survey, this project provides insights into the dynamics of popular opinion change from the decade of the 1970s through the first decade of 2000.

According to the findings, both chambers in Congress became more ideologically divided since 1970s and congressional polarization intensified after the Republican takeover in 1994. The analysis indicates that contemporary polarization in the House has been accelerated by both the disappearance of conservative southern Democrats and increasing Republican conservatism. When it comes to the mass polarization, some evidence of ideological polarization is found in the government guarantee dimension while signs of polarization are rarely observed in the cultural issues. The findings suggest that the degree of polarization among U.S. citizens increased as the distributional center of measures of political ideology have *progressively* declined, though the opinion distribution of the later periods do not dramatically exhibit a text-book style polarized distribution (e.g., bimodal distribution). In addition, I find that attitudes toward government guarantees have shifted back and forth between more liberal and more conservative positions while public opinion on cultural issues has generally moved to more liberal positions over the years. Finally, the evidence reveals that political awareness tends to increase with growing elite polarization and political polarization tends to enhance levels of public interest in election. Furthermore, these positive effects of polarization are not necessarily limited to a small minority of population with more political resources including political knowledge and education.



### The Plan of the Dissertation

The dissertation is organized as follows. Chapter 2 introduces the primary research question of this dissertation focusing on the scholarly disagreement on the presence of mass polarization. In chapter 2, focusing on the interactive relationship or reciprocity between the elites and masses, I argue that the mass public must have responded to growing elite polarization, although the changes in mass attitudes and behaviors might not have been captured yet. The following chapter 3 introduces the relative distribution method which will be widely used in this dissertation as an alternative empirical strategy to measure the degrees of elite and mass polarization. Before introducing the alternative method, chapter 3 also reviews existing ways of measuring distributional polarization adopted by political scientists.

Using the relative distribution method introduced in chapter 3, chapter 4 analyzes levels of elite polarization in Congress to examine if congressional members have indeed become more polarized in the 2000s compared to the 1960s and the 1970s. Chapter 4 focuses more on the distributional changes occurring in the House, but I also analyze the roll-call data (DW-NOMINATE) of Senators. In chapter 5, I investigate how much the general electorate became ideologically polarized in the 2000s compared to the 1980s using the relative distribution method. Since I use the two dimensional measures (i.e., government-guarantee and cultural issues) of mass ideology instead of employing a single combined indicator, I also explain in chapter 5 how I constructed the ideological measures for the mass public. While chapters 4 and 5 rely mostly on the relative distribution method, those chapters also utilize empirical methods employed by the existing literature for comparison purpose.

While chapter 5 explores how the mass public has reacted to growing elite polarization in terms of the distributional changes in mass policy preferences—whether they became less or more polarized or whether no significant distributional

changes have occurred, chapter 6 analyzes how individual citizens have responded to the polarized political environment in terms of mass political awareness and engagement. Chapter 6 examines potentially heterogeneous responses of individuals to elite polarization according to existing levels of civic resources (i.e., political knowledge) using quantile regressions and other empirical strategies designed to evaluate conditional effects. Finally, in the conclusion chapter (chapter 7), I summarize the findings and discuss their major implications.

## CHAPTER II

### A MISSING LINK BETWEEN ELITE AND MASS POLARIZATION

#### The end of ideology?

Indeed, the discourse of “the end of ideology” grew out of the unusual decades of ideological convergence between congressional parties in the mid-twentieth century, especially during the 1960s. During the 1950s and 1960s, Republicans embraced postwar liberalism similar to the policy ideology of Democrats, and this liberal consensus after World War II brought about a noticeable degree of bipartisanship. This ideological overlap between parties continued at least until the late 1960s and the early 1970s (Han and Brady 2007; Levendusky 2009, 23). To demonstrate this overlap, Theriault reports that in the 93<sup>rd</sup> Congress (1973-4), “95 percent of Republicans were more liberal than the most conservative Democrat, and 36 percent of Democrats were more conservative than the most liberal Republican” (Theriault 2008, 26). Assessing this phenomenon, Downs (1957) contended that parties would ideologically converge in the bipartisan era since parties target on the median voter’s position in two-party competition (Downs 1957; see also McCarty et al. 2006, 7; Theriault 2008, 26). Downs (1957, 116-119) demonstrates that such convergence would occur when voters’ ideologies are approximately normally distributed with a concentration of a great majority at the center. With such a distribution, the potential gain to a party by positioning itself in the middle exceeds the possible loss of extremists.<sup>1</sup>

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<sup>1</sup> On the other hand, if the policy preferences of the electorate follow a bimodal distribution in the sense that a majority of voters are massed near both extremes, Downs contends that in such a case the parties would remain at the poles. At its base, this implies that a party’s position-taking in ideological spectrum is significantly affected by ideological configuration of the electorate.

The distributional overlap of parties' policy positions yields a number of important political consequences. For example, according to the Downs' analysis, with overlap it is rational for parties to *equivocate* on their positions because ambiguity increases the number of voters a party can attract. Yet this policy ambiguity may make it harder for citizens to make informed decisions, and thus drives voters to choose their preferred candidates for reasons other than issue positions. In this regard, rational behavior for a party is often achieved at the expense of voters' rationality (Downs 135-137). Moreover, because the partisan overlap engendered less differentiated or more ambiguous policy positions of parties, the public considered political parties as being less responsible for their policy making during the bipartisan period. Thus, this bipartisan era is often referred to as an example of the weakened party system (Brooks and Geer 2008, 35-6; Theriault 2008, 27). Further, a non-negligible consequence of the median voter model is that average citizens could lose their interest in partisan politics because parties' positions become more indistinguishable when party ideologies are converging. Indeed the convergence of parties led some scholars to lament the popular disenchantment with politics that bipartisan politics brought (see Hetherington 2008).

For these reasons, a certain degree of inter-party polarization was sometimes suggested as a solution to a failing party system. Indeed, responding to the weak party system in the mid-twentieth century, the American Political Science Association called upon a special task force (Committees on Political Parties) to enhance the strength and responsibility of American political parties and the task force proposed that clarifications of party positions are needed as a means of achieving party responsibility to the public. The committee also emphasized that a certain level of internal party cohesion and unity is required to effectively carry out a party program (APSA Report 1950). Ironically, such features as internal cohesion

and the clear differentiation between party positions are core characteristics of ideological polarization along party lines.

In contrast to the bipartisan era of the mid-twentieth century, the political environment changed by the twenty-first century and consequently scholars and pundits became less concerned about weak parties; rather they worried more about intensifying partisan polarization. According to Theriault's (2008, 7-9) review, most of the scholarly work on congressional polarization documents that political parties re-polarized after the late 1960s and early 1970s. As early as the mid-1970s party polarization had resurged in Congress and has continued into the first decade of the twenty first century (Brady and Han 2006; Hetherington 2001; McCarty et al. 1996).

#### The electoral disconnection?

Scholars have debated the presence of mass polarization, and the primary puzzle from competing evidence is how can the electorate not be ideologically polarized when the political elites who are electorally linked to their constituents are more divided than before? Put in another way, we wonder if there is an "electoral disconnect" between ideological attitudes of the mass public and the elected officials. If the political elite class is ideologically more divergent while the electorate is much less polarized, this state of mismatch obscures our existing knowledge about representative democracy because the widening *disconnect* in terms of ideological distribution can be seen as "the breakdown of representation in American politics," as Fiorina and Abrams (2009) have subtitled their book.

Previous research has reported contrasting results about the existence of popular polarization (Brewer 2005; Jacobson 2000, 2011; Layman and Carsey 2002; Stonecash, Brewer and Mariani 2003). Some scholars offer the supporting argument (e.g., Abramowitz 2010; Abramowitz and Saunders 1998; Campbell 2006) for the

presence of mass polarization whereas others present disclaiming empirical evidences (e.g., DiMaggio et al. 1996; Evans 2003; Fiorina et al. 2006; Fiorina and Levendusky 2006). This empirical disparity is somewhat puzzling because elite behavior is often referred to as a primary driving force behind mass opinion (Carmines and Stimson 1989; Hetherington 2001; Zaller 1992).<sup>2</sup> It follows that the mass public would be ideologically more polarized than before provided that: 1) scholars expect that elite opinion shapes mass attitudes; and 2) the political elite class is more polarized than decades ago. Yet, this logical link is not always sustained and is often given only limited credit by existing empirical evidence.

Actually, besides the argument from the public opinion literature, we have further compelling theoretical support for why elite and mass ideological preferences would be tightly connected. Namely, classical theories of representation and electoral competition provide more reasons to predict that the electorate is more ideologically divided when their representatives are more polarized. For instance, the electoral connection is the fundamental structure that links the constituents' preferences and legislative behaviors of their representatives (Mayhew 1974). Given that electoral link, elite policy positions are supposed to correspond to the voters' ideological preferences. That is, together with the public opinion literature, representation theory suggests a causal relationship between elite and mass attitudes in that elected officials respond to ideological preferences of their constituents. Therefore, given this argument of the *reciprocity* from the previous literature, this dissertation claims that mass attitudes have truly changed and that these have, in part, perpetuated ideological polarization of the political elites.

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<sup>2</sup> In this dissertation, 'elite' refers elected officials such as congressmen or governor.

According to the argument of Fiorina and his colleagues, mass attitudes have altered in response to elite polarization but ordinary citizens are not more polarized than before because ideological moderates or the centrists have not substantially diminished (Fiorina et al. 2006; Fiorina and Levendusky 2006; Levendusky 2009). As elites are increasingly polarized, the ideological positions of political parties become more clarified, and the voters can more easily align their ideologies with party affiliations using these clearer elite cues. Namely, instead of ideological polarization in the electorate, *party sorting* has occurred. Fiorina et al. (2006) distinguish between partisan polarization and popular polarization, and argue that “increasing partisan polarization *in the absence of* popular polarization indicates that “sorting” has occurred (p.61, *italics added*).” According to their argument, a polarized electorate should accompany vanishing moderates and increasing population at the extremes whereas the party sorting has more to do with the alignment of partisanship and ideology without diminishing the middle ground. Scholars are divided, however, as to if party sorting is just another aspect of popular polarization.<sup>3</sup> For example, Abramowitz (2006) and Jacobson (2006) contend that Fiorina and Levendusky *downplay* their own evidence of partisan polarization in the electorate by referring to it as sorting although both concepts are closely related. Gelman (2008), who analyzes three kinds of polarization — partisan sorting, opinion radicalization, and issue alignment — considers the sorting as one aspect of polarization in his argument.

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<sup>3</sup> To avoid any confusion in concepts used here, partisan polarization is understood as the party sorting which basically indicates the increased correlation between individual partisanship and ideology, while popular or mass polarization represents ideological polarization or radicalization of mass opinion. Actually, the party sorting and the opinion radicalization are the first and the second kind of polarization in Gelman (2008)’s explanation.

As described above, sorting is an elite-driven process and refers in essence to “a changing correlation between partisanship and ideology, so that, in a sorted electorate, party and ideology are more closely related (more correlated) than in an unsorted electorate (Levendusky 2009, 4-5).” The sorting is a top-down process because the growing partisan division among political elites increases correlation between individual ideology and party affiliation of the mass. The rise and growth of partisan polarization among politicians has reduced ideological ambiguity between parties and the concomitant greater polarization in Congress enables ordinary citizens to distinguish more clearly between policy positions of different parties. With regard to this point, Levendusky (2010) demonstrates in a recent article that elite polarization allows ordinary citizens to adopt more consistent attitudes in terms of policy preferences. This effect could be a potentially positive side of polarization. The clarity of the party-policy linkage resulting from elite polarization, however, may affect only a limited subset of population. Indeed Claassen and Highton (2009) find that only the well-informed citizen groups became more partisan in their views in response to the growing elite polarization.<sup>4</sup>

While individuals might be disproportionately responsive to growing elite polarization or partisanship according to their different levels of political knowledge, scholars have also evidenced that recently resurging partisanship among political elites has extended to the partisan conflict within the American electorate as a whole (Brewer 2005; Hetherington 2001). According to the literature, mass partisanship has significantly rebounded in recent years along with the partisan polarization of political elites. Actually, Campbell (2006) contends that the recent resurgence of partisanship among the mass public is compelling “indirect or

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<sup>4</sup> In the analysis to come, I provide more detailed analysis as to how individuals respond disproportionately to the growing elite polarization in terms of a level of political awareness.



circumstantial evidence” that demonstrates popular polarization corresponding the elite polarization (159-161). According to his argument, we should have seen three notable mass reactions to existing greater polarization in the political parties if the public remains moderate or unpolarized. First, party identification should have been weakened since the electorate has less motivation to identify strongly with polarizing parties as the median ideological positions of those parties have moved away from the preference of a moderate electorate. But exactly the opposite scenario has happened according to Campbell’s analysis since mid-1990s. The resurgence of partisanship is also evidenced by a host of other research (e.g., Bafumi and Shapiro 2009; Brewer 2005; Hetherington 2001; Layman et al. 2006). According to Campbell (2006), the percentage of strong partisans among NES respondents increased from an average 25 percent between 1972 and 1980 to 31 percent between 1994 and 2004 (pp. 159-161). Campbell also suggests that we may expect more voters to be alienated from unresponsive politicians, and thus abstain from voting as the distance of ideological preferences between the polarized elites and the centrist public increases. Electoral turnout in recent elections, however, has not declined among the voting eligible population (VEP, McDonald and Popkin 2001). The last circumstantial evidence of mass polarization dictates that as the mass public turn increasingly away from the polarizing candidates, party identification would wither, and thus more voters would split their tickets, but the ticket splitting among the American electorate is on the decline. To summarize, Campbell (2006, 161) concludes that “once the parties better reflected the long-standing polarization of the public, party identification would pick up, turnout would rise, and split-ticket voting would decline. This is exactly what has happened in the post-World War II years, during which the parties lagged behind the public in polarization.”

In response to the counter argument, Levendusky admits and shows that there has been a modest increase in mass polarization over time which is mostly

driven by the sorting (2009, 75-77). He argues that the sorting can possibly increase the degree of mass polarization since voters might gravitate away from the center and toward the extremes, if ordinary citizens adopt their party's position. But, according to Levendusky (2009)'s argument, the extent of such shifts is very limited and the increase in mass polarization has been quite modest over the past decades whereas elite polarization has produced considerable mass sorting for the same period. The effects of the sorting on mass polarization are limited because "sorting makes voters less centrist, but does not make them extremists" (Levendusky 2009, 75). Only a *modest* increase in mass polarization due to the sorting might explain why we have observed ambiguous claims about the mass polarization.

Thus, in essence, the bottom line of the argument from the opponents of the mass polarization thesis is that partisanship is resurging among political elites, and partisan conflict has expanded to the mass public, thus the sorting (or partisan polarization) has occurred among the electorate but still most *ordinary* voters remain ideologically moderate and centrists (Levendusky 2009, 71). The party sorting thesis contends that ordinary citizens have become more partisan without becoming more polarized in reaction to the growing elite polarization. They argue that a level of mass polarization is modest and it is largely confined to more active and political aware subsets of the population (Fiorina 2006).

This is still a confusing claim because individual partisan attitudes are strongly associated with ideological preferences of citizens in such policy dimensions as economic welfare and racial issues (see Brewer 2005). Indeed, scholars have provided evidence that as ideological thinking grew among the mass public, individual partisanship was increasingly shaped by ideological preferences during 1970s and 1980s (Abramowitz and Saunders 1998; Levine, Carmines, and Huckfeldt 1997). So if changes have occurred in partisan attitudes of voters in

responses to elite polarization (sorting), we might expect corresponding shifts in terms of their ideological positions. Yet we have less empirical evidence of mass ideological polarization comparable to mass partisan sorting despite the close link between mass ideology and partisan attitudes.

Given that “political changes begins with elites and then spread to the masses (Levendusky 2009, 35),” it is still perplexing that popular polarization (e.g. diminishing moderates) is absent while polarization in the political elites generated substantial amount of partisan polarization (e.g., sorting) in the electorate (Levendusky 2009, 70-75). Gelman (2008, 128-129) shows that all three forms of polarization—partisan sorting, opinion radicalization, and issue alignment—have been occurring at the elite level, but evidence provided by Levendusky (2009) is only limited to one kind of polarization at the mass level (partisan polarization). In another article, Gelman and Baldassarri (2008) also demonstrate that the correlation across different issue positions still remains very low among the mass public, which means that we have less empirical support for the issue alignment, the third form of polarization in Gelman’s typology. So, if only one kind of polarization is reflected at the mass level while all three kinds of polarization presenting at the elite level, this might be because the elite-driven polarization has delayed effects on mass responses, but Levendusky fails to find empirical evidence to support the delayed effects with limitation of panel data of longer time span (2009, 76).

The sorting model, especially the mechanism developed by Levendusky, adopts an elite-driven approach in that he assumes political change initiates with elites and the masses follow (Levendusky 2009, 35-37). Legitimate reasons for taking this approach can be found in the existing public opinion literature as Levendusky discusses (e.g, Carmines and Stimson 1989; Zaller 1992). For example, the mass public is assumed not to have consistent belief system and politics and public issues are not primary concerns for ordinary citizens. So elites are presented

as the driving force of mass opinion (Converse 1964; Carmines and Stimson 1989; Zaller1992). Yet the causal arrow between elites and masses in terms of polarization might be more complex rather than a one-way communication as Levendusky also admits. Actually, some findings demonstrate the situation in which the masses constrain elite behavior (e.g., Lee 2002). McCarty, Poole, and Rosenthal, who argue that polarization has been mostly a top-down phenomenon, also still suggest that “it [polarization] does have some basis in the preferences of voters. Polarization has been associated not with a decline, but rather a strengthening, of the association between the demographic characteristics of House districts and the voting behavior of their members (2006, 44).”

If we develop this argument further, we may argue that elected officials became more polarized corresponding to changes in preferences made in their representational bases. In this context, Stonecash et al. (2003) argue that politicians are polarizing because social changes made in their electoral bases are yielding parties with diverging electorate. For example, socioeconomic and demographic changes such as the emergence of black registered voters, growing income inequality, rising immigration rates especially among the Hispanic population, and greater diversity with growing residential segregation have brought about increasingly distinct demographic composition for two parties’ constituencies (McCarty et al. 2006; Layman et al. 2006; Stonecash et al. 2003). Corresponding to these changes, the explanatory power of the differences in constituency characteristics (family income, percentages of black and Hispanic, and education level) has risen remarkably between 1970s and mid-200s in the prediction models of the legislator’s ideal point (NOMINATE score), and thus of the partisan polarization (McCarty et al. 2006, 37-41). Actually, the idea that the American political landscape is increasingly segregated along geographic lines has already penetrated

deeply into the public perception. The debate of now-familiar red vs. blue states captures this geographic dimension of popular polarization.

In connection with the above argument, the ideological realignment thesis also asserts that there has been a long term shift in the relative strength and bases of support of the two major parties over the last several decades (e.g., Abramowitz and Saunders 1998). Witnessing substantial gains of the Republicans in the Congressional elections of 1994 and 1996, a number of scholarly works documented that a significant partisan realignment underway in American party politics, particularly in the South (Abramowitz and Saunders 1998; Saunders and Abramowitz 2004; Schreckhise and Shields 2003). In particular, the Republican landslide in 1994 is often described as the culmination of long-term trends in shifting party identification and regional realignment (Abramowitz and Saunders 1998). With regard to this Republican takeover, the secular realignment theory explains that the voters have increasingly taken more conservative ideological positions, and thus identified with the Republican Party, particularly in the South. And most importantly, going through the realignment brought by the social change and increased party polarization, Democratic districts have become ideologically more liberal and Republican constituencies more conservative over the course of two or three decades.<sup>5</sup>

There are many potential sources of party polarization in Congress (Jacobson 2000, 2008; Carson, Crespin, Finicchiaro, and Rohde 2007; Layman et al. 2006, 87-9), but we can narrow down the existing accounts of congressional polarization into two broad categories (e.g, Theriault 2008). While institutionally-based researches

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<sup>5</sup> Abramowitz and Saunders (1998) find the origin of the long-term partisan shifts in the bases of support from the increased ideological polarization between two parties in the Congress during the Reagan and post-Reagan eras. They argue that clearer partisan cues resulting from the elite polarization made it possible for citizens to choose a partisanship based on their ideological preferences.

have focused on the effects of congressional reforms in the growing party divergence in Congress, electorally-based explanations rest upon the changes occurred at members' electoral districts. According to Theriault (2008), fundamental reforms in Congress provided more power to the party leaders over members in terms of committee assignment and the agenda-setting. As the party leadership of both parties in both chambers became increasingly ideological, moderate members were forced to abandon their moderate positions. Further, the stronger party discipline increased the party's ideological homogeneity. Scholars have noted however that aside from these endogenous institutional factors, party ideologies in Congress have been also diverging because of exogenous social change and electoral realignment occurring at the constituency-levels both in and outside the South (Han and Brady 2006; Stonecash et al. 2003). Therefore, Layman et al. describe the complex looping structure of polarization as a "chicken and egg" problem (Layman et al. 2006, 94-5). Actually, it is still somewhat ambiguous as to which one drives the other or which one predates the other. Some people might assert that most political change begins in the elite group and then spreads into the electorate; yet we still have a possibility of finding the origins of the transformation in Congress from its electoral bases.

To conclude the chapter, growing ideological divergence between electoral bases of support of the two major parties can facilitate and reinforce greater polarization among the elected officials. So, political changes at the mass level do influence ideological polarization among political elites just as the elite polarization drives changes in the mass attitude. As Jacobson argues the "relationship between mass and elite partisan consistency is inherently interactive (2000, 26, citation from Layman et al. 2006, 95)". The conclusion to be drawn from this review is that it appears to make more sense to think that increased partisan and ideological polarization is *not* a "one-way street" (Brewer 2005, 227). As Brewer (2005, 228)

argues, the dynamics of opinion change between the elites and mass might be something like a “loop or circuit,” rather than a one-way flow from the former to the latter. Namely, the feedback loop circulating between the ordinary population and political elite class might be more complex than the unidirectional causality that flows from elites to masses.

### CHAPTER III

#### EMPIRICAL MEASUREMENT OF PUBLIC OPINION

#### POLARIZATION

In this chapter I conceptualize polarization and review how previous literature defines and operationalizes the concept. This chapter adopts the definition of polarization that highlights multi-dimensional principles. Given the multi-dimensionality of polarization, I demonstrate that an empirical approach focusing on summary measures (e.g., comparing means) may not suffice to accurately evaluate a level of distributional polarization. As an alternative estimation strategy for polarization analysis, I introduce the relative distribution method (Handcock and Morris 1999). Drawing on the alternative method, I contend that existing summary measures of opinion polarization are limited in their ability to fully characterize ideological distributions and thus we need to take a closer look at opinion distributions as a whole.

#### Conceptualizing Polarization

Before we progress on to further discussions, we need to define polarization. According to Fiorina and Abrams (2008, 566), “standard dictionary definitions of polarization emphasize the simultaneous presence of opposing or conflicting principles, tendencies, or points of view.” If this dictionary definition is still vague in some respects, McCarty, Poole and Rosenthal (2006, 3) offer a more straightforward version— “Polarization is, for short, a separation of politics into liberal and conservative camps.”

A group of scholars in the field appears to agree that conceptualizing polarization involves more than a single principle. For example, Gelman (2008, 113) contends that polarization consists of three “complementary, but conceptually



distinct notions”. Three aspects of popular polarization involve partisan polarization, opinion radicalization, and issue alignment. Partisan polarization refers to a sorting process in which individuals increasingly align their party affiliation with ideology (e.g., Conservatives → Republicans; Liberals → Democrats). But Fiorina et al. (2006, 61) argue that “*partisan* polarization is not the same thing as popular polarization (*italics* in the original text).” Fiorina and his colleagues distinguish between party sorting and polarization and argue that the partisan sorting without vanishing moderates or centrists does not suffice to say that the electorate is polarized (e.g, Fiorina and Levendusky 2006, 53-4). Thus, opinion radicalization, which is the second kind of polarization according to Gelman’s typology, can play a complementary role in refining the conceptualization. Under radicalization, “people gravitate away from the political center toward more extreme positions on issues” (Gelman 2008, 114). So, this aspect highlights the state of conflicting issue positions. The third aspect—issue alignment—concerns to what extent issue positions are correlated with each other. Unless positions are correlated across different issue dimensions, there might be some people who are conservative in one issue dimension but are liberal in the other dimensions at the same time. In this situation of the cross-cutting cleavages, ideological divisions become ambiguous, and thereby reducing the likelihood of potential conflict between encompassing factions (see also Baldassarri and Gelman 2008). In sum, according to Gelman (2008), these three distinct concepts provide different flavors of polarization respectively and can also be combined together in many different ways to account for other possible forms of polarization.

To my knowledge, even before Gelman (2008)’s work, one of the most comprehensive definitions of opinion polarization came from the collaborative work of DiMaggio, Evans and Bryson (1996) which focuses on the multi-dimensionality of the term. They provide four principles behind opinion polarization with which

Fiorina and his colleagues seem to agree: the dispersion principle, the bimodal principle, the consolidation principle (intergroup differences), and the constraint principle (ideological consistency across issue dimensions) (DiMaggio et al. 1996, Fiorina et al. 2006, Fiorina and Abrams 2008). While the first principle concerns the degree of preference heterogeneity among individuals, the second criterion measures rifts in opinion distribution.<sup>6</sup> The third property accounts for a basic and typical feature of ideological polarization, the extent of disagreement between pairs of groups. In particular, compared to the other existing approaches, what makes DiMaggio et al. (1996)'s conceptualization more fitting to opinion distribution is their taking the constraint principle into account (see also Gelman 2008). Given that systematic polarization of mass ideology can be observed only when the public has a consistent belief system, ideological constraint becomes a necessary condition of opinion polarization.

Taking these arguments stated above together, we expect that a polarized attitudinal distribution would have something to do with diminishing centrist and growing extremist positions. In terms of distributional characteristics, the shape might change from unimodal to bimodal if polarization proceeds. If we thus confine our foci about polarization to different attitudes associated with two modes in a given ideology distribution, it may sometimes be able to evaluate a level of polarization using the mean distance between two extreme opinion clusters. Yet, if the two modes are not conspicuously identified in a given distribution, or if the distribution has more than two modes (multi-modal), we can encounter more difficulties in assessing the level of polarization with such distributions. Methodologically, it might be tricky or even inadequate to apply an empirical

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<sup>6</sup> In other words, the bimodality principle of DiMaggio et al (1996) is intended to measure the degree of deviation from the center-oriented unimodal distribution.

strategy based on the summary statistics for those specified groups to measure distributional polarization unless the two significant groups are clearly identified.

Let us examine some extreme examples of population distributions with multiple modes. If we group a population in a society into clusters according to their similarities along some dimensions (e.g., ideology or partisan preference), the maximum number of groups equals the maximum number on the scale.<sup>7</sup> In an extreme example, when the cluster number approaches the size of the overall population, group size becomes too small, and we would rather call those small-sized groups “isolated individuals” as Esteban and Ray do (1994, 824). In this particular case of a population distribution, a society is not only highly dispersed, but the degree of heterogeneity across clusters in terms of the attribute is very high, though the level of polarization would not be high. The degree of polarization would grow however, if we collapse those multiple modes into two spikes located at opposite extremes or closer at the poles. Figure 3-1 demonstrates, using a particular hypothetical distribution, this difference between population heterogeneity and ideological polarization.<sup>8</sup> Uniformly distributed population represents the highly dispersed but not significantly polarized society (dotted horizontal line) whereas the solid line distribution epitomizes ideologically more polarized but less dispersed society.

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<sup>7</sup> Let’s think about the 7-point ideology scale in American National Election Study (ANES) data, the maximum number of poles we can think of in the scale is seven, in which a population is almost uniformly distributed in those seven positions.

<sup>8</sup> Wolfson (1994) used a similar graph to distinguish between economic inequality (comparable to the ideological heterogeneity) and polarization.

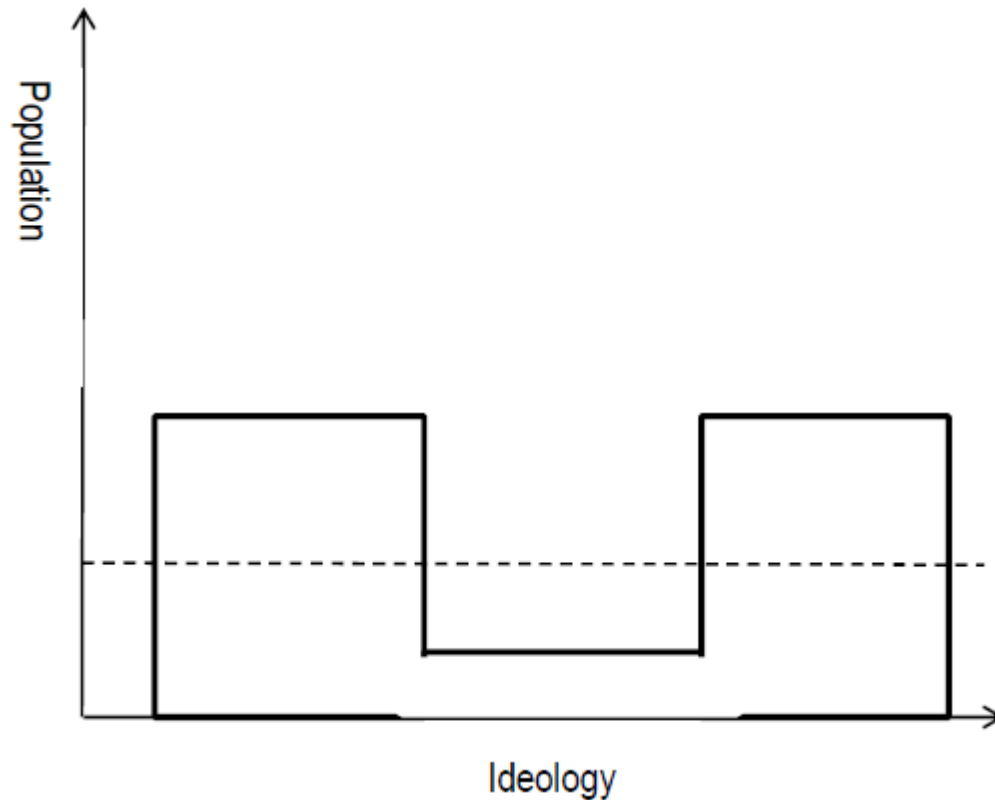


Figure 3-1. Population Heterogeneity and Polarization in Ideological Distribution

Further, the extent of social polarization is higher when group members have strong identification with the group in terms of the attribute. That is, in a polarized society the population is concentrated around some points of distribution, especially both extremes of the distribution. Therefore, higher polarization not only requires a substantial number of members in separate population groups but it also accompanies a strong level of intragroup cohesion (see Figure 3-1). Thus, the lesson here is that we need additional conditions beyond the heterogeneity principle to define distributional polarization to account for its multi-dimensionality. In addition to the degree of intergroup disagreement and distributional dispersion, the concept of polarization is also associated with the group size and the level of internal

homogeneity (or concentration) within each cluster (Clark 2009; Esteban and Ray 1994; Levendusky and Pope 2011; Myers 2007).

### Literature Review

Many scholars in the polarization debate focus on means, standard deviations, and frequency distribution to assess a level of distributional polarization while paying relatively less attention to other features such as changes in the distributional shape (for exceptions, see Levendusky and Pope 2011; Myers 2007). In this regard, an empirical strategy based on the difference of means test has been prevalent among scholarship in the field including Fiorina and his colleagues as well as Abramowitz and Saunders. As reported in Table 3-1 below, regardless of whether they support the mass polarization thesis or not, existing studies of opinion polarization rely to a great extent on the difference of means between cohorts.

As Myers argues (2007, 7), this empirical strategy is adequate if we are concerned with measuring polarization between theoretically interesting groups, such as partisan subgroups. Yet, intergroup difference in averages does not provide any information about changes in the shape of preference distribution. Moreover, the difference of means test often fails to capture the degree of intergroup homogeneity (*concentration*), which is also an important feature of opinion polarization as stated in the above.<sup>9</sup>

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<sup>9</sup> Namely, the extent of polarization can be different even when the group means are identical, if groups maintain different levels of intergroup homogeneity.

Table 3-1. A Selected List of Literature on Mass Polarization

Authors and their works	Data and Indicators	Empirical Strategies	Findings
Abramowitz (2006), Abramowitz (2010), Abramowitz and Saunders (2008)	NES 7-point scales for general ideology (Lib. vs. Cons.) and other policy issues; National Exit Poll (2004); etc.	Examine correlations between party identification and ideological issue dimensions; Examine the difference in means between pairs of groups or compare the aggregate proportion of respondents belonging to a certain category in the same scale; Analyze the standard deviation of combined scores on NES 7-point scales	More polarized than a generation ago, especially among politically engaged public

Table 3-2—continued

Campbell (2006)	NES 7-point scale of ideology (Lib. vs. Cons)	Track change in the percentages over time of survey respondents either identifying themselves as the moderate or reporting that they did not know.	Increased degree of polarization over time (declining moderates and non-ideologues)
DiMaggio, Evans, and Bryson (1996), Evans (2003)	Selected survey questions about social issues (abortion, race, gender roles, etc.) from NES and GSS (General Social Survey)	Examine mean (consolidation), variance (dispersion), and kurtosis (bimodality)	Little evidence of polarization with a notable exception of the attitude toward abortion issue

Table 3-2—continued

Fiorina and Levendusky (2006),	NES 7-point scales for general	Examine the percentage of	Not much polarized electorate
Fiorina, Abrams, and Pope (2008),	ideology and other policy	respondents belonging to a certain	than a generation ago; A Red-
Fiorina and Abrams (2008)	issues;	position;	Blue divide is misleadingly
	Selected ideological indicators	Examine the correlations between	exaggerated;
	from GSS and Gallup Survey;	party identification and policy issue	Rather partisan sorting has
	etc.	dimensions;	occurred.
		Compare the aggregate proportions of	
		respondents belonging to a certain	
		category in the same scale;	
		Examine the mean difference	
		between pairs of groups	



In a well-known paper frequently cited by the students of political polarization (e.g., Clark 2009; Lindqvist and Ostling 2010; Rehm and Reilly 2010), Esteban and Ray (1994) develop an axiomatic model of (income) polarization using a two-dimensional “identification-alienation” framework. Their measure of polarization captures not only the inter-group differences (or distances) but also accounts for the levels of intragroup cohesion and homogeneity. Thus, polarization, according to Esteban and Ray, is a function of intergroup distance, in-group homogeneity and the number of groups. Their index thus achieves its highest value when two equally sized and highly homogeneous groups maintain a larger distance from each other. Polarization tends to increase with within-group homogeneity, and intergroup heterogeneity, and to decrease as the number of groups grows. In other words, a sense of group identification felt by an individual grows with the number of similar members sharing the common characteristics, whereas a feeling of alienation from other groups increases with the distance between the individual and other group members (p. 830). Formally, the polarization statistic developed by Esteban and Ray (1994, 834) is given as follows;

$$P^*(\pi, y) = K \sum_{i=1}^n \sum_{j=1}^n \pi_i^{1+\alpha} \pi_j |y_i - y_j|$$

where  $n$  is the total number of unique social groups,  $K > 0$  is a normalizing constant,  $y_i$  and  $y_j$  are the positions of groups  $i$  and  $j$ , and  $\pi_i$  and  $\pi_j$  are the population share for each pair of groups.<sup>10</sup> The constant  $\alpha \in [0, \alpha^*)$  measures the “polarization sensitivity” affected by an

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<sup>10</sup> In words, the polarization statistic estimates the distance between all unique social groups (heterogeneity or alienation), weighted by the size of group at each position of a distinct group (identification). For example, if there is 3 groups (i.e.,  $n=3$ ), the polarization statistic is calculated using a summed value of different 9 combinations by  $i = j = 1, 2, 3$ . If  $i = j = 1$ , only a size of group 1 and its polarization sensitivity that together construct a level of group identification solely affect the estimated value of the Esteban and Ray statistic since a distance is zero. On the other hand, if  $i \neq j$ , a distance between two groups influences the polarization measure together with the value of identification part. Note that *case 1* ( $i = \text{group 1}, j = \text{group 2}$ ) and *case 2* ( $i = \text{group 2}, j = \text{group 1}$ ) can yield

individuals' feeling of group identification, and the statistic measures inequality rather than polarization if  $\alpha = 0$ .<sup>11</sup> So as the value of the sensitivity constant ( $\alpha$ ) gets larger, the share of each group is raised to the  $1 + \alpha$  power exceeding 1, it becomes more distinct from the inequality measurement. Esteban and Ray numerically estimate the upper bound of the sensitivity constant as  $\alpha^* \approx 1.6$ .

In public opinion literature, some scholars have attempted to conceptualize mass polarization employing multiple summary statistics; these include *variance* and *kurtosis*. Returning to the work of DiMaggio, Evans and Bryson (1996) who study the four principles of opinion polarization: the dispersion principle, the bimodal principle, the constraint principle, and the consolidation principle; they incorporate other summary statistics such as kurtosis (for bimodality) and variance (for dispersion) together with the mean to identify any changes in the distributional shape, and thus to assess a level of polarization of single opinion distributions. Variance or standard deviations are useful for understanding how opinions in a society are dispersed. These two measures do help to summarize the degree of dispersion or heterogeneity of social opinion, but they do not provide sufficient information about how a society is ideologically polarized because highly dispersed opinion distributions do not necessarily mean polarization.

The kurtosis, which is a fourth central moment of a distribution, is known to provide information about the degree of concentration of mass at the center of the distribution, but there

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different estimated values of the polarization statistic because  $i$  and  $j$  have different powers ( $1 + \alpha$  and 1 respectively).

<sup>11</sup> According to Esteban and Ray (1994, 834), the polarization measure is reduced to the Gini index if the polarization sensitivity constant  $\alpha$  sets equal to 0. Note that if  $\alpha = 0$ , different levels of group identification across clusters do not affect the polarization statistic as illustrated in the equation, while only a size of group influences the equation similar to the inequality formula.

is an unsettled controversy in statistics about whether kurtosis can be used as a reliable measure of bimodality (Balanda and MacGillivray 1988, Mouw and Sobel 2001, Myers 2007: 9). In particular, from the public opinion literature, Downey and Huffman (2001) have shown that kurtosis as a measure of polarization is potentially very weak to trimodal (or multimodal) distributions in opinion which are very common in Likert-type scales with three modes (e.g., 0, 50, 100 for feeling thermometer in NES), a common survey response format. They argue that the empirical strategy adopted by DiMaggio et al (1996) is necessarily limited to bimodal distributions of opinion, whereas there are other polarized distributions with more than two poles such as tri-modal distribution.

Lastly, some scholars distinguish between “polarization as a state” and “polarization as a process” (DiMaggio, Evans, and Bryson 1996). In a comprehensive study of opinion polarization, DiMaggio and his colleagues argued that “polarization is both a state and a process. Polarization as a state refers to the extent to which opinions on an issue are opposed in relation to some theoretical maximum. Polarization as a process refers to the increase in such opposition over time (see DiMaggio et al. 1996, 693).” Adopting this differentiation between the existence and the process of polarization, this study also focus on the respective aspects of public opinion polarization across different time frames.

#### Relative Distribution Method as an Alternative Strategy

The statistical approaches I have discussed thus far rely to some degree on summary statistics to identify the presence of mass polarization and those techniques still suffer from some drawbacks. Indeed, as Handcock and Morris point out, “summary measures leave much of the information inherent in a distribution untapped” (Handcock and Morris 1999, 1). I concur that

existing summary measures of opinion polarization are limited in their ability to fully characterize ideological distributions and thus we need to take a closer look at opinion distributions as a whole. Thus, in this section I propose an additional empirical strategy for the measurement of mass polarization that provides both summary measures and detailed information about the distributional changes.

The *relative distribution method* is a nonparametric statistical tool devised to fill this gap in comparing two distributions (Handcock and Morris 1998, 1999). In addition to providing its own summary statistics for analyzing distributional differences, the relative distribution method describes exactly how one distribution (comparison distribution) relates to the other (reference distribution) (Handcock and Morris 1995, 1999; Hao and Naiman 2010; Morris, Bernhardt, and Handcock 1994). In essence, instead of analyzing two densities separately for comparison purposes, the method examines the proportions of the comparison distribution that fall in each quantile of the reference distribution. Namely, to construct a graph of the relative distribution, we first partition the reference distribution into deciles, and then the relative distribution returns the ratio of the proportion of the reference population to the proportion of the comparison population in each decile.

Formally, let  $Y_0$  be a random outcome with its CDF (cumulative distribution function)  $F_0(Y_0)$  in the reference population. Suppose we also observe another outcome variable  $Y$  from a different (comparison) population of which CDF is given as  $F(Y)$ . In general,  $Y$  is the distribution for a different group or the same group measured in a different time period. The relative distribution (or “relative rank”) of  $Y$  to  $Y_0$  is defined as the distribution of a random variable  $R = F_0(Y)$  and this implies “the proportion of the reference population whose values are at most  $Y$ ” (Handcock and Morris 1999, 21; Hao and Naiman 2010, 65-6).  $R$  is obtained from  $Y$  by transforming the value by the CDF for the reference population  $F_0$ . The transformation is also

referred to as the “grade transformation” and the resulting data, which is continuous on the outcome space  $[0,1]$  is called relative data. As a random variable, the relative data  $R$  (and its realization  $r$ ) has a CDF and a corresponding PDF (probability density function). The CDF of  $R$ ,  $G(r)$  is expressed as follows;

$$G(r) = P[R \leq r] = P[F_0(Y) \leq r] = P[Y \leq F_0^{-1}(r)] = P[Y \leq Q_0(r)] = F(Q_0(r))$$

where  $r \in [0,1]$  is the proportion of values, and  $Q_0(r) = F_0^{-1}(r)$  is the quantile function of  $F_0$  (Handcock and Morris 1999, 22; Hao and Naiman 2010, 66). The corresponding PDF (or relative density of  $R$ ) is obtained as the derivative of CDF,  $G(r)$ ;<sup>12</sup>

$$g(r) = \frac{f(Q_0(r))}{f_0(Q_0(r))} = \frac{f(y_r)}{f_0(y_r)}$$

where  $y_r$  denotes the  $r$ th quantile of  $R$  (i.e.,  $Q_0(r)$ ) using the original measurement scale of the reference population.

According to Handcock and Morris (1999, 22-26; see also Hao and Naiman 2010, 68-9), the relative distribution method is an intuitively appealing strategy for comparing two distributions because the relative data, and its CDF and PDF have clear interpretations.<sup>13</sup> The relative data can represent the percentile rank that the original value of the comparison population would have in the reference population. The relative CDF can be interpreted as the proportion of the comparison population whose value is less than or equal to the  $r$ th quantile of the reference population. If the graphical display of relative CDF converges to 45-degree line from (0, 0) to (1, 1) it means that the two distributions  $F_0(Y_0)$  and  $F(Y)$  are identical.

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<sup>12</sup> The derivative of the inverse function  $Q_0(r) = F_0^{-1}(r)$  is defined as follows;

$$\frac{1}{f_0(F_0^{-1}(r))} = \frac{1}{f_0(Q_0(r))}, \text{ where } \frac{dF_0(r)}{dr} = f_0(r).$$

<sup>13</sup> The relative data  $R$  shows a uniform distribution if no distributional differences are found between the two populations (i.e., reference vs. comparison).

Compared to the relative CDF, the graph of relative PDF provides a more intuitive interpretation, PDF  $g(r)$  can be considered as a density ratio: the ratio of the fraction of values in the comparison cohort to the fraction in the reference cohort at a given level of outcome values. So if  $F_0(Y_0)$  and  $F(Y)$  are almost identical distributions, the display of the relative PDF will converge to the uniform distribution  $g(r) = 1$ . On the other hand, if a greater frequency is observed at certain outcomes—deciles (quantiles)— of interest in the comparison distribution, the relative density lies above  $g(r) = 1$ . In contrast, if less frequency is observed in  $F(Y)$  compared to the frequency observations in  $F_0(Y)$ , the relative density falls below the horizontal line  $g(r) = 1$ .

For example, if we estimate a degree of ideological polarization of 111th Congress (2009-2010), we can first think of the approach that directly examines whether the distribution is polarized by its own shape (e.g., using a kernel plot). Instead, we can also think of assessing a level of polarization by looking at how ideological distribution of the 111<sup>th</sup> Congress is *relatively* polarized compared to some reference cohort (e.g., the 88<sup>th</sup> Congress (1963-1964)). Indeed, the relative distribution presents the fraction of House representatives in the comparison distribution (the 111<sup>th</sup> Congress) that fall in each decile of the baseline distribution (88<sup>th</sup> Congress) as we adopt the first dimension DW-NOMINATE scores as measures of members' ideological preferences. Figure 3-2 presents the graphical display of the relative density (relative PDF). While x-axis represents 10 deciles (from most liberal to most conservative) of the baseline distribution (i.e., ideological distribution in the 88<sup>th</sup> Congress), y-axis represents relative PDF in each decile. Namely, by looking at the graphical display of the relative PDF, we can evaluate whether density increased or decreased in the comparison distribution (the 111<sup>th</sup> Congress) in respective decile of the reference distribution. Thus, Figure 3-2 illustrates that the House representatives in the 111<sup>th</sup> Congress are more polarized compared to a reference distribution of

the 88<sup>th</sup> Congress. The middle ground of the density is significantly diminished (lies below the horizontal line) whereas both extremes gain more density in the 111<sup>th</sup> Congress. The red solid line and green dotted lines (95% confidence intervals) significantly lie above  $g(r) = 1$  line at both ends of the distribution. If there is no distributional change between the two, the relative distribution should have yielded a uniform distribution (i.e., identical to  $g(r) = 1$ ) line). Thus, Figure 3-2 indicates that distributional polarization is underway as we moved from the 88<sup>th</sup> Congress to the 111<sup>th</sup> Congress.

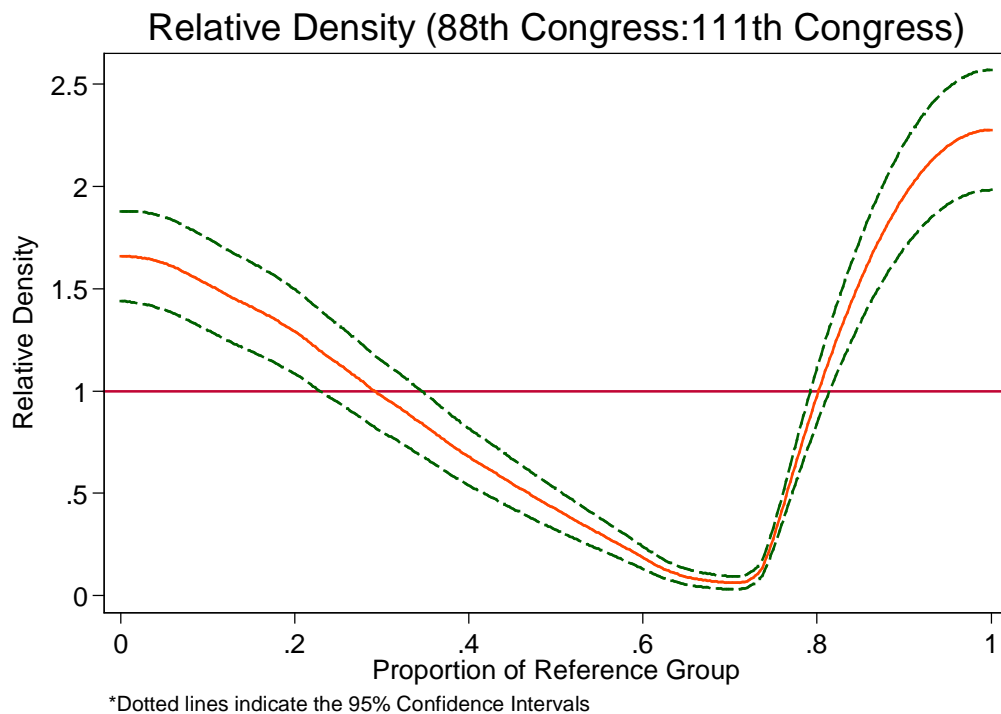


Figure 3-2. Relative Density (88th Congress: 111th Congress)

According to Handcock and Morris (1999, 41-47), distributional differences can be decomposed into location and shape shifts. If the comparison distribution  $F_0(Y)$  is just the location-shifted reference distribution  $F(Y)$  without changes in the distributional shape, a comparison distribution is something similar either to  $F(Y - \delta)$  for an additive shift or to  $F(\delta Y)$  for a multiplicative shift where  $\delta$  is some constant. In this case, the relative density of these simple location shifts will always display a monotonic decline or incline. On the other hand, the shape shift accounts for the residual differences that remain after a location adjustment is made between the two distributions. Thus the relative distribution between location-adjusted reference and comparison distributions captures the residual changes in distributional shape. The shape effect is closely related with distributional polarization because we are interested in the relative density in the middle and the tails of a distribution. Note that we are interested in evaluating growing polarization of a certain distribution using the relative distribution framework, and polarization can be understood as the relative density of the middle to the tails of the distribution. Hence a plot of relative density will display a *U-shape* form if a comparison cohort is more polarized than a reference cohort. This is because the distributional center will be under-represented below the  $g(r) = 1$  line while lower and upper tails will be overrepresented above the horizontal line in the relative PDF display. For example, in the opinion polarization context, a true shape-shift might occur if individuals' preferences were redistributed along the ideological scale, after matching the location of the two cohorts. Therefore, mass opinion polarization could be observed when ideological preferences of people move from the center of the distribution to the upper and lower tails. In this case, the plot of relative density will take a U-shape.

Formally, if we assume a hypothetical distribution  $Y_{0L}$  that is a reference distribution ( $Y_0$ ) location-adjusted to have the same median (location) as the comparison distribution  $Y$ , this location-adjusted reference distribution  $Y_{0L}$  can be represented as  $Y_0 - \delta$  for an additive median



shift, where  $\delta$  is the difference between the medians of  $Y$  and  $Y_0$  (*i.e.*,  $\text{median}(Y) - \text{median}(Y_0)$ ). The corresponding CDF and PDF of  $Y_{0L}$  can be denoted as  $F_{0L}(Y) = F_0(Y + \delta)$  and  $f_{0L} = f_0(Y + \delta)$  respectively. Namely, a random variable  $Y_{0L}$  is designed to have same location (median) with a comparison cohort while it also has same shape with a reference group.

Using these three distributions— $f_0(Y_0)$ ,  $f(Y)$ , and  $f_{0L}(Y)$ — we can derive two relative densities (RDs) that account for the location and shape effects respectively. We define the relative distribution of  $Y$  to  $Y_0$  as  $R_0 \equiv F_0(Y)$ , where  $F_0$  is a CDF of the reference group  $Y_0$ . Hence, the first RD of  $f_{0L}(Y)$  to  $f_0(Y_0)$ , or  $R_0^{0L} = F_0(Y_{0L}) = F_0(Y_0 - \delta)$  represents the location shift between the comparison and the reference group. This location effect will display the uniform distribution defined in  $[0,1]$  if the reference and the comparison distributions have the same median. In contrast, if the comparison median is greater (or smaller) than the reference median, the location shift will display monotonically increasing (or decreasing) graphs in  $r$  (*relative data*). Second, the RD of  $f(Y)$  to  $f_{0L}(Y)$ , or  $R_{0L} = F_{0L}(Y) = F_0(Y + \delta)$  represents the shape shift isolated from the location effect between the two distributions. Thus, the shape effect will converge to the uniform distribution defined in  $[0,1]$  if the comparison distribution and the location-adjusted reference distribution have an almost identical distributional shape. Moreover, this shape effect allows researchers to determine if distributional upgrading or downgrading — the shift of distributional mass to the upper or lower tails— occurred, or otherwise, if convergence toward the median happened in the distribution. Finally, these two RDs compose together the overall relative density  $R_0 = F_0(Y)$  between the comparison  $f(y)$  and the reference  $f_0(Y)$  distributions. That is,

$$\text{the overall RD } \frac{f(y_r)}{f_0(y_r)} = \text{the location RD } \frac{f_{0L}(y_r)}{f_0(y_r)} \times \text{the shape RD } \frac{f(y_r)}{f_{0L}(y_r)}$$

Figure 3-3 illustrates the location and shape effects respectively employing the example of comparing the ideological distribution of the 111<sup>th</sup> Congress with the 88<sup>th</sup> Congress. Similar to

the above Figure 3-2, the horizontal axis refers to 10 deciles (from most liberal in the far left to most conservative in the far right) of the reference distribution, while the vertical axis represents levels of relative PDF in each corresponding decile. I adopted the additive location shift and the location effect indicates that a majority of congressional members shifted to the more liberal positions in 111<sup>th</sup> Congress compared to the 88<sup>th</sup> Congress. Indeed, the red solid line and its 95% confidence intervals significantly lie above the horizontal line in the graph of the location effect. On the other hand, the shape effect reveals that the relative density also increased in the right end of the ideological distribution while the great majority of members moved to the left positions. Indeed, although location shift to more liberal position characterizes the overall relative density effect, *at the same time (aside from the location change)* upper polarization (or increased relative density in the right end of *the location shifted*-distribution) also occurred in the ideological distribution. That is, the location of overall ideological distribution shifted to the left side, but the shape also changed in a way that increase the relative density in the upper end of the location shifted ideological distribution. In sum, both the location and shape effects explain together the overall effect of the relative density displayed in Figure 3-2 above.

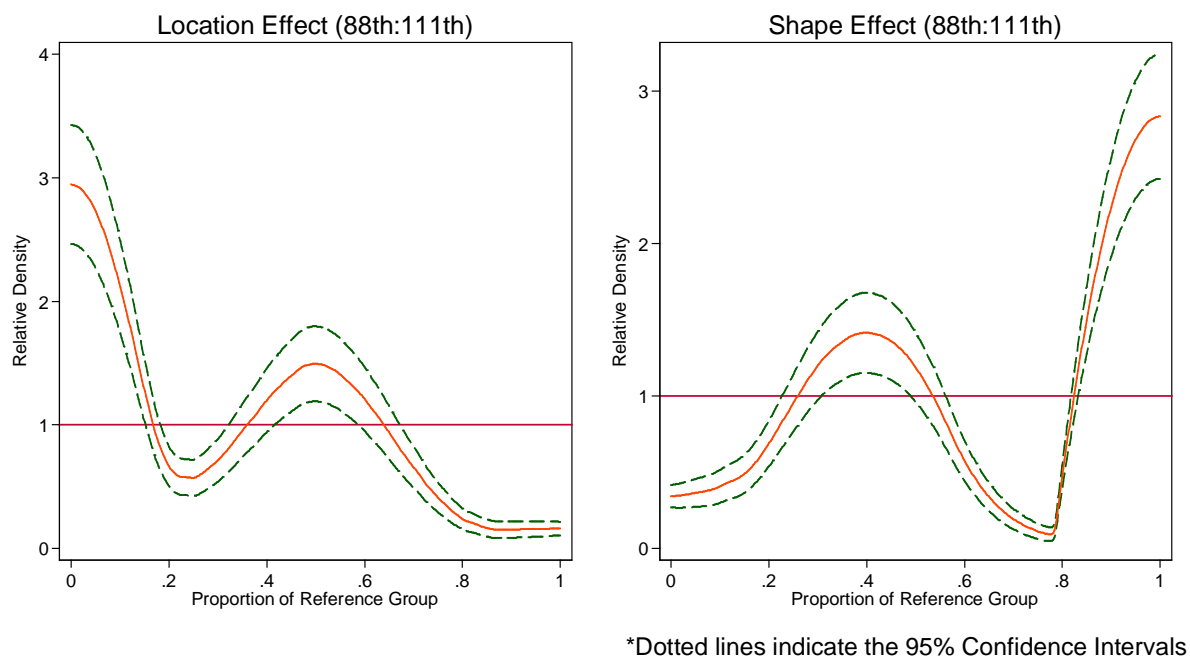


Figure 3-3. Location and Shape Effects (88th Congress : 111th Congress)

While graphical analysis is a key component of the relative distribution method, readers might still want to have measures or statistics to summarize distributional differences or changes. To meet the needs, the relative distribution method provides summary measures which are robust to both outliers and to violations of parametric assumptions (Handcock and Morris 1999, Chapter 5).<sup>14</sup> The median relative polarization (MRP) index evaluates to what extent a comparison distribution is more polarized than a reference distribution (Hao and Naiman 2010, 86). The

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<sup>14</sup> According to Handcock and Morris (1999, 63), summary measures presented by the relative distribution framework are robust because of the two properties inherent in the method. First, by rescaling of the comparison distribution to the reference distribution, the impact of outliers is limited in the relative distribution. Second, the summary measures in the method are fully non-parametric, thus the absence of parametric assumptions means there are fewer assumptions to deviate.

measure compares a reference and a comparison distribution at their tails to see if the former stretches wider (narrower) or has heavier (lighter) tails than the latter. As we have discussed above, increasing polarization of a distribution is related primarily with a shape-effect, so we often adjust differences in location to isolate differences in the distributional shape. Thus, MRP is defined in terms of the relative distribution of the comparison distribution to the *location-matched* reference distribution, where the location is adjusted to equalize the median (or mean) between the two distributions (Handcock and Morris 1999, 70; Hao and Naiman 2010, 86).<sup>15</sup> Intuitively, the polarization statistic measures the deviations of the relative density from the uniform distribution, where the uniform relative density indicates that the reference and comparison distributions coincide. We defined above  $R_{0L}$  as the relative distribution between the comparison distribution ( $Y$ ) and the location-matched reference distribution ( $Y_{0L}$ ). That is,  $R_{0L} = F_{0L}(Y) = F_0(Y + \delta)$  where  $\delta = Q\left(\frac{1}{2}\right) - Q_0\left(\frac{1}{2}\right)$  is the difference between the medians of  $Y$  and  $Y_0$ . We then measure the mean absolute deviation from  $\frac{1}{2}$  and the relative polarization index is constructed using a linear transformation (four times the mean absolute deviation from  $\frac{1}{2}$  minus 1).<sup>16</sup> Namely, the median relative polarization index of  $Y$  relative  $Y_0$  is defined as follows (Handcock and Morris 1999, 70-71);

$$MRP(F; F_0) = 4E \left[ \left| R_{0L} - \frac{1}{2} \right| \right] - 1$$

Or equivalently, if the density of  $R_{0L}$  is  $g_{0L}$ , then,

$$MRP(F; F_0) = 4 \int_0^1 \left| r - \frac{1}{2} \right| g_{0L}(r) dr - 1$$

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<sup>15</sup> The median-adjustment of location is chosen over the mean-adjustment because the median is more robust to skewed distributions.

<sup>16</sup> The relative data  $R_{0L}$  is continuous on the outcome space  $[0, 1]$ .

After a linear transformation, the index ranges from -1 to 1. The zero score means there are no differences in distributional shape, while a positive value of the MRP (closer to 1) index implies that the comparison distribution is more polarized than the reference distribution. A negative value (closer to -1) indicates the comparison is less polarized than the reference distribution.<sup>17</sup> Intuitively, the value of the MRP can be interpreted as a proportional shift of the population in the distribution from more central to less central locations. For example, the relative density of 88<sup>th</sup> Congress : 111<sup>th</sup> Congress (Figure 3-2) yields a MRP value of 0.162, which implies 16.2 % of the population shift from the middle of the distribution to the upper and lower percentiles. In contrast, if a MRP indicates a negative value, for example -0.287, this means that 28.7 % of the population converges from the two tails toward the center of the distribution.

What makes the MRP particularly appealing compared to other distributional polarization statistics is that when it is decomposed it also allows us to compare the polarization in the lower and upper tails of the distribution. As Handcock and Morris (1999, 70) contend, most of the existing polarization statistics are not designed to distinguish between growth in the lower and upper tails. The lower and upper relative polarization indices (LRP and URP respectively), as decompositions of MRP, allow us to distinguish if increasing polarization originates either from

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<sup>17</sup> Note that  $R_{0L}$  takes the uniform distribution defined on  $[0, 1]$  if the reference and comparison distributions are identical, and in this case,

$$4 \int_0^1 \left| r - \frac{1}{2} \right| dr - 1 = 0, \text{ where } r \in [0, 1].$$

Another special case occurs when the comparison population is only concentrated on the center (e.g., median) of the distribution. In this case,  $R_{0L}$  is the constant random variable taking the value of  $\frac{1}{2}$ , thus,

$$MRP(F; F_0) = -1 \text{ since } E \left[ \left| R_{0L} - \frac{1}{2} \right| \right] = 0.$$

Finally, the most extreme special case of relative polarization occurs when half of the comparison cohort takes a value equal to the minimum of the reference cohort, while the other half takes a value equal to the maximum of the reference. In this case,  $R_{0L}$  will only take either 0 or 1 with the same probability of  $\frac{1}{2}$ . Therefore,

$$MRP(F; F_0) = 1 \text{ since } E \left[ \left| R_{0L} - \frac{1}{2} \right| \right] = \frac{1}{2}.$$

symmetric growth (increases in both tails), or from upgrading (increases in the upper tail), or from downgrading (increases in lower tail).

In general, the LRP and the URP are calculated by (Handcock and Morris 1999, 72):

$$LRP(F; F_0) = 4E \left( \left| R_{0L} - \frac{1}{2} \right| \middle| R_{0L} \leq \frac{1}{2} \right) - 1 = 8 \int_0^{\frac{1}{2}} \left| r - \frac{1}{2} \right| g_{0L}(r) dr - 1$$

$$URP(F; F_0) = 4E \left( \left| R_{0L} - \frac{1}{2} \right| \middle| R_{0L} > \frac{1}{2} \right) - 1 = 8 \int_{\frac{1}{2}}^1 \left| r - \frac{1}{2} \right| g_{0L}(r) dr - 1$$

And these LRP and URP indices together compose the overall median relative polarization index (MRP), namely:

$$MRP(F; F_0) = \frac{1}{2} LRP(F; F_0) + \frac{1}{2} URP(F; F_0)$$

Interpretation of both LRP and URP indices is similar to the MRP; the indices range from -1 and 1; while positive values indicate more polarization in the respective tail of the distribution, negative values indicate less polarization in the tails. Intuitively, these two indices represent the amount of proportional shift of the centrist population toward each tail of the distribution. For example, a MRP value of 0.162 above is decomposed to  $\frac{1}{2}$  LRP (-0.363) +  $\frac{1}{2}$  URP (0.687)=0.162, and this implies that 34.4% (a half of URP) of the center population shifted toward the upper half of the distribution (positive polarization) while 18.2% (a half of LRP) moved from the center to the lower half (negative polarization).<sup>18</sup>

Since Morris, Bernhardt, and Handcock (1994) proposed the method for measurement of the distributional shifts in earning dynamics, the relative distribution framework has been mostly applied to compare income and wage distributions over time and between demographic groups to

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<sup>18</sup> Thus, 16.2% (34.4%-18.2%) of the center population diverges toward respective tails of the distribution.

evaluate the extent of economic inequality (e.g., Handcock and Janssen 2002; Handcock and Morris 1998; Hao and Naiman ch.5; Morris, Bernhardt, and Handcock 1994). In the following section, I apply this relative distribution method to ideological polarization of the mass public. Employing the alternative nonparametric method, I argue that existing empirical evidence of mass polarization is somewhat limited and is often ambiguous because it is difficult to detect mass opinion change which is not dramatic but gradual.

## CHAPTER IV

### AN ANALYSIS OF CONGRESSIONAL POLARIZATION

#### Introduction

Before analyzing mass ideological polarization, I explore party polarization in Congress and confirm that Democrats and Republicans on Capitol Hill became more ideologically divided between the early 1970s and 2010 as the extant literature has argued (e.g., Carson et al. 2007; Layman et al. 2006; McCarty et al. 2006; Stonecash et al. 2003). While I analyze the congressional polarization, I also demonstrate the application of the relative distribution method to the roll-call data. Based on a review of the literature, I hypothesize increasing polarization of members' ideology in both chambers from the 1950s (83<sup>rd</sup> Congress) to the late 2000s (111<sup>th</sup> Congress). I also hypothesize that the House and the Senate exhibit a high degree of similarity in terms of trends in ideological polarization. Many scholars have previously shown the presence of congressional polarization since the early 1970s (Han and Brady 2007; McCarty et al. 2006; Theriault 2008; Theriault and Rhode 2011), and this chapter attempts to contribute to this existing body of literature by applying the relative distribution method to legislative roll call data.

According to a comprehensive study by Theriault (2008), *modern* ideological divergence between parties in Congress dates back to the late 1960s and early 1970s.<sup>19</sup> However, party polarization in Congress is not solely a twenty and twenty-first century phenomenon; rather, Congressional polarization existed even before the beginning of the twentieth century (Brady and

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<sup>19</sup> Theriault (2003) reviews existing explanations for the cause of party polarization in Congress and determines that scholars of Congressional polarization are divided into the two representative families; those that focus on electoral changes and those that concentrate on institutional changes. According to his argument, these competing claims, however, are not independently complete and thus need to be integrated.



Han 2006; Han and Brady 2007; Theriault 2008). For example, Brady and Han (2006) find that the polarization pattern in Congress at the turn of the twenty-first century is similar to the 1890s. Brady and Han (2006, 150) argue that “although the breadth and depth of polarization in the present period is unique, we view it as more similar to the 1890s than the New Deal era. Both eras are characterized by a melding of moral and economic issues on the partisan agenda.” Theriault (2008, 21-23) also demonstrates that the polarized distribution of ideology in the 45<sup>th</sup> Congress (1877-9) is strikingly similar to the distribution in the 108<sup>th</sup> Congress (2003-2004). He also finds that the 58<sup>th</sup> Congress (1903-1905) was the most polarized in post-Reconstruction American politics even compared to ideological polarization in the 108<sup>th</sup> Congress. In this regard, Han and Brady (2007) argue that the bipartisan (relatively non-polarized) era of the mid-twentieth century was an *unusual* period.<sup>20</sup>

More scholarly attention has been paid to polarization in the lower chamber because of the institutional characteristics of the House which make it more susceptible to a changing political environment, but growing scholarly interests exists as well in party polarization in the Senate (Fleisher and Bond 2005; Lee 2008; Theriault and Rhode 2011). Previous research has shown that the Senate has also polarized similar to the House, and ongoing party polarization in both chambers is sometimes linked together. According to Theriault, the two chambers exhibit a high degree of correlation in terms of ideological divergence between the parties (Theriault 2008, 8). Han and Brady (2007) concur that “since the mid-nineteenth century, trends in polarization have moved together in both the House and the Senate (p.506)”; thus polarization patterns in both chambers have been remarkably similar. Despite the presence of similarity and correlation

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<sup>20</sup> Brady and Han (2006, 140) demonstrate that “throughout the nineteenth and early twentieth centuries, there was no overlap between congressional parties. The parties were both distant from each other and cohesive in their voting patterns. This was not true in the mid-twentieth century, however.”

between the two chambers, scholars have found that the Senate lagged behind the House (Fleisher and Bond 2004). For example, Theriault and Rhode (2011) find the root of the similarity between the House and the Senate in terms of polarization is the congressional career path from the House to the Senate for some members. They argue that growing polarization in the Senate since 1970s can be accounted for by Republican Senators who previously served in the House.

Previous studies have demonstrated the ongoing ideological divergence between Democrats and Republicans in Congress using a variety of different measures of ideology including interest group ratings (e.g., the Americans for Democratic Action [ADA] scores, American Conservative Union [ACU] scores) and roll-call summary measures (e.g., DW-NOMINATE scores <sup>21</sup>). Among these existing measures of congressional ideology, I employ the DW-NOMINATE scores to estimate ideological positions of congressmen in both chambers. These scores have been selected over the other ratings created by interest groups because of two substantial limitations of using the interest group ratings (e.g., ADA or ACU scores); first, interest groups analyze only selected cases of roll call votes while the DW-NOMINATE score utilizes all of the available votes. Second, the interest group ratings are not appropriate for conducting a long-run study of ideology analysis since the ratings are unavailable for the first half of the twentieth century (McCarty et al. 2006, 5-6).

The DW-NOMINATE scores range from -1 to +1 with -1 representing the most liberal position and +1 is the most conservative position. The DW-NOMINATE score consists of two dimensions of estimations of ideology reflected in congressional roll call votes. The first

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<sup>21</sup> DW-NOMINATE scores, updated to cover the two chambers in the most recent Congress (112<sup>th</sup> Congress) are available to download from the voteview webpage, <http://voteview.com/dwnomin.htm>

dimension primarily concerns government intervention in the economy (e.g., social welfare) and thus represents classical economic cleavages (i.e., economic liberal vs. conservative) while the second dimension is based on racial or civil rights issues (e.g., civil rights for African-Americans).

In the analyses below I focus on assessing distributional changes using the first dimension of the DW-NOMINATE score, the one that measures ideological placement of congressmen on economic liberal-conservative scale. McCarty et al. contend that “since the early 1970s.....the importance of the second dimension has steadily declined, and congressional voting has become increasingly unidimensional” (McCarty et al. 2006, 50). Further, they also demonstrate that;

“Except for a brief period in the late 1930s, voting on these issues (issues on the second dimension) has largely been explained by the first ideological dimension ..... Clearly, these issues have anchored the first dimension for the past seventy years and the power of the first dimension to explain these votes rose during the period of polarization. Therefore, it seems far more likely that the voting cleavages over race are converging to the preexisting economic cleavages, rather than other way around” (McCarty et al. 2006, 52).

As I reviewed above, contemporary party polarization emerged in Congress in the late 1960s and early 1970s approximately when congressional voting became almost unidimensional according to McCarty et al. (2006)’s analysis. Highton and Kam (2011) also argue that racial issues have merged to the first social welfare dimension because racial issues are increasingly relevant to redistributional policies. Moreover, according to them, a substantial literature has evidenced that the confluence of racial and social welfare issues has become evident in the mass public as well as in the Congressional voting (Highton and Kam 2011, 206-7). Therefore, this chapter primarily addresses the first ideology dimension of DW-NOMINATE in terms of the elite polarization.

As an empirical strategy, I begin with kernel density plots to trace distributional changes in House and Senate members' ideology over time. The kernel density estimation is one of the most popular nonparametric tools for estimating the distribution of a random variable. The kernel density estimator is largely defined by the kernel function and a smoothing parameter called the bandwidth. A choice of the kernel function should satisfy certain conditions (e.g., proper PDF [probability density function], twice differentiable, and symmetric about zero), and the most widely used kernel functions include Epanechnikov, Gaussian (normal), or uniform functions. Among these kernel functions, Epanechnikov kernel is known to be most efficient in the sense that it minimizes the mean squared error that addresses the trade-off between bias and variance. For this reason, the default choice of kernel function in STATA is Epanechnikov while *R* adopts Gaussian function, another popularly accepted kernel, as its default kernel function.<sup>22</sup> In this study, I create the kernel density plot using STATA, which means that I employ the Epanechnikov as the kernel function. For a choice of an optimal smoothing parameter, I adopt the rule of thumb algorithm (e.g., default selection) provided by the STATA calculation. After graphically evaluating changes in the ideological distribution of Congressional members using the kernel density plot, I apply the relative distribution method to present a more detailed comparison among different panels of ideology distributions. If necessary, I also provide corresponding numerical measures to complement the findings of graphical analyses.

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<sup>22</sup> In most cases however, it is known that a choice of different kernel function leads to very minor changes, and what is more important is a choice of bandwidth. By increasing the bandwidth (similar role to the number of bins in the histogram), we gain smoother distribution while we lose accuracy at the same time. Holding the sample size fixed, bias increases whereas variance decreases as the bandwidth increases. More details about the kernel density estimation can be found at Silberman (1986) or Wand and Jones (1995).

### Party polarization in Congress

Figure 4-1 provides kernel density plots of DW-NOMINATE scores for Republicans and Democrats in both chambers from the 83<sup>rd</sup> Congress (1953-54) to the 111<sup>th</sup> Congress (2009-2010). The blue dotted line indicates Democrats' distribution, the red solid line represents Republicans. I chose the specific time-line based on the reference point of the 93<sup>rd</sup> Congress (1973-4) following Theriault (2008, 27)'s research where he argues that contemporary ideological polarization in Congress began in the early 1970s, especially from the 93<sup>rd</sup> session. I also include an analysis of 83<sup>rd</sup> Congress in the mid-1950s to see the distribution in the bipartisan era as a reference point for comparison. The right-hand column has plots for the House while the left-hand column has plots for the Senate. Looking first at the comparison of the 83<sup>rd</sup> and 93<sup>rd</sup> Congresses in Figure 4-1, the distributional overlap between the two parties' members declined both in the Senate and the House between the early 1950s and the early 1970s.<sup>23</sup> In other words, members in both chambers became more polarized by their party affiliation between the 83<sup>rd</sup> Congress of the early 1950s and the 93<sup>rd</sup> Congress of the early 1970s. In addition, if we examine panels 83<sup>rd</sup> through the 111<sup>th</sup> Congresses, the dotted blue lines representing the ideological preferences of Democrats have increasingly diverged from red lines indicating the ideological positions of Republicans. Indeed, by the 111<sup>th</sup> Congress, no visible distributional overlap can be detected between the two party membership groups of the both chambers. During the bipartisan era of 1950s, some degree of distributional overlap at the center between the two party affiliation groups is apparent in the upper and lower chambers (see the

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<sup>23</sup> The analysis here excludes Independents and members from other minority parties who accounts for only small portion (less than 1 % on average) out of total number of congressional members in each congress. For example, there are only 1 or 2 Independents or other party members in each Senate included here, while there is a single Independent member only in the 83<sup>th</sup> and 93<sup>rd</sup> Congresses of the House respectively.

83<sup>rd</sup> Congress of 1953-1954 above). Some overlap remained until the mid-1970s primarily because of the presence of ideologically conservative Democrats in the Congress. Actually, the distributions of Republicans have been quite stable in the House over time until the 99<sup>th</sup> Congress, and it was only in the 111<sup>th</sup> Congress that the Republicans' distribution significantly shifted to the right. Therefore, with the disappearance of those conservative Democratic members in both chambers, partly due to the Southern realignment which will be addressed at length later, partisan polarization became more clearly defined in Congress.

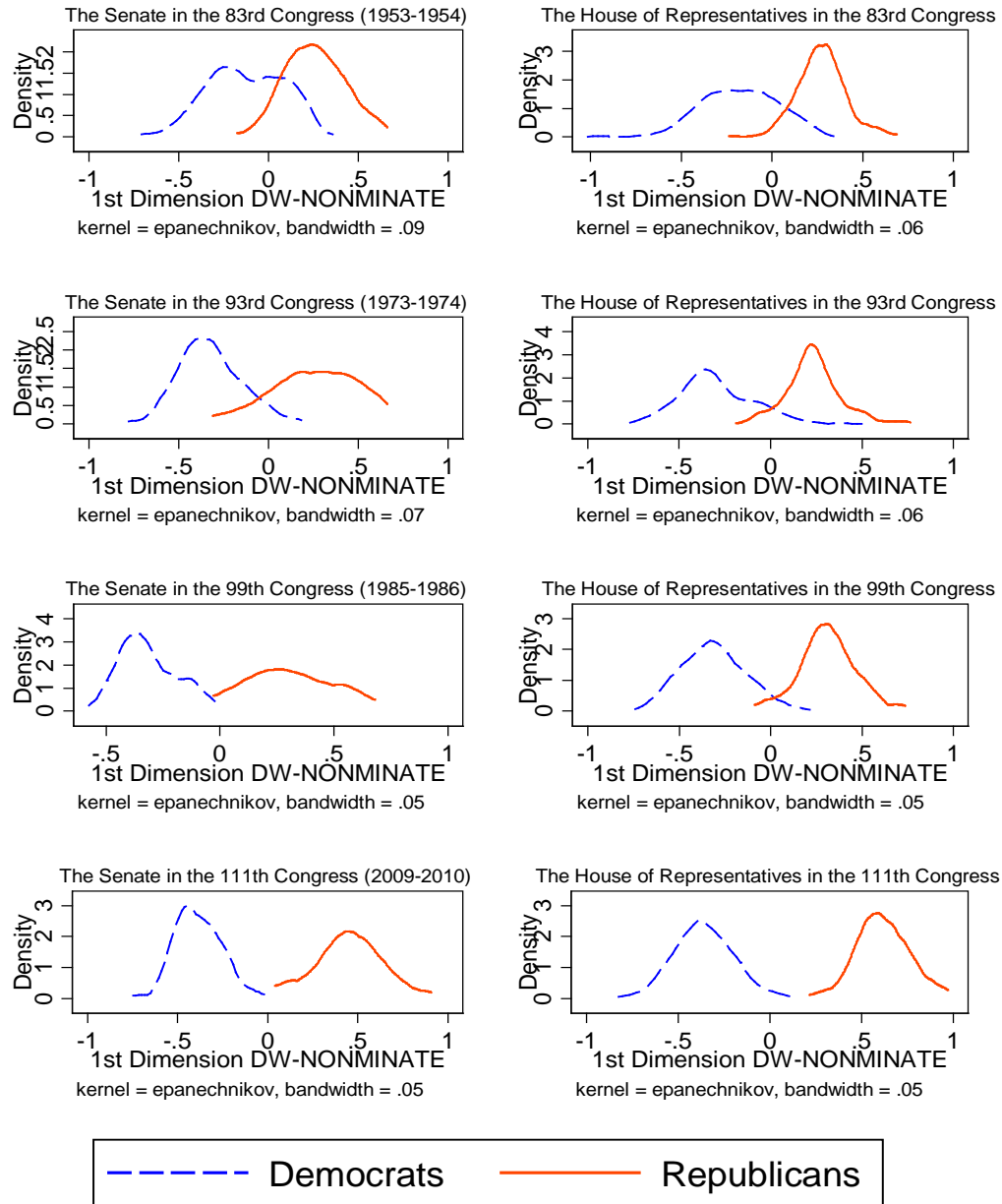


Figure 4-1. Kernel Density Plots of Partisan Divergence in Congress from the 83rd Congress to 111th Congress

While both chambers exhibit increasing party polarization between the 1950s and the 2000s, some noteworthy differences can be observed between the House and the Senate. First, Democrats are more cohesive in the Senate than in the House given that the range of the DW-NOMINATE scores for the House Democrats is wider than for Senate Democrats until the 1970s. The diffused Democrat distributions continue to exist in the lower house in the 93<sup>rd</sup> Congress but became more condensed in the 99<sup>th</sup> Congress (1985-1986) as the conservative (Southern) Democrats almost disappeared throughout 1980s. The increasing internal homogeneity of the Democrats is important evidence of growing polarization based on the definition of polarization adopted herein (i.e., intergroup heterogeneity *plus* internal homogeneity).

In Figure 4-1, the Democrats' distributions in the Senate are less diffused compared to House members. A possible explanation for the less diffused distribution of Democratic Senators is that Senators are under less pressure from constituencies' local interests because they serve in larger and more heterogeneous districts (i.e., states vs. districts). That is, Senators are more likely to take moderating positions to balance larger and more diverse statewide constituency interests rather than respond sensitively to a district's specific interest. Actually, this different electoral environment between the two chambers provides a reason why the Senate is less polarized compared to the House (Fleisher and Bond 2005, 3). Another explanation is a potentially different level of party discipline between members of the two chambers. Lazarus and Steigerwalt (2009) argue that party hierarchy is weaker and is "much less sharply defined" in the Senate compared to the House where the party leadership typically has more influence over the rank and file members. The individualistic nature of the Senate a more egalitarian party structure with weaker roles of the party leaders might explain why party polarization is more apparent in the House.



Despite these intrinsic differences between the two chambers, Figure 4-1 reveals that party polarization is also present in the Senate. Actually, prior literature confirms that the Senate has also become polarized along party lines, though the degree of polarization is not as much as in House (Fleisher and Bond 2005; McCarty et al. 2006; Theriault 2008; Theriault and Rhode 2011). According to Theriault (2008, 197), the Senate is about 80 percent less polarized than the House, and the correlation between the two chambers' polarization measures is 0.970 from the 93<sup>rd</sup> Congress to the 108<sup>th</sup> (2003-4) Congress. Moreover, Theriault and Rhode (2011) demonstrate that the growth of party polarization in the Senate can be almost entirely explained by the election of Republican Senators who previously served in the House after 1978 ("Gingrich Senators"). They argue that those Republican Senators, with experience of serving in the more partisan House, have had a substantial influence on polarized voting behavior in the Senate (see also Theriault 2008).

The current section has confirmed that both House and the Senate became more polarized along party lines between 1953 and 2010. For the rest of this chapter, I focus on party polarization in the House because both chambers exhibit similar dynamic, and the lower House is more prone to respond to district-level interests whereas Senators are typically serving more diverse and larger constituencies.<sup>24</sup>

Figure 4-2 provides graphical representations of party polarization in House using the first-dimension DW-NOMINATE scores. The figure covers more congressional years compared to Figure 1 including a kernel density plot of 88<sup>th</sup> Congress (1963-1964). Some overlap between the two parties is detectable in the early 1960s as shown in the 88<sup>th</sup> Congress. The inter-partisan distributional overlap through the 97<sup>th</sup> Congress results mainly from the presence of conservative

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<sup>24</sup> For more detailed discussions of differences between the House and the Senate in terms of organization, electoral motivations, and party influence, see Lazarus and Steigerwalt (2009).

Democrat members. Indeed, in the 95<sup>th</sup> Congress (1977-1978), the ideological preferences of some Democrat members of the House were located in more conservative areas than the positions of a certain proportion of Republican members. Actually, the DW-NOMINATE score for the most conservative Democrat was 0.88 which was greater than the most conservative Republican (0.715) in the 95<sup>th</sup> Congress.

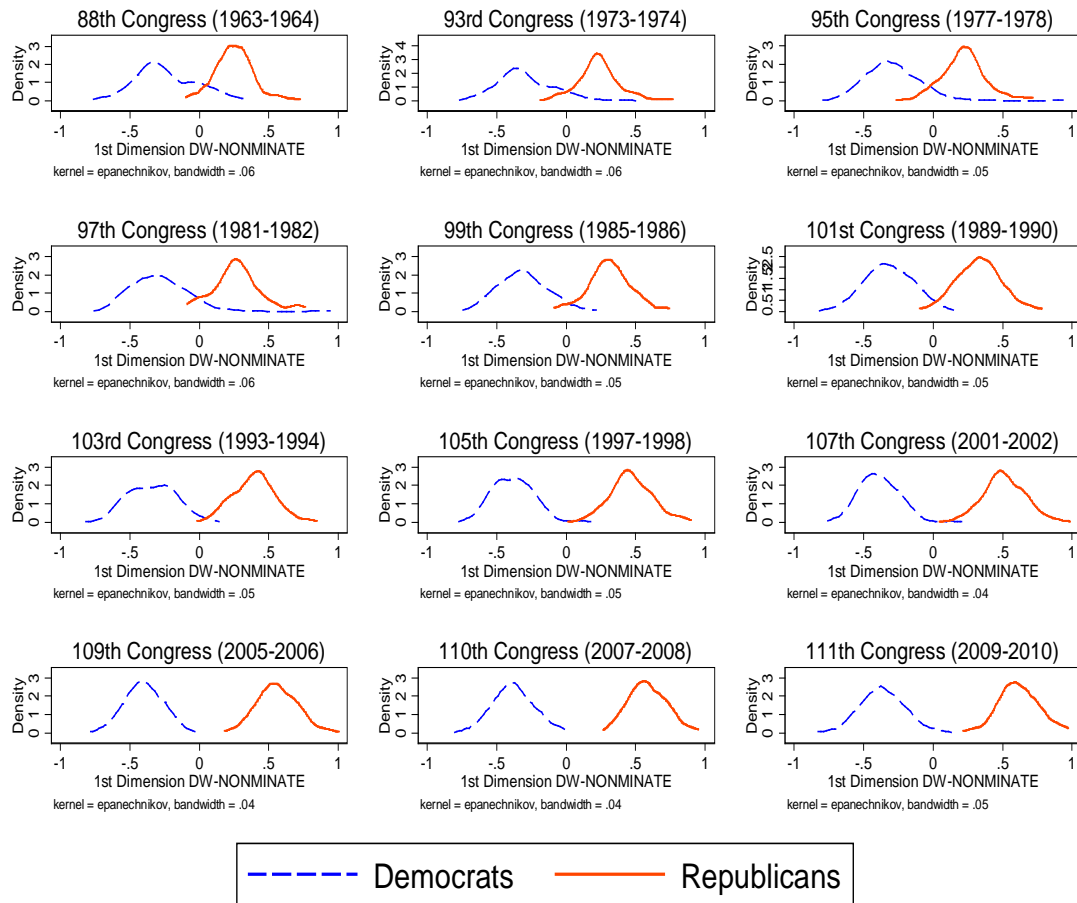


Figure 4-2. Kernel Density Plots of Ideological Divergence in the House

Some of these conservative Democrats remained in the House through the early 1980s (97<sup>th</sup> Congress) and it was only in the 99<sup>th</sup> Congress of 1985-6 that they vanished. As of 1985-6, only a small portion of congressional members have ideological positions that place them around the center (0 in the -1 to 1 scale). Those remaining middle of the roaders vanished completely in the House by the mid-2000s. Thus the entire distribution of Democrats is to the left of the

Republican distribution in the 109<sup>th</sup> Congress and the 111<sup>th</sup> Congress.<sup>25</sup> For example, in the 111<sup>th</sup> Congress held between 2009 and 2010, the DW-NOMINATE score for the most liberal Republican was 0.215 which is greater than the score of the most conservative Democrat member (0.082). Therefore, no overlap of positions occurs between the two parties in the 109<sup>th</sup> Congress through the 111<sup>th</sup> Congress. The visual representations in Figure 4-2 provide clear evidence that partisan polarization has intensified in the House.

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<sup>25</sup> Although it is not included in the figure 2, there is no distributional overlap in members' ideological preferences between the two parties in the 108<sup>th</sup> (2003-4) Congress as well. In the 108<sup>th</sup> Congress, the DW-NOMINATE score for the most conservative Democrat was 0.081 which is less than 0.177, a DW-NOMINATE score for the most liberal Republican member.

Table 4-1. Mean and Median Differences of the first dimension DW-NOMINATE Scores between the Democrats and the Republicans in the House from 83rd to 111th Congress

Congress	Mean			Median		
	Democrat	Republican	Difference	Democrat	Republican	Difference
<b>83 (1953-4)</b>	-0.176	0.272	0.448	-0.172	0.269	0.441
<b>93 (1973-4)</b>	-0.296	0.235	0.531	-0.330	0.229	0.559
<b>94 (1975-6)</b>	-0.296	0.226	0.522	-0.314	0.217	0.531
<b>95 (1977-8)</b>	-0.289	0.222	0.511	-0.307	0.218	0.525
<b>96 (1979-80)</b>	-0.288	0.247	0.535	-0.312	0.244	0.556
<b>97 (1981-2)</b>	-0.289	0.271	0.560	-0.311	0.267	0.578
<b>98 (1983-4)</b>	-0.296	0.298	0.594	-0.307	0.294	0.601
<b>99 (1985-6)</b>	-0.311	0.314	0.625	-0.314	0.309	0.623
<b>100 (1987-8)</b>	-0.312	0.322	0.634	-0.318	0.331	0.649
<b>101 (1989-90)</b>	-0.319	0.329	0.648	-0.321	0.337	0.658
<b>102 (1991-2)</b>	-0.321	0.352	0.673	-0.326	0.355	0.681
<b>103 (1993-4)</b>	-0.341	0.391	0.732	-0.337	0.393	0.73
<b>104 (1995-6)</b>	-0.370	0.443	0.813	-0.387	0.436	0.823
<b>105 (1997-8)</b>	-0.381	0.467	0.848	-0.394	0.454	0.848
<b>106 (1999-00)</b>	-0.382	0.487	0.869	-0.394	0.475	0.869
<b>107 (2001-2)</b>	-0.387	0.512	0.899	-0.399	0.501	0.900
<b>108 (2003-4)</b>	-0.387	0.541	0.928	-0.397	0.526	0.923
<b>109 (2005-6)</b>	-0.399	0.560	0.959	-0.340	0.543	0.883
<b>110 (2007-8)</b>	-0.378	0.585	0.963	-0.388	0.584	0.972
<b>111 (2009-10)</b>	-0.362	0.615	0.977	-0.365	0.603	0.968

Table 4-1 represents the mean and median scores for all Republican members and all Democrat members of the House plus the calculated differences between the means and the medians for the Republicans and the Democrats for every Congress from the 83<sup>rd</sup> to the 111<sup>th</sup>. If we examine the mean-differences or median-differences between the two parties—a method that has been widely accepted in prior work for detecting the presence of partisan polarization (e.g., Brady and Han 2006; McCarty et al. 2006)—, those differences dramatically increased over time

from the mid-1970s to 2010. The mean difference between the two parties in terms of the ideological scale is 0.977 in the 111<sup>th</sup> Congress while it was only 0.448 in the 83<sup>rd</sup> Congress. For the 93<sup>rd</sup> Congress, the median difference was 0.441 while it increased to 0.968 in the 111<sup>th</sup> Congress. In addition to the growing inter-partisan difference between the means and medians of party members, we can also observe the increasing conservatism of Republican members that is primarily driving the gap between the two groups of party members, especially since the 107<sup>th</sup> Congress of the mid-1990s. Indeed, between the 93<sup>rd</sup> and 111<sup>th</sup> Congresses, the mean of the House Republican members increased dramatically—from 0.235 (93<sup>rd</sup>) to 0.615 (111<sup>th</sup>), whereas the mean of the Democrat members decreased—from -0.296 (93<sup>rd</sup>) to -0.362 (111<sup>th</sup>) for the same period. Further, the mean and median of Republican members' ideology has exceeded 0.5 since 107<sup>th</sup> (2001-2002) Congress, while the mean and median of Democrat members' scores have been consistently greater than -0.4 across all congressional sessions included in the Table 4-1.

What are some of the existing explanations for these changes? First of all, an ideological realignment that started in the South resulted in the replacement of moderate and conservative southern Democrats by conservative Republicans in Congress (Layman et al. 2006, 87-88; Rohde 1991; Hood et al. 1999; Sinclair 2006). According to Theriault (2003, 16), “whereas Republicans only filled 34 southern seats (31.7 percent) in the 93<sup>rd</sup> Congress, they held 71 seats (56.8 percent) in the 106<sup>th</sup> Congress (1999-2000)”. Of course, the gains of the Republicans in the South amounted to losses for the Democrats. Given that most southern Democrats were located at the conservative end of their party's ideological spectrum, the southern realignment made the congressional Democratic Party less conservative, while the Republican Party more became conservative (Sinclair 2006, 16).

In addition to the transformation of the South from a Democrat base to a Republican stronghold, another root of increasing party polarization can be found in the conservative turn

within the Republican Party as demonstrated in the Table 4-1 above. Barry Goldwater, the Republican presidential nominee in the 1964 election, explicitly challenged postwar liberalism and led a conservative movement from the late 1950s to the mid-1960s. Though Goldwater did not win the election, the Republican party since then increasingly became the home for conservative voters, and his campaign laid the foundation for the election of Ronald Reagan who successfully moved the Republican Party to the right (Fleisher and Bond 2004, 432; Levendusky 2009, 23-26).

Table 4-2. DW-NOMINATE Scores for the Most Conservative Democrat and the Most Liberal Republican Members in the House from 83rd to 111th Congress

<b>Congress (Years)</b>	<b>The Most Conservative Democrat</b>	<b>The Most Liberal Republican</b>
<b>83 (1953-1954)</b>	0.316	-0.237
<b>93 (1973-1974)</b>	0.442	-0.188
<b>94 (1975-1976)</b>	0.879	-0.277
<b>95 (1977-1978)</b>	0.879	-0.265
<b>96 (1979-1980)</b>	0.880	-0.101
<b>97 (1981-1982)</b>	0.880	-0.088
<b>98 (1983-1984)</b>	0.881	-0.080
<b>99 (1985-1986)</b>	0.162	-0.089
<b>100 (1987-1988)</b>	0.162	-0.105
<b>101 (1989-1990)</b>	0.093	-0.096
<b>102 (1991-1992)</b>	0.091	-0.032
<b>103 (1993-1994)</b>	0.089	-0.017
<b>104 (1995-1996)</b>	0.088	-0.001
<b>105 (1997-1998)</b>	0.130	0.014
<b>106 (1999-2000)</b>	0.029	0.130
<b>107 (2001-2002)</b>	0.172	0.044
<b>108 (2003-2004)</b>	0.081	0.177
<b>109 (2005-2006)</b>	-0.073	0.182
<b>110 (2007-2008)</b>	0.003	0.265
<b>111 (2009-2010)</b>	0.082	0.215

Table 4-2 reports the DW-NOMINATE scores of the most conservative Democrat House member and the scores of the most liberal Republican member by each congressional year from the late 1970s to the 1980s and to the present-day (2000s). According to Table 2, no Republican has registered a negative score since the 105<sup>th</sup> Congress in 1997-1998, whereas the Democratic Party has continued to have a member whose ideal point is greater than 0 even after the disappearance of those very conservative Democrats after the 99<sup>th</sup> Congress. In the 96<sup>th</sup> Congress



of 1979-1980, a Republican whose DW-NOMINATE score was closest to the liberal end (-1) was -0.101 but the score of the most liberal Republican in the 102<sup>nd</sup> Congress (1991-1992) shifted to -0.032, and this most liberal score moved to -0.001 in the 104<sup>th</sup> Congress (1995-6) and 0.014 in the 105<sup>th</sup> Congress (1997-8).

The vanishing of these non-conformist Democrats and Republicans in the House is related to the accelerated party polarization process in the Congress. The moderate groups from both parties increasingly disappeared as the non-conformists were less likely to get electoral support from party organizations and outside groups associated with each party (Fleisher and Bond 2004, 448). In particular, according to Fleisher and Bond (2004, 448), since the selection of Goldwater in 1964, the conservative wing of the Republican Party gained control of the national party organization, then this conservative movement extended to the state and local levels. As a result of this conservative control of party organization, liberal and moderate Republicans were not only less likely to receive support of their party organization both at national and local levels, but they also often encountered tough challengers with such organizational support. The pronounced conflict between the Republican Party organization and the non-conformists in the party may account for the less diverse ideological spectrum in the Republican Party.

Some Republicans do have negative DW-NOMINATE scores until the 1990s but those moderate or less conservative Republicans disappeared by the mid-1990s (104<sup>th</sup> Congress) and the entire mass of Republicans are located between 0 to 1 since then. During the 111<sup>th</sup> Congress (and in the 110<sup>th</sup> Congress as well), the policy preferences of many Democrats are located in between -0.5 and 0 (moderately liberal to moderate), while most Republican preferences lie in between 0.5 and 1 (conservative to extremely conservative) (see Table 4-2). Given this, we might conclude that increasing Republican conservatism has led to the contemporary partisan

polarization. The loss of moderately liberal Republicans between the early 1980s and the mid-1990s reflects a policy shift of the Republican Party to ideologically more conservative positions during the period. Republican conservatism accelerated with the election of Ronald Reagan in 1980. As Levendusky (2009, 25-29) describes, Reagan was successful in rejecting the policy liberalism the Republican Party had adopted after World War II, and moved the Republican Party to a more conservative stance on many issues including defense expenditures, tax and spending, and social issues. This Republican embracing of more conservative positions on both economic and cultural issues continued through the mid-1990s, especially when the party took over the House in 1994.

Thus, the graphical analysis presented above confirms that partisan polarization has intensified in the House in that the ideological distributions of Democrats and Republicans are more separated from one another in the late 2000s (111<sup>th</sup> Congress) compared to the early 1960s. This growing partisan polarization provides support for the notion of increasing ideological polarization in the House, but this does not necessarily mean a “hollowing out” of the distributional center. Further, a low degree of intra-party ideological homogeneity (cohesion)—namely, the heterogeneous distribution of ideology inside a party especially before the Southern realignment—presents another challenge for identifying the existence of polarization or polarization as a process.<sup>26</sup> Therefore, we need to examine how the ideological distribution of the House as a whole has transformed since the early 1960s (88<sup>th</sup> Congress) regardless of party affiliations. The focus here thus lies in whether the entire ideological distribution of the House Representatives became increasingly hollowed out, with both extremes substantially increasing as well as becoming more concentrated.

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<sup>26</sup> As stated above, both a disappearing distributional center and increasing intra-party homogeneity are the two important dimensions of (ideological) distributional polarization (see also, Esteban and Ray 1994; Gelman et al. 2008).

Applying the relative distribution method to congressional  
ideological polarization

In order to determine if the density of the ideological center significantly declines, I start with creating a series of kernel density plots of members' ideology from the 88<sup>th</sup> Congress to the most recent 111<sup>th</sup> Congress without accounting for partisan membership. According to the first panel in the first row of Figure 4-3, the ideological distribution of House members is not only very polarized in the 111<sup>th</sup> Congress (2009-2010) but the degree of polarization substantially increased compared to the 88<sup>th</sup> Congress of the 1960s (1963-1964). Indeed, comparing the two distributions on the first dimension of the DW-NOMINATE scale demonstrates that the density in the middle, ranging approximately from -0.2 to 0.3 decreased substantially in the 111<sup>th</sup> Congress. The 111<sup>th</sup> Congress exhibits increased density concentration in the conservative range between 0.5 and 1 in comparison with the kernel density plot of the 88<sup>th</sup> Congress. According to Figure 4-3, the level of ideological polarization gradually increased in the House by losing density in the middle especially between the mid-1980s and the mid-2000s. The shape of the distribution became more symmetric in the 104<sup>th</sup> Congress of 1995-1996 compared with the 98<sup>th</sup> Congress as the conservative pole gained density while the liberal pole lost density. The proportion of representatives with a conservative ideology (e.g., 0.5 to 1 in the scale) increased dramatically from the mid-1990s (the 104<sup>th</sup> Congress, 1995-6) to mid-the 2000s (the 108<sup>th</sup> Congress, 2003-4).

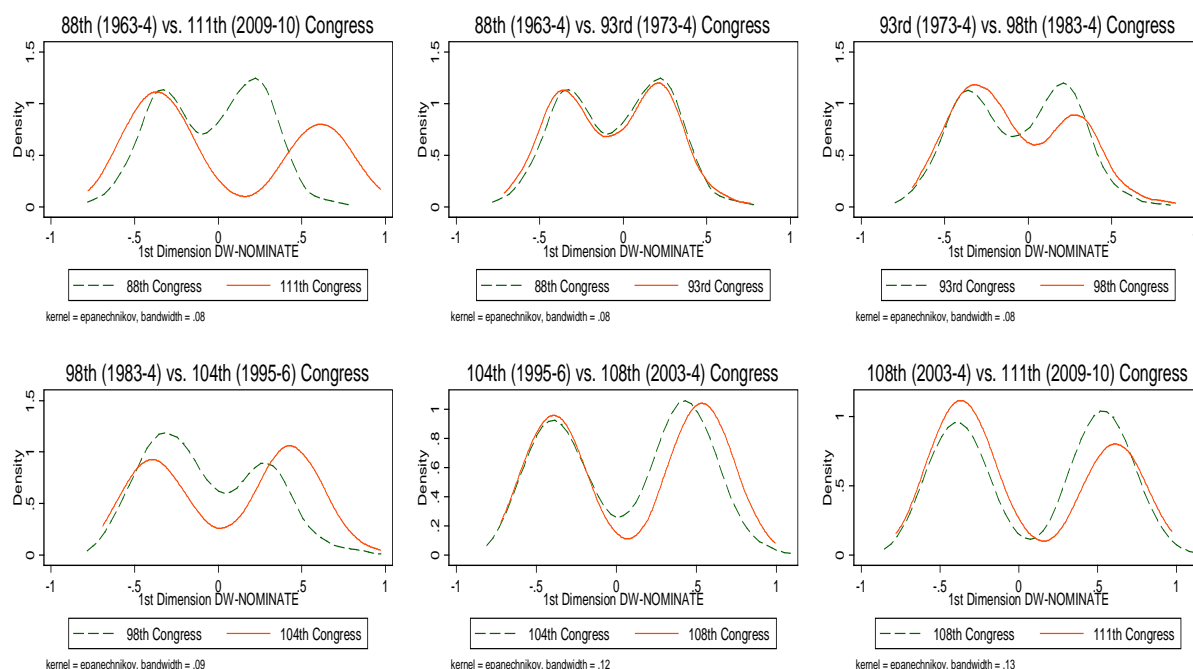


Figure 4-3. Kernel Density Plots of Ideological Distribution in the House over Time

This growing conservatism in members' ideological distribution through the 108<sup>th</sup> Congress is explained as discussed previously by the historical Republican takeover of the Congress in the 1994 midterm elections. Interestingly enough, even though the Republican Party was the majority in both the 104<sup>th</sup> and 108<sup>th</sup> Congresses, the ideological distribution shifted even more rightward between the mid-1990s and the mid-2000s. The rightward shift trend of the entire ideological distribution declined in the 111<sup>th</sup> Congress (2009, 2010), as the Democratic Party became the majority party again in the House.

To summarize the findings, the ideological moderates located around the zero point of the DW-NOMINATE scale have virtually vanished in the density plots of 2000s. Further, as the

density is increasingly shifting out from the center of the ideological distribution, both extremes of the distribution have gained more density. The density growth is more pronounced in the conservative extreme between the mid-1990s and 2003-4, which coincides with the beginning of the Republican majority in the House.

In Figure 4-4 below, I apply the relative distribution (RD) method to examine further how the distribution has transformed over time in the House. In addition to the overall distributional changes (overall RD effect), I produce decomposed location and shape effects, and these results are presented in the Figures 4-5 and 4-6 respectively.<sup>27</sup>

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<sup>27</sup> More detailed explanations about the overall RD effect, and its decomposition effects (location and shape effects) are provided in the method section of the chapter 2.

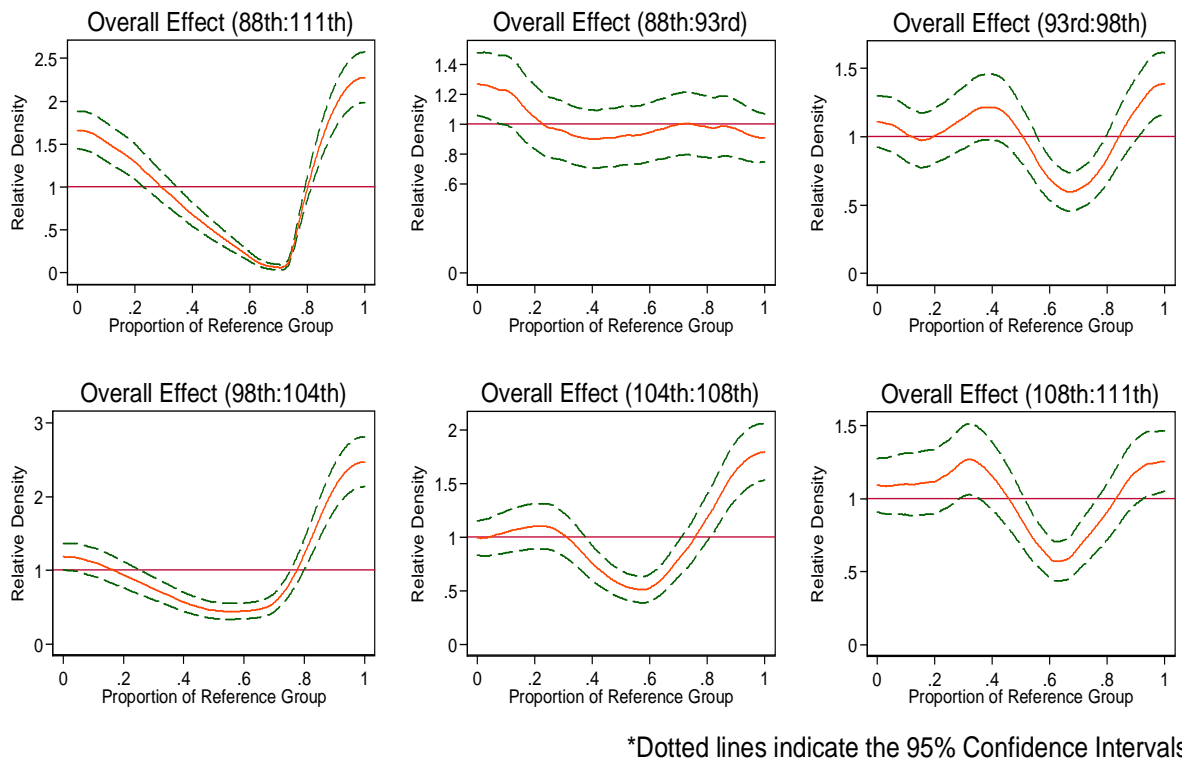


Figure 4-4. Relative Density of the First Dimension DW-NOMINATE Scores in the House over Time

In Figure 4- 4, the horizontal axes in each panel represent ten deciles of the reference cohort (i.e., a previous congress) with zero indicating the most liberal and one denoting the most conservative deciles respectively. The vertical axes represent the *relative density* of the comparison cohort (*compared to* the reference distribution) in each decile of the reference cohort. The red solid lines in each panel represent the relative density in each decile, the green dotted lines indicate the 95% confidence intervals. The density growth at both extremes at the expense of the loss in the center is dramatic in the panel for the comparison between the House

members between the 88<sup>th</sup> (1963-4) and 111<sup>th</sup> Congresses. The middle of the distribution clearly diminished during this period (the relative density graph falling below the horizontal  $g(r) = 1$  line). The relative density for the distributional center falls clearly below the horizontal line  $g(r) = 1$  in all panels in Figure 4-4, except that the graphical display of RD comparing to the 93<sup>rd</sup> Congress with the 88<sup>th</sup> shows an ambiguous result. Though only small changes occur between the 88<sup>th</sup> (1963-4) and 93<sup>rd</sup> (1973-4) Congress (a second column in the first row), a clear pattern of distributional polarization begins to emerge as we compare the 104<sup>th</sup> Congress (1995-6) with the 98<sup>th</sup> Congress (1983-4) where the relative density line clearly falls below  $g(r) = 1$  in the deciles between 0.4 and 0.6.

The change during these four decades is not balanced however between the left and right extremes. Although polarization on the liberal end is also found, the extent of that polarization is weaker than on the conservative side. Indeed the growth in the conservative extreme is the more salient phenomenon especially in the later decades with the Republican growth in the House, and this indicates that the conservative movement drives the overall trend. The relative proportions grew overall in the most conservative quantiles of ideology distribution—ranging from 0.8 to 1 at the horizontal axes—in comparison with the previous decade; the only exceptions being the changes from the 108<sup>th</sup> to the 111<sup>th</sup> Congresses, and the 88<sup>th</sup> to the 93<sup>rd</sup> Congresses.

The slight increase of relative density in the liberal ends during the period between 88<sup>th</sup> and 93<sup>rd</sup> Congresses could reflect remaining effects of bipartisan policy liberalism of the House members' ideological positions prevalent until the 1970s. Actually, in the early 1970s, when the Democratic Party nominated George McGovern as the party's presidential candidate, he took very liberal positions on many issue dimensions, and this time frame is known to mark a high point of the postwar policy liberalism (Levendusky 2009, 23-4).

Going through the 1980s however, conservatism became more prevalent among representatives in the lower house. Compared to the mid-1970s, the relative proportion of more conservative members placed at beyond 8<sup>th</sup> decile in the reference distribution of the 93<sup>rd</sup> Congress grew in the 98<sup>th</sup> Congress (1983-1984), as shown in the overall RD effect of 93<sup>rd</sup> to 98<sup>th</sup> panel in Figure 4-4. The upgrading (to the conservative side) of the ideological distribution continued through 104<sup>th</sup> (1995-1996) to the 108<sup>th</sup> (2003-2004) Congresses. A great majority of congressmen altered their ideal points to more conservative positions in the 104<sup>th</sup> Congress (1995-1996) compared to the reference 98<sup>th</sup> Congress. The growing conservatism is partly explained by the majority status of the GOP in both congresses, and this rightward trend abated to some degree in the 111<sup>th</sup> Congress as the Democratic Party regained the majority status in the House. In short, through the mid-2000s, the trend of growing conservatism characterized the changes in ideological distribution in the lower House together with growing distributional polarization.



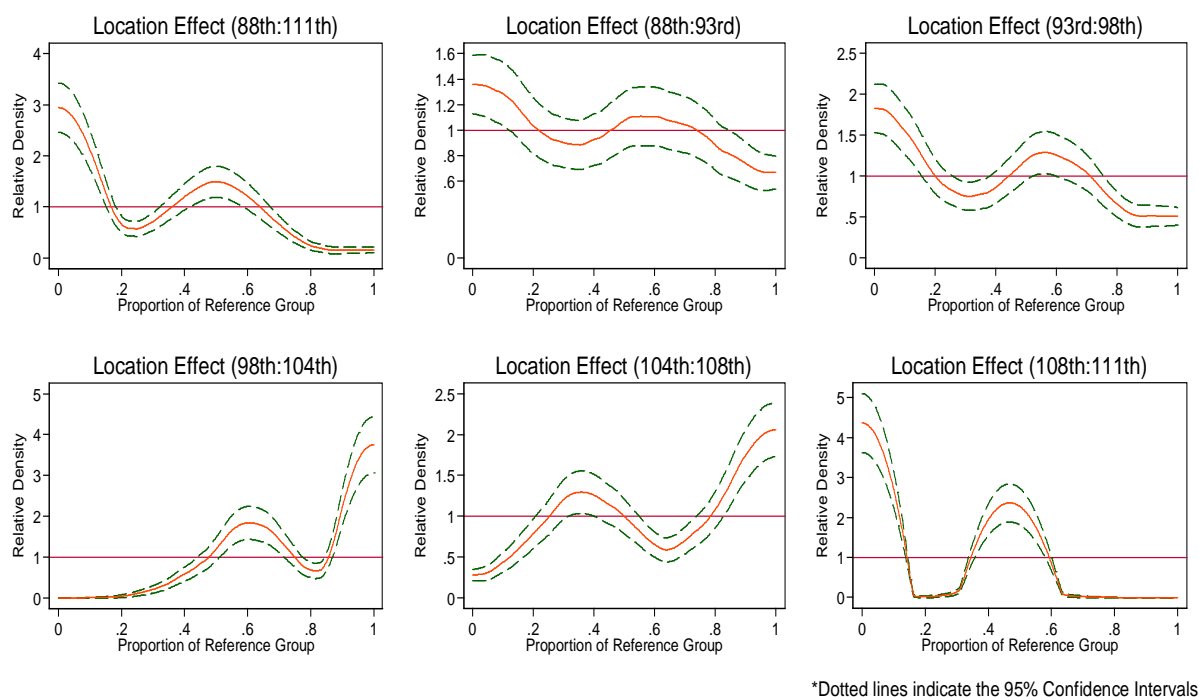


Figure 4-5. Relative Distribution of the First Dimension DW-NOMINATE Scores in the House: Location Effect

To further examine detailed aspects of distributional changes in the House over time, I decompose the overall RD effect into the location and shape shifts, and these results are reported in Figure 4-5 and Figure 4-6 respectively. The location effect addresses any shift up or down on the distribution scale (e.g., mean-shift or median-shift), while the underlying distributional shape would remain constant. I adopt an additive median-shift model in this chapter. On the other hand, a shape effect occurs when the actual shape of the distribution has changed, holding the location fixed (e.g., from U-shaped to inversed-U-shaped) (see Handcock and Morris 1999, chapter 3). The decomposition of the overall relative density often provides us more detailed descriptions of distributional changes that we might have missed. For example, through the early 1970s (93<sup>rd</sup>

Congress, 1973-4) to the early 1980s (98<sup>th</sup> Congress, 1983-4), a median downshift to the more liberal side occurred for the entire distribution according to the location effect, but the shape effect indicates that the relative density grew at the highest deciles when the location is fixed (see the location and shape effects 93<sup>rd</sup>: 98<sup>th</sup>). This implies that while a great majority of congressmen shifted to ideologically liberal positions in the 98<sup>th</sup> Congress (1983-4) relative to the 93<sup>rd</sup> Congress (1973-4), the proportion of representatives in the conservative extreme grew as well at the same period. That is, decomposed location shape effects can capture the density shifts in *both* directions sometimes undetected by the overall relative density effect shown in Figure 4-4 above. According to the polarization summary measures for the 93<sup>rd</sup>: 98<sup>th</sup> panel, 1.5 % of the population shifted away from the median to the lower and upper tails of the distribution during the mid-1980s (MRP, median relative polarization = 0.015), and about 13.8% of the density shifted from the median to the upper quartiles (URP, lower relative polarization = 0.277). While the 12.4% (U=LRP, upper relative polarization = -0.248) moved simultaneously to the median of the distribution from the lower quartiles during this period, the prevailing shift toward the upper tail is not offset by the density contribution from the lower tail. Namely, the increased polarization, reflected in the positive value of MRP (median relative polarization) index, has contributions from density shifts occurring in both upper and lower quartiles.<sup>28</sup>

If we focus on the mid-1990s through the mid-2000s (98<sup>th</sup>: 104<sup>th</sup> and 104<sup>th</sup>: 108<sup>th</sup> in Figure 5) when the polarization discourse began to attract more attention, the median upshift in

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<sup>28</sup> I remind the reader that MRP is an average value of URP and LRP, thus  $0.14 = \frac{1}{2} (0.16 + 0.12)$ . These polarization summary statistics are obtained using the mean absolute deviation from the median of the location-matched relative density. A URP (LRP) value accounts for the contribution to the median relative polarization (MRP) index from above (below) the median. Note that the measure does not explain the questions of whether the distributional upgrading (or downgrading) is more prevalent because such location shifts have been already removed by matching the location. Rather, the summary measures address the issue whether the residual changes (changes in shape or scale) have been more dramatic above or below the median (see Handcock and Morris 1999, 72-73).

the location effect indicates that the vast majority of representatives moved to more conservative ideological positions. The location shift to the conservative end (deciles ranging from 0.8 to 1) is first found on the panel for the 98<sup>th</sup>: 104<sup>th</sup>, and this sharp increase in conservative members coincides with the historical Republican takeover of the House in the 104<sup>th</sup> Congress (1995-1996). Interestingly, if we cancel out changes in location by matching the median of the two distributions (i.e., shape effect), we observe changes in distributional shape in the lowest (far-left) deciles of the ideological distribution for the same period (see those shape effects 98<sup>th</sup>: 104<sup>th</sup> and 104<sup>th</sup>: 108<sup>th</sup> in Figure 4-6). This suggests that increased polarization at the lower quartiles in terms of distributional shape is present simultaneously while the great majority of congressmen are relocated rightward in terms of their ideological preferences during this period. Actually, the estimated value of MRP (Median Relative Polarization) is 0.25, indicating that 25% of the density shifted from the median of the distribution to the upper and lower quartiles during the 1990s (98<sup>th</sup>: 104<sup>th</sup>).<sup>29</sup> Thus, the 25% shift away from the median can be understood as 39% (LRP: 0.78) of population moved from the median of the distribution to lower quartiles of the distribution while 14% (URP: - 0.28) of population moved from the above-median quartiles to the median of the distribution at the same time ( $\frac{1}{2} (0.78) - \frac{1}{2} (0.28) = 0.25$ ). For the following period between 104<sup>th</sup> and 108<sup>th</sup> Congress (2003-4), the estimated MRP shows 0.167, indicating that 16.7% of the density moved away from the median to the both tails of the distribution through the early 2000s. The MRP can be decomposed to the LRP (0.406) and the URP (-0.071). And these estimated polarization measures indicate that while 3.5% of density moved from the upper quartiles to the median of the ideological distribution of the House representatives, as we

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<sup>29</sup> Polarization summary statistics were calculated in STATA 10.0 using the pre-release version of “reldist” package developed by Benn Jann (2008). I appreciate him to allow me use the pre-released version of his package.

turned from the 104<sup>th</sup> to the 108<sup>th</sup> Congress, this small amount of density convergence to the median could not offset the larger density shift out from the center to the lower quartiles (20.3%). In sum, during the periods between the 98<sup>th</sup> and 104<sup>th</sup> Congresses, and between the 104<sup>th</sup> and 108<sup>th</sup> Congresses, increased polarization on the liberal side exists in terms of distributional shapes (shape effect), even though the ideological positions of the great majority of the House representatives are relocated to the more conservative sides (location effect).

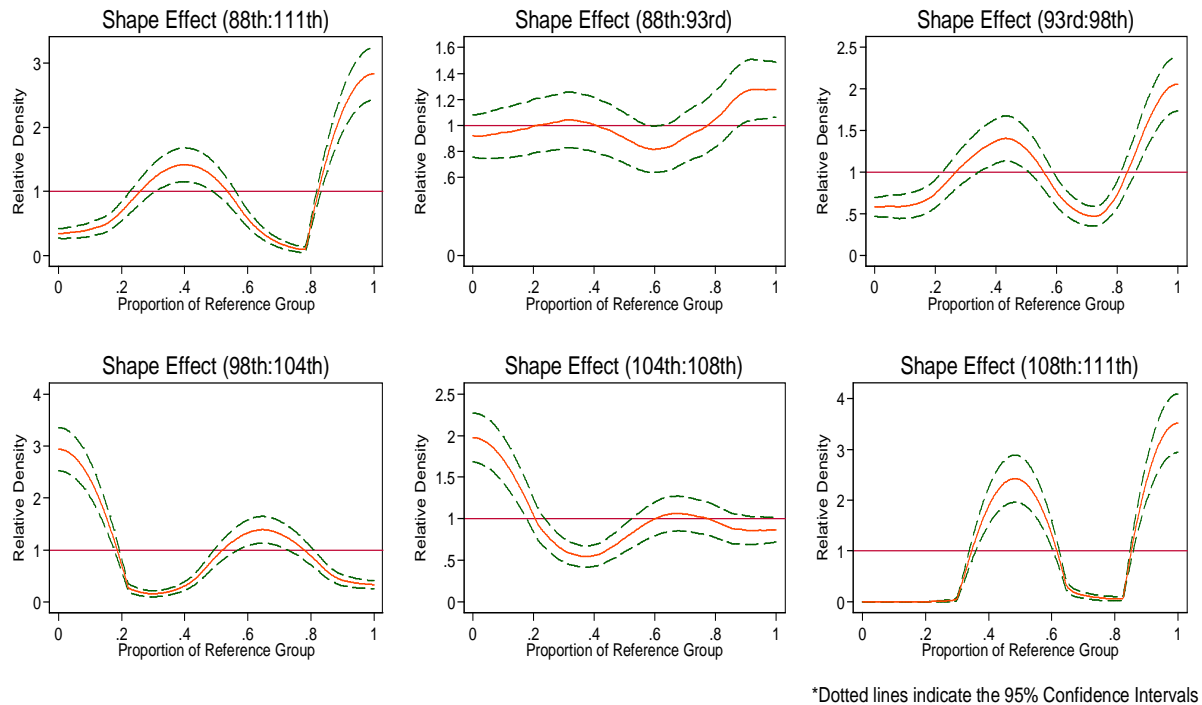


Figure 4-6. Relative Distribution of the First Dimension DW-NOMINATE Scores in the House: Shape Effect

As we turn in to the most recent 111<sup>th</sup> Congress (2009-10), in which the Democratic Party gained majority status, we see a reverse trend sharply distinguished from the changing pattern of the mid-1990s to the mid-2000s in terms of the location and shift effects. As the location effect (108<sup>th</sup>: 111<sup>th</sup>) illustrates, a majority of congressmen shifted leftward compared to the 108<sup>th</sup> Congress, in which the GOP was the House majority (median downshift). But, according to the shape effect 108<sup>th</sup>:111<sup>th</sup> Congresses, along with the overall location shift to the more liberal side through the late 2000s, the population below the median moved to the median and the upper quartiles of the ideological distribution while density shifted away from the lower quartiles. According to the estimated value of lower relative polarization (LRP= -0.895) index, about 44.8% of population moved from the left tails to the median (MRP=-0.108, 10.8% gains) and then shifted from the median to the upper quartiles (URP=0.679, 34% gains) during this period.

This reverse trend, between the 110<sup>th</sup> and 111<sup>th</sup> Congresses, could *offset* to some degree the conservative movement prevailing in the polarization dynamics from the mid-1990s and the mid-2000s. Therefore, we still observe a majority of congressmen located to the more liberal side (median-downshift, downgrading of the distribution) in 111<sup>th</sup> Congress compared to the 88<sup>th</sup> Congress (location effect 88<sup>th</sup>: 111<sup>th</sup>), while the highest conservative ends, comprising 8<sup>th</sup> to 10<sup>th</sup> deciles of the ideological distribution, show the increased polarization in terms of the distributional shape at the same time. Namely, during these four decades chronologically covering the mid-1960s to the late 2000s, the median of the House members' ideological distribution has moved leftward, while some in the conservative side have moved at the same time to the highest deciles. These two distributional shifts in both directions have together contributed the ongoing polarization dynamics occurring in the House. Polarization statistics indicate that about 16.2% of the population shifted away from the median of the ideological

distribution during the period ( $MRP=0.162$ ), and 34.4% moved away from the median to the upper quartiles of the distribution ( $URP=0.687$ ) while 18.1% moved out from the lower quartiles to the median of the distribution ( $LRP=-0.362$ ). In sum, comprehensive analysis of relative distribution from the mid-1960s through the late-2000s suggests that there has been a steady trend of ideological polarization in the House that clearly emerged during the mid-1980s and became more pronounced since the mid-1990s. While the conservative shift in ideology distribution prevailed through the mid-1990s to the recent era of the 2000s, those in the liberal side also contributed to the polarized ideological distribution.

### Conclusion

With the end of the bipartisan era of policy convergence in Congress since 1970s, party polarization emerged more clearly in both houses and became more intense especially during the mid-1990s. According to the findings, members of both chambers are indeed more polarized along party lines when the 2000s are compared with the 1960s and the 1970s. If we compare the lower and upper chambers, the increased partisan polarization is clearer in the House of Representatives than in the Senate. Looking specifically at the House, the evidence here suggests that the density in the center of the ideological distribution not only declined in the House, especially from the 104<sup>th</sup> Congress (1995-6) to the 111<sup>th</sup> Congress (2009-10), but continued to the 111<sup>th</sup> Congress in comparison with the previous congress according to the relative distribution analysis.

In addition to partisan divergence, members' ideology shifted to the more conservative sides as GOP took the House majority in the 104<sup>th</sup> Congress and this conservative tide continued through the 108<sup>th</sup> Congress. With the restoration of the majority status by the Democratic Party

in the 111<sup>th</sup> Congress however, this conservative trend was reversed and the entire ideological distribution of the House members shifted back to the more liberal positions in the 111<sup>th</sup> Congress relative to the 108<sup>th</sup> Congress. Thus, ideological polarization in terms of changes in distributional shape occurred simultaneously while the entire ideological distribution of the House members oscillated between the leftward and rightward shifts. This indicates that while the great majority of congressmen shift their ideological positions toward one extreme compared to the previous congress, the opposite tail of the distribution also gains some density at the same time.

In essence, this chapter confirms that elected officials are ideologically more polarized than before and partisan conflict thus became more intensified in Congress. These findings present two relevant and important questions. First, given that the elected officials are polarized, we are compelled to answer an important question as to if polarized politicians appropriately represent policy preferences of the electorate. So, we need to investigate more thoroughly the existence of mass polarization. On the other hand, provided that the elected representatives are divided by party lines, what are some political consequences of polarization on the workings of democracy? Is the party polarization among the elites necessarily bad? These questions are not only substantially important topics, but also are empirical questions by themselves, which will thus be addressed in following chapters.

## CHAPTER V

### AN ANALYSIS OF MASS IDEOLOGICAL POLARIZATION

Most of the extant literature in the mass polarization debate relies largely on an empirical strategy based on the difference of means tests regardless of whether it advocates the polarization thesis or not.<sup>30</sup> Given the definition of distributional polarization adopted here, the mean-based approach for assessing the concept often fails to precisely capture polarization that is multi-dimensional in its nature (i.e., intergroup heterogeneity, group size, and internal homogeneity). Furthermore, existing statistical measurement based on the summary statistics have often focused on the static nature of polarization (i.e., the existence of polarization), while the heart of the polarization debate has frequently involved the dynamic aspect of polarization; namely, how an attitudinal distribution of a later period is more or less polarized than in an earlier time.

Different from other research that constructed ideological scales using ANES data without conducting dimension reduction analysis, the present chapter performs a factor analysis to confirm that policy items load onto two underlying ideological dimensions: one is the government guarantee scale, and the other is the cultural issues scale. These two separate scales show different results on distributional analysis in terms of growing attitudinal polarization over time.

Through an analysis of the cumulative data of the American National Election Studies between 1984 and 2008, this chapter presents evidence of growing mass polarization in terms of standard ANES measures of ideological orientation using the public policy issue dimensions.

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<sup>30</sup> There are some exceptional studies that go beyond this mean-based strategy in polarization analysis. To my knowledge, Levendusky and Pope (2011) show a good example of this trend that attempts to analyze the degree of distributional overlap by looking at the entire distribution of mass opinion.



According to this evidence, the level of ideological polarization became more intense through mid-1990s to 2000s in terms of support of government guarantees whereas no clear evidence of mass polarization is found on a cultural issues dimension. The empirical findings here suggest that the degree of polarization among U.S. citizens increased as the distributional center of measures of political ideology have *progressively* declined, though the opinion distribution of the later periods do not dramatically exhibit a text-book style polarized distribution (e.g., bimodal distribution). According to the findings, attitudes toward government guarantees have shifted back and forth between more liberal and more conservative positions while public opinion on cultural issues has generally moved more liberal positions over years.

As Abramowitz (2010, 37-8) points out, one of the major obstacles in estimating distributional changes of mass opinion is that it is difficult to find issue questions consistently asked over an extended period. Major issues dividing society change with time. In the previous chapter on the empirical confirmation of elite polarization, the time focus began from the late 1960s or the early 1970s, but only a few questions have been consistently asked about respondents' policy preferences from then to the most recent period (2008) in the American National Election Studies (ANES Cumulative Time Series Data 1948-2008). Moreover, the question format, or wording of the ideological indicators in the ANES survey have also changed with time.

Despite these impediments, students of public opinion have utilized the now-familiar 7-point scale questions to examine changes in mass attitudes toward some of the important policy issues over time. The ANES have included a small set of questions asking policy attitudes of respondents in almost every survey starting from the early 1970s to the 1980s.<sup>31</sup> These 7-point

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<sup>31</sup> More specifically, the ANES started to include self-placement of ideology scale (1972), government aid to blacks scale (1970), government guarantee of job security and living standards scale (1972), government responsibility for health insurance scale (1970), a level of government defense

scale questions are intended to measure policy preferences as well as ideological positions of individuals across distinct issue dimensions.<sup>32</sup> The questions frequently employed by scholars include liberal-conservative identification, policy views of citizens on abortion, health insurance, public expenditures, and defense spending. Indeed most of the existing literature on public opinion polarization has relied primarily on the 7-point issue scales listed above which were added to the national election survey (ANES) during early 1970s and 1980s. Both proponents and opponents of the mass polarization thesis employ these 7-point issue scales. For example, Abramowitz (2010, 38) evaluates mass polarization using 7 issue items (including liberal-conservative identification, policy attitudes on abortion policy, governmental aid to blacks, health insurance, jobs and living standards, defense spending, and government services vs. spending), while Fiorina and his colleagues broaden the set of issue items in their empirical work (e.g., Fiorina and Levendusky 2006, 59; Fiorina and Abrams 2009).

Following the prior literature, this study also adopts the 7-point ideological issue scales to analyze mass ideological polarization and partisan division among the electorate.<sup>33</sup> More specifically, I analyze the cumulative data (1948-2008) of the ANES to check if ideological

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spending scale (1980), government spending vs. services scale (1982), and attitude toward the abortion policy (1980) according to 2008 ANES cumulative dataset.

<sup>32</sup> In general, most of the ideological scale variables included in the ANES employs 7-point scales. Notable exceptions are attitudes toward abortion policy and homosexuals which stand on the 4-point scale. So, some scholars have recoded the 4-point scale into 7-point scale (e.g., Fiorina and Levendusky 2006; Levendusky 2010). For instance, 1-2-3-4 scales are relocated to 1-3-5-7 scales.

<sup>33</sup> There are some exceptional issue items that do not rely on 7-point scale, but use a different metric such as 4-point scale (e.g., abortion [VCF0837 and VCF0838], and gay protecting law [VCF0876a]) or 5-point scale (newer life style [VCF0851], tolerance scale [VCF0854]). These scales that have different coding systems are recoded to have the same metric as the majority of issue items loaded in the same issue dimension. For example, if a factor 1 consists of 5 items of 7-point scale and 1 issue item of 5-point scale, the one issue with 5-point scale is recoded to the 7-point scale. This recoding policy to maintain consistency over different issue items follows an approach of the previous literature (e.g., Fiorina and Levendusky 2006; Levendusky 2010).

polarization is growing among the mass public over time.<sup>34</sup> I consider those issue scales that have been *consistently* and *commonly* used across different studies of mass polarization; these scales include self-placement of ideology (VCF0803), government responsibility for health insurance (VCF0806), government guarantee for job security and living standards (VCF0809), government aid to blacks (minorities) (VCF0830), equal role of women (VCF0834), attitude toward the abortion policy (VCF0837 and VCF0838), government spending vs. services tradeoff (VCF0839), a level of government defense spending (VCF0843), law against homosexual discrimination (VCF0876a), attitude toward newer life styles (VCF0851), and tolerance of different moral standards (VCF0854). Among those listed 11 issue items, six questions were included in the survey in the early 1970s, two items (VCF0843 and VCF0839) were added later in the early 1980s, and the rest of the items (the law protecting homosexuals, newer life styles, and tolerance) are only available from the late 1980s survey (1986 and 1988).

Some scholars construct a comprehensive ideology score by combining a few or all of those available ideological scales provided in the ANES data. For instance, Abramowitz constructed a 15-point ideological scale ranging from -7 to 7 using seven issue questions.<sup>35</sup> He recoded every response (i.e., 1, 2, 3) left to the center (4) as -1 and every response (i.e., 5, 6, 7) right to the center as 1, and summed up those values (Abramowitz 2006, 76; Abramowitz 2010, 38; See also Abramowitz and Saunders 2008).<sup>36</sup> As Fiorina and Levendusky criticize, however,

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<sup>34</sup> Although this study employs ANES cumulative data for 1948-2008, questions for ideological preferences are only available from 1970s.

<sup>35</sup> Seven issue questions used in Abramowitz (2010) excludes four among those 11 questions mentioned above; those excluded items are “equal role of the women (VCF0834),” “law protecting homosexual from discrimination (VCF0876a),” “attitude toward newer life styles (VCF0851),” and “tolerance of different moral standards (VCF0854).

<sup>36</sup> In general, non-ideologues (responses with “don’t know”) are usually classified together with “moderates” in the previous literature of mass polarization. Namely, it is conventional to recode the

by equating the moderate liberals (or moderate conservatives) with extreme liberals (or extreme conservatives), Abramowitz's recoding procedure can systematically exaggerate the differences in the survey responses, thus the degree of mass polarization (Fiorina and Levendusky 2006, 96).

Instead of aggregating all readily available issue scales, other scholars constructed indices by selecting only *relevant* issue items. For example, Fiorina and Levendusky divide the items into four policy areas which include New Deal social welfare issues, social and cultural issues, racial issues, and defense and military policy issues (Fiorina and Levendusky 2006, 59). While Fiorina and Levendusky (2006) classify the policy areas without reporting a dimension reduction analysis, a recent study performs a factor analysis using the issue preference items to determine their dimensionality though the authors use different cross-sectional data (Levendusky and Pope 2011).<sup>37</sup>

Looking at the prior literature, I expect that all 11 issue items listed above will not measure the same ideological dimension or latent construct. Rather, I expected two major underlying dimensions—one economic and the other cultural, so I conducted a factor analysis using the above-listed 11 issue questions to confirm the expected clusters. The combined single ideology measure would not allow us to accurately assess a level of mass polarization if 11 items measure different ideological dimensions. Indeed issues relevant to government spending represent a different dimension of opinion from the factor measuring cultural or moral issues.

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“don't know” answers to four on the 7-point scale (see, for example, Abramowitz and Saunders 2008, 544; Campbell 2006, 157; Fiorina and Abrams 2011).

<sup>37</sup> Levendusky and Pope (2011) use the 2006 CCES (Cooperative Congressional Election Study) data.

Table 5-1. The Results of Factor Analysis and Reliability Test of the Issue Scales

Year	Government Guarantee		Cultural Issues	
	Variance Explained	Cronbach's Alpha	Variance Explained	Cronbach's Alpha
1984*		0.623		
1988	0.199	0.638	0.186	0.568
1992	0.193	0.640	0.211	0.622
1996	0.229	0.709	0.206	0.624
2000	0.208**	0.636	0.184**	0.582
2004	0.232	0.738	0.215	0.653
2008*		0.711		0.561
Overall	0.210	0.661	0.202	0.582

Note for Table 5-1: \* The factor analysis is not performed for 1984 data because several issue questions (mostly the newer issues including cultural dimension) are unavailable in 1984. Also, the result of factor analysis for 2008 is not reported here because the analysis of that year yields three factors unlike the rest of the years. \*\* The result of factor analysis in 2000 excludes self-placement of individual ideology variable (VCF0803) because the inclusion of the variable that has many missing values reduces the number of total observations significantly. See the main text for more details.

Table 5-1 summarizes the results of factor analyses (varimax-rotated) for each presidential year survey and reports the relevant reliability for each issue dimension on a yearly base. I use the presidential year survey because some of the issue items are unavailable in surveys conducted in midterm election years. The first columns (variance explained) of each dimension in Table 5-1 shows the amount of variance explained by each factor. In the factor

analysis two components are consistently loaded in almost every presidential year after 1984 (i.e., 1988-2008) including the cumulative analysis combining all different years. Specifically, six items mostly relevant to the role of the government belong to the first dimension (government guarantee) and these include VCF0803 (self-placement of ideology), VCF0806 (government responsibility for health insurance), VCF0809 (government guarantee for job security and living standards), VCF0830 (government aid to blacks (minorities)), VCF0839 (government spending vs. services tradeoff) and VCF0843 (a level of government defense spending). On the other hand, 5 issue items loaded into the cultural issues dimension and these are VCF0834 (equal role of women), VCF0837 and VCF0838 (attitude toward the abortion policy), VCF0876a (law against homosexual discrimination), VCF0851 (attitude toward newer life styles), and VCF0854 (tolerance of different moral standards). These two factors explain together up to 40% of total variance while the first dimension, in general, accounts for more of the variance than the second dimension does.

This trend of the two principal components is persistent across years as shown in the Table 5-1 Exceptions to this trend of the two factor loading are the results from 2000 and 2008. In the presidential year of 2000, three distinct dimensions are suggested according to the factor analysis, but the problem with this inconsistent result is the very small number of cases in the data set. In the ANES survey of 2000, only half among the total respondents were asked to report their preferred policy-issue positions for 7-point scales. As a consequence, only 386 observations are available for the factor analysis in 2000. If I intentionally drop the question with many missing values (e.g., VCF0803, “self-placement of ideology”) to increase the number of observations, items loaded on the two factors consistent to the other years’ outcome. When it comes to the 2008 analysis, three factors emerged as principal components, and the story is more complicated. Two cultural issue items (newer life and tolerance) comprise the third component

together with the size of defense spending (VCF0843). I suspect that these seemingly unrelated issue items have played salient roles in characterizing the late 2000s, thus those three issue items occupy a separate issue dimension by departing from the other two factors. Despite the distinct trend in the factor analysis of 2008, the reliability test reveals that an exclusion of the defense spending scale from the first scale does not create significant changes in *Cronbach's alpha* coefficients (0.711 with the variable vs. 0.716 without the variable). Further, inclusion of all 5 issue items in the cultural scale presents a higher *alpha* value than when either of the two issues (newer life and tolerance) is removed from the scale. So, given these facts, I decided to adopt the two scales (government guarantee and cultural issues) consistently throughout every presidential year since 1984.

It is interesting to note that the racial issue item in terms of government expenditures to racial minorities fit easily into a traditional social welfare issue dimension according to the factor analysis here. Actually this confluence of racial and economic issue domains was addressed by Highton and Kam (2011), who argue that this convergence might have occurred because government spending targeted to minorities is often redistributive in its nature.<sup>38</sup>

The second dimension represents cultural or moral issues including women's rights (equal rights for women, abortion policy), gay rights (law protecting homosexuals from discrimination) and other general cultural attitudes (view on newer life styles and tolerance of different moral standards). These five issue items consistently group together while they are also clearly differentiated from the welfare policy issue items which load on the first factor.

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<sup>38</sup> Unlike here, Fiorina and Levendusky (2006) constructed a separate dimension of racial issues, and the government aid to blacks and minorities item is added to the racial items (p.59). According to the factor analysis here however, this issue clusters together with other social welfare spending scales since 1980s. The racial issue dimension has merged largely into the social welfare issue dimension both in the elite and mass attitudes (Highton and Kam 2011, 206-7)

Therefore, given the structure of the two issue dimensions, rather than adopting an ideological scale of combining all 11 issue items, I choose to create the two scales (government guarantees and cultural issues) by calculating a mean of issue items belonging to each component in the analysis.

Because ideological constraint is often mentioned as a separate necessary condition of mass opinion polarization (e.g., DiMaggio et al. 1996), I performed a reliability test for each issue scale using a *Cronbach's alpha* coefficient to examine how the internal consistency of each dimension of ideology has evolved over time since 1984.<sup>39</sup> The results suggest that coefficients of reliability are persistently higher for the government guarantee dimension (the first factor) than for the cultural dimension (the second factor). In addition, the reliability coefficients for the government guarantee scale of the recent era (those from 2000s) show more enhanced internal consistency compared to those values from the 1980s (1984 and 1988). While alpha coefficients are less than 0.661 in both 1984 and 1988 for the items on the government guarantee scale, *Cronbach's alphas* in 2004 and 2008 indicate higher values than 0.661 for the same scale. *Cronbach's alpha* exceeded 0.70 for the first time in 1996 which is a kind of rule of thumb threshold of the alpha coefficient commonly accepted in the field. Further, the alpha coefficient for the government guarantee scale achieved its maximum level in 2004, and continued to be greater than 0.70 in 2008.<sup>40</sup>

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<sup>39</sup> I chose the data of 1984 as a reference time line because most of 7-point ideology scales used here became available in 1984. In particular, values for all 7-point issue items accounting for the primary factor (the first issue dimension or government guarantee) of respondents' issue positions in the present study have been provided since 1984.

<sup>40</sup> It is, however, controversial among some scholars in recent literature if *Cronbach's alpha* is an appropriate measure of internal consistency. Some psychometricians have also raised questions over the 'standard' threshold of 0.70 which is often adopted as the acceptable level of the alpha coefficient. Despite this ongoing debate, the *Cronbach's alpha* coefficient is still widely employed by many applied researchers as a measure of internal consistency in many subfields of social sciences. Therefore, I decided to use the alpha coefficient as a measure of reliability since this study does not primarily aim at critically



This improvement in internal consistency is not found in the cultural issue dimension. For every presidential year since 1988, the reliability coefficients for the second dimension have continued to present values less than 0.66. Moreover, the alpha coefficients of the 2000s are no better than the coefficients of the 1980s or 1990s. This indicates that ideological consistency measured using the *Cronbach's alpha* is not only greater in the first issue dimension, but the first factor also shows more improvement over time compared to the second cultural issue dimension. In sum, the government guarantee factor outperforms the cultural issue dimension both in terms of the explained variance and the reliability measure.

Noteworthy from the issue dimension analysis is that the self-placement of ideology scale often loads on both factors across different years, though a stronger correlation with the first issue domain appears to be a more consistent pattern over time. This encompassing relationship of the self-identification of ideology scale with the two factors might evidence that this widely used 7-point scale is a good representative indicator of multi-dimensional ideology in the American electorate. This variable, which ranges from extremely liberal [1] to extremely conservative [7] positions, has been the “workhorse variable” since its first debut in the 1972 ANES survey, for analyzing a respondent’s ideological position. It has been used by a majority of public opinion scholars (Fiorina and Abrams 2008, 569). Thus, before I begin a more comprehensive distributional analysis of the two scales of individual attitudes, I examine a series of frequency distributions using this variable (VCF0803) to see how the ideological orientation of the electorate has changed over time since the variable was first introduced in the early 1970s.

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evaluating the *Cronbach's alpha*. A debate over the appropriateness of the alpha coefficients can be found in a special issue of *Psychometrika* 74(1), March 2009.

Table 5-2. Frequency Distributions of Self-Placement of Ideology by Presidential Year (Percentages are in Parentheses)

Year	1. Extremely liberal	2. Liberal	3. Slightly liberal	4. Moderate (With 'DK'*)	5. Slightly conservative	6. Conservative	7. Extremely conservative	N	Mean	Std. Dev.	4.1 Moderate (Without 'DK'*)
1972	32 (1.48)	156 (7.24)	212 (9.84)	1,186 (55.03)	322 (14.94)	220 (10.21)	27 (1.25)	2,155	4.104	.087	579 (26.87)
1976	29 (1.30)	147 (6.61)	177 (7.96)	1,281 (57.57)	283 (12.72)	257 (11.55)	51 (2.29)	2,225	4.176	.107	562 (25.26)
1980	25 (1.60)	93 (5.94)	136 (8.69)	868 (55.46)	212 (13.48)	199 (12.72)	33 (2.11)	1,565	4.199	.124	307 (19.62)
1984	36 (1.62)	161 (7.22)	201 (9.02)	1,194 (53.57)	313 (14.04)	288 (12.92)	36 (1.62)	2,229	4.164	.141	520 (23.33)
1988	35 (1.72)	112 (5.50)	186 (9.14)	1,056 (51.89)	309 (15.18)	278 (13.66)	59 (2.90)	2,035	4.259	.166	446 (21.92)
1992	50 (2.02)	210 (8.47)	244 (9.84)	1,228 (49.52)	371 (14.96)	313 (12.62)	64 (2.58)	2,480	4.151	.218	572 (23.06)
1996	24 (1.40)	130 (7.59)	186 (10.86)	785 (45.85)	265 (15.48)	278 (16.24)	44 (2.57)	1,712	4.254	.229	402 (23.48)
2000	17 (1.96)	77 (8.89)	85 (9.82)	408 (47.11)	113 (13.05)	140 (16.17)	26 (3.00)	866	4.209	.279	215 (24.83)
2004	27 (2.23)	112 (9.25)	102 (8.42)	588 (48.55)	145 (11.97)	201 (16.60)	36 (2.97)	1,211	4.205	.291	297 (24.53)
2008	70 (3.02)	230 (9.92)	188 (8.11)	1,206 (52.03)	238 (10.27)	311 (13.42)	75 (3.24)	2,318	4.100	.293	514 (22.17)

Notes for Table 5-2:

- 1) Percentages are calculated using the frequency distribution of a variable (self-placement of individual ideology, VCF0803) by each presidential year.
- 2) \* 'DK' refers to respondents who answered "Don't Know (Haven't thought much about it)" to the question.
- 3) The shaded column of 4.1 shows how frequencies of moderates decrease in each year as the "don't know" group is removed from the moderate.

Table 5-2 reports frequency distributions with summary statistics for self-placement on the ideology variable in ANES surveys conducted in presidential years since 1972. First of all, note that a proportion of respondents placing themselves at the ideological extremes (extremely liberal or extremely conservative) tends to increase over time and the sum of the percentages in the two extreme categories reached the highest number of 6.26% (3.02+3.24) in 2008. In general, the proportion of respondents in these two extreme categories is greater in 2004-2008 than in the 1970s (1972-1976), and this thus indicates that ideological extremism is greater in the twenty first century compared to the three decades ago. If we examine descriptive statistics for the variable, we see that mean of respondents' ideology has consistently shown values close to 4 representing the ideological centrist, while the standard deviation of the variable has increased from 1.087(1972) to 1.293 (2008). A growing standard deviation demonstrates that the level of distributional dispersion grew for the self-placement of respondents' ideology, while the mean of the ideology scale is almost fixed without significant changes being made. When it comes to the number of ideological moderates, the proportion of centrists was less than 50 % in the 1990s if we regard the "don't knows" group as moderates, and this trend of reduced centrists continues to the mid-2000s (48.55 % in 2004). Interestingly, the number of moderates increased in 2008 by reaching again 50% of the simple majority percentage again. Yet this is partly attributable to a larger number of "don't knows" in 2008 compared to the other eras. Actually, if we exclude the "don't knows" group from the moderates (see the shaded column at the end of the table 5-2), the proportion of moderates is smaller in 2008 than any year since 1988, and the percentages are very low in 2008 compared to other years included in the table. Therefore, the decreased frequencies of the centrists since the early 1990s together with the increasing standard deviation leads us to conclude that some portion of respondents who once placed themselves as an ideological moderate have changed their positions to either liberal or conservative side. Yet we

need to be cautious on this interpretation because the shift of ideological positions over time could be an artifact of generation replacement across different survey cohorts, thus we need more thorough examination on this.

In sum, the analysis of frequency distribution presents three types of supporting evidences of increasing mass ideological polarization; these include 1) an increased level of distributional dispersion, 2) a reduced proportion of moderates, and 3) a growing percentage of ideological extremes.

#### Partisan Polarization or Sorting of the Electorate

Party sorting refers to a process whereby individual ideological preferences are increasingly aligned with party identification. If the process is occurring, we would expect to observe that Republicans will be increasingly conservative while Democrats became increasingly liberal. As stated above, both proponents and opponents of the mass polarization thesis largely agree that issue positions taken by individuals are increasingly sorted and divided by party identification. The question about which scholars disagree is if partisan sorting has led to distributional polarization which is generally defined as a growth in density at extremes at the expense of distributional center. I begin my analysis of the cumulative ANES data by looking at patterns of partisan polarization or sorting reflected in the two issue scales (government guarantee and cultural issues). Aside from the analysis of mass ideological polarization, this chapter also pays considerable attentions to the party sorting problem because the degree of sorting is associated with the policy clarity issue that is important to mass political awareness and engagement analysis to be addressed in chapter 6. Also, party sorting could provide a potential key to the representational link between the elites and the masses. Therefore, after

identifying the existence of party sorting, this chapter proceeds to the distributional analysis of mass ideological polarization in the sense of attitudinal radicalization focusing on polarization as a process.

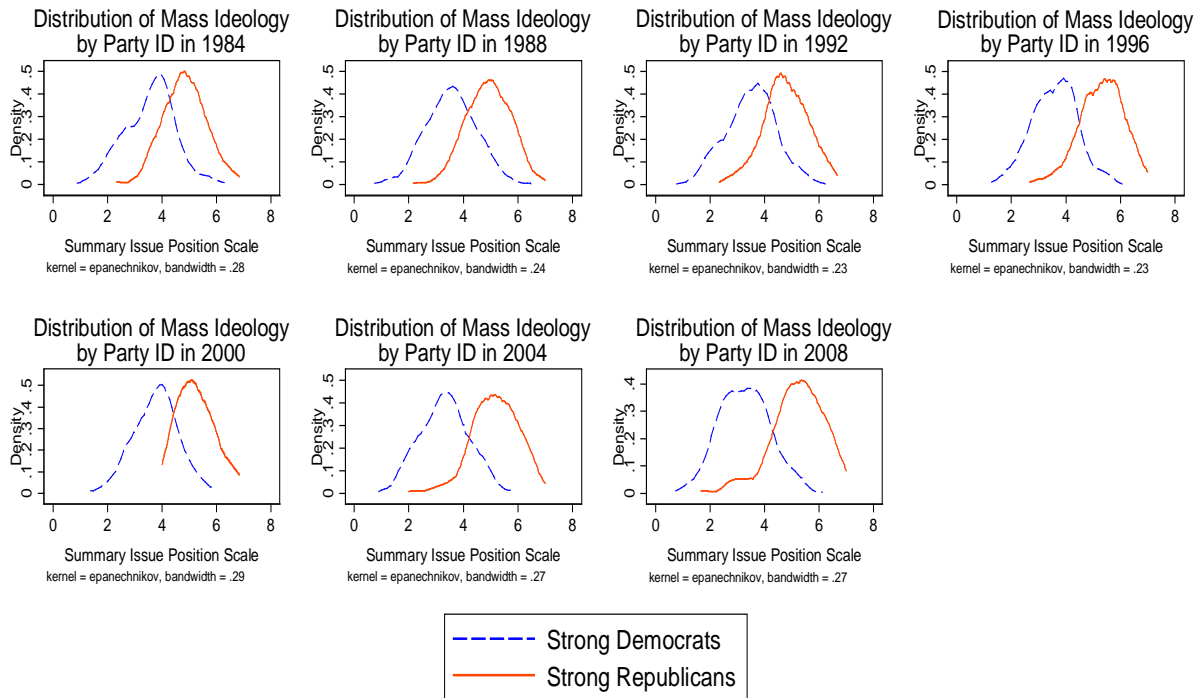


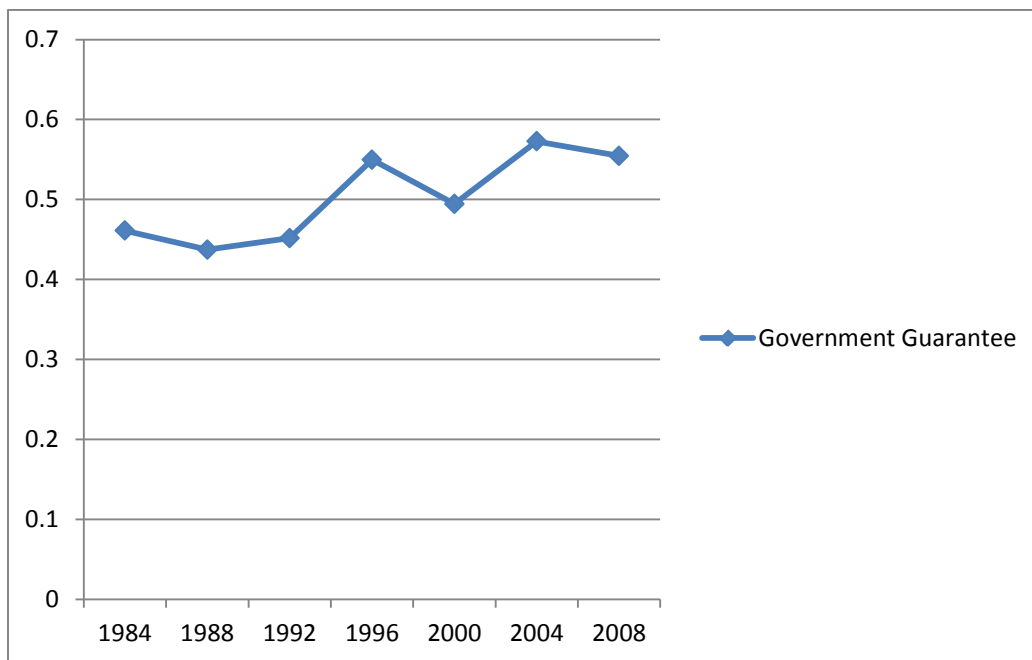
Figure 5-1. Kernel Density Plots of Government Guarantee Scale by PID over Years (1984-2008)

In order to examine whether issue positions are increasingly diverging between partisans, I create kernel density plots of the government guarantee scale by decade from 1984 to 2008 grouped by respondents' party identification. Following the lead of previous literature, only strong party identifiers are included in this analysis (e.g., Fiorina et al. 2006, Fiorina and Abrams 2009). Figure 5-1 reports results of the graphical analyses and the figure demonstrates that ideological preferences became increasingly sorted by individual partisanship on the government guarantee dimension among these strong identifiers during the 2000s. In comparison with 1984 and 1992, the increased separation between Republicans (solid red line) and Democrats (dashed blue line) is especially dramatic by 2004 and 2008. Looking at each panel by decade we can see

that inter-partisan distributions of respondents' issue positions diverge more in later periods relative to the previous decade. The distributional overlap between partisans gradually declined in later decades (2004 and 2008), and, in particular, distributional divergence became much clearer in 2008 than 1984. Actually, the difference between the medians for strong Democrats and strong Republicans increased from 1.17 in 1984 to 1.84 in 2004 and to 2.00 in 2008. And the difference between the means changes from 1.28 in 1984 to 1.85 in 2004 and to 1.95 in 2008. Substantively, these results indicate that strong partisans within the electorate are more clearly "sorted" in terms of its issue positions on the government guarantees in 2000s in comparison with 1984.

Given this evidence of partisan sorting among the strong partisans, I also conducted a correlation analysis between the government guarantees scale and 7-point party identification. Other scholars of mass polarization have also used this empirical strategy to test if voters have sorted by their party identification in policy issue positions (Abramowitz and Saunders 2008; Fiorina and Abrams 2009; Fiorina and Levendusky 2006). According to Figure 5-2, the correlation between the 7-point party identification and the government guarantee issue scale is gradually increasing over time especially since 1992. This suggests that partisan sorting has grown gradually since early 1990s on the government guarantee issue domain. In 1984, the correlation between party identification and issue scale was 0.46 but it increased up to 0.55 in 1996 and achieved the coefficient value of 0.573 in 2004. This implies that Republicans have increasingly preferred less government-guarantee policies while Democrats have been more inclined to a bigger role played by the government. To summarize, the findings together present strong empirical evidence for a claim made by Fiorina and his colleagues arguing that ideological positions taken by the electorate are increasingly sorted by its party identification (e.g., Fiorina et al 2008; Fiorina and Levendusky 2006).





Note: The correlations are statistically significant at  $p < 0.001$  in every year.

Figure 5-2. Correlation of Party Identification with Government Guarantee Scale (1984-2008)

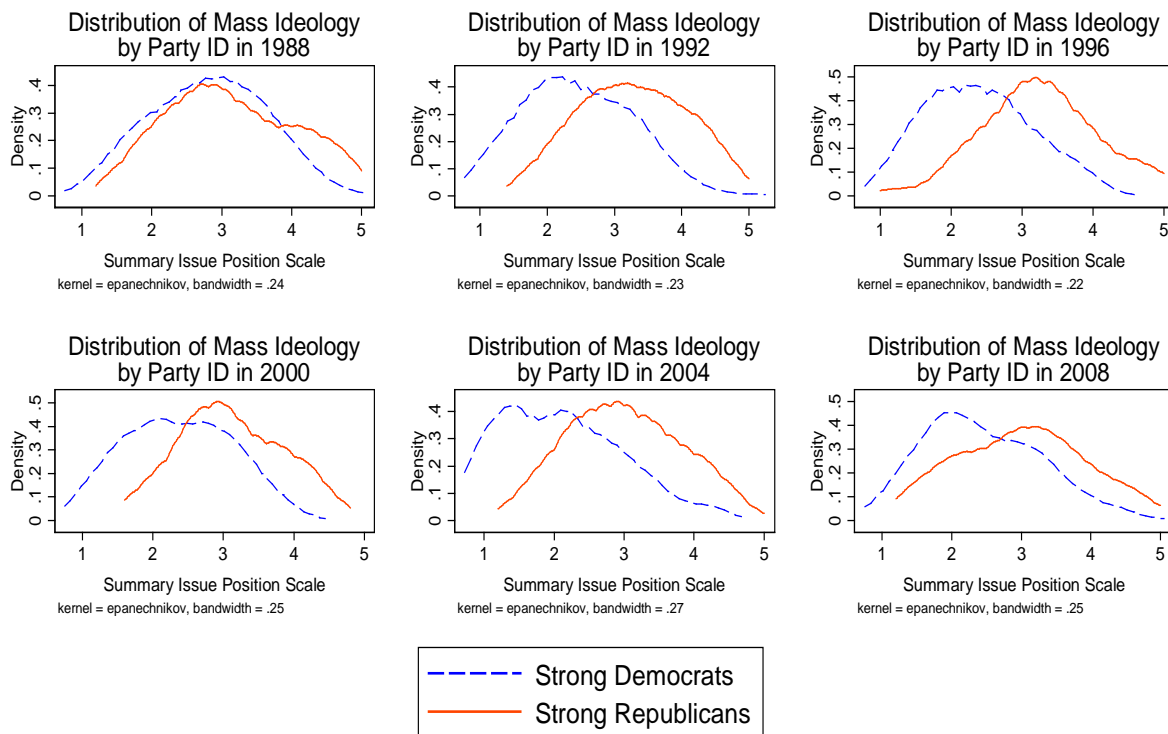


Figure 5-3. Kernel Density Plots of Cultural Issue Scale by Party Identification over Years (1988-2008)

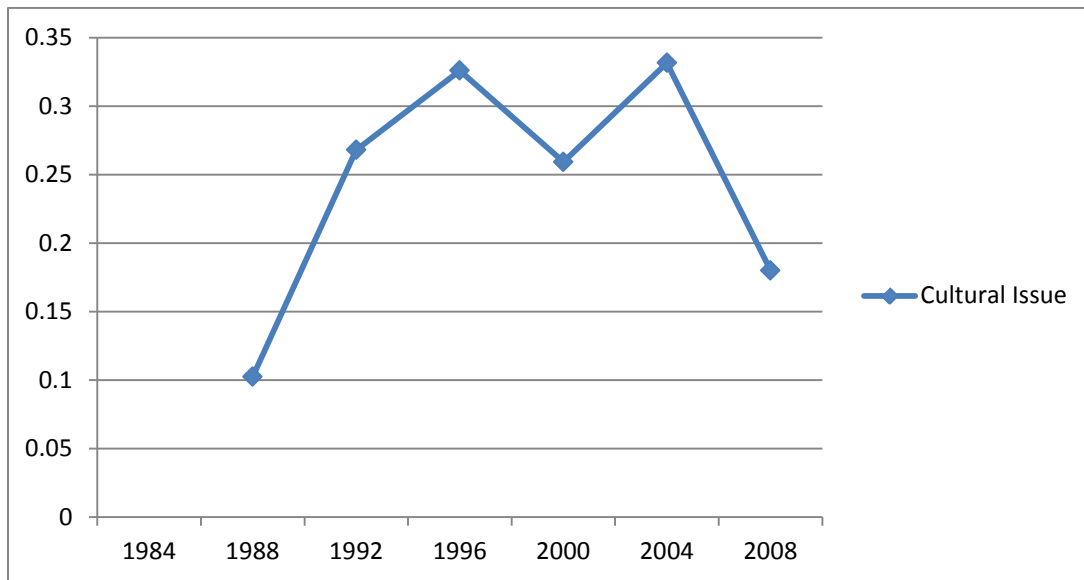
Similar to the government guarantee dimension, I also generated kernel density plots for the cultural issues scale by party identification across years from 1988 to 2008 and the results are presented in the Figure 5-3. As shown in the figure, the distributions are more conspicuously differentiated between Democrats and Republicans in 2004 in comparison with the base line distribution of 1988. For example, two densities representing strong Democrats and strong Republicans respectively almost overlap in 1988 which implies that individual partisanship is not unambiguously identified with the cultural issues in the late 1980s. This cultural issue domain, however, does more clearly distinguish strong party identifiers during the 1990s and becomes

most pronounced in 2004. Indeed, compared to the distributions for 1988, the Republican distribution is more clearly located to the right of the Democrats in 2004. Actually, the difference of medians for the strong Democrats and strong Republicans was only 0.33 in 1988 but it increases to 1.67 in 2004 and changes to 1.00 in 2008. The mean difference was only 0.56 in 1988 but it grows to 1.57 in 2004, and then changes to 0.93 in 2008.

The noteworthy exception to this growing inter-partisan divergence in terms of the cultural issue scale is the 2008 panel that displays greater overlap in the distributions again for Democrats and Republicans in comparison with the previous period. That is, the analysis of the 2008 data complicates the increasing trend of partisan sorting on cultural issue dimension. This result is related to the different factor analysis for 2008 presented above. In the factor analysis of 2008, two issue items (newer life and tolerance) out of the 5 total cultural issue items form a separate issue dimension from the other items in the issue domain. Given that, if I constructed a new cultural issue scale using only three issue questions (equal role of women, gay right, and abortion attitude), this scale presents a more consistent result in 2008 that is similar to other neighborhood year panels. Once we adopt this modified scale, strong Democrats are especially concentrated at culturally more liberal positions on the scale consistently across different years. Despite the adoption of this new cultural scale, distributions of both Democrats and Republicans are diffused over wide ranges with substantial overlap in the cultural issue dimension. This implies that partisan issue positions are less differentiated by their attitudes toward cultural issues especially in 2008 compared to the government guarantees issue. I would associate the reasons partly to the election of the first African American president. Partly due to high public dissatisfaction with Bush presidency, many voters including traditionally loyal Republican supporters turned their backs on the Republican candidate. For example, more than one-quarter of white-evangelical Protestants voted for Obama in the 2008 presidential election according to

the national exit poll (Fiorina and Abrams 2011, 316). More generally, Fiorina and Abrams argued that there are certain sources of confusion that can yield imperfect party sorting or possibly inaccurate perception of mass polarization especially in terms of some socio-cultural issues including the abortion issue (Fiorina and Abrams 2011, 316). They contend that different positions on some cultural issues do not perfectly reflect political views and evidence that one-third of Democratic identifiers turn out to be closer to pro-life positions in 2008 ANES survey. In sum, existing sources of opinion heterogeneity still contribute to imperfect party sorting in terms of the cultural issues especially in 2008.

Since the above analysis of party sorting only includes strong party identifiers, I also examine the correlation between the 7-point party identification and the cultural issue scale to account for more general characteristics of the sorting in the electorate.



Note: The correlations are statistically significant at  $p < 0.001$  in every year.

Figure 5-4. Correlation of Party Identification with Cultural Issue Scale (1988-2008)

Figure 5-4 reports the correlation between party identification and the cultural issue scale and it shows that partisan sorting dramatically increased after 1988 except for 2008. In 1988, the correlation was only 0.103 but it jumped to 0.268 in 1992 and 0.326 in 1996, then reached the highest value of 0.332 in 2004. Compared to the above government guarantee issue scale, the overall level of the correlation is lower in the cultural issue scale but partisan sorting is occurring in both dimensions. Similar to the government guarantee scale, the increased correlation represents that Republicans have become more culturally conservative while Democrats are taking more liberal positions on cultural issues in the recent decade compared to the past decade. Consistent with the above kernel density analysis, the correlation coefficient of 2008 marked an exceptional point in that the result reverses the trend of temporally increasing sorting of the electorate.

While Abramowitz and Sunders (2008) and Abramowitz (2010) consider an increase in the correlation as strong evidence of the presence of partisan polarization, we need to distinguish mass polarization from partisan sorting. According to the definition adopted herein, mass polarization should involve certain distributional changes characterized by diminishing moderates or disappearing center and corresponding increase in extreme sides. Yet partisan sorting may or may not accompany a diminishing distributional center and corresponding growth in distributional poles for the electorate as a whole. In other words, the graphical analysis presented above does not provide enough information as to whether the growing partisan sorting has led to a rise in polarization of mass ideology. Therefore, we need to examine the entire distribution of the ideology scales and investigate if the density has shifted from the center to the extremes.

### Measuring Mass Ideological Polarization using the Relative Distribution Method

In this section, I investigate distributional changes by analyzing the entire ideological distribution without accounting for individual partisanship. The purpose is to identify meaningful density shifts from the center to both extremes of the distribution rather than address partisan divergence or sorting. Here I focus on measuring polarization as a process rather than the existence of mass polarization. By the ‘existence,’ I mainly refer to any static measure of mass polarization, while polarization as a process concerns the dynamic properties of distributional changes. The existence of mass polarization might be observed by analyzing a single distribution of individual preferences at a specific (fixed) point of time. In contrast, polarization as a process is believed to be underway when the shape of a certain distribution changes from concentration

at the middle of distribution in time  $t - 1$  toward concentration of responses to the extremes in time  $t$  (growing density at the two tails with time). I estimate the changing degree of polarization that can be observed by comparing the distributional shapes of two ideological distributions on the same scale from two neighboring periods. Thus the empirical measurement of the process identifies changes in distributional shapes over time. Given a reference point for a certain issue distribution, I evaluate how a comparison cohort is polarized in terms of the distributional shape relative to a reference cohort. The relative distribution (RD) framework is an ideal for this purpose. Put simply, a comparison distribution is more (or less) polarized *relative to* a reference distribution.

Indeed distributional polarization as a process intends to assess how ideological densities in the later period are more or less polarized than the densities of the previous years. To identify this systematic pattern of distributional change, I first utilize the kernel density plot to illustrate how the ideological distributions have evolved over time among the electorate when individual partisanship is not accounted for. Then I apply the relative distribution method to measure the direction and the size of distributional changes more accurately. I begin the graphical exploratory analysis with the primary scale addressing voter's issue position on the government guarantee dimension.

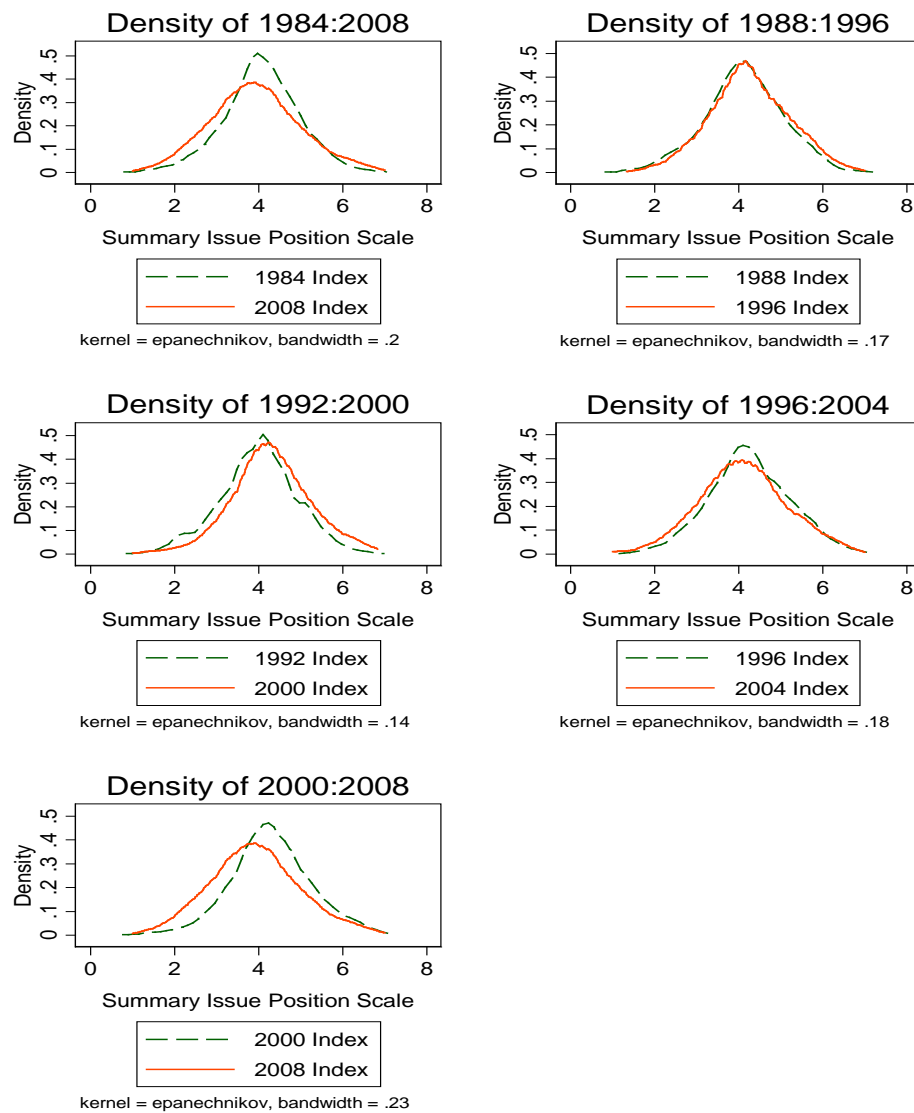


Figure 5-5. Kernel Density Plots of the Government Guarantee Scale over Years (1980s to 2000s)

Figure 5-5 presents kernel density plots of respondents' ideological positions on the government guarantee issue domain over years from 1984 to 2008. I produced 5 panels of kernel



density plots in the figure and the first panel (1984:2008) compares the density between the most recent era (2008) and 1984 when the government guarantees issue scale first becomes available. This graph illustrates how mass ideology measured on the government guarantee issue dimension has evolved for the past two decades. The other four panels provide sets of interesting density comparisons between presidential election years with similar electoral environments. Specifically, the first two sets compare the distributions of the presidential election years that lead to presidential party switch; that is, 1992 (Republican to Democrat):2000 (Democrat to Republican) and 2000:2008 (Republican to Democrat). In contrast, the next two sets compare the distributions of the years when incumbent-party presidents were elected to the later election years when other incumbent-party presidents were elected; that is, 1988 (Republican):1996 (Democrat) and 1996:2004(Republican).

Figure 5-5 above presents a reason why we should distinguish between polarization as a state and polarization as a process. Actually it is hard to find a clear sign or presence of distributional polarization as we choose and analyze a single ideological distribution in a particular year in Figure 5-5 without comparison to the reference distribution. None of the kernel density plots for a particular year shows a bimodal distribution indicating a presence of polarization (i.e., polarization as a state). Furthermore, a great proportion of people who were in the center of ideological distribution during the 1970s remain in the middle of the distribution even in the 2000s. Thus this way of measurement seems to suggest that there is less empirical evidence of increasing mass polarization over time period. Yet this conclusion only looks at a single face of distributional polarization (polarization as a state) while it neglects another feature of polarization that focuses more on dynamic nature of distributional changes. And evidences of that dynamic nature addressing polarization as a process can be found in the declining moderates over time. The decrease of moderates implies that respondents who were once located in the

ideological center of the distribution at time  $t - 1$  changed their positions closer to either liberal or conservative side at time  $t$ . In sum, although the kernel density plot of a single year does not appear to be polarized, polarization as a process has been ongoing if later decades gain more density taken away from the center of previous periods. Figure 5-5, however, although visually useful, does not allow us to accurately assess the amount and direction of distributional shifts, thus I apply the relative distribution method to resolve this accuracy problem in terms of the amount and direction of change.

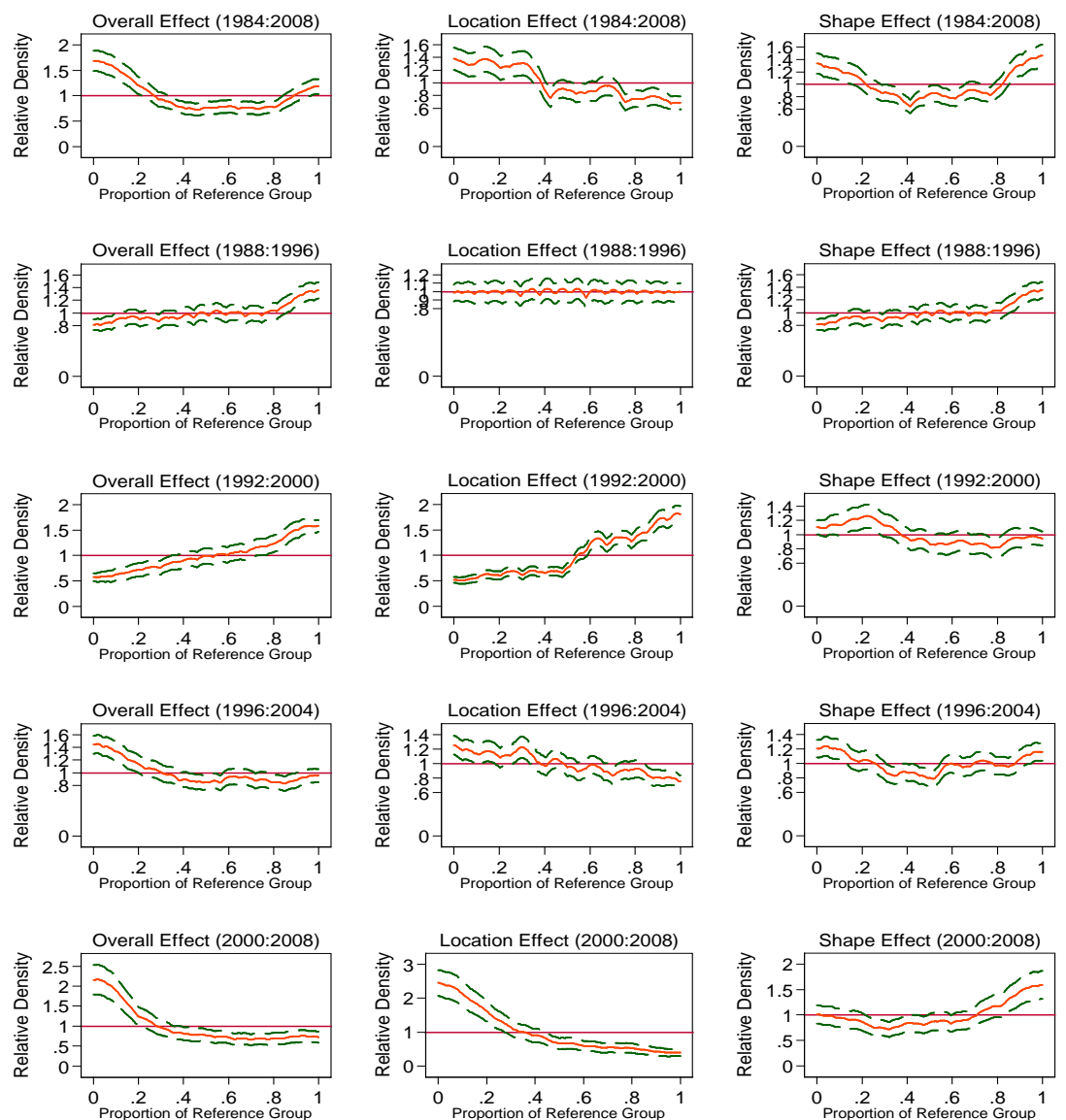
The noteworthy observation from the figure is that the distributional center representing the moderates decreased in 2008 compared to the 1984, and in particular the decline of moderates is more clearly displayed in the panels of 2004 and 2008 in the figure 5-5.<sup>41</sup> The reduction of density in the center indicates that a certain proportion of individuals who once were ideological moderates moved to either side or pole of the distribution. For example, the two distributions almost overlapped in the 1988:1996 panel that plots densities of 1988 and 1996 respectively and this convergence represents that there were no major notable changes in distributional shape between the two periods. The ideological distribution of 2004, however, departs significantly from that of 1996, exhibiting a shift pattern that dramatically reduces the ideological moderates in the middle. The distributional center is also significantly shrunken in 2008 relative to the density of 2000. The trend of declining distributional center gives some support to the hypothesis of distributional polarization as a process.

In the kernel density plots of Figure 5-5 we can also observe some systematic patterns of density shift from a year to year. First of all, the distribution of 2008 is left of the initial

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<sup>41</sup> A group of respondents who answered “don’t know” is combined to the moderate group following the previous literature (e.g., Abramowitz and Saunders 2008, 544; Campbell 2006, 157, Fiorina and Abrams 2011).

distribution of the government guarantee scale in 1984 which implies that the overall ideological distribution is more liberal in 2008 relative to 1984. This fits well with different electoral environments in those presidential election years where the electorate elected the conservative president (Reagan) in 1984 whereas more the liberal candidate (Obama) was elected in 2008 (see panel 1984:2008). Similarly, the overall ideological distribution of 2000 when the electorate elected the President G.W. Bush shows a more conservative trend in comparison with the distribution of 1992 when the electorate chose the President Clinton (see panel 1992:2000). Finally, the ideological distribution of the 2008 electorate who elected Obama shifted to the left compared to the distribution of the 2000 electorate who chose Bush (see panel 2000:2008). In sum, both the polarization as a process and the directional shift of ideological distribution have characterized the distributional changes of the government guarantee issues scale for the past two decades.



\*Dashd lines indicate the 95% Confidence Intervals

Figure 5-6. Relative Density of the Government Guarantee Scale over Time (1984-2008)

Figure 5-6 presents graphical results of relative distribution (RD) analyses of the government guarantee scale using a previous period as a baseline distribution. Each row of the figure 5-6 presents a compared distribution of a specific time period from 1984 to 2008—corresponding to the kernel density panels presented in Figure 5-5 above, while the first row accounts for the overall trend for 2008 when 1984 distribution is used as a reference. For each comparison I also decompose the overall relative density into location and shape effects and those decompositions are presented in the second and third columns of the respective row. While the horizontal axes in each panel represent ten deciles based on a reference distribution, the vertical axes indicate either an increase or decrease of relative density in each decile of the baseline distribution. As a reminder for the rule, density growth is expected when the relative density is greater than  $g(r) = 1$  line. Namely, when a RD line lies above the  $g(r) = 1$  line, it indicates that density at the corresponding deciles grew in comparison to the baseline distribution. In contrast, if a RD line falls below the  $g(r) = 1$  line, it represents that the density at the deciles declined.

We find some evidence of distributional polarization between 1984 and 2008 from graphical displays of the relative density. Indeed, the distributional center is diminished whereas both extremes gained more relative density in 2008 in comparison with the 1984 distribution. Distributional polarization in terms of density growth in both poles is more clearly observed in the shape effect (1984:2008) that is produced by matching the location (median) of 1984 and 2008 distributions. In addition to the increased polarization in distributional shape, the median-downshift to the liberal side also characterizes distributional changes that have occurred during the period between 1984 and 2008 (see the location effect (1984:2008)). Substantively, the location shift to the liberal side from 1984 to 2008 could be explained by the turn of popular mood led by the conservative campaigns of Reagan during 1980s to the election of a more liberal

Obama in 2008 presidential election. If we take a closer look at the polarization trend using the polarization summary measures, 14% of population shifts away from the median of the distribution (Median Relative Polarization, MRP=0.14) to the both tails of the distribution.<sup>42</sup> While 6% of the mass moved from the median to the lower tail below the median, 8% of the population shifted to the upper tail above the median (Lower Relative Polarization, LRP=0.12, Upper Relative Polarization, URP=0.16).<sup>43</sup>

If we examine relative density comparisons by respective period from 1984 to 2008 that are provided in the rest of the rows of Figure 5-6, the results of the analyses correspond well to the kernel density plots presented in the Figure 5-5 above. An ongoing polarization trend became more pronounced since the turn to the 2000s, whereas polarized distributions are not visually clearly detected in the panel of 1988:1996. Indeed, the later eras seems to present more distributional polarization in terms of increased relative density in either tail of the ideological distribution. Median relative polarization indexes also provide numerical supports for the growing polarization in those eras. While MRP increased from 0.023 in 1988:1996 to 0.099 in 2000:2008, the comprehensive period between 1984 and 2008 shows the greatest MRP value (0.144).<sup>44</sup> As I mentioned above, evidence of increased polarization is especially found in the

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<sup>42</sup> Polarization summary statistics were calculated in STATA 10.0 using the pre-release version of “reldist” package developed by Benn Jann (2008). I appreciate him to allow me use the pre-released version of his package.

<sup>43</sup> Remind that MRP is an average value of URP and LRP, thus  $0.14 = \frac{1}{2} (0.16 + 0.12)$ . These polarization summary statistics are obtained using the mean absolute deviation from the median of the location-matched relative density. A URP (LRP) value accounts for the contribution to the median relative polarization (MRP) index from above (below) the median. Note that the measure does not explain the questions of whether the distributional upgrading (or downgrading) is more prevalent because such location shifts have been already removed by matching the location. Rather, the summary measures address the issue whether the residual changes (changes in shape or scale) have been more dramatic above or below the median (see Handcock and Morris 1999, 72-73).

<sup>44</sup> Here are values of MRP for each panel: 0.023 (1988:1996 pair), 0.036 (1992:2000 pair), 0.066 (1996:2004 pair), 0.099 (2000:2008 pair), and overall 0.144 (1984:2008 pair).

fourth (1996:2004) and the fifth (2000: 2008) rows given that the distributional center ranging from 4<sup>th</sup> to 6<sup>th</sup> deciles is diminished relative to the reference distribution. For example, during the time between 1996 and 2004, the proportion of the moderates comprising 4<sup>th</sup> to 6<sup>th</sup> deciles decreases and this density shift away from the middle is significant because the 95 % confidence intervals (dotted lines) fall below  $g(r) = 1$  line for the period. As a graphical display of the relative density (overall changes) illustrates, the reduced density from the middle in 1996 moved to more liberal positions. Actually, during this period between 1996 and 2004, about 6.6% of the density shifted away from the median of the distribution to the lower and upper tails of the distribution according to the polarization statistics (MRP = 0.66). This polarizing trend is more dramatic in the 2000:2008 panel.<sup>45</sup> The overall RD effect of 2000:2008 in Figure 5-6 evidence that the relative proportion of the centrist population diminished in 2008 in comparison with the baseline 2000 distribution (see overall effect (2000:2008)). A positive value of median relative polarization index indicates that 9.9 % of population moved out from the median to both tail sides of the ideological distribution (MRP = 0.99). As the significant negative location effect between 2000 and 2008 indicates, distributional downgrading to the liberal side occurred and was pronounced during this period (see location effect 2000:2008). This implies that a majority of people who once sit in the center in 2000 moved their positions to the liberal end of ideological distribution in 2008. Substantively, density growth of liberal population could be linked to 2008 election results of Democrat majority in the House and Obama's win in the presidential race, whereas the Republican Party won both congressional and presidential elections in 2000. In addition to the median downshift to the liberal side however, distributional shape change also occurred in the highest deciles (i.e., conservative ends) as shown in the shape

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<sup>45</sup> The ranges of y-axis become loosen in the relative density panel of 2000:2008 than the panel of 1996:2004.

effect (2000:2008). This suggests that more of the population could be found in the conservative extreme while the entire shift of the ideological distribution to more liberal side is prevailing trend during this period. The URP index also gives support to the conclusion that this distributional polarization trend had contributions from both directions. A positive URP value of 0.31 indicates density growth (1.55%) above the median in the midst of the overall distributional shift to more liberal positions. Finally, considering that the range of the vertical axes is much *more* dispersed in the last row RD (2000:2008) than panels of other periods, we can infer that the distributional changes occurring this period have stronger influences over the long-term shift presented in the first row (1984:2008) of Figure 5-6 than any other period.

Some noteworthy directional shifts in the mass ideological distributions across years should be highlighted. For example, the distribution of 2000 exhibits growth in the relative density of conservative voters comprising the 8<sup>th</sup> to 10<sup>th</sup> deciles in comparison with the 1992 distribution. The panel of 1992:2000 shows that relative density line lies above the  $g(r) = 1$  line in conservative deciles from 6<sup>th</sup> to 10<sup>th</sup> whereas it falls below the horizontal line in liberal positions ranging from 1<sup>st</sup> to 4<sup>th</sup> deciles. This distributional shift is statistically significant at 95% levels given that the dashed confidence interval lines enclosing the relative density line lie above or fall below the  $g(r) = 1$  line in those ranges. The distributional changes during this period (1992-2000) primarily originate from the location effect since the location shift to right positions is more pronounced while the shape effect is less salient in more tightened scale of the horizontal axis (see the shape effect 1992:2000).<sup>46</sup> Yet the right-shifted ideological density for 2000 moved

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<sup>46</sup> It is noteworthy however that the underlying distributional polarization was under the way during the period between 1992 and 2000 as well. Although a majority of population has shifted rightward (the median upshift in the location effect), there was a slight increase of polarization in the lowest deciles in the middle of the prevalent location effect. Actually, 7.5% of the population shifted away from the median of the distribution to the lower tail (LRP = 0.15) while some population above the median (4 %) converged from the upper tail to the median of the distribution (URP = - 0.08). Thus, a positive value of MRP (0.035) gives evidences of an increased distributional polarization during the



back to the relatively more liberal distribution of 2008 by gaining density in liberal positions in that year as shown in the graphical display of Figure 5-6. By looking at the graphical relative density, we observe an increased proportion of the liberal population ranging from 1<sup>st</sup> to 2<sup>nd</sup> deciles in 2008 compared to the ideological distribution of 2000.

All of these results fit well with the findings of above kernel density analyses. Yet one interesting observation that we fail to see in the above kernel density analyses is the liberal population was greater proportion of the electorate in 2004 compared to the 1996— yet it was the 2004 electorate who elected Bush compared to the electorate of 1996 who reelected Clinton in 1996 (see panel 1996:2004). Although the overall effect of relative density for the 1996:2004 pair is not very strong, there is a distributional shift to the more liberal side in the distribution of 2004 relative to that of 1996.

This finding that a relatively more liberal population elected a more conservative Bush in 2004 whereas a relatively more conservative electorate elected a more liberal Clinton in 1996 may appear not to make sense but can be explained in several different ways. For example, although the voters chose Clinton in 1996 there remained a Republican advantage in both chambers of the Congress that continued from the historical Republican turnover in 1994. In other words, the conservative GOP was riding high on the gains made in 1994 and continued through 1996, though the party lost the presidential race to the Democratic Party. Also, the fact that a somewhat conservative electorate chose to elect Clinton can also be explained by the identity transformation of the Democratic Party led by Clinton who was at the center of the Democratic Leadership Council (DLC). The group is known to have attempted to replace the then seemingly failing liberalism based on social justice and the redistribution of wealth with an

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period between 1992 and 2000, we can also infer that the grown polarization has contributions from the both directions.

alternative philosophy that embraced ideological positions featured by welfare reform, free trade, and a balanced budget (see Baer 2000). This rather centrist policy stance taken by Clinton, shifting from the liberal to relatively more conservative positions, is well epitomized in his 1996 State of Union Address declaring “the era of the big government is over.”

In conclusion, the RD analyses suggest that polarization as a process is underway since the late-1980s to the early-1990s and that the polarization trend became more pronounced from the mid-1990s. Indeed, the mass ideological distribution on the government guarantee scale of 2008 is much more polarized than twenty years ago, but neither the conservative nor liberal movements can solely account for changes occurring in entire period of the time between 1984 and 2008. Rather, the public sometimes moved toward more conservative side, and they also shift toward to more liberal ideological positions. And both of these two shifting trends in public mood have contributed to the ongoing polarization as a process in the government-ensured policy issue areas.

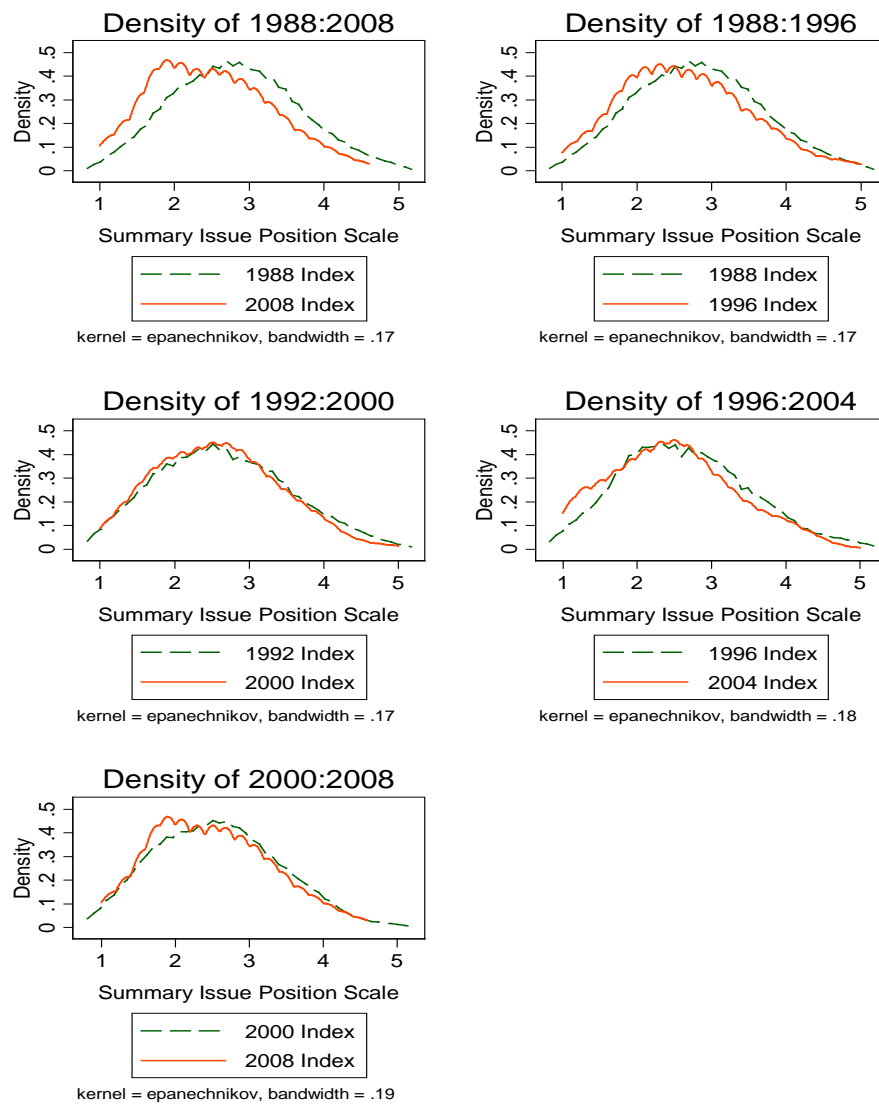


Figure 5-7. Kernel Density Plots of Cultural Issue Scale over Years (1980s-2000s)

We now turn our focus to the cultural issue scale. Similar to the approach taken in the analysis of the government guarantee scale, I generated a series of kernel density plots that compare the distribution of the cultural issue scale over time since 1988. In contrast to what we saw in Figure 5-7, we do not see a decrease in the distributional center when the earliest year for which this scale is available (1988) is compared with 2008. Rather than any significant density reduction in the middle, a location shift can be observed. Indeed, the overall trend is that the ideological distribution moved toward the left. This indicates that mass ideology in terms of cultural issue preference became more liberal between 1988 and 2008.

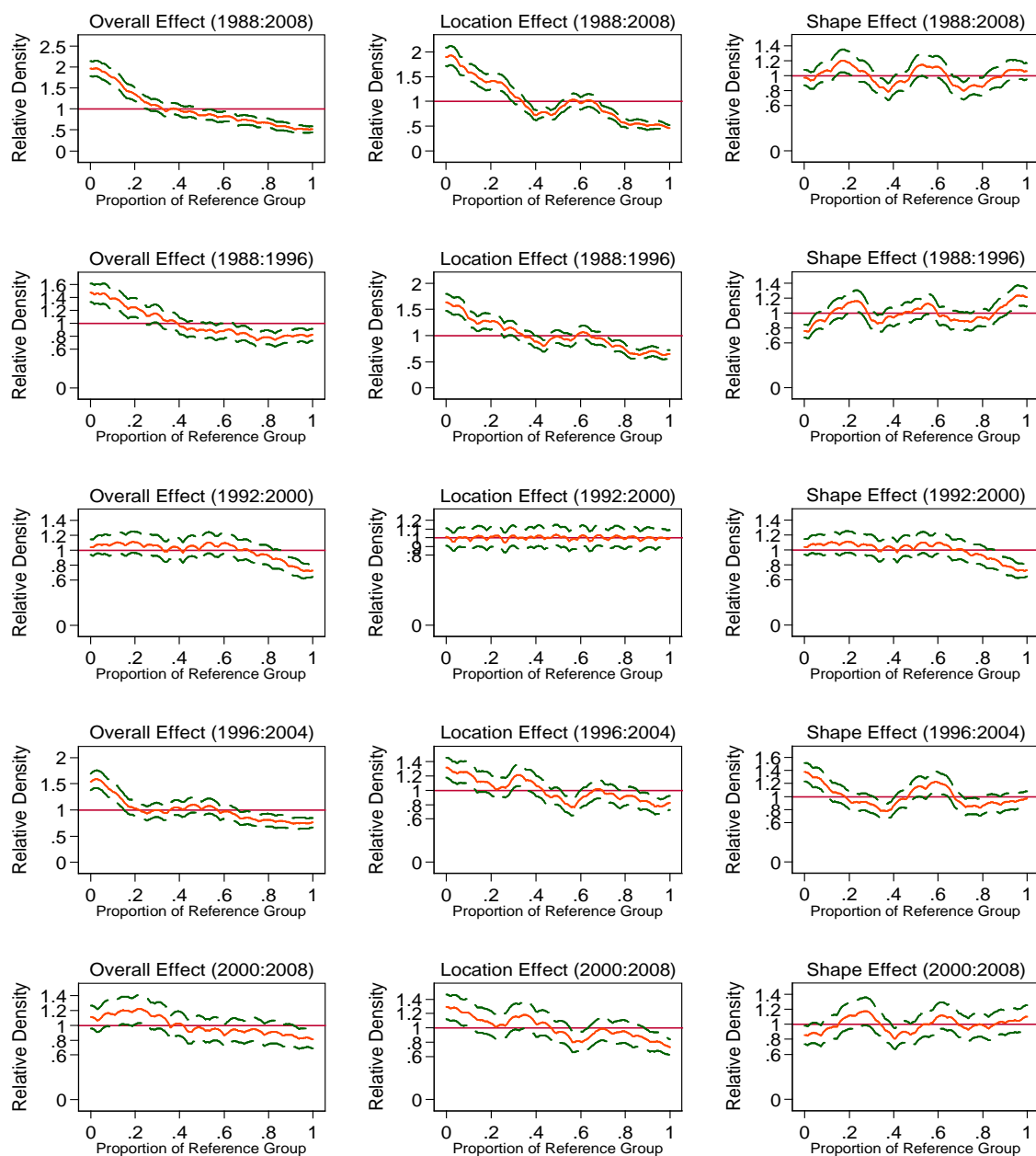


Figure 5-8. Relative Density of Cultural Issue Scale over Years (1988-2008)

I also performed a series of relative distribution analyses using the cultural issue scale to better understand distributional changes occurring in the period between 1988 and 2008, and the graphical results are presented in Figure 5-8. First of all, no clear evidence of increased polarization exists; instead an asymmetric growth in the density of the lower tails can be seen in most of the panels of Figure 5-8.<sup>47</sup> Indeed, corresponding to the finding from the exploratory analyses using kernel density plots, density growth in the liberal side primarily characterizes the entire period instead of a significant density reduction in the distributional center. Compared to the baseline distribution of 1988, relative frequencies dramatically increased in the deciles covering the culturally liberal positions especially from 0<sup>th</sup> to the third decile in 2008 distribution of the cultural issue scale. The RD line lies way above  $g(r) = 1$  line in those lowest deciles. The distributional change in this era can largely be attributed to the location shift to the left side (see location effect (1988:2008)), and this implies that mass ideology in terms of the cultural issues became more liberal as a whole in 2008 relative to 1988. Substantively, this indicates that the ideological configuration of the 2008 electorate who elected Obama is left in terms of voters' cultural stances to the ideological distribution of the 1988 electorate who elected George H.W. Bush.

This liberal trend is observed across the entire period from 1988 to 2008, though variation exists across different time periods. Firstly, a larger proportion of people took more culturally liberal positions in 1996 compared to the 1988. It appears to make sense that the electorate who selected George H.W. Bush in 1988 was culturally more conservative compared to the ideological distribution of voters' who elected Democratic candidate in 1996. There is also

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<sup>47</sup> According to the polarization summary statistics, only two pairs (1988:1996 and 1996:2004) report positive values of MRP among the four different sets of RD pairs, while the first panel covering a comprehensive range of years (1988:2008) exhibits a negative MRP (-0.016) for the cultural issues dimension.

a small shift leftward to the liberal side in the panel of 1992:2000, but it presents an uncertain picture of RD effect since the dashed 95% confidence intervals embrace a  $g(r) = 1$  line that marks no distributional changes in the ranges, although there is some density decreases in the conservative tails. Since the location effect (1992:2000) indicates almost no distributional shift attributable to the location differences, the shape changes must have produced the decrease in the conservative extremes during this period. Thus, we can summarize that the density of the culturally conservative end slightly decreased in the distribution of 2000 relative to the reference distribution of 1992, although the size of the overall distributional shift is not substantial in this period.

The trend of liberal shift continued to the following period of 1996 through 2004; the distribution of 2004 contained more relative density in the liberal end positions than in 1996 on the cultural issue domain. Interestingly again, overall the popular mood of the electorate who selected Bush in 2004 turns out to be more liberal compared to the ideological distribution in 1996 when the electorate elected Clinton. We can see a negative location shift to the liberal side between the 1996 and 2004 distributions (see location effect in 1996:2004 panel). There is substantial density growth in the lower tail and convergence from the upper tail toward the median as shown in the shape effect. According to the polarization summary statistics, a 0.22% population shift occurred from the median to the upper and lower quartiles of the distribution during this period. This amounts to the 3.75% population shift from the upper quartiles to the median and simultaneous 3.95% population shift from the median to the lower quartiles of the distribution.<sup>48</sup> Namely, while there is a slight sign of distributional polarization between 1996 and 2004, the density shift toward the more liberal side from the median is not offset by the

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<sup>48</sup> Note that  $MRP(0.002) = \frac{1}{2} [LRP(0.079) + URP(-0.075)]$

population shift from the conservative tail to the median, thus we see the increased relative density in the lower quartiles. Although the effect somewhat declined (the range of the vertical axis is more tightened in the overall effect (2000:2008) in the last panel), an increased proportion of liberal population is also present between 2000 and 2008. To summarize, rather than distributional polarization as a process, liberal movement primarily characterizes changes in the ideological distribution of the cultural issue scale during the time between 1988 and 2008.

Another finding that needs to be mentioned is that a relative placement of the entire ideological distribution of the electorate does not always match the relative cultural stance that a winning presidential candidate has taken (e.g., panels of 1992:2000 and 1996:2004).<sup>49</sup> Actually, the mismatch between the ideological positions of winning presidential candidates and the entire electorate is also observed in the government guarantee scale panel of Figure 5-6 that compares that 2004 distribution of the scale to the reference cohort of 1996. This incongruity can be explained in several different ways drawing on the existing literature. Firstly, Hillygus and Shields (2005) show that opinion about such moral issues as gay marriage and abortion were far from the deterministic predictors of vote choice in the 2004 presidential election, the effect of those moral issues on voter decision making is very limited in comparison with other factors including the economy, the Iraq war and terrorism. Mulligan (2008) distinguishes from moral values (including the attitude toward newer life styles and tolerance of the different moral standards) from moral issues (gay marriage and abortion), and finds that moral values affected the vote choice whereas moral issues did not in the 2004 presidential election. Given that our cultural issues scale includes both moral issues and values in Mulligan's categorization, it is not

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<sup>49</sup> According to Treier (2010) who estimates the president's ideological positions by analyzing both congressional roll call data (Poole) and signed bills (107<sup>th</sup>~109<sup>th</sup>), Clinton's position ranges from liberal to moderate, while Bush's position spans from moderate to extremely conservative positions.



surprising that the effect of those cultural issues on the vote choice is not straightforward. More generally, according to Jacoby (2009) who examines the impact of ideology on voting behavior in the 2004 presidential election, the role of liberal-conservative ideology as a determinant of voting decision requires a somewhat complicated interpretation. The argument is ideology had no direct effect on the voting decision in the election, but exerted a completely indirect impact on the vote choices by structuring mass perceptions and evaluations of the political environment including the candidates' personal characteristics, political issues, and the state of economy.

### Conclusion

Unlike the scholarly consensus over the presence of growing party polarization in the Congress, an existing body of literature is still divided on their assessment of the degree of ideological polarization at the mass level. In order to address this puzzle of scholarly ambiguity about the existence of mass polarization, this chapter adopted an alternative empirical methodology (i.e., the relative distribution method) developed for the analysis of income dynamics. Since the method examines the entire distribution rather than rely primarily on summary statistics, it is known to improve the measurement precision in distributional analysis (Handcock and Morris 1999).

According to the analysis of the cumulative ANES data, supporting evidence of growing mass polarization in terms of the government guarantee dimension does exist between 1984 (especially from mid-1990s) and 2008. In contrast, increasing distributional polarization is not observed in the cultural issues scale between 1988 and 2008. In terms of the government guarantee scale, the mass ideological distribution of 2008 is much more polarized than two decades ago, and the relative distribution analysis of the scale suggests that polarization as a

process is underway among the mass public especially since the early 1990s. Also, the growing polarization in the scale has not been exclusively driven by one-directional movement; rather the public mood sometimes shifts toward more conservative side, while it also moves toward more liberal ideological positions. When it comes to the distributional polarization on the cultural issues scale, the relative density panel covering the entire period (1988:2008) shows slightly reduced density at the center of the distribution, but the level of polarization is neither dramatic nor statistically significant in most cases. Rather, distributional changes reflected in the cultural scale can be largely attributed to the directional shift to the more liberal positions rather than the increasing polarization of public opinion.

Indeed the findings presented here provide a new challenge to the existing belief about the relationship between the electorate and its representative. According to the evidence in this chapter, however, the ideological distribution of the mass public has changed over time in response to the ongoing elite polarization. In particular, evidence of distributional polarization is detected between 1984 and 2008 with regard to the government guarantee scale. This presence of ongoing mass polarization on the scale lends *partial* credence to the claim that voters and representatives are still connected, though the link may be weaker than decades ago. Although the attitudinal distribution of mass public has not changed dramatically, it is still true that the ideological distribution of later eras are more polarized *compared to* the past if certain amount of density shifted away from the center to both extremes of the distribution. The gradual movement of density represents how polarization has proceeded among the mass public, and the relative distribution method adopted here captures this *polarization as a process*. Taken together, this chapter demonstrates that the actual changes in ideological preferences have also occurred together with partisan sorting among the mass public.

## CHAPTER VI

### THE EFFECTS OF POLITICAL POLARIZATION ON MASS POLITICAL AWARENESS AND ENGAGEMENT

Just as scholars have argued about whether the mass public has responded to growing elite polarization by becoming ideologically more polarized, scholarly attention is also given to other dimensions of mass reactions to ideological division in Congress. From the electorate's side, first of all, we would expect that ideological orientations of individuals will shift to more extremist positions if the mass ideological distribution became more polarized responding to the growing elite polarization. In addition to that, as the political environment changes with growing partisan polarization among the elite class, the political behavior of citizens, in terms of how they perceive or how they interact with politics, will likely change accordingly. Given that, this chapter examines the effects of elite polarization on the mass political behavior focusing on the changes in ideological preferences, political awareness and engagement.

Adopting the definition of Zaller (1992), I conceptualize political awareness as “the extent to which an individual pays attention to politics *and* understands what he or she has encountered.....Political awareness denotes intellectual or cognitive engagement with public affairs as against emotional or affective engagement or no engagement at all (p.21, italics in the original text).” As Zaller (1992) explains, similar concepts to political awareness in our discipline include political expertise, cognitive complexity, political involvement, attentiveness, sophistication, and political acuity. For political engagement I focus on the attitude or behaviors indicating levels of individual engagement with politics and government affairs. Specifically I link the engagement here to the degree to which citizens care about election outcomes (attitudinal), or to which they participate in political activities (behavioral) including voting and

election campaigns following the previous literature (Abramowitz and Saunders 2008; Hussey 2012).<sup>50</sup> More details about how I measure each concept are provided in the measurement section later.

The disappearance of ideologically moderate members as a result of ongoing congressional polarization means that issue positions of politicians became more clarified compared to less polarized eras. By clarifying the policy ambiguity of the elites, elite polarization is expected to enhance public awareness and engagement since the levels of these measures could be influenced by the amount of available information to citizens (e.g., Claassen and Highton 2009; Bimber 2001; Matsusaka 1995; Tolbert et al. 2003; Larcinese 2007; Rogowski 2012). I pay attention to changing levels of political awareness in the transformed political environment, not only because increased sophistication of voters could enhance the quality of democratic decision making, but also because greater awareness is linked to increased political engagement of the public. With the growing elite polarization, more citizens are expected to perceive greater distinctions between parties' (or candidates') ideological positions with less difficulty. Further, if it becomes easier to differentiate parties, this also means that elite polarization has significantly reduced a voter's costs for acquiring political information, which can in turn encourage more participation of individuals in political processes (Matsusaka 1995; Riker and Ordeshook 1968; Larcinese 2007; Lassen 2005).

If growing elite polarization would improve levels of civic political awareness and facilitate political engagement of the public following the virtuous circle described above, these consequences might be described as 'beneficial' aspects of political polarization (see, e.g., Levendusky 2010). Some obstacles, however, may exist to the way in which elite polarization

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<sup>50</sup> In some senses, political awareness can be viewed as one aspect of engagement as Zaller (1991) defines the concept as "intellectual or cognitive engagement with public affairs (p.21)."

positively affects political attitudes and behaviors of the mass public. For example, Fiorina et al. (2006, 2008) argue that growing elite polarization tends to alienate ordinary citizens from political processes, thus it can suppress political engagement of the electorate. If a majority of citizens remain ideologically moderate in the age of political polarization, growing polarization of elected officials could alienate the more moderate citizens (Fiorina et al. 2006, 2008). A large number of people could be disengaged or less engaged by congressional polarization if voters feel that constituents' policy views are not correctly represented by neither parties.

While intensifying elite polarization may depress mass political engagement by alienating citizens, alienation felt by a citizen could be offset by increased mobilization efforts of political elites toward the electorate. Party mobilization is known to be an important determinant of civic political participation (Rosenstone and Hansen 1993), and mobilization activities became more frequent in the 2000s with the increased elite polarization (Hetherington 2008; Fiorina et al. 2008). According to Hetherington (2008, 14), while the recent surge in party contacts has been mainly targeted toward ideologues among the electorate, mobilization activities toward moderates and non-ideologues are also on the increase as well. Thus, together with information effects, growing mobilization efforts as a consequence of elite polarization can encourage mass political engagement.

Therefore, we have conflicting expectations in terms of the effects of elite polarization on levels of political engagement among the mass public. Elite polarization is likely to stimulate mass political engagement if such positive effects as increased information and mobilization are predominant over negative alienating effects. Although citizens become more informed and are increasingly mobilized with growing elite polarization, we are still likely to observe less engagement or disengagement among voters if they are increasingly disenchanted from polarized elite politics. Given the coexistence of both positive and negative impacts, we need to analyze

how elite polarization affects mass political engagement when all these confounding factors are controlled in an empirical model.

Using the cumulative ANES survey (1972-2004), I start to explore how far citizens became ideologically polarized in responses to the growing elite polarization. Abramowitz and Saunders (2008) argue that the electorate became more polarized in the 2000s than decades ago responding to increasing elite polarization. In contrast, Fiorina et al. (2008) counter that only a small segment of population with strong ideological orientations, such as political elites and activists, became polarized while a majority of ordinary citizens remain moderate. The degree of mass polarization is linked to the effects of elite polarization on mass political engagement, given the argument that people could be increasingly alienated from polarizing elite politics if a majority of citizens remain moderate (Fiorina et al. 2006, 2008). Further, mass polarization measured at the individual level reflects how individuals cognitively react to ongoing ideological polarization among the elites. Looking at differential effects of elite polarization on citizens located at different ideological positions (e.g., from moderate to extremes) using quantile regressions, we can test whether only extremist citizens are disproportionately influenced by increasing elite polarization as Fiorina et al. claim (2006, 2008).

After investigating the changes in ideological positions of individuals associated with the growing elite polarization, this chapter then examines whether the growing ideological divergence between the two parties significantly increases levels of political awareness among the mass public. While evaluating the effects of ideological divergence among elites on the mass public, applying quantile regression strategy, I also explore whether different strata of the population are affected unequally by elite polarization depending on existing levels of awareness. Then, in the next section I investigate how elite polarization influences mass political engagement when alienation, mobilization, and other relevant factors are controlled in the

estimation model. Because citizens can respond differently to changed informational environment depending on their different levels of cognitive skills, I also focus on the conditional effects of existing political expertise as I empirically test the effects of elite polarization on political engagement of the public.

### Elite Polarization, Political Awareness and Engagement

Since Converse's seminal work (1964), scholars have long been skeptical as to whether ordinary citizens hold consistent belief systems across issue dimensions. If the mass public relies significantly on elites' cues to understand the complex nature of ideology and politics, ideological polarization of elites should enhance consistency in mass attitudes because cue-taking becomes much easier for a broad range of people (Levendusky 2010). In this regard, Levendusky (2010) finds a meaningful causal link between elite polarization and consistency in public opinion using experimental research. He demonstrates that growing levels of elite polarization, by clarifying policy positions of parties, enable citizens to hold more consistent attitudes across issue domains. Given his findings, he further argues that the increased consistency, as a result of clearer choice sets presented by parties, may help more citizens vote correctly (Levendusky 2010, 125; see Lau and Redlawsk 1997). Actually, this finding corresponds to some degree to the conceptual meaning of partisan sorting because, in essence, it implies that more people become capable of correctly linking parties and their ideological positions. So if growing elite polarization substantially enhances consistency in mass attitudes, this influence could be considered as a beneficial aspect of polarization, as Levendusky (2010, 125) argue.

Indeed, if intensified elite polarization has improved the informational environment for the mass public by reducing policy ambiguity, we would expect more people to become politically aware and informed. In accordance with this optimistic view, Abramowitz and Saunders (2008, 552) report a substantial increase in the proportion of the electorate who are politically aware in 2000s compared to the 1950s and 1960s. They suggest that about 75% of American voters were able to perceive important differences between the parties and about 85% were concerned about who won the presidential race during the 2000s, whereas only about 50% of voters felt important differences between the parties and only 65% cared about the presidential election outcome during the 1950s-60s. Similarly, Brooks and Geer (2008, 35) describe potential benefits of elite polarization as follows;

“the most obvious benefit of polarization is to offer a sharper distinction between the two political parties. For partisans, the benefit of this sharper distinction is clear: elite polarization gives partisans further reinforcement for their preexisting ideological and policy preferences. For moderates, the choices are made clear enough that one option is more likely to be preferred, at least marginally, over the alternative. For those who have lower levels of overall political knowledge, it should make the lines of differentiation on at least the most salient issues clearer than they would be otherwise.”

The above quote indicates that growing elite polarization is not necessarily detrimental to democratic citizenship in terms of political awareness and engagement (Brooks and Geer 2008). Hetherington (2008) provides supporting evidence that elite polarization has not only increased political engagement among the ideologues, it has also increased engagement among the moderates and non-ideologues. His findings suggest that the increases are observed in both attitudinal (e.g., political interests and perceptions) and behavioral (e.g., voting, campaign activities) forms of political engagement in the aggregate.<sup>51</sup>

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<sup>51</sup> Hetherington (2008)’s measures of political engagement include both cognitive and behavioral forms of engagement, such as self-reported turnout, campaign activities, interests in the election, and



In addition to that, Abramowitz and Saunders (2008) also find that intense popular polarization enhanced the level of public engagement in the 2004 presidential election rather than demobilized voters. By linking two measures of engagement—perceptions of important party differences and caring about the election outcome, they propose their “polarization hypothesis” dictating that “the more voters liked Bush or disliked Bush, the more likely they were to perceive important differences and care about the outcome of the election” (Abramowitz and Saunders 2008, 553). Based on their findings, Abramowitz and Saunders (2008) argue that as the two parties have become ideologically more divided and partisanship in the electorate has become increasingly aligned with ideological positions, individuals perceive greater stakes associated with election outcomes (p. 552; see also Abramowitz 2010). Therefore, we can predict that the perceived ideological differences between the two parties would increase with the ideological polarization of the elites.

In fact, the idea that polarization has potentially positive effects on political engagement of citizens is not totally new (Brooks and Geer 2008, 34-5). Rather, the claim dates back to more than half a century ago when a task force of American Political Science Association led by E. E. Schattschneider devised the responsible party theory as a cure for the failing party system (APSA Committees on Political Parties 1950; Rogowski 2012; Schattschneider 1960).<sup>52</sup> Schattschneider (1960) argued that citizens are more likely to participate in the decision-making process under a competitive party system rather than in the absence of party competition. That is, people will vote only if they perceive meaningful differences between the policy alternatives of different

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perceived government responsiveness (political efficacy). So, some of those measures, especially the cognitive form of engagement, are also closely related to the political awareness measure adopted here.

<sup>52</sup> Rogowski (2012) provides a nice summary of different theoretical perspectives about how growing political polarization influences on political participation of citizens.

parties. So, if intensified party polarization has substantially enlarged the scope of the conflict, we may expect greater turnout among the public. Therefore, the suggestions made by Schattschneider and other APSA committee members imply that increasing policy divergence as a result of growing ideological conflict can stimulate political participation of the electorate. When policy positions of different candidates substantially diverge, voters become *more* likely to turn out since the perceived utility loss of losing an election to the opposite candidate looms large to them (see Downs 1957). In other words, citizens might have *less* incentive to participate in the election if they perceive that candidates from both parties represent almost the same policy preferences, since such a scenario yields only small gaps in the stakes of winning and losing election (see also Schattschneider 1960). Therefore, I predict that more people will engage with politics if they perceive increased level of ideological distance between the positions of two parties.

In addition to the increased stakes of election outcomes perceived by voters as a consequence of elite polarization, a rational choice theory of turnout model provides another potential reason for increasing political participation by polarization. If we use a simple expected utility model of turnout (Downs 1957; Riker and Ordeshook 1968),  $R=B*P-C+D$ , where R is the reward from a voter's act of voting, B is the difference between the expected benefits of winning preferred candidate and less preferred one, P is a probability that an individual's vote matters, C is the cost of voting including opportunity cost or the cost of acquiring information, and D represent a civic duty or psychological benefit of casting a vote. As we explained in the previous paragraph, if individuals see greater stakes associated with the election outcomes as a result of growing elite polarization, more people are likely to turn out because the B term in the above equation tends to increase. In addition to that, if policy ambiguity and electoral uncertainty has significantly declined with a polarizing political environment, citizens are more likely to become

involved since the cost of participation (C term) would be reduced with growing ideological divergence of elected officials. Actually, political information has been long known to be a significant predictor of voter turnout (e.g., Riker and Ordeshook 1968). Indeed, reduced uncertainty associated with the voting decision would encourage more voters to participate since citizens' expected benefits of casting a vote tend to grow as the cost of acquiring information falls (Larcinese 2007; Matsusaka 1995). Therefore, growing elite polarization can not only enhance levels of political awareness, but it can also boost political participation of people by presenting them with reduced electoral uncertainty as well as increased differential benefit associated with election outcomes. Figure 6-1 illustrates these repercussions of elite polarization on mass political behavior in terms of awareness and engagement.

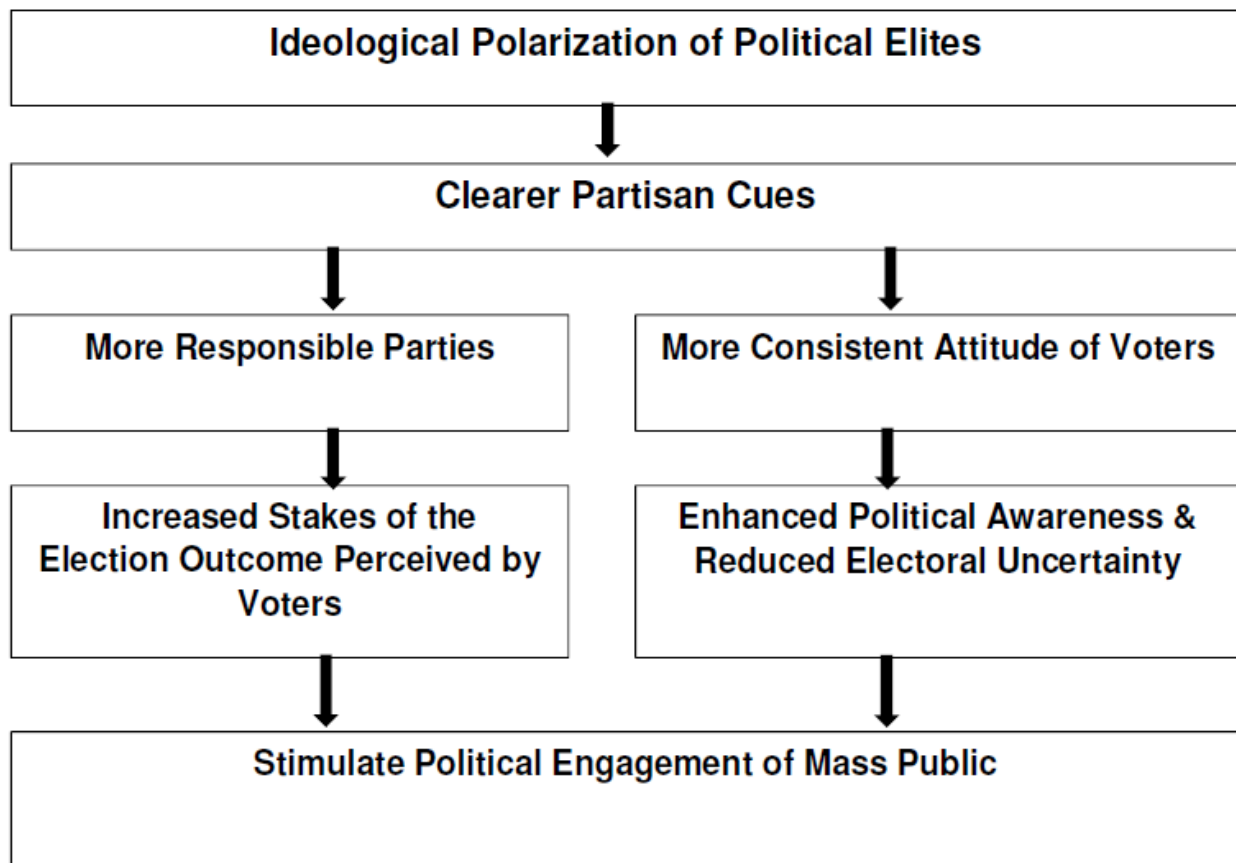


Figure 6-1. (Positive) Repercussions of Elite Polarization on Mass Political Behavior

In spite of these optimistic views of the effect of elite polarization on mass political engagement, it is not obvious yet whether polarized politics in Congress has enhanced the *overall* informational environment or has just disproportionately affected a few segments of the population with a certain level of cognitive ability. Indeed some scholars have paid more specific attention to the unequal influences of growing partisan polarization on mass awareness of politics based on social stratification. For example, Hetherington (2001), who showed that partisanship has resurged in the electorate in accordance with greater congressional polarization,

also indicated that the strongest effect of elite polarization is found among citizens with more political knowledge (measured by levels of formal education).<sup>53</sup> The claim of Fiorina et al. (2006) also belongs to this line of the argument in that they suggest that ideological polarization is occurring among only a small minority of the population including what we called political (party) activists. In addition to these, Claassen and Highton (2009) find that the increasing clarity of party-policy linkages has disproportionately benefited the better informed in the mass public, and only the well-informed strata responded properly to the growing party polarization by becoming politically more aware. They thus argue that the clarification associated with increasing policy divergence of political elites does not close the gaps between citizen groups.

Focusing on the heterogeneous mass response to elite polarization, Ellis and Ura (2008) also confirm that the strength of partisan thinking varies by levels of income and formal education of citizens. They show that mass partisan salience on economic issues is most prominent among citizens with higher education and low incomes, whereas stronger mass partisanship in terms of cultural issues is found among citizens with less education and higher incomes. When it comes to the mass consistency issue, Baldassari and Gelman (2008) report that the ideological constraint of the general public is still extremely low even with the increased level of partisan sorting, and coherent attitudes are still confined to a small segment of the population with certain levels of wealth, partisanship, and political sophistication. To summarize, all this existing evidence indicates that elite polarization will have heterogeneous effects on mass political awareness according to levels of citizens' political expertise.

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<sup>53</sup> Similar to the approach adopted here, Hetherington (2001) uses a contextual variable to measure the level of elite polarization in each congressional session included in his analysis. He constructs the measure by calculating the mean Euclidean distance in the DW-NOMINATE scores between Democrats and Republicans in the House, and then merges with individual-level survey data by year.

Given limitations of learning ability among certain proportions of the population, we might not expect substantial increases in political engagement for all citizens groups. Indeed we can only expect increased political engagement of citizens as described in Figure 4.1 if individuals possess certain levels of cognitive skills to accommodate the changed political environment. In fact, reduced electoral uncertainty does not necessarily guarantee that people will acquire political information with less cost. An individual must have the cognitive ability to exploit the new political information presented by elite polarization. Thus, we must adjust the above awareness prediction as follows: growing elite polarization can potentially enhance political engagement of the public, conditional on learning ability of citizens. Just as elite polarization might have disproportionate effects on mass political awareness, it can also have differential influences on mass engagement with public affairs depending on citizens' existing levels of political sophistication. Therefore, if a polarized political environment has not improved the overall levels of political awareness among the general electorate, we would see decreased political participation in the age of ideological division. With regard to this point, Rogowski (2012) provides some evidence that growing ideological divergence between candidates significantly reduced voter turnout. In particular, he demonstrates that the effect of congressional ideological division on voting participation is *conditioned* by the level of an individual's ideological sophistication (proxied by formal education levels). Then he claims that increasing ideological conflict *disproportionately* suppresses turnout of citizens with lower levels of political information and education. The conclusion of Rogowski (2012) runs counter to the optimistic scenario proposed in Figure 6-1.

As we have examined thus far, previous research reveals that growing congressional polarization may have diverse consequences for different strata of the mass public in terms of both political awareness and engagement (Claassen and Highton 2009; Ellis and Ura 2008;

Garner and Palmer 2011; Hetherington 2001; Rogowski 2012). These studies find that the mass effects of elite polarization are conditioned on the existing levels of political information, formal education, or income of citizens. If only a selected subset of the population is registering higher levels of political awareness and engagement, as the aforementioned scholars argue, existing gaps between the most informed and the least informed or between the most engaged and the least engaged are likely to increase. On the other hand, if growing elite polarization is affecting a much larger proportion of people, rather than being confined to a small segment of population, the group with less cognitive skills is also becoming more attentive and active along with the more aware group in the midst of congressional ideological division. In such scenario, the knowledge gap between the two groups could be reduced. Indeed, if partisan polarization in Congress can clarify the link between the parties and their policy positions (Claassen and Highton 2009; Levendusky 2010), more citizens would see less policy ambiguity, which can improve the *overall* political knowledge environment across different informational strata of people. Moreover, if the changed electoral environment reduces information cost as well as uncertainty of voting choice, this can also stimulate more voters to turn out (Matsusaka 1995; Larcinese 2007; Lassen 2005). If this is the case, increasing congressional polarization could potentially reduce the turnout gap between the more engaged and the less engaged.

Given the above arguments, it is rather uncertain whether only subsets of population have responded to polarized elite politics or if the general public *in aggregate* has reacted to the changing electoral environment. By empirically modeling the nature of the elite influence on the electorate, this study examines whether different population strata according to their existing levels of political awareness have reacted differently to the changing political environment in terms of becoming politically more attentive. In addition to that, I also explore if polarized politics has increased levels of political participation and attitudinal engagement of the electorate

in aggregate. Since potentially positive effects of elite polarization on mass political engagement depend on individuals' cognitive skills to accommodate new political information, I also test conditional effects of citizens' knowledge background on the link between polarized elite politics and mass engagement.

Empirically Modeling Disproportionate Effects on the Mass Public  
using the Quantile Regression

One of the unsettled debates about the mass effects of elite polarization is whether the general electorate became ideologically more polarized corresponding to growing elite polarization, or whether mass polarization is confined to only small subset of population with certain levels of political expertise (e.g., party activists) (see Fiorina et al. 2006, 2008; Abramowitz and Saunders 2008; Abramowitz 2010). Similar logic of heterogeneous mass responses is applied to the puzzles of mass political awareness and political engagement. Namely, if elite polarization has some positive effects on political awareness and engagement of the mass public, overall levels of political sophistication and engagement may be enhanced; alternatively the positive effects may be disproportionately limited to a small minority of population in the upper quartiles of political awareness distribution.

Given the question above, I begin by testing the prediction that growing ideological polarization among the elites has increased the number of ideological extremists among the mass public. While testing this hypothesis, I also examine the disproportionate effects the elite polarization on different quantiles of mass ideological positions.<sup>54</sup>

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<sup>54</sup> As we examine the link between the elite and mass polarization, some people might argue that we are uncertain about the direction of causal effect between the two groups. I adopt the causal flow from elites to masses since we are interested here in the potentially heterogeneous mass *responses* to elite influence.



Following this test, I investigate the effects of elite polarization on mass political awareness to see if it indeed enhanced levels of political attentiveness among citizens. Regarding this, I also test whether the most informed citizen group is disproportionately benefited in terms of political awareness or if the informational effects that result from increased policy divergence between two parties occur in the general electorate as a whole.

The third hypothesis tests if congressional polarization (i.e., clarifying policy positions of parties) stimulates political engagement of citizens. Aside from the aggregate effects, I also examine whether participation increases more among the most informed groups (or most engaged groups) and increases less among the least informed citizen clusters. As I test the engagement hypothesis, I also explore whether citizens with central ideological positions are different from ideological extremist voters in terms of participation rates, given the idea of potential alienation of the moderates from polarized politics. Thus, the third hypothesis implies that the expected increase in political engagement due to growing elite polarization is conditional on different levels of political knowledge *and* the ideological position of voters (ideological deviation and alienation). So I also test interaction effects of elite polarization and political knowledge, ideological deviation, or alienation on mass engagement with politics.

In testing those two hypotheses about effects on mass polarization and engagement, we also need to control different levels of individual political awareness in empirical models because it is known that an effect of elite polarization on mass political behavior could be conditional on levels of political sophistication (e.g., Ellis and Ura 2008; Rogowski 2012). Yet, the estimation of causal effect of new information acquisition on mass responses is difficult task because political knowledge could be an endogenous variable. For example, levels of political information and engagement might be jointly determined by a similar set of covariates possibly including some unobservable third factor (Larcinese 2007; Lassen 2005). Further it is hard to

find valid instruments for the potentially endogenous knowledge variable, which are exogenous to the political engagement model. So, instead of employing instrumental variables, for these models I use formal education level as a proxy for political knowledge following the previous literature (Hetherington 2001; Rogowski 2012). An inclusion of this proxy variable allows us to capture potentially heterogeneous effects of the changed political environment on political engagement across different population strata divided by education levels.

In order to test the first two hypotheses using continuous scales, I apply quantile regression models to estimate potentially differential effects of elite polarization on various quantiles in the conditional distribution of citizens (Hao and Naiman 2007; Koenker and Hallock 2001). While conventional linear regression models (OLS) focus only on the conditional expectation of a dependent variable given a specific value of a covariate (i.e.,  $E(y|x)$ ), the quantile regression analysis accounts for full conditional distributional properties of the response variable (Hao and Naiman 2007, 22-9). Thus, with the quantile regression model, we can estimate 9 different fitted regression lines if we want to separately estimate differing effects of a covariate on each quantile (e.g., from the .1<sup>th</sup> to .9<sup>th</sup> quantiles) of a conditional distribution of a dependent variable, whereas a linear regression model produces only a single representative slope estimate. In a simple setup of quantile regression estimation, we generally specify an empirical model as  $y_i = \beta_0^q + \beta_1^q x_i + \varepsilon_i^q$ , where  $q \in (0,1)$  indicates the proportion of the population having values below the quantile at  $q$  (Hao and Naiman 2007, 29). The corresponding conditional quantile regression function is defined as  $Q_q(y|x)$ . Hence, if we are interested in comparing the effects of increased policy divergence on levels of political sophistication between the .10<sup>th</sup> quantiles (i.e., the least informed) and the .90<sup>th</sup> quantiles (i.e., the most informed) of the conditional political awareness distribution, we can compare quantile specific regression slopes for those two quantiles (i.e.,  $\beta^{.10}$  and  $\beta^{.90}$ ). If the estimated value of  $\hat{\beta}^{.90}$  is substantially greater

than  $\hat{\beta}^{.10}$ , this would indicate that the most informed group is disproportionately benefited from the enhanced informational environment. In general, if quantile-specific regression coefficients for the degree of congressional polarization variable tend to increase with  $p$ , we can also infer that politically more aware groups tend to be more responsive to the changed political environment compared to the less aware citizens.

Further, we can also compare regression coefficients for a predictor variable of interest estimated respectively by the conditional mean model (i.e., OLS) and the conditional median regression (i.e.,  $\beta^{.50}$  of .50<sup>th</sup> quantile). This comparison is particularly useful if the conditional distribution of a response variable is expected to be skewed because the conditional mean is more likely to be affected than the conditional median by the influence of population at margins (Hao and Naiman 2007, 57-8).<sup>55</sup> So, if the estimated regression parameter of the elite polarization variable in the OLS model is much bigger than the estimated slope in the median regression, this may suggest that the effect of the variable is not as substantial for most of citizens, although one unit increase in the covariate yields an increased level of political awareness on average, since the voters in the top-knowledge quantiles may primarily leverage the mean increase. Finally, the method also accommodates heteroskedasticity by allowing for differential effects, thus this feature distinguishes the quantile regression from a normal linear regression model that requires the constant-error variance assumption.

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<sup>55</sup> As a measure of central tendency of a distribution, median is known to be more robust to outliers than mean.

### Measurements of Primary Concepts and Other Controls

This section describes how I measure the primary concepts discussed above using 1972-2004 American National Election Study (ANES) cumulative data.<sup>56</sup>

#### *Political awareness and engagement*

One of the primary dependent variables in this study is a scale of political awareness. I constructed the scale using 19 survey items which have been adopted by previous researchers to measure levels of political awareness, sophistication, and knowledge (Classen and Highton 2009; Delli Carpini and Keeter 1993; Dow 2009; Hetherington 2001; Holbrook 2002; Zaller 1992). I choose 19 ANES questionnaires that have been consistently asked across different waves of the survey, which means that the measure only includes items that appear in every presidential year survey from 1972 to 2004.<sup>57</sup> By its construction, the political awareness variable measures levels of neutral factual knowledge, ability to correctly place certain political objects (i.e., parties and presidential candidates) on issues and ideological dimensions, willingness to rate those political objects on feeling thermometers, and degrees of partisan thinking. To illustrate, the ANES asks respondents some factual knowledge, and the respondent receives 1 if the respondent provided a correct answer, gets 0 if one's answer is wrong (or don't knows). Using the questions asking respondents to locate parties' (or candidates') ideological positions, I assigned a score of 2 if the respondent places Democrats to the left of the Republicans, assigned a score of 1 if the

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<sup>56</sup> Since some of central indicators have not been incorporated yet to the 2008 wave of ANES survey, this study only covers from 1972 to 2004.

<sup>57</sup> One factual question is not available in 2004 survey. The item is "knows incumbent status of a House candidate" (VCF0978). Except for this factual knowledge question, all other 18 indicators are included in every presidential survey from 1972 to 2004. Despite the unavailability of the item (VCF0978) in 2004, I decided to keep that because factual political knowledge is "the best available measure of political awareness" (Zaller 1992, 336).

respondent places the two political objects in the same position, and assigned a score of 0 if the respondent locates Republicans to the left of Democrats. For feeling thermometers, I assigned a score of 2 if the respondent gave a non-50 rating, assigned a score of 1 if the respondent gave a rating of 50, and assigned a score of 0 if the respondent did not give a rating. The ANES includes a set of questionnaires assessing respondents' affect (likes or dislikes) toward political objects (e.g., parties and presidential candidates), I coded 0 if the respondent provided no reasons to like (or dislike) the object, coded 1 if the respondent provided one reasons, and coded 2 if the respondent provide two or more reasons.<sup>58</sup> More details about the specific list of survey items and the coding rules are described in the appendix at the end of the chapter. In addition to these, the interviewer rating that has been employed by other scholars (e.g., Classen and Highton 2009; Zaller 1992) is also regarded as a valid instrument of political awareness, thus this item is also combined to the awareness scale. As described above, I recoded responses to these items to create comparable measures across different questionnaires then calculated a mean which is used as a measure of political awareness. Rather than applying list-wise deletion for any missing value in an observation, I compute a mean if respondents answered more than two thirds (13 responses) of 19 survey items following Zaller (1992, 339). As a consequence, the number of cases increases from 4,253 (after eliminating all missings) to 17,733. The correlation between the measure used here and the measure adopting the list-wise deletion is high 0.9989 ( $p < 0.001$ ).

The group of indicators used here for measuring political awareness fits Zaller's (1992, 337) standard who conducted comprehensive research on mass political awareness. Previous researchers have employed either all these indicators of political sophistication aforementioned or some of them to measure political awareness or knowledge. For example, Holbrook (2002)

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<sup>58</sup> For the items about feeling thermometers and the affect toward parties and presidential candidates, I follow the coding rules of Claassen and Highton (2009).

measures political knowledge by counting the total number of candidate evaluations using only questions asking reasons why respondents like or dislike a major party candidate. Dow (2009) adds self-ideological placement to the location-test and objective knowledge questions when he measures political knowledge. For example, he assigns a value of 1 if the respondent self-places on the 7-point ideological scale, 0 otherwise. But I do not include this indicator of ideological self-placement as a measure of political awareness, since respondents with ideological orientations may not necessarily be politically more sophisticated. Rather this ideological dimension would be more related with the degree of ideological extremism that is addressed by the deviation variable introduced later. The measure most similar to mine is used by Claassen and Highton (2009), and about 80% of items adopted here overlap with the awareness indicators employed by them. While their awareness measure includes the factual questions about knowing the Senate majority party and recalling House candidate names, they do not include the objective knowledge question asking if respondents know the incumbency status of a House candidate running in their districts. The main difference between the political awareness measures here and theirs comes out of the approach about how to handle different combinations of indicators available in each survey year. To account for the political context in which those awareness indicators are asked and evaluated, Claassen and Highton calculated respondents' knowledge scores on a survey-by-survey basis, then they divide respondents into quartiles based on obtained scores. Thus, the awareness measure of Claassen and Highton (2009) incorporate some indicators, that were not included in every survey. Different from their indirect approach, this project confines the number of awareness items to the ones asked in every presidential year survey since I construct a *variable* measuring levels of political awareness for each respondent rather than dividing respondents into four groups in respective survey cohorts according to respondent's levels of awareness.

As measures of political engagement, I examine three indicators from ANES surveys following previous research (e.g., Abramowitz and Saunders 2008; Hetherington 2008; Hussey 2011): 1) whether a respondent cares about the presidential election outcome (don't care [0] vs. care a good deal[1]); 2) whether a respondent voted in the election (didn't vote[0] vs. voted[1]) ; 3) and frequency of engagement in such campaign activities as trying to influence the other's vote (0 or 1); attending political rallies and meetings (0 or 1); working for a party or candidate (0 or 1); displaying a campaign button or sticker (0 or 1); and donating money to a party or candidate (0 or 1). Since the campaign frequency variable has such larger fraction (61.7%) of 0 count (no activities at all) compared to the other categories (1 to 5 activities), I recoded the variable into a binary scale (0 and 1 or 2 and more) (see Abramowitz and Saunders 2008; Hussey 2012). Note that these three dependent variables include two behavioral and one attitudinal measure of political engagement since an individual could respond to elite polarization differently in terms of attitude and behavior. These three dichotomous measures of political engagement are identical to the dependent variables employed by Abramowitz and Saunders (2008) and Hussey (2012). For the first indicator of mass political engagement (concern about the election outcomes), Abramowitz and Saunders (2008) examine the general pattern revealed in the aggregate data without running regression analysis. Analyzing changes in the percentages of Americans who care a good deal about the outcome of presidential election varying with the percentages of the electorate who perceive important party differences, they conclude that "the greater the difference voters perceive between the candidates and parties, the greater their stake in the outcome and the more engaged they likely to be" (Abramowitz and Saunders 2008, 552). The aggregate analysis, however, does not account for many other control factors that potentially intervene in the relationship between the two measures (perceptions of important party differences and concern about the election outcome). Abramowitz and Saunders (2008)

conducted two regression analyses using the turnout and campaign activism variables with same set of covariates but their empirical models do not control for the elite mobilization factor. For example, Fiorina et al. (2008) criticize the finding of Abramowitz and Saunders that the increased mass political engagement could be an artifact of growing elite mobilization efforts as a consequence of intense elite polarization. Further, the two regression models of Abramowitz and Saunders (2008) only analyze a single year survey (2004 ANES), so their finding is limited to the early 2000s. More comprehensive empirical analyses are done by Hussey (2012), who performs logistic regression analyses with three indicators of mass political engagement using the 1984-2008 ANES data. Her empirical models incorporate additional control variables into the specification compared to Abramowitz and Saunders (2008), but the Hussey (2012)'s analysis does not explicitly account for either elite or popular polarization in her model. She explains the effects of political polarization using decade-specific dummies for 1990s and 2000s similar to Claassen and Highton (2009). In addition to these three measures of engagement, Hetherington (2008) examines a more extensive list of engagement indicators such as interest in the election, perceived political efficacy and government responsiveness, and political trust. While he examines changing patterns of these measures in aggregate over time to see how polarization influences mass political engagement, I do not adopt these *cognitive* measures to account for mass political engagement here, since in many cases those attitudinal measures of the engagement are closely associated with political awareness, that this chapter analyzes separately as a function of elite polarization. Hetherington (2008) provides a single regression analysis using the self-reported voter turnout as a response variable using only the 2004 ANES survey similar to Abramowitz and Saunders (2008). He finds that perceived candidate polarization on defense spending tends to increase the likelihood of individual voting participation, but one serious problem with this model specification is that perception of elite polarization may be



affected by levels of individual political awareness, thus the perception-based measure of elite polarization could account for individual level of political sophistication, rather than for the changes in elite behavior.

### *Elite polarization*

Elite polarization serves as the primary independent variable in the prediction models of political awareness and engagement. We are interested in seeing if levels of political awareness and engagement increase as the ideological positions of the two parties increasingly diverge from each other. I tap this ideological polarization among the elites two different ways. First I measure the policy divergence using the (decreasing) percentage of overlapping members in the House on an ideological scale. To measure ideological preferences of the House members I use the first dimension DW-NOMINATE that assesses members' policy positions in terms of the government intervention in the economy or the conventional liberal-conservative spectrum.<sup>59</sup> This measures fractions of the House Representatives whose ideological preferences are overlapped across two parties over each congressional year. Given that the proportion of overlapping members tends to decrease with growing ideological divergence between the two parties, I subtracted this overlapping percentage from one and use this scale as a primary indicator of partisan polarization (i.e., divergence). I prefer this divergence indicator over the mean difference (distance) scale between two parties, which is more frequently used by other scholars as an elite polarization index (see Hetherington 2001; McCarty et al. 2006) because increased distance between the two means (Democrats and Republicans) does not necessarily indicate the absence of ideological convergence in the center. Indeed, the ideological preferences of conservative Democrats

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<sup>59</sup> The overlap measure is available to use from the VOTEVIEW website, [http://voteview.com/political\\_polarization.asp](http://voteview.com/political_polarization.asp).

locating at the right end of Democrats' distribution and liberal Republicans locating at the left end of Republicans' distribution could still possibly overlap at the center of the distribution, even when a vast majority of members of respective parties shift to more extreme positions, and thus increased the mean distance. The correlation between the mean difference and the divergence between the two parties (Democrats and Republicans) is 0.86, while the correlation between the mean distance and the percent of moderate House members (another way of measuring congressional polarization) is -0.98.

Since I am interested here in how elite politics affect mass political behavior, I merge this contextual variable with the individual-level data by matching congressional sessions with each presidential survey year similar to Hetherington (2001). Hetherington (2001) lags by one Congressional year as he merges the contextual data because public opinion does not immediately respond to changes in policy positions in the House. But I do not lag one year here because each Congressional session begins more than a year before the survey wave. For example, I attach a computed divergence score of 92<sup>nd</sup> Congress (1971-1972) to the each of respondents of 1972 ANES survey.

As a second measure of the contextual change as a result of growing elite polarization, I use period-based dummies. Claassen and Highton (2009) divide the survey data into three periods (1972-1982, 1984-1992, and 1994-2004) and run separate regressions using subgroup data since they consider each period as a proxy for political environmental change. Hussey (2011) also adopts this period-effect based approach and adds decade dummies (1990s and 2000s) to her regression models. Similar to their approach, I include two period-specific dummies for 1984-1996, 1996-2004 while 1972-1984 used as the reference period. Instead of adding decade-by-decade time effects (i.e., 1980s, 1990s, and 2000s), I choose these specific period effects because, according to my analysis of ongoing elite polarization (previous chapter),

levels of polarization increased around 1984 (disappearance of southern conservative Democrats) and after the Republican takeover of the Congress in 1994. The correlations between the divergence variable and three period effects (1972-84, 1984-96, and 1996-2004) are -0.961, 0.273, and 0.527 respectively. As expected, positive correlation is fairly high between the elite polarization contextual variable and the period-effect of 1996-2004.

*Perceived ideological differences between two parties*

The rational choice turnout model predicts that an individual is more likely to participate in political process if one sees greater stakes associated with different election outcomes (Downs 1957; Riker and Ordeshook 1968). I tap this degree of differential benefit linked to the election outcome by computing the distance between ideological (liberal-conservative 7-point scale) positions of the two parties recognized (evaluated) by a respondent.

Hetherington (2001, 627; see also Hetherington 2008) adopts this perceived ideological distance as another dimension of elite polarization and argues that this variable accounts for an indirect effect of elite polarization on mass partisanship through a citizen's perception. In other words, perceived ideological distance functions in the right hand side as an indirect measure of elite polarization that is reflected in the minds of the electorate. Yet we need to be very cautious to incorporate the perceived difference variable into the covariance matrix of political awareness model, since this variable can be endogenous to the awareness prediction given that an individual perception of ideological differences can reflect one's cognitive ability.

Hetherington (2001) also employs the perceived ideological distance as the dependent variable to test the effects of elite polarization on mass perceptions of ideological clarity. He finds that mass perceptions of the parties' ideological differences increase as the elites become more polarized. Given his finding, we can consider the parties' ideological distance perceived by

citizens as a measure that indicates if popular polarization mirrors at the mass level. Provided that the debate is still ongoing regarding whether ideological polarization has extended from the elites to the ordinary citizens (e.g., Abramowitz and Saunders 2008; Fiorina et al. 2006, 2008), I utilize this popular perception variable as measures for assessing the individual-level ideological polarization in the electorate together with the ideological deviation (extremism) variable introduced shortly.

### *Ideological deviation*

In addition to the perceived ideological distance between the two parties, I employ estimated levels of ideological deviation of each individual from a majority of fellow citizens as an individual-level measure of polarization. Assuming that a majority of citizens still remain ideologically moderate (Fiorina et al. 2006; Levendusky 2009), we might argue that individual level of ideological polarization is higher when an individual is more different from the ideological preferences of a majority of citizens. I compute this ideological deviation measure as an absolute mean deviation of ideological score measured on 7-point liberal-conservative scale. More specifically, I first calculated mean ideology scores for each survey year, and then I obtained absolute-deviation of an individual score from these cohort-based means. So if this ideological deviation score moves away from 0, it indicates that the individual holds rather extreme ideological position in the survey cohort to which he/she belongs.

This variable is used both as an independent variable for the political engagement model and as a dependent variable for mass ideological polarization model. Since citizens with higher ideological deviation scores would see increased differential benefit (B term above) associated with the election outcome compared to the moderates, the extremists are more likely to engage with the political processes. As a dependent variable, this variable help us evaluate how much

the general electorate became ideologically polarized responding to intense ideological division of the elites. In other words, using this variable I test whether ideological polarization has extended from the elites to the masses (Abramowitz and Saunders 2008; Fiorina et al. 2006, 2008).

### *Ideological alienation*

While the ideological deviation variable measures relative ideological position among citizens, the alienation variable defines relationship between individual ideological preferences of citizens and political elites. Fiorina et al. (2006, 2008) argues that citizens could be less engaged or disengaged with politics if a majority of moderate citizens are increasingly alienated from polarized politicians. I tap this feeling of alienation by computing the distance of ideological (liberal-conservative) preferences between a respondent and a party whose placement is closer to the respondent than the other party. For example, if a respondent's self-placed position is 5 in the 7-point ideological scale, while the respondent placed Democrat Party at 2 and Republicans Party at 6 respectively, the respondent's ideological alienation score becomes 1 ( $=6-5$ ). The ANES survey contains an item that asks a respondent's party identification (i.e., 7-point or 3-point PID scale) but I do not use the existing party identification variable to determine a respondent's party preferences to keep independents group as meaningful cases in the analysis. So I expect that higher levels of ideological alienation lead to reduced engagement of the public.

### *Mass mobilization by elites*

We also need to incorporate a level of elite mobilization into the model specification of political engagement because increased public engagement can be an artifact of increased elite

mobilization of mass (Fiorina et al. 2008). Mobilization is measured by the presence of party contact during election campaigns. Each respondent is asked whether he/she is contacted by major parties during the election campaign.

### *Control variables*

In addition to the primary covariates of interests, a number of factors identified as significant predictors of mass political behavior are added as control variables. Based on prior literature of political knowledge (e.g., Barabas 2002; Delli Carpini and Keeter 1993; Dow 2009; Mondak 1999; Prior 2005; Tolbert et al. 2003), the political awareness model includes interest in politics, media exposure to election campaigns political efficacy, the strength of partisanship (4-point scale), and a group of demographic background variables including education, age, race (dummies for black and Latino), sex (female dummy), and income (5-categories). Media exposure counts the number of yeses to ANES items asking a respondent's exposure to campaign media (TV, radio, newspaper articles, and magazines), which ranges from 0 to 4. The political interest variable measures levels of interest in government and public affair, and it ranges from 1 (hardly at all) to 4 (most of the time). Political efficacy is measured by combining (i.e., mean) the responses to two ANES questions asking "people like me don't have any say about what the government does," and "public officials don't care much about what people like me think". Barabas (2002) and Mondak (1999) also add a frequency of political discussion into the empirical specification, but the political discussion variable is only available from 1984 in our data. So I only include the level of political interest (4-point scale) and media exposure variables that have fairly high correlations (0.44 and 0.37 respectively) with the political discussion variable to save the number of observations. Also, given that political interest and media exposure measures are often considered as proxies for political awareness (Zaller 1992), I test

separate empirical models with and without these variables to account for the potential endogeneity.

The estimation model for engagement also includes a standard set of political and demographic variables which are known to affect political engagement of citizens in existing researches (Abramowitz and Saunders 2008; Hetherington 2008; Hussey 2011; Rogowski 2012). These control variables are strength of partisanship, political efficacy, and demographic variables (i.e., education, age, race, sex, and income, southern states).

Hetherington (2001) controls for the two contextual variables (off-year elections and divided government) that may influence the mass perceptions of the parties' political ideological differences. We do not need to control here for the off-year elections since this chapter only examines presidential election years from 1972 to 2004. According to Hetherington (2001, 625), divided government could have two conflicting effects on the public's perceptions of the parties' differences. On the one hand, the ideological distinction can be more pronounced between the two parties during the divided government, thus it would become easier for people to distinguish between the parties ideologically. On the other hand, divided government can present difficult choices for citizens deciding which is responsible for the ideological direction of the country between a president of a party and a Congress of the other. So, I control for periods characterized by divided government (dummy variable, 0 or 1).

### The Effects of Elite Polarization on Mass Polarization

Using the ideological deviation as a proxy for a degree of mass ideological polarization, I investigate whether ordinary citizens became polarized responding to growing elite polarization. In addition, I also examine how citizens perceive elite polarization using the perceived

ideological distance variable. Table 6-1 summarizes the outputs of the linear regressions with ideological deviation employed as a first dependent variable (models 1-3), and then perceived ideological distance employed as a second dependent variable (models 4-6). I applied two different specifications to each of the dependent variables to examine the effects of elite polarization; Namely, I employ the estimated divergence variable in models (1) and (4) whereas I rely on the contextual period-effects for 1984-1996 and 1996-2004 in models (2) and (5). Models (3) and (6) combined both contextual variables into one model. As shown in the Table 1, elite polarization tapped by the two measures has significant positive effects on citizens' ideological polarization and their perceptions of elite polarization. As the levels of ideological divergence in the House increases, individuals are more likely to see more ideological differences between the parties (see positive coefficients of the divergence variable in models 4 and 6), and are more likely to take ideologically extremist positions (see models 1 and 3). In addition, given that congressional members have increasingly polarized with time since the 1970s, the period effects for 1984-1996 and 1996-2004 also indicate that elite polarization enhances mass ideological awareness. Yet the positive significant effects for those time dummies disappear in models (3) and (6) as we include ideological divergence variable, and this might imply that the increased mass ideological polarization is driven by elite polarization rather than by the pure time effects. Even after controlling for the time effects, positive effects of ideological divergence show statistical significances in full models (model 3 and 6). Other than the effects of elite polarization variables, it is noteworthy that the divided government has significant negative effects on ideological deviation (model 2) and on perceived ideological distance (models 4-6) since individuals would encounter more difficulties deciding who is responsible for ideological direction of the government between a president of one party and a Congress of the other. In sum, the finding indicates that the mass public became ideologically more polarized in



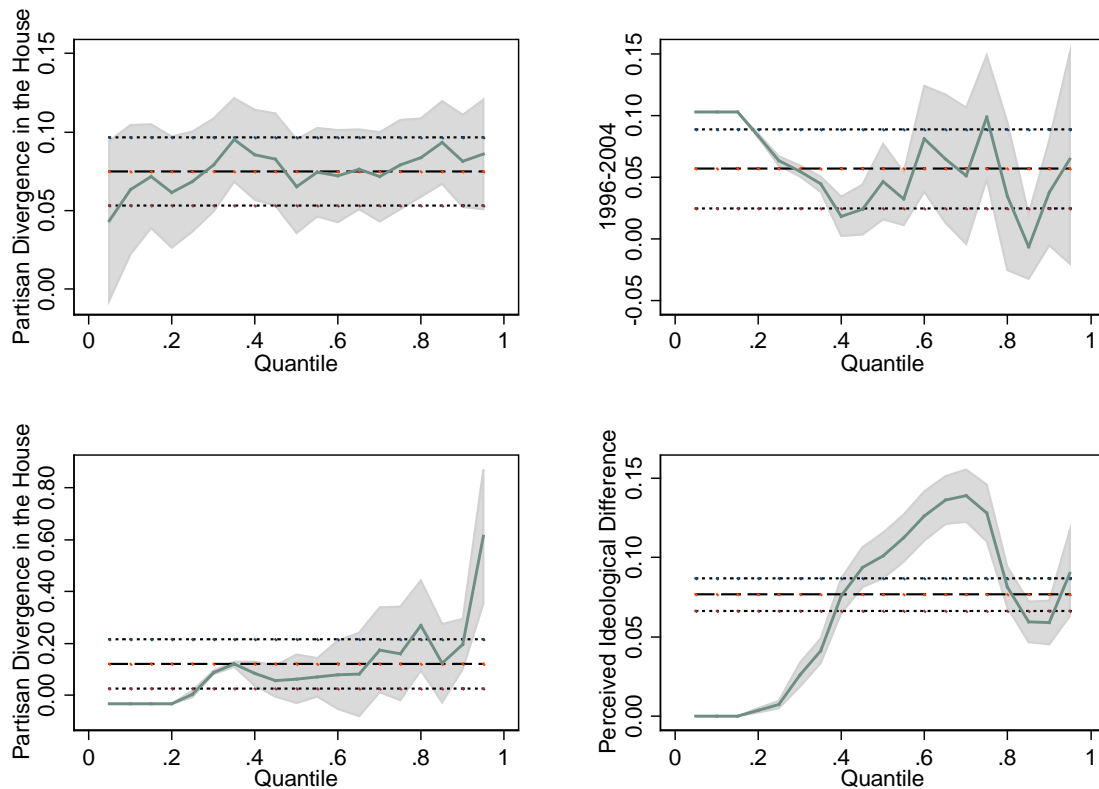
accordance with growing elite polarization as revealed in the both measures of individual-level polarization.

Table 6-1. The Effects of Elite Polarization on Mass Ideological Polarization and Perceptions of Elite Polarization

Variables	Ideological Deviation (Extremism)			Perceived Ideological Distance		
	(1)	(2)	(3)	(4)	(5)	(6)
Divergence in the House	0.148 *** (0.028)		0.123 * (0.049)	0.586 *** (0.058)		0.562 *** (0.097)
Strong Partisan	0.139 *** (0.007)	0.138 *** (0.007)	0.139 *** (0.007)	0.315 *** (0.015)	0.314 *** (0.015)	0.315 *** (0.015)
Divided Government	-0.026 (0.017)	-0.042 * (0.020)	-0.028 (0.021)	-0.143 *** (0.038)	-0.202 *** (0.043)	-0.151 *** (0.044)
Education	0.184 *** (0.008)	0.185 *** (0.008)	0.183 *** (0.008)	0.230 *** (0.016)	0.239 *** (0.016)	0.230 *** (0.016)
Age	-0.001 * (0.0004)	-0.001 † (0.0004)	-0.001 * (0.0004)	0.002 * (0.001)	0.002 * (0.001)	0.002 * (0.001)
Female	-0.117 *** (0.013)	-0.117 *** (0.013)	-0.117 *** (0.013)	0.009 (0.027)	0.009 (0.027)	0.009 (0.027)
Black	-0.068 *** (0.021)	-0.066 *** (0.021)	-0.068 *** (0.021)	0.022 (0.045)	0.032 (0.045)	0.021 (0.045)
Latino	-0.062 * (0.031)	-0.059 † (0.031)	-0.063 * (0.031)	-0.136 * (0.067)	-0.116 † (0.067)	-0.136 * (0.067)
Income	0.011 † (0.006)	0.011 † (0.006)	0.011 † (0.006)	0.065 *** (0.013)	0.625 *** (0.013)	0.065 *** (0.013)
1984-1996		0.045 ** (0.015)	0.009 (0.021)		0.162 *** (0.031)	0.015 (0.040)
1996-2004		0.057 *** (0.016)	0.015 (0.023)		0.212 *** (0.031)	0.010 (0.829)
Constant	-0.016 (0.042)	0.064 (0.039)	-0.003 (0.047)	0.515 *** (0.092)	0.830 *** (0.086)	0.528 *** (0.100)
Adj. R <sup>2</sup>	0.09	0.09	0.09	0.08	0.08	0.08
N	14,767	14,767	14,767	11,646	11,646	11,646

\*\*\* p&lt;0.001. \*\* p&lt;0.01. \* p&lt;0.05. † p&lt;0.1.

Since the regression results reported in Table 6-1 analyzes the effect of elite polarization on the electorate in aggregate, we might think that citizens could respond differently to the polarized political environment. For example, Fiorina et al. (2006, 2008) argue that ideological polarization has not extended from the elites to the general electorate, or alternately popular polarization is confined to a small segment of population (e.g., party activists). Therefore, assuming that the activists are located at more extremist positions, I test if elite polarization has stronger effects on the individuals at extremes using quantile regression.



*Note:* Dotted horizontal lines represent estimated OLS coefficients for each model with their 95% confidence intervals. Solid green lines plot regression coefficients of covariates estimated in different quantiles of dependent variable (ideological extremism). The grey bands enclosing the quantile regression lines indicate analytic (non-bootstrapped) 95% confidence intervals. The graphs are created by using `grqreg` function (Azevedo 2004) in STATA.

Figure 6-2. Effects of Elite Polarization on Different Quantiles of Mass Ideological Positions

Figure 6-2 illustrates the results of quantile regressions by displaying disproportionate effects of elite polarization on different quantiles of the mass ideological distribution. Each of the four panels in Figure 6-2 reports estimated OLS coefficients (dotted horizontal lines) and their 95% confidence intervals for the variable of interests, and estimated quantile coefficients with

their 95 % confidence band. The first column of Figure 6-2 presents the quantile regression outputs for the ideological divergence variable estimated using models (1) and (3) respectively, while the first plot in the second column graphs the quantile coefficients of period effect (1996-2004) in model (2). Finally, the last panel represents the quantile effects of perceived ideological distance on the mass ideological distribution. Provided that perceived ideological distance tends to increase with the growing elite polarization, the perceived difference could be used as an indirect measure of elite polarization (Hetherington 2001). So I add the variable into the estimation model (3), and then investigate the differential effects of perceived distance on each quantile of ideological deviation measure. As shown in Figure 1, the included variables marked on each vertical axe tend to have consistent effects across different quantiles of the dependent variable (ideological deviation) in the four panels. The graph in a first row of Figure 6-2 reveals that the effects of congressional divergence do not deviate significantly from the average effect (i.e., OLS estimate) and is bound between the 95% confidence intervals of OLS coefficient. The effects of a period dummy (1996-2004) shift up and down the OLS estimate, but these shifts do not indicate the presence of pronounced effects on the higher quantiles of the dependent variable. The evidence of stronger effects of the divergence on the ideological extremists is shown to some degree in the first graph of the second column, but the effects in the rest of quantiles (almost up until 90 percentiles) consistently stay around the mean effect except for the extreme end. Further, the last plot indicates that the ideological effect is strongest among the people locating at moderately extreme positions rather than among the extremists if disproportionate effects exist. Indeed, the quantile graph of the perceived difference displays a concave shape indicating that the effects tend to be lower than the average effect (i.e., the OLS estimate) for the ideological moderate, are higher than the average for the moderately extremists, and are about the average effect for the extremists. To summarize the findings in this section, as congressional

members become more diverged, individuals are more likely to take more extreme positions. Moreover, the positive effects of elite polarization on individual ideological deviation tend to be consistent rather than being disproportionate across the existing ideological positions of people.

### The Effects of Elite Polarization on Mass Political Awareness

The findings above indicate that the mass public became ideologically more aware and more polarized with increasing elite polarization. Then, what about the levels of mass political awareness? Similar to the mass polarization model above, I estimate the effects of elite polarization on political awareness using the two contextual measures (divergence and period effects) of elite polarization. As I estimate the empirical model for political awareness, I test the two different models with and without political interest and media exposure variables given that these two potentially endogenous variables could be sometimes used to measure political awareness when enough items are unavailable (Zaller 1992).

Table 6-2 summarizes the regression outputs for political awareness prediction. As expected, the results indicate that increasing ideological divergence among the elites significantly enhances levels of political awareness among the mass public. It turns out that general levels of public political awareness increase with the growing ideological divergence in the House (see positive coefficients for the divergence variable in models 7, 8, and 12). Together with the divergence variable, the period effects for 1984-1996 and 1996-2004 also reveal that public political awareness increases with time (see models 9, 10, 11 and 12). But the positive effects of period dummies could be an artifact of the natural increase of political awareness with time instead of the influence of the growing elite polarization. So I include both divergence variable and period dummies in the same empirical model to partial out the pure time effects

(models 9 and 12). As we control for the time, the divergence variable in model 7 becomes no longer significant in model 9. This might indicate that mass political awareness increased not because of growing elite polarization but because of the pure time effect. Except for the model 9 however, the positive significant effects of ideological divergence are consistently shown across different model specifications in the table. In particular, in the full model 12 that incorporates political interest and media exposure to the estimation as controls, the positive significant sign remains on the divergence variable, even after we account for the period effects. Thus, the exclusion of political interest and media exposure variables yields significantly different estimation results only between model 9 and 12.

Table 6-2. The Effects of Elite Polarization on Mass Political Awareness

Variables	Political Awareness					
	(7)	(8)	(9)	(10)	(11)	(12)
Divergence in the House	0.075 *** (0.011)	0.220 *** (0.012)	0.017 (0.017)			0.145 *** (0.019)
Strong Partisan	0.065 *** (0.003)	0.049 *** (0.003)	0.065 *** (0.003)	0.064 *** (0.003)	0.048 *** (0.003)	0.048 *** (0.003)
Interest in Politics		0.079 *** (0.003)			0.082 *** (0.003)	0.080 *** (0.003)
Media Exposure		0.059 *** (0.003)			0.056 *** (0.003)	0.059 *** (0.003)
Political Efficacy	0.022 *** (0.002)	0.014 *** (0.002)	0.022 *** (0.002)	0.023 *** (0.002)	0.013 *** (0.002)	0.014 *** (0.002)
Education	0.150 *** (0.003)	0.109 *** (0.003)	0.151 *** (0.003)	0.146 *** (0.003)	0.106 *** (0.003)	0.108 *** (0.004)
Age	0.002 *** (0.0002)	0.001 *** (0.0002)	0.002 *** (0.0002)	0.002 *** (0.0001)	0.001 *** (0.0002)	0.001 *** (0.0002)
Female	-0.094 *** (0.005)	-0.053 *** (0.005)	-0.094 *** (0.005)	-0.091 *** (0.005)	-0.051 *** (0.005)	-0.052 *** (0.005)
Black	-0.075 *** (0.008)	-0.073 *** (0.009)	-0.076 *** (0.008)	-0.076 *** (0.008)	-0.071 *** (0.008)	-0.072 *** (0.009)
Latino	-0.054 *** (0.012)	-0.060 *** (0.013)	-0.056 *** (0.012)	-0.058 *** (0.012)	-0.060 *** (0.013)	-0.062 *** (0.013)
Income	0.040 *** (0.003)	0.028 *** (0.003)	0.040 *** (0.003)	0.040 *** (0.002)	0.027 *** (0.003)	0.028 *** (0.003)

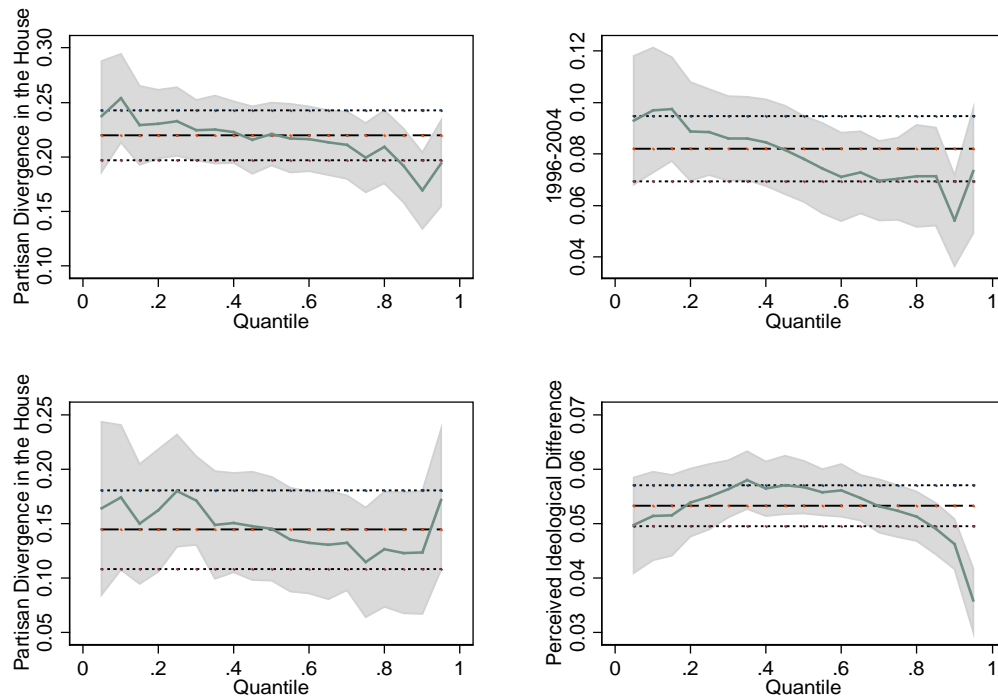


Table 6-2—continued

1984-1996			0.034 *** (0.007)	0.035 *** (0.005)	0.066 *** (0.005)	0.037 *** (0.007)
1996-2004			0.027 *** (0.009)	0.033 *** (0.006)	0.082 *** (0.007)	0.033 *** (0.009)
Constant	0.314 *** (0.015)	0.129 *** (0.017)	0.334 *** (0.017)	0.358 *** (0.014)	0.249 *** (0.015)	0.158 *** (0.018)
<i>Adj. R</i> <sup>2</sup>	0.34	0.45	0.35	0.34	0.44	0.45
<i>N</i>	13,001	9,710	13,001	14,250	10,965	9,710

\*\*\* p<0.001. \*\* p<0.01. \* p<0.05. † p<0.1.

The finding here suggests that growing ideological divergence in the House tends to enhance mass political awareness when we control for the time and other relevant factors *including* levels of political interests and media exposure. Indeed, both measures of elite polarization (congressional divergence and the period effects) are positively associated with the levels of mass political awareness. If the electorate become politically more aware as its representatives more diverges, what about the role of existing levels of political sophistication which varies over people? Do individuals respond differently to the changing informational environment according to their existing levels of knowledge? Applying quantile regression to the empirical model 12, I test unequal effects of elite polarization on different quantiles of the dependent variable (political awareness).



Note: Dotted horizontal lines represent estimated OLS coefficients for each model with their 95% confidence intervals. Solid green lines plot regression coefficients of covariates estimated in different quantiles of dependent variable (political awareness). The grey bands enclosing the quantile regression lines indicate analytic (non-bootstrapped) 95% confidence intervals. The graphs are created by using `grqreg` function (Azevedo 2004) in STATA.

Figure 6- 3. Effects of Elite Polarization on Different Quantiles of Mass political awareness

Figure 6-3 illustrates the results of quantile regressions by displaying disproportionate effects of elite polarization on different quantiles of the mass political awareness. Each panel in Figure 6-3 reports estimated OLS coefficients (dotted horizontal lines) and their 95% confidence intervals for the variable of interests, and estimated quantile coefficients with their 95 % confidence band. The first column of Figure 6-3 presents the quantile regression outputs for the ideological divergence variable estimated using models (8) and (12) respectively to examine how

the conditional quantile effects of the divergence changes depending on the inclusion of the period effects in the same model. The first plot in the second column graphs the quantile coefficients of a period effect (1996-2004) in model (11) that only includes those time effects as proxies for the elite polarization. Finally, the last panel reports the quantile effects of perceived ideological distance on the mass political awareness after adding the perceived distance variable as an indirect measure of elite polarization into the full model (model 12).

The graphical outputs of quantile regressions presented in Figure 6-3 indicate that the effects of various measures of elite polarization are consistent on mass political awareness across different quantiles of the dependent variable. Solid green lines representing conditional quantile effects do not deviate significantly away from average effects (dotted horizontal lines) in the three panels except for the last one for a perceived distance variable. The fitted lines of quantiles regressions are bounded by the 95% confidence intervals of OLS estimates in the panels of the divergence variable and the time effect for 1996-2004. Moreover, although the quantile regression lines shift up and down the OLS horizontal lines, the results do not support the presence of stronger effects on the higher quantiles. Finally, the last panel of Figure 6-3 demonstrates that the group with the highest level of existing awareness could be least advantaged in terms of becoming more aware by the growing elite polarization. The curve for quantile effects of the perceived distance exhibits an inverse-U shape similar to the variable's effects in the ideological extremism model above. To summarize, the findings imply that a majority of citizens became politically more aware due to growing elite polarization (see positive horizontal lines in each panel). The growing elite polarization has consistent effects on mass political awareness ranging from the least political aware group to the most aware group, rather than disproportionately advantage the latter one.

Heterogeneous Effects of Elite Polarization on Political  
Engagement of Citizens

In this section, I examine how growing ideological divergence in the House affects political engagement of the general public using three measures of engagement including “care about election outcome,” “self-reported turnout,” and “campaign activism”. Given three dichotomous dependent variables, I estimate empirical models using binary logistic regressions. For each of different response variables, I employ three distinct model specifications using different sets of covariates to test the effects of elite polarization. The first model only includes the perceived ideological distance and the period effects as the measures of elite polarization while leaving the divergence variable out from the estimation. The second model adds ideological divergence to the vector of covariates, and the final setup incorporates the interaction effects between the divergence and education levels (four-category) to examine potentially heterogeneous responses of citizens to growing polarization in political engagement.

Table 6-3. The Effects of Ideological Polarization on Mass Political Engagement

Variables	Care About Election Outcomes			Voter Turnout		
	(13)	(14)	(15)	(16)	(17)	(18)
		1.80***	1.15***		-.037	-.825*
Divergence		(.142)	(.341)		(.155)	(.380)
			.243*			.327*
Diverge × Educ.			(.118)			(.144)
	.129***	.114***	.111***	.111***	.101***	.099***
Perceived Diff.	(.017)	(.017)	(.018)	(.013)	(.018)	(.018)
	.276***	.295 ***	.293***	.098***	.110***	.108***
Ideo. Extreme	(.031)	(.032)	(.032)	(.024)	(.034)	(.034)
	-.072*	-.080***	-.080**	-.009	.009	.101
Alienation	(.029)	(.030)	(.030)	(.023)	(.032)	(.032)
	.602***	.622***	.622***	.305***	.382***	.382***
Strong Partisan	(.027)	(.028)	(.028)	(.021)	(.030)	(.030)
	.320***	.311***	.311***	.971***	.808***	.808***
Mobilized	(.057)	(.058)	(.059)	(.050)	(.072)	(.072)
	.117***	.150***	.150***	.161***	.159***	.160***
Efficacy	(.057)	(.016)	(.016)	(.012)	(.018)	(.018)
	.140***	.088**	-.090	.437***	.574***	.321**
Education	(.031)	(.031)	(.091)	(.025)	(.037)	(.117)
	.008***	.007***	.006***	.032***	.028***	.028***
Age	(.002)	(.002)	(.002)	(.001)	(.002)	(.002)
	-.097*	-.100*	-.010*	-.020	.024	.024
Female	(.050)	(.050)	(.050)	(.039)	(.055)	(.055)
	.377***	.269**	.273**	.102	.222†	.227**
Black	(.085)	(.086)	(.086)	(.062)	(.086)	(.086)
	.365***	.120	.134	-.103	-.128	-.116
Latino	(.112)	(.113)	(.114)	(.083)	(.110)	(.111)
	.038***	.064**	.062*	.269***	.343***	.342***
Income	(.024)	(.025)	(.025)	(.019)	(.027)	(.027)
	.265***	.240***	.239***	-.319***	-.300***	-.302***
South	(.057)	(.057)	(.057)	(.043)	(.060)	(.070)

Table 6-3—continued

	.093 †	-.202***	-.200***	.549***	-.115†	-.110†
1984-1996	(.050)	(.055)	(.055)	(.043)	(.060)	(.060)
	.649***	.157*	.148*	.308***	-.111	-.122
1996-2004	(.063)	(.075)	(.075)	(.059)	(.076)	(.077)
	-2.59***	-3.61***	-3.13***	-4.23***	-4.07***	-3.45***
Constant	(.152)	(.175)	(.290)	(.125)	(.195)	(.333)
<i>Log-Likelihood</i>	-5116.05	-5033.0	-5030.9	-8152.0	-4258.2	-4255.7
<i>LR-Chi2</i>	1386.9***	1553.0***	1557.3***	3472.1***	1846.2***	1851.4***
<i>N</i>	10,114	10,114	10,144	16,691	10,179	10,179

Table 6-3—continued

Variables	Campaign Activism		
	(19)	(20)	(21)
		.160	.784†
Divergence		(.155)	(.412)
			-.216†
Diverge × Educ.			(.131)
	.093***	.101***	.102†
Perceived Diff.	(.016)	(.020)	(.020)
	.305***	.315***	.317***
Ideo. Extreme	(.027)	(.033)	(.033)
	.039	.060†	.060†
Alienation	(.027)	(.033)	(.033)
	.320***	.331***	.332***
Strong Partisan	(.027)	(.033)	(.033)
	1.01***	.863***	.864***
Mobilized	(.046)	(.057)	(.057)
	.127***	.092***	.092***
Efficacy	(.015)	(.018)	(.018)
	.275***	.305***	.468***
Education	(.027)	(.034)	(.105)
	.003†	.001	.001
Age	(.002)	(.002)	(.002)
	-.237***	-.236***	-.237***
Female	(.046)	(.056)	(.056)
	.229**	.196*	.193*
Black	(.076)	(.092)	(.092)
	.066	.036	.026
Latino	(.113)	(.132)	.132
	.170***	.150***	.152***
Income	(.023)	(.028)	(.028)
	.068	.008	.009
South	(.051)	(.063)	(.063)
	-.048	-.374***	-.377***
1984-1996	(.049)	(.060)	(.060)
	-.058	-.325***	-.315***
1996-2004	(.062)	(.079)	(.079)



Table 6-3—continued

Constant	-5.29*** (.153)	-4.89*** (.203)	-5.38*** (.361)
<i>Log-Likelihood</i>	-6440.9	-4222.8	-4221.4
<i>LR-Chi2</i>	1654.0***	1043.8***	1046.5***
<i>N</i>	16,693	10,180	10,180

\*\*\* p<0.001. \*\* p<0.01. \* p<0.05. † p<0.1.

The regression outputs are reported in Table 6-3. According to the findings, ideological divergence of the elites has significant positive effects on the public's political engagement evaluated by the levels of caring about the election outcome (see models 13-15). This result represents that people are more likely to concern about election outcomes as levels of ideological divergence grow in the House. Models 14 and 15 indicate that whether the interaction effect is included in the model does not change statistical significance on the effects of divergence on people's concern about the election outcome. As a proxy measure of elite polarization, the period effects for 1996-2004 also exhibit positive significant effects across models 13 to 15, but the magnitude of the coefficient decreases as the divergence variable is added to the empirical models of 14 and 15. This may imply that positive period effects of 1996-2004 on political engagement (care about election outcome) are largely accounted for by the elite polarization.

In contrast to the impact on models 13 through 15, the effects of elite polarization on turnout and campaign activism are ambiguous in that the coefficient estimates of the divergence variable are statistically significant only in the interaction models (models 18 and 21). Without the interaction effect, the divergence variable is not significant in the models for turnout and campaign activities (models 17 and 20). As a proxy of elite polarization, the time effect of 1996-2004 exhibits positive significance in the turnout model 16, but the variable becomes no longer significant as we account for ideological divergence explicitly in models 17 and 18. This indicates that individual voter turnout increases with the growing elite polarization, and the positive time effects are largely accounted for by the growing ideological divergence. But the negative significant effect of a divergence variable in the turnout interaction model 18 makes it harder to determine the sign of the effect. Similarly, a positive significant effect presents in the campaign activism model only when the interaction effect is included (model 21). Without the interaction term in the model (model 20), the divergence term is not statistically significant at

any levels. The period dummy of 1996-2004 is not significant at any levels without having a divergence variable in the same estimation (see model 19), and the time effect shows negative significant effects as the ideological divergence variable added as a covariate to the models. This means that the frequency of campaign activities tends to decrease with time among the electorate when the elite polarization factor is controlled for.

Thus, the findings here suggest that ideological divergence holds significant effects on both individual turnout and activism conditional on levels of formal education. The presence of significant conditional effects represents that the growing ideological divergence of the elites might have different influences on individual decisions of the participation in elections and campaigns by levels of education. Further, the interaction term between education and divergence turns out to be significant for all three measures of political engagement (including the level of caring about the election outcome).<sup>60</sup> In other words, the causal links between ideological divergence and political engagement variables are sometimes moderated by individuals' different levels of knowledge. For example, although growing elite polarization turns off the turnout among the general electorate, some citizens might not be affected by the changed political environment depending on their educational backgrounds. But we need to be very careful as we interpret the interaction in non-linear models since the use of link function (e.g., logit) in the estimations complicates the formula of the marginal effect (Brambor et al. 2006). So given that ideological divergence functions as a significant predictor of political engagement, I analyze how predicted probabilities change depending on the levels of educational background (four categories) rather than interpreting estimated regression coefficients. Further,

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<sup>60</sup> In addition to the interaction of ideological divergence with education levels, I also tested potential interaction effects of the education with ideological deviation and alienation, but only the interaction between the divergence and education is found to be statistically significant.

the use of predicted probabilities is even safer strategies when potential heterogeneity is suspected in residual variances across different sample groups because probabilities are invariant to the error variance (Long 2005).

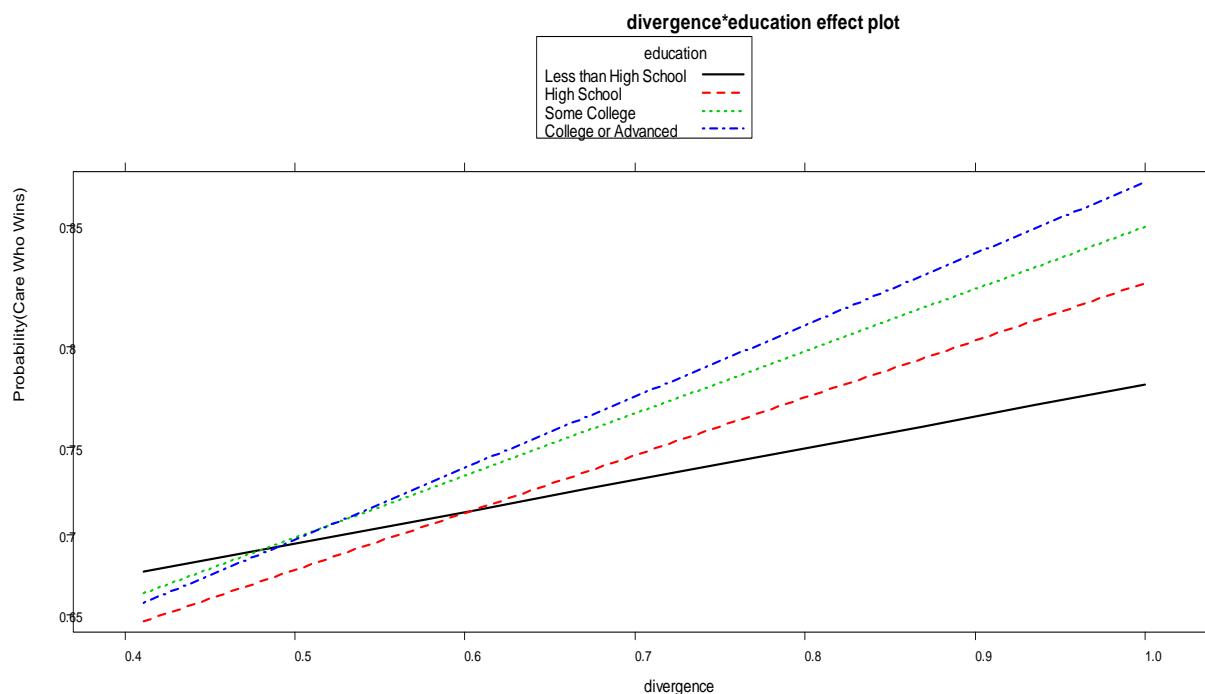


Figure 6-4. Predicted Probabilities of Caring About the Election Outcome as a Function of Ideological Divergence across Different Levels of Education

Therefore, I plotted predicted probabilities of caring the election outcome as a function of ideological divergence across different educational groups in Figure 6-4.<sup>61</sup> The figure shows that predicted probabilities tend to increase with the growing ideological divergence for all four

<sup>61</sup> Values for other covariates set to their means for plots of predicted probabilities.

education groups as expected by positive signs of the coefficient estimates (see models 14 and 15), but positive slopes increase in Figure 6-4 with levels of education. Indeed, while predicted probability of concerning electoral winners changes from about 0.69 to 0.73 for the least educated group, the probability increases from 0.69 to more than 0.8 for the most educated group, as the divergence level grows from 0.5 to 0.8. This implies that while the growing elite polarization stimulates greater interest in election outcome among the general electorate, the most educated group is more likely to concern about the election compared to the less educated fellow citizens. If we consider increased interest in election outcomes as potential benefits of political polarization, this result represents that the most sophisticated citizen group is better advantaged from the changed electoral environment compared to less sophisticated groups of citizens.

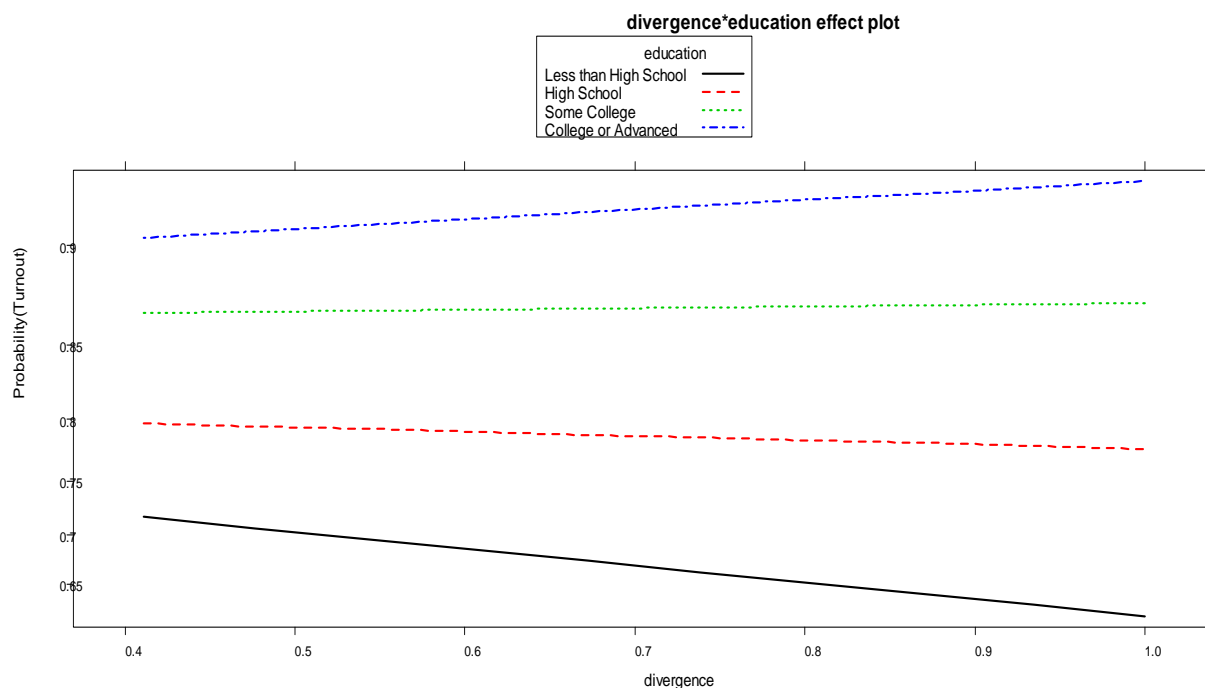


Figure 6-5. Predicted Probabilities of Turnout as a Function of Ideological Divergence across Different Levels of Education

Disproportionate effects of elite polarization are also found in the turnout probability, especially for the least educated citizens. I plotted predicted probabilities for electoral turnout as a function of ideological divergence across educational groups in Figure 6-5. As shown in the figure, predicted turnout probability tends to decrease clearly for the least educated group (less than high school) with increasing congressional polarization, whereas it is even unclear if growing divergence suppresses turnout among citizens having high school or some college degrees. Moreover, the predicted turnout tends to increase for people with the highest degree, as a level of ideological divergence increases. For example, when a level of ideological divergence rises from 0.4 to 1.0, the predicted probability of turnout among the least educated group decreases from 0.73 to 0.6, the predicted turnout among the most educated group never drops

below 0.9. This finding lends supports to the existing argument of Rogowski (2012) who argues that increasing elite polarization primarily depresses voter turnouts with less political knowledge measured by a formal education.

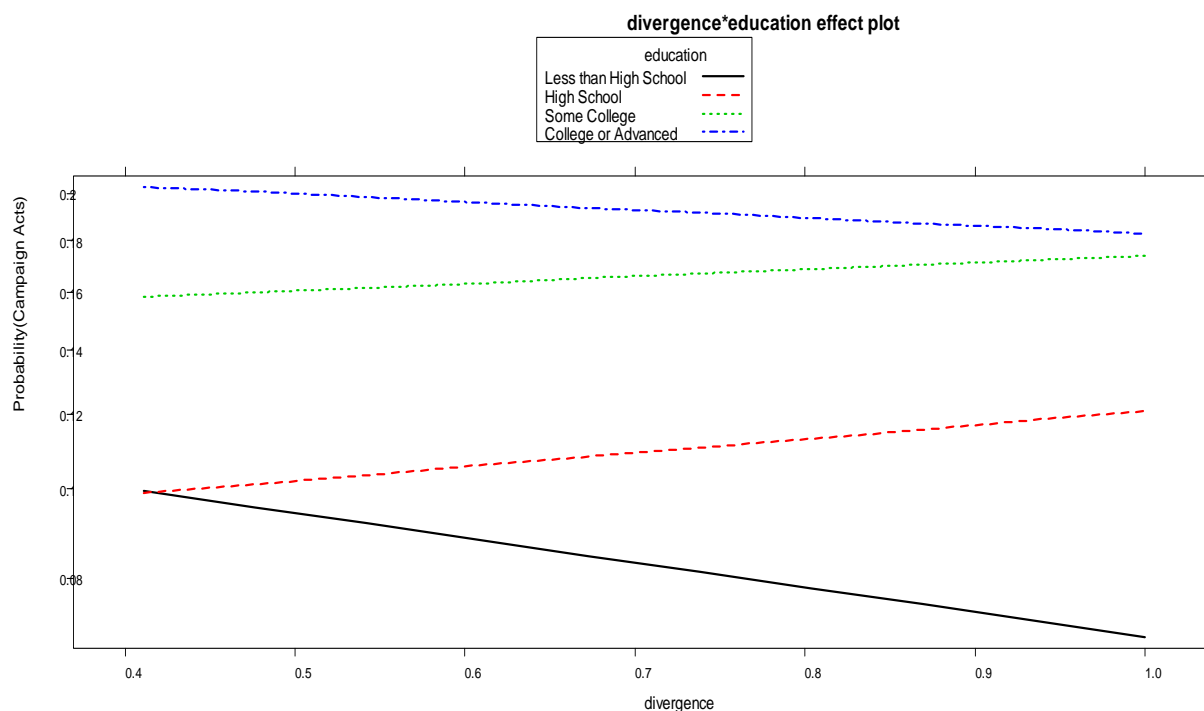


Figure 6-6. Predicted Probabilities of Campaign Activity as a Function of Ideological Divergence across Different Levels of Education

Lastly, Figure 6-6 plots predicted probabilities of engaging in election campaigns for different educational groups, and shows that probability clearly decreases *especially* among the lowest educational background as a function of ideological divergence. The result corresponds to the above turnout model that illustrates disproportionate negative effects of divergence on the least educated group. Some decreasing trend appears in the highest education group, but

conditional effects of education are insubstantial among the highest degree group since a slope for them does not change greatly across the ranges of ideological divergence. Further, the overall ranges of predicted probabilities only vary between 0 and 0.2 without exceeding beyond 0.2 in campaign activism model, which implies that the prediction of the empirical model is somewhat limited different from the other two measures of political engagement. Otherwise, the low level of predicted probability in general might be a result of a low percentage (about 15 % of 1) of campaign activism defined here (two or more activities) in the sample.

In sum, the effects of elite polarization on various forms of political engagement are somewhat ambiguous according to findings here. The ideological divergence in the House has positive significant effects on the degree to which people concern about the election outcomes, and the effects are disproportionate in that more educated group cares more about the election as the elites increasingly diverged. Unlike its obvious effect on the attitudinal form of political engagement, the influences of growing ideological divergence on the behavioral forms of political engagement (i.e., turnout and campaign activities) appears to be more complicated. While the effects of ideological divergence on the rest of education groups are very weak or somewhat trivial, the likelihood of participation on those behaviors tends to decreases among the least educated group. This ambiguity existing in terms of the effects of the elites' ideological divergence on the public's political engagement decisions might explain why previous research has provided conflicting empirical evidences regarding its effect on mass politics. Namely, while Abramowitz (Abramowitz and Saunders 2008; Abramowitz 2010) claims that intense ideological polarization tends to increase political engagement (including electoral turnout), Rogowski (2012) refutes that elite polarization suppress voter turnout rather than promoting it (see also Fiorina et al. 2006, 2008).



Finally, when it comes to the other covariates included together with the ideological divergence, most of the regressors of interests reveal significant effects with the expected directions across different prediction models (see Table 3). Indeed, citizens are more likely to engage in political processes as they perceive greater ideological distance between the two parties. This finding confirms the expectation of the responsible party theory (e.g., Schattschneider and APSA report) which argues that the stakes of electoral contests looms larger when people see more differences in party platforms. Measured ideological deviation and elite mobilization also show the expected signs respectively with statistical significances. People who are more deviated from the ideological center (i.e., extremists) would be more active in political engagement compared to the majority of ordinary citizens at ideological centers. If the electorate experienced any party contacts during election campaigns, they are more likely to be mobilized to engage in the elections. Yet, one exception that yields a different sign from the expectation is the significant negative effect of alienation (at  $p < 0.1$  level) in campaign activism model. The effect is ambiguous with regard to the role of ideological alienation in an individual's decision to participate in political processes. The findings suggest that if citizens feel alienated from its representatives in terms of the differences in policy preferences, voters would be less likely to care about the elections. In contrast, according to the campaign activism models 20 and 21, ideological alienation can also stimulate people to involve in campaign activities, and this might imply that people want to avoid the feeling of alienation by more engaging with the most active form of political engagement. Otherwise, we can also argue that positive effects of the elite polarization on the mass political engagement (e.g., enhanced information, increased perception of ideological differences, or elite mobilization) might compensate the negative effects including the feeling of alienation. Yet we may need an additional research for the effect of elite polarization on campaign activism since the variable is only significant at 0.1 level here.

### Conclusion

Findings in this chapter can be summarized as followings. First of all, as congressional members become more polarized, the general electorate not only becomes to perceive more ideological differences between the two parties, but they also tend to adopt more extreme positions on the ideological self-placement. In addition, the effects of growing ideological divergence among the elites are consistent on the polarization of the mass public rather than being disproportionate across different ideological positions of citizens. This result contrasts sharply with the claim of Fiorina et al. (2006) who argue that mass polarization is largely confined to the political activist group with stronger ideological orientation. When it comes to the mass political awareness, growing ideological divergence between the parties tends to enhance the public's political awareness at aggregate. Further, both measures of elite polarization indicate that the significant relationship is consistent across all levels of political awareness rather than disproportionately advantage the most aware group. This finding contrasts to the finding of Claassen and Highton (2009) who demonstrate that only well informed strata of population responded to the growing elite polarization. Regarding the impact on political engagement, while some citizens especially with lower levels of political knowledge tend to be less engaged with political processes due to the growing ideological divergence of politicians, their interests about electoral winners become strengthened at the same time. This implies that elite polarization has contrasting effects on different types of public political engagement (i.e., attitudinal and behavioral). Finally, although ordinary voters could be disenchanted with increasing elite polarization (e.g., Fiorina et al. 2006, 2008), the ideological alienation does not necessarily mean that the citizens lose their interests in politics, rather they care more about who

wins electoral contests because they perceive increased stakes associated with the election outcomes in the age of polarization (e.g., Abramowitz 2010).

## CHAPTER VII

### CONCLUSION

In contrast to the scholarly consensus on the presence of ideological polarization among political elites, researchers are still divided with regard to the existence of mass ideological polarization. If constituencies remain largely moderates, while their congressional representatives are increasingly polarized, the gap of policy preferences between the two would increase. Thus, this may indicate that the electoral connection between the two is damaged or even broken. Considering the role of legislative members in representative democracy, a widening gap in ideological preferences between polarized politicians and moderate voters is not only undesirable for the workings of polity, but the changes occurring in representational politics would need to be thoroughly analyzed.

The analysis of congressional roll-call data confirms in chapter IV that congressional members became increasingly polarized in both chambers since the 1970s and the elite polarization became more intense with the Republican takeover of Congress in the mid-1990s. In particular, due to the increased congressional polarization, we can hardly observe any overlap of policy positions between the two party membership groups since the mid-2000s in the House, which represents that ideological moderates have substantially disappeared. In contrast to the apparently vanishing ideological center in the legislative branch, we see in chapter V that ideological moderates still account for a majority of the electorate even in the most recent ANES survey of 2008, although the proportion in the ideological center reduced in the late 2000s compared to the 1980s. Indeed, the degree of polarization among the U.S. electorate increased as the distributional center of the government guarantee scale have *progressively* declined, even if the opinion distribution of the later periods do not dramatically exhibit a text-book style

polarized distribution (e.g., bimodal distribution). Although the attitudinal distribution of mass public has changed only slowly, it is still true that the ideological distribution of later eras is more polarized *compared to* the past. Therefore, the findings of chapters VI and V indicate that *only* polarization as a process is seen in the mass ideological distributions whereas both types of polarization (i.e., as a process and as an existence) are observed in congressional members' ideological distributions. Given these findings, I conclude that the electoral connection is damaged *not* because the mass public is not ideologically polarized while the representatives are apparently divided (Fiorina et al. 2006; Fiorina and Abrams 2009). Rather, the representation system is threatened because the mass polarization process is more gradual compared to the state of elite polarization.

If ideological moderates still account for a majority of the mass public in the age of congressional ideological divergence, a large number of citizens could be alienated by the increased elite polarization (Fiorina et al. 2006, 2008). In addition, if citizens believe that their ideological preferences are not represented properly by their polarizing representatives, voters could be increasingly discouraged to engage with politics. Contrary to this pessimistic expectation, the evidence in chapter VI presents that elite polarization does not necessarily decrease political engagement of the public. Rather, the concern of voters about the election outcomes grows as the elites become ideologically diverged. This corresponds to the finding of Abramowitz and Saunders (2008) who use the same measure of engagement for aggregate level analysis without running individual-level regression analysis. The greater interest in the electoral winner is especially pronounced among the more educated citizen group according to the analysis result of chapter 6. Different from the effects on the attitudinal measure of political engagement however, positive effects on the general electorate can be rarely observed associated with elite polarization in the behavioral types of engagement (voting and campaign activism).

Instead, decreases in the likelihood of participating in election and campaign activities are more pronounced among the least educated group (less than high school) compared to the rest categories with additional education. The findings that the effects of elite polarization on political engagement are conditional on levels of education correspond to Rogowski (2012) who finds that growing elite polarization reduces turnout primarily among citizens with lower levels of formal education. Unlike Rogowski (2012)'s findings however, this dissertation does not evidence overall negative effects of increasing ideological divergence of elites on voting participation (and campaign activism as well), the effects became only significant in the interaction models with levels of education.

The findings presented in chapter 6 suggest that growing elite polarization significantly increases overall levels of political awareness regardless of the existing levels of sophistication. Indeed, the enhancing effects are found among the politically less aware groups as well as more aware groups. This result contrasts to the finding of Claassen and Highton (2009) who argue that only well-informed citizens responded to the growing elite polarization by becoming politically more aware. However, the amount of positive information effects would not be substantial enough to leverage existing levels of political sophistication of the less educated. Despite the significant growth in levels of political awareness across different informational strata of population, disproportionate negative effects on turnout and campaign activism are more salient among the least educated group. Yet we might need more future research about the direct role of political awareness on the relationship between the growing elite polarization and public political engagement. Both Rogowski (2012) and this dissertation employ the formal education as a proxy of political knowledge as we estimate the conditional effects of the information factor on the link between growing elite polarization and public political engagement. I adopted this proxy variable

because of the potential endogeneity problem, but we might still need to investigate the direct effects of different levels of political awareness by improving empirical model specification.

Another noteworthy question that this dissertation addressed is whether only a small minority of activists have responded to the growing elite polarization by becoming ideologically polarized (Fiorina et al. 2006, 2008). I attempted to answer to this question not only by analyzing the aggregate mass opinion distributions using ideology measures in chapter 5, I also applied the quantile regression to examine the individual-level changes in terms of ideological positions in chapter 6. According to the findings in chapter 6, the more the congressional members ideologically diverge, the more individuals move to extremist positions deviating from the moderate positions. Furthermore, this increasing trend of extremism among the mass, positively associated with the growing elite polarization, is not exclusively observed among the most ideological citizen groups. As I compare the sign and magnitude of the conditional effects on different quantiles of the dependent variable (i.e., ideological extremism), I found that the similar degree of positive effects present across different levels of existing ideological orientation (e.g., moderate, moderate ideological, more ideological, and extremist) rather than confined to the more ideological group. The result sharply contrasts to the claim of Fiorina et al. (2006) who argue that only political activists with stronger ideological orientation would respond to the growing elite polarization, while the ideological responses from the rest ordinary citizens are weak.

Taken together, empirical evidence presented in this dissertation indicates that polarized political environment of elites has brought about significant changes in mass political attitudes and behavior. In addition to the overall shift in mass ideological distribution, ordinary citizens have responded to the changing political environment by taking more extreme positions. Further, rather than the transformation brought by increasing elite polarization being confined to a small

subset of the population with greater political knowledge, ordinary citizens with less knowledge also became politically more aware and became more interested in the election outcome in response to the changes in the elites' behavior.

If we focus on the findings presented here, we could argue that growing political polarization is not necessarily bad for democratic citizenship in American politics. The growing ideological divergence of legislative members can help informed decisions of voters by presenting more clearly differentiated policy positions, thus can improve the quality of democratic decisions accordingly. On the other hand, we are still uncertain given the findings here whether the knowledge gap between the most informed and the least informed groups reduced with the increasing elite polarization. Despite the positive information effects across all levels of existing political expertise, the decreases in the likelihoods of engaging in the behavioral forms of political activities are more salient among the lowest knowledge group compared to the others. Thus, I may need further future research on how the positive information effects resulting from the growing elite polarization are associated with the differential effects on the political engagement of the public. When it comes to the alienation effect, although the electorate could become less care about the electoral outcome by being alienated from polarized politicians, the growing elite polarization does not necessarily discourage the electorate from engaging with politics. It turns out that people are more likely to participate in campaign activities as they are increasingly ideologically alienated from politicians. This puzzle may be explained by the fact that elite polarization is associated with both positive and negative factors in citizens' engagement decisions according to the findings here. And such positive factors as the enhanced informational environment, increased elite mobilization, and increased stakes associated with the election outcomes (i.e., perceived distance) often compensate the negative effects from citizens' feeling of alienation.



Taken the argument together, one important concern remains about the potentially increasing gap of political engagement between the least educated and the rest citizen groups. The intense elite polarization tends to reduce political engagement among the group with the lowest educational background, but the likelihoods of political engagement among other groups with additional education are not substantially affected by the growing elite polarization. Even though positive information effects also occur to the least aware citizen group as a result of the increasing elite polarization according to the political awareness analysis, this does not close the engagement gap among the electorate. The remaining engagement gap might be relevant to the disproportionate positive effects of elite polarization on political awareness. The beneficial information effects on the lowest education group would not be substantial enough to offset the negative alienating effects of elite polarization on them. Therefore, in a future research I may have to focus more on the citizens with lesser education, and examine how they specifically assimilate the polarized political environment with their existing political resources.

## APPENDIX A: APPENDIX TO CHAPTER V

### An Exclusion of “Don’t Knows (Haven’t Much Thought About It)”

#### Category from Moderates

As mentioned in chapter 5, it is conventional to include “don’t knows (haven’t thought much about it)” group to the middle of the roaders in the scholarly literature of mass opinion polarization (e.g., Abramowitz and Saunders 2008, 544; Campbell 2006, 157, Fiorina and Abrams 2011). In this appendix, these “don’t knows (DK)” answers are recoded as missing values, namely these are regarded separately from moderates.

Figure A.1. Kernel Density Plots of the Two Ideological Issue Scales

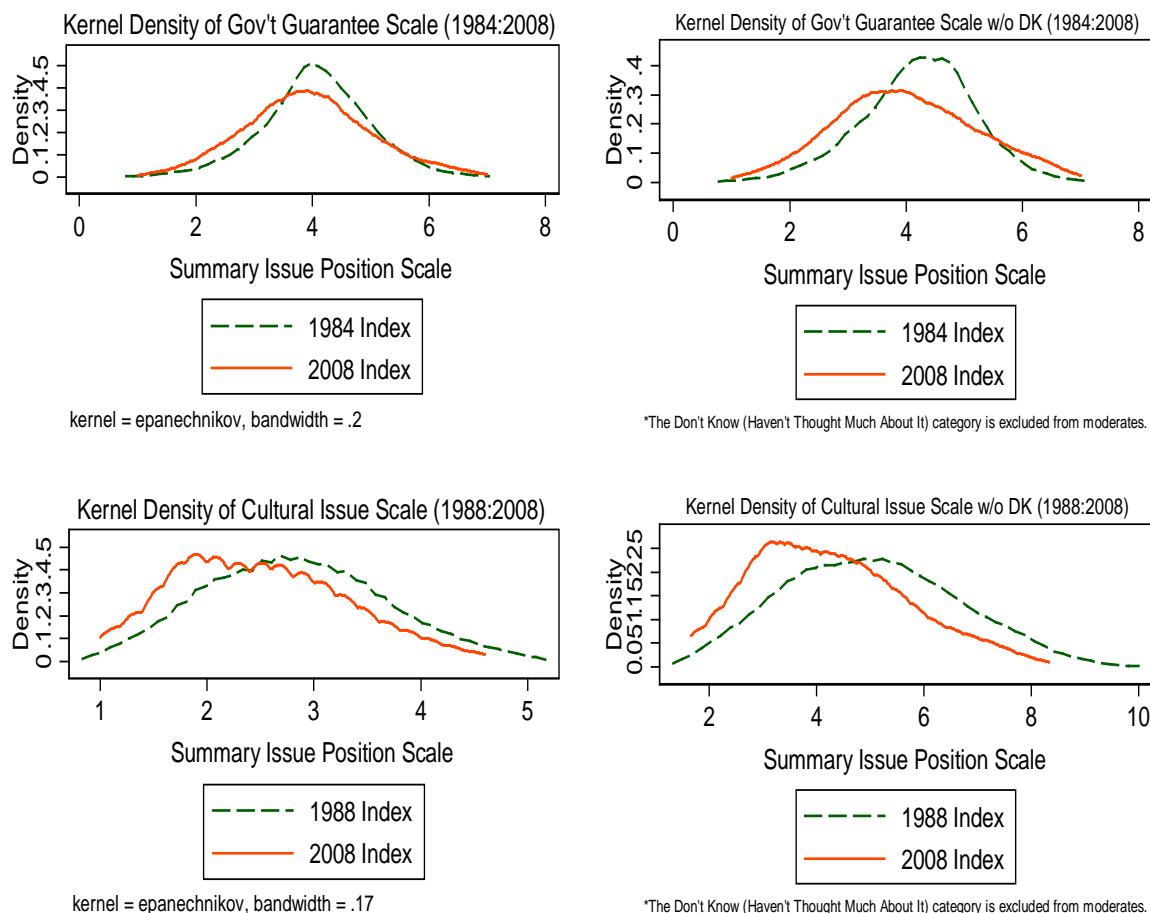
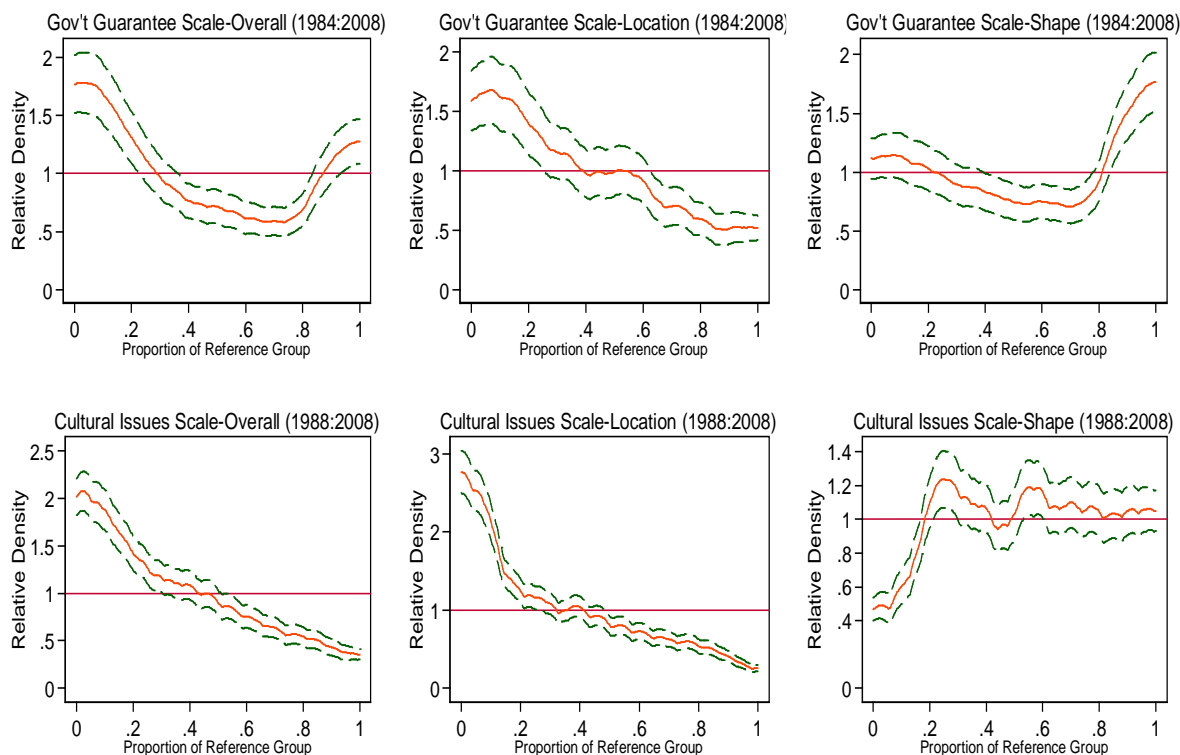


Figure A-1. Kernel Density Plots of the Two Ideological Issue Scales

Figure A-1 provides two separate sets of kernel density plots comparing between when DKs are considered as the middle of the roaders (1<sup>st</sup> column) and when those answers are excluded from moderates (2<sup>nd</sup> column). Focusing on the aspect of growing distributional polarization, density reduction in the middle becomes much clearer on the government guarantee

scale comparing ideological distributions between 1984 and 2008, as I remove the DKs from moderates. The density gap on the center areas (around scale 4) between the distribution of 1984 (a dotted line) and the distribution of 2008 (a line) is greater in the second column excluding DKs than in the first column including DKs for the government guarantee issues scale. That is, this increased gap of density differences could be attributed to an exclusion of those non-ideologicals from moderates. In contrast to the primary government guarantee scale, the cultural issues scale does not present dramatic differences in terms of distributional polarization between the two columns in the Figure A-1, as this scale does not show strong evidence of growing ideological polarization over time.

Figure A.2. Relative Density of the Two Ideological Issue Scales (1980s to 2008)



\*Dotted lines indicate the 95% Confidence Intervals  
 \*\*The Don't Know (Haven't Thought Much About It) category is excluded from moderates.

Figure A-2. Relative Density of the Two Ideological Issue Scales (1980s to 2008)

Corresponding to the exploratory kernel density analysis, relative distributional analysis also presents much clearer evidence of distributional polarization on the government guarantee issues scale as I exclude DKs from moderates. As shown in the Figure A-2, the overall RD effect evidences that relative density in distributional center comprising 4<sup>th</sup> through 6<sup>th</sup> deciles is dramatically reduced in 2008 compared to the distribution of 1984 while both extremes of

distribution of the government guarantee issue scale—especially the liberal end of the distribution—gain significant amount of density during the period. The disappearing center appears to be even deeper as well as more apparent compared to the distributional analysis including DKs into moderates. Both the location and shape effects contribute together to the distributional changes for the period given that entire distribution of the primary scale shift to the left (more liberal side) while polarization is occurring on the distributional shape. Unlike the government guarantee scale however, the cultural issues scale does not exhibit significant differences in the relative distribution analysis as I remove the DKs from moderates. In sum, both kernel density analysis and corresponding relative distribution method indicate that growing polarization of mass ideological distribution over time are more clearly identified when the non-ideologicals (respondents who answered “haven’t thought much about it”) are handled separately from middle of roaders.

## APPENDIX B: APPENDIX TO CHAPTER V

### ANES Items Used to Measure Ideological Preferences of Respondents

As described in the main text, a group of indicators is adopted from a cumulative data file (1948-2008) to construct ideological scales used in this study. In this appendix, I describe each issue item used here and identify the years from which it was available.

- *GOVERNMENT GUARANTEE ISSUES*

- [VCF0803] R Placement: Liberal-Conservative Scale (available from 1972)
- [VCF0806] R Placement: Government Health Insurance Scale (available from 1970)
- [VCF0809] R Placement: Guaranteed Jobs and Income Scale (available from 1972)
- [VCF0830] R Placement: Aid to Blacks Scale (available from 1970)
- [VCF0839] R Placement: Government Services/Spending Scale (available from 1982)
- [VCF0843] R Placement: Defense Spending Scale (available from 1980)

- *CULTURAL ISSUE*

- [VCF0834] R Placement: Women Equal Role Scale (available from 1972)
- [VCF0837] R Opinion: When Should Abortion Be Allowed  
(available in 1972, 1976, and 1980)
- [VCF0838] R Opinion: By Law, When Should Abortion Be Allowed  
(available from 1980)
- [VCF0876a] R Opinion Strength: Law Against Homosexual Discrimination  
(available from 1988)
- [VCF0851] R Opinion: Newer Lifestyles Contributes to Society Breakdown  
(available from 1986)
- [VCF0854] R Opinion: Tolerance of Different Moral Standards  
(available from 1986)



## APPENDIX C: APPENDIX TO CHAPTER VI

### Measurement of Political Awareness

This appendix introduces a list of ANES items used here to measure political awareness along with specific coding rules for respective indicators.

- *Interviewer rating (VCF0050a):* Respondents' general level of political knowledge evaluated by ANSE interviewers. I coded 0 (fairly low and very low), coded 1 (average), and coded 2 (fairly high and very high).
- *Correct relative placement of political objects (parties and presidential candidates) on policy and ideological issue dimensions:* I coded 2 if respondents locate Democratic Party (or the presidential candidate) to the left of the Republican Party (or the presidential candidate) on the 7-point ideological scale. I coded 1 if respondents place the two political objects in the same position. I coded 0 if respondent locates the Republican to the left of the Democrat. Issue items include government guarantee (VCF9087 and VCF9095), minority (black) policy (VCF9084 and VCF9092), and liberal-conservative general ideological scales for parties (VCF0503 and VCF0504) and for presidential candidates (VCF9088 and VCF9096).
- *Willingness to rate political objects on feeling thermometers:* I coded 0 if respondent did not give a thermometer rating, coded 1 if they gave a rating of 50, and coded 2 if they gave a non-50 rating. Used feeling thermometers are both Democratic and Republican

presidential candidates (VCF0424 and VCF0426), and both Presidents and Vice Presidents (VCF0428 and VCF0429).

- *Affect or attitude toward major political parties or presidential candidates (Likes and Dislikes major parties or figures)*: I coded 0 if respondents provided no reasons to like (dislike) the party, coded 1 if they provided one reason, and coded 2 if they provided more than 1 reason (2-5). Specific ANES items for party salience are Democratic Party (VCF0314 and VCF0315), Republican Party (VCF0318 and VCF0319), Democratic presidential candidate (VCF0401 and VCF0402), and Republican presidential candidate (VCF0405 and VCF0406).
- *Two indicators for factual political knowledge*: Know a majority party in the lower House (0 or 1, VCF0729), know an incumbency status of a House candidate (0 or 1, VCF0978, not included in 2004 wave). Incorrect answers (0) include “don’s know” answers as well.

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