A NEW APPROACH TO THE STUDY OF POLITICAL PARTICIPATION

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Inés Levin

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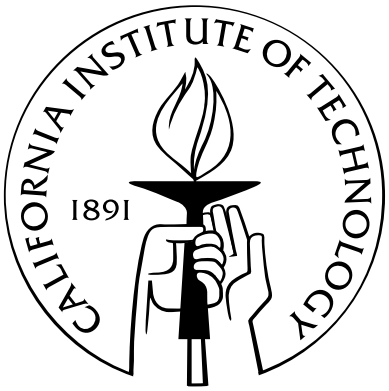

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To my grandparents; my parents, Juan & Miriam;

my sister Ana; my brother Andrés; and Enrique.

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Abstract

This thesis develops and applies a new theoretical and empirical approach to the study of political participation. It starts with a thorough review of existing theories and evidence of the determinants of political participation. The theories discussed in the literature review are subsequently synthesized using a dual-process account of participation decisions. The central premise of the account is that individuals engage in reasonable deliberation regarding the benefits and costs of participating in political activities, but this reasoning is limited by automatic responses to values, social identifications, and habits that predispose the individual toward participation or abstention. The next chapter develops a new statistical procedure for the study of political participation, based on mixture modeling and simultaneous consideration of involvement in multiple political activities that is consistent with the dual-process account of political participation discussed in the previous chapter. In this model the relationship between underlying utilities and participation probabilities is regulated by a parameter that captures individual propensities toward political participation. After that, the statistical method is applied to survey data from the 1990 American Citizen Participation Study (Verba et al., 1995), where it is used to test a series of hypotheses regarding the impact of resources and civic skills on political participation. Finally, the mixture modeling approach is applied to survey data from the 2008 Cooperative Congressional Elections Study (Ansolabehere, 2008), where it is used to measure the impact of perceptions of economic adversity and support for emergency economic policies on political participation.

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Chapter 1

Introduction

What is Political Participation?

Following Verba and Nie (1972, page 2), I define political participation as "activities by private citizens that are more or less directed at influencing the selection of government officials and/or the actions they take." Political participation is important because it determines the representativeness of political outcomes and the perceived legitimacy of governments and policies. Social scientists have dedicated considerable efforts to developing theories of political participation and measuring how voting and other forms of political participation are affected by a variety of factors, including socio-demographic attributes, psychological motivations, social networks, legal barriers to participation, get-out-the-vote efforts, genetics, and even weather on Election Day. In spite of these efforts, several puzzles of political participation remain unsolved. Existing theories of political participation are limited because they are either incapable of explaining observed levels of political participation, or are hardly testable as they are compatible with any pattern of observed behavior. Existing empirical studies of individual involvement in political activities are also limited as they explain very little of the variation in political participation, and also because they often ignore psychological and political motivations that might affect participation decisions and confound the effect of variables of interest.

This thesis develops a new theoretical and empirical approach to the study of political participation. I start by reviewing some of the main rational choice and expressive choice theories of political participation, as well as the empirical evidence regarding the determinants of individual involvement in political activities. After that, I develop a new account of political participation rooted

in recent dual-process theories of human cognition. I argue that individuals engage in reasonable deliberation about the benefits and costs associated with participation in the different activities, but their decisions are also affected by automatic responses induced by the strength of partisan attachments, social identifications, commitment to issue positions, core values, and participation habits. In contrast to existing expressive theories of political participation, the dual-processing hypothesis can be tested by considering multiple indicators of individual involvement in political activities and the employment of recent latent variable and mixture modeling statistical methodologies. If factors that set off automatic responses affect the likelihood of involvement in multiple political activities, then observing that an individual participates more or less than expected (conditional on the net benefits of participation) across several activities can be used to infer the "participatory type" of the individual—whether she behaves as an *activist* or an *apathetic*. Existing empirical approaches that assume that the identity of an individual is of no relevance after controlling for individual attributes and systemic factors affecting the net benefits of participation cannot possibly be used to learn about these heterogeneities in political participation. I do not argue that factors that have been much studied in the past, such as resources, do not matter for political participation, but that there is more to political participation than resources alone.

The reason why it is important to learn more about the determinants of political participation is because involvement (or lack of involvement) in the democratic process can affect political outcomes. The equal involvement of all social groups in political activities helps achieve the democratic ideal of equal representation of all interests. Equal participation is necessary to prevent the interests of certain groups or classes from exerting disproportionate influence on political outcomes (Dahl, 1998; Lipset, 1960), and to ensure the interests of those who are excluded from the political process are not overlooked (Mill, 1816).[1] If certain types of citizens participate more than others, then these individuals will have a greater influence on election outcomes, issue positions chosen by candidates running for office, and the decisions made by appointed officials. In this thesis I conduct two

[1]It has also been argued that political action has positive effects on intellectual faculties and moral character of those who participate (Mill, 1816, Chapter III) and that the existence of a "civic culture" where individuals do not only engage in reasonable deliberation to decide whether to participate but also exhibit "non political attitudes such as trust in other people and social participation in general" (Almond and Verba, 1963, page 32), contributes to the stability of a democratic polity.

applications of the model discussed in the previous paragraph where in addition to identifying individual participatory types, I profile the characteristics of activist and apathetic classes of citizens to determine whether they differ systematically in their level of civic engagement, issue positions, or incidence of personal concerns. By doing so I am able to determine whether heterogeneities in participation are likely to result in the under- or over-representation of certain interests and needs.

Contrary to many studies of political participation, I do not focus only on the determinants of voter turnout, but also on the determinants of involvement in other forms of political participation, including electoral activities such as contributing money and working for political campaigns, and non-electoral activities such as protests, involvement in community activities, and contacting elected or appointed government officials. The important point that I would like to emphasize is that even if a scholar is only interested in learning about the determinants of voter turnout, disregarding participation in other activities can lead to faulty inferences. If there is an underlying propensity toward participation that affects not only voting decisions but also contribution decisions, and so on, then learning about this propensity requires the consideration of multiple activities. Ignoring other activities implies learning less about a key determinant of voter turnout and the estimation of poorly-specified models that explain very little of the variation in observed participation decisions, and also learning less about the implications of these decisions for the representativeness of political outcomes.

In addition to the methodological justification for considering participation in multiple political activities, there is of course a substantive justification. Contemporary democratic theorists often disregarded other forms of political participation. Schumpeter (1942, page 269) defined "the democratic method" as "that institutional arrangement for arriving at political decisions in which individuals acquire the power to decide by means of a competitive struggle for the people's vote." Not only were forms of participation other than voting disregarded, political activities such as protests were often characterized as undesirable. For instance, Schumpeter (1942, page 272) described "spontaneous revulsions" as "contrary to the spirit of the democratic method."[2] But the idea that other forms of

[2]Other forms of political participation were often considered undesirable for at least two reasons. One reason is that some actors may have disproportionate ability to affect outcomes through activities other than voting—as no rule equivalent to "one person, one vote" holds for other activities—and therefore the democratic ideal of political equality

political participation are not desirable changed as a result of major events such as the Civil Rights Movement which contributed to the enfranchisement of large segments of the American population. These events did not only motivate democratic theorists to reconsider the definitions of democracy and participation, they also motivated social scientists to investigate not only the determinants of voter turnout but also the causes and consequences of involvement in other forms of political participation.[3]

Thus, if the interest lies in learning about the representativeness of political outcomes, focusing on voting is not enough, as many means can be used to affect public policy. In recent decades, scholars have studied the causes and consequences of political participation broadly defined, encompassing not only conventional activities like voting and involvement in organizations, but also participation in protests, and more recently even online civic engagement. In this thesis, I follow a similar approach, which is consistent with a broader definition of democracy than the one given above: a system "characterized by the fact that power over significant authoritative decisions in a society is distributed among the population" (Almond and Verba, 1963, page 162). Whether power is exerted through voting or also through involvement in some other political activity is an empirical question that should not be disregarded, and one that cannot be answered based on normative considerations.

Who participates?

Lipset (1960, page 187) summarized several of the factors that even today are listed as some of the main determinants of voter turnout:

> *Men vote more than women; the better educated, more than the less educated; urban residents, more than the rural; those between 35 and 55, more than younger or older voters; married persons, more than unmarried; members of organizations, more than nonmembers.*

may be harder to achieve when citizens participate in multiple political activities. Another reason is that during certain historical periods—such as after the Second World War—forms of political participation such as protests and demonstrations were though to be conducive to political instability and anti-system behavior.

[3] Almond and Verba (1980), criticized the dismissal of "unorthodox" forms of political participation, such as "protests and demonstrations," on the basis that "nothing substantive can be said about other activities, or about possible future developments of democratic political action."

Recent studies of political participation have arrived at the same conclusion not only for voting but also for other forms of political participation (Verba and Nie, 1972; Verba et al., 1995; Wolfinger and Rosenstone, 1980). The consistency in the effect of these variables has distracted attention from another major fact: even though certain demographic attributes and socio-economic status usually have a positive effect on political participation, they explain very little of the variation in political participation (Fiorina, 2002). There are educated, married, middle-aged, male, urban residents, who frequently take part in non-political activities like attending religious services or are affiliated with a sports club or other non-political organizations, and yet do not participate. Conversely, there are low-educated, single, young, female, rural residents, who are not involved in non-political organizations, and yet take part in local community activities, attend meetings where political issues are discussed, and vote on Election Day.

The main questions that I address in the dissertation are: (1) In addition to socio-economic status and resources, what else needs to be taken into account to provide a better answer to the *Who Participates* question? (2) How does the fact that there is more to participation than socio-economic status and resources affect the impact of these very same variables? And (3) what are the implications for political representation, considering that factors that are usually excluded (such as the strength of issue positions) are closely linked to individual interests and needs?

Chapter Summaries

The next chapter thoroughly reviews theories and evidence about the determinants of individual involvement in political activities. I start by discussing the paradox of collective action and solutions to it that have been proposed within a purely rational choice framework, such as the provision of "selective incentives" (Olson, 1965) or the idea that participation can be used to signal policy preferences (Lohmann, 1993), as well as solutions that have been proposed outside the rational choice literature, focusing on the sociological social movements approach (McAdam et al., 2001; Tarrow, 1998). After that I discuss the paradox of voting and proposed solutions that extend the basic rational choice approach, such as considering the strategic interaction between participants (Ledyard,

1978, 1984; Palfrey and Rosenthal, 1983, 1985), as well as solutions that consist of incorporating non-instrumental considerations into voters' utility functions (Fiorina, 1976; Riker and Ordeshook, 1968; Schuessler, 2000) or assuming that individuals respond automatically to expressive considerations (Engelen, 2006). Subsequently, I review some of the main results of the empirical literature on political participation, focusing on existing evidence regarding the impact of socio-economic status and politically-relevant resources, psychological motivations, mobilization and recruitment efforts, and legal barriers to participation.

Chapter 3 lays the ground for a new theory of political participation based on recent dual-process accounts of human cognition (Chaiken and Trope, 1999; Evans, 2003, 2008). The dual-process approach to political participation synthesizes some of the theories discussed in Chapter 2; it argues that individuals do not behave either purely instrumentally or take into account expressive considerations, but that they behave in both ways at the same time. While there is one cognitive system that engages in reasonable deliberation regarding the benefits and costs of political participation, there is another cognitive system that responds automatically to stimuli based on factors such as social identifications and core values, and both processes affect participation decisions simultaneously. The extent to which individuals behave in a purely instrumentally rational manner depends on whether they are able to suppress the impulsive responses produced by the instinctive cognitive system. For similar net benefits associated with participation, individuals whose automatic responses steer them toward political participation will be more likely to participate in all political activities, relative to individuals whose automatic responses steer them toward toward apathy and abstention.

Chapter 4 develops a new statistical methodology for the study of political participation. Contrary to the common approach used in the participation literature where each activity is modeled independently, the approach proposed in this thesis is based on simultaneous modeling of participation in multiple political activities that produces more accurate inferences about participation propensities and covariate effects. Specifically, I use finite mixture modeling to allow model parameters to vary across latent citizen types and to classify survey respondents into apathetic and activist classes of citizens. I use Bayesian methods to estimate two types of mixture models: one

where the skewness of the linked function is allowed to vary across latent classes, and one where the intercept is allowed to vary across latent classes. I show that even though the model with varying skewness parameter provides a more accurate representation of the dual-process theory of political participation, a varying intercepts model provides a pretty accurate approximation. In estimating both types of mixture models, I use hierarchical multilevel modeling to borrow information about covariate effects across political activities.

In Chapter 5, the mixture modeling approach is used to re-examine the importance of resources and civic skills for explaining political participation. I apply the varying skewness model developed in Chapter 4 to survey data from the 1990 American Citizen Participation Study (Verba et al., 1995). I find that there is class of individuals who are almost sure to participate in low-cost activities, and are the only ones exhibiting high probability of participating in high-cost activities (I term these individuals "activists"). Conversely, I find that there is an apathetic class of individuals who almost never participate in high-cost activities, and have small but non-negligible probability of participating in low-cost activities (I term these individuals "apathetics"). Even though a model that ignores these heterogeneities provides a relatively accurate approximation to the behavior of the medium propensity group, it systematically under- or over-estimates participation propensities for low- and high-propensity groups. Additionally, I find that covariate effects vary sensibly as a function of group assignment and type of activity. For instance, changes in socio-economic status and civic skills have only minor effects on activists' likelihood of involvement in low-cost activities (as they are already almost sure to participate, regardless), but considerable effects on the probability of engaging in high-cost activities. Conversely, changes in socio-economic status and civic skills have only minor effects on apathetics' likelihood of involvement in high-cost activities (as they are very unlikely to participate, regardless), but considerable effects on the probability of engaging in low-cost activities.

In Chapter 6, the mixture modeling approach is used to measure the effect of perceptions of economic adversity and approval of emergency economic policies on political participation. During 2008, the U.S. government responded to the financial and economic crisis by enacting a series

of emergency economic acts, including a financial system bailout, a fiscal stimulus package, and a housing relief bill. I study to what extent support or opposition to these policies had an impact on political participation using data from the 2008 Cooperative Congressional Election Study (Ansolabehere, 2008). Instead of modeling overall political participation using an additive index, as is often done in the civic engagement literature, I apply a varying intercepts model like the one developed in Chapter 4 and also model the determinants of an underlying measure of overall political participation computed using Bayesian item-response modeling. Among other things, I find that individuals opposing the fiscal stimulus package and the housing relief bill exhibit larger propensities to participate in politics after controlling for socio-demographic characteristics, partisanship, and ideology. Still, effects are usually not statistically significant at conventional confidence levels, so results provide only limited evidence in favor of the hypothesis that the views expressed by activists are not representative of the preferences and opinions of the more general population.

Chapter 2

Political Participation: Theory and Evidence

2.1 Introduction

Throughout their lives, individuals face numerous opportunities for involvement in activities that are aimed at affecting public policy or the election of public officials. One of the most common activities is voting, where citizens contribute to the collective decision by casting a vote in favor of a candidate or alternative, and where the final decision is arrived at by aggregating individual votes following the procedure stated in the electoral law. During electoral periods, individuals also have the opportunity of supporting their favorite candidate or alternative by contributing money or volunteering to work for a candidate or campaign. Other activities that are directed at affecting political outcomes and may occur within or outside the context of specific elections are expressing support for a candidate or policy by engaging in political discussions, wearing badges, or writing in online blogs and forums. Finally, activities that are typically directed at affecting specific policies or decisions made by government officials include participation in protests, membership in political groups, and contacting elected or appointed officials.

What these activities have in common is that, even though each individual is free to decide whether to participate or abstain, outcomes are not determined by a single individual but are the result of aggregating the choices, efforts, and opinions of all participants. The consequence of individual involvement in each of these activities can be characterized as the result of the intersection

of the preferences of the individual with the preferences of all other participants. While individual preferences count the same toward the final decision in activities like voting, in other activities such as donating money or volunteering preferences may weigh proportionally to the amount of money or hours contributed. Generally, when the number of participants is large, the probability that a single individual affects the collective outcome is extremely small, and this is why theories that assume that individuals maximize their own utility and only care about the immediate impact of their actions on political outcomes—that is, that individuals are selfish and short-term instrumentally rational—are usually incapable of explaining the non-zero levels of civic engagement observed in the real world.

Broadly speaking, to overcome this "paradox of political participation," and improve the descriptive and predictive power of political participation theories, scholars have proposed two types of solutions. Some argue that individuals go through a process of abstract thinking in which they compare participation benefits and costs and, in addition, take into account the strategic interaction between participants (Ledyard, 1978, 1984; Palfrey and Rosenthal, 1983, 1985), relax the assumption that individuals perceive probabilities objectively (Riker and Ordeshook, 1968), or incorporate non-instrumental or expressive considerations into the utility function (Fiorina, 1976; Riker and Ordeshook, 1968; Schuessler, 2000). Others, in contrast, rather than assuming that individuals go through a process of reasonable deliberation, assume that prospective participants react collectively to expressive considerations such as deeply-held values or social identifications (Engelen, 2006; McAdam et al., 2001; Tarrow, 1998). In the first part of this literature review (Sections of 2.2 and 2.3), I summarize and discuss some of the main theories of collective action and voter turnout.

Recent theories of political participation have focused on developing a better account of the factors motivating voter turnout and political participation more in general. The limitation of several of these extensions of the rational choice approach is that they can accommodate any pattern of observed behavior. Empirical scholars have criticized the limitations of these theories, and instead of trying to explain observed levels of political participation, have focused on testing more narrow questions regarding the impact of specific individual and systemic factors, or—since there is consensus around the idea that participation costs affect participation—on evaluating the impact of

factors that affect the ability of prospective participants to bear participation costs or overcome legal barriers to participation. In the second part of this literature review (Section 2.4) I discuss some of the main findings regarding the impact of socio-economic status, resources, psychological motivations, legal barriers, and mobilization efforts.

2.2 The Paradox of Collective Action: Interest Groups, Organizations, and Social Movements

2.2.1 The Paradox

According to early theories of collective action, groups and organizations are made up of individuals sharing a common interest, who get together spontaneously to promote this ultimate goal. For instance, Truman (1964, page 58) argues that "it is expected that people who have certain attitudes in common—neighborhood, consanguinity, occupation—will interact with some frequency." Regarding "institutionalized groups," Truman argues that they could "be thought of as a habit and as being made up of certain habitual activities of a number of individuals" (page 63). Later on, the author falls into a logical contradiction when he asks "is an interest group inherently 'selfish'?" and immediately dismisses the question arguing that "judgments of this kind are and must be made by all citizens in their everyday life, but they are not properly a part of the systematic analysis of the social process" (page 70). The contradiction is that since groups are composed of individuals who—according to Truman himself—must make selfish decisions in their everyday life, then to some extent selfish considerations should also affect group goals, interactions, and activities.

The criticism made by rational choice scholars is that since collective achievements are a public good, enjoyed by all members of the group regardless of whether they contribute to the provision of the good or not, self-interested individuals face incentives to free ride on the effort of others and avoid bearing participation costs (Olson, 1965). Yet the rational choice approach is also limited, as it cannot explain why many individuals do not free ride but participate actively in movements and organizations. In the real world, interest groups, organizations, and social movements do form and

often succeed. The contrast between predictions of the rational choice approach and observed levels of collective action has been termed the "paradox of collective action."

2.2.2 Solution 1: Selective Incentives

Olson (1965) discussed a number of solutions to the free rider problem that could lead to successful collective action. In large groups with no influential members cable of ensuring the provision of the collective good by themselves, the probability that a single individual affects the collective outcome is small. In the latter case, mobilizing members requires the provision of private economic benefits, termed "selective incentives," that are only enjoyed by those who contribute to the provision of the public good, or the existence of penalties for slackers. When selective incentives are needed to guarantee the provision of the public good, collective action is often no more than a "by-product" of activities aimed at attracting and mobilizing members.

Olson's argument can be represented formally using the following expression:

$$U_i = P_i \times B_i - C_i + S_i$$

where U_i is the utility perceived by an individual i when engaging in collective action instead of abstaining, P_i is the probability that the individual is decisive for the collective outcome, B_i is the expected individual benefit associated with affecting the collective outcome, C_i represents participation costs, and S_i represents private economic benefits perceived by individual i conditional on participating or contributing to the provision of the collective good. Olson's theory suggests that a rational individual should participate whenever the expected benefits of participation—including selective incentives—outweigh participation costs:

$$P_i \times B_i + S_i > C_i$$

In contrast to the act of voting, where all votes count the same toward the election outcome, individual identities matter for most forms of political participation, depending on the position of the

individual within the organization or social network, and his or her access to resources. The probability of being decisive for the outcome is a function of both group size (N) and individual identities (i), and therefore can be written as $P_i = f(N, i)$. For influential members, such as group leaders or powerful public figures, whose sole participation may affect political outcomes—by influencing the participation decision of other group members, or by directly influencing representatives or public officials—P_i can be considerably large. These individuals may be driven to participate regardless of the behavior of other members of their organization, and when participation is not associated with perception of private economic benefits. For other individuals, who do not play a special role within the group or organization, do not hold a central position within the relevant social network, and do not count with enough resources to make a major contribution to the provision of the public good, P_i is usually very small. For the latter type of individuals, the S_i component of the utility function is a key determinant of the participation decision.

2.2.3 Solution 2: Social Movements Approach

Even though "selective incentives" can help explain involvement in interest groups and organizations, they can hardly explain involvement in massive social movements that lack formal membership and centralized organization. Yet social movements do form, and often succeed. Tarrow (1998) criticizes Olson's rational choice approach, as well as his "organizational solution," on the grounds that it is not capable of explaining the emergence and persistence of social movements, arguing that "the collective action problem is social, not individual." According to the author, movements form when changes in political opportunities, such as divisions among the governing elite, affect the expected success of collective action for individuals who usually lack resources, organization, and access to institutions and the state. In addition to political opportunities, other factors that affect the emergence and persistence of collective action, according to sociologists, are: agreement on a common goal, the rise of solidarities, social networks through which the movement can propagate to other individuals sharing similar interests and values, and the existence of known forms of collective action (McAdam et al., 2001; Tarrow, 1998).

In contrast to Olson (1965), the social movements literature does not study participation from an individual perspective, but from a collective perspective. Let U_m denote a quantity that is positively associated with the probability that the movement m is formed. In very simplified terms, the sociological argument can be represented using the following expression:

$$U_m = B_m - C_m$$

where B_m represents the expected benefits associated with the movement's actions, and C_m represents the costs of collective action. B_m increases as a result of changes in political opportunities in favor of individuals sharing a common goal. C_m increases with political risks undertaken by group members, and decreases when known forms of collective action facilitate dealing with coordination problems and achieving the collective goal.

But can the sociological approach contribute to our understanding of the determinants of individual participation? These theories do not see the individual as someone who deliberates about what to do, but as someone who "responds" to stimuli and political opportunities. As noted by Fiorina (1975, page 150), sociological theories "emphasize the responsive side of man rather than his purposive side ... Behavior is seen as a response to internalized norms and the expectations of significant others" and not as "an attempt to maximize individually held goals." For instance, in "Power in Movement" (1998), Tarrow argues that "contentious politics emerges in response to changes in political opportunities and threats when participants perceive and respond to a variety of incentives: material and ideological, partisan and group-based, long-standing and episodic" (Tarrow, 1998, page 16); and in "The Dynamics of Contention," McAdam, Tarrow, and Tilly (2001) talk about individuals who "respond collectively" (McAdam et al., 2001, page 18) and discuss "a set of episodes in which people respond to increased repression by striking back at their enemies instead of fleeing or subsiding into passivity" (McAdam et al., 2001, page 29).

To the extent that there is a relationship between individual-level benefits and costs, and group-level benefits and costs—for instance if $B_i = f(B_m)$ and $C_i = f(C_m)$—political opportunities and external resources can partially contribute to explaining individual involvement in social movements.

For instance, individuals who are well connected to others sharing similar interests and values, who have some power over the outcome, who are well informed about the efficiency of different forms of collective action and know how to minimize participation costs, may face less incentives to free ride.

But the sociological approach falls short of solving the paradox of collective action, as it cannot explain participation in large movements by common individuals who have a low probability of being decisive for the collective outcome: even if these individuals experience a high value of B_i (caused by high values of B_m), and low values of C_i (caused by low values of C_m), they will still experience strong incentives to free ride on the effort of others. The factors discussed in the social movement's literature do indeed contribute to our understanding of individual involvement in social movements, but if we believe that at least some individuals do not just "respond" but arrive at their decisions after reasonable deliberation, we need to look for answers outside the social movements literature.

2.2.4 Solution 3: Game Theoretic Approach

Solutions to the paradox of collective action have also been discussed within the rational choice literature. Not all rational choice theorists subscribe to Olson's approach. For example, Lohmann (1993) shows that if policy makers care about maximizing social welfare, and if every individual has private information about the optimal policy choice, then rational individuals who believe the government should implement a new policy may choose to engage in costly political participation to signal their policy preferences; and in turn, rational policy makers should update their beliefs about the optimal policy choice based on the number of participants or size of the social movement.

2.2.5 Solution 4: Expressive Incentives

A paradox analogous to the one discussed in this section exists with regards to voter turnout (see Section 2.3). It has been noted that since the probability of affecting election outcomes is negligibly small, voters have no incentives to participate as participation costs will always exceed expected benefits. In an effort to develop a calculus of voting more consistent with observed levels of political participation, Riker and Ordeshook (1968) argued that individuals may be driven by a desire to

enjoy non-instrumental benefits associated with participation. This argument has been extended to a more general framework that comprises not only voting but participation in other political activities.

Contrary to voting, where it is often assumed that individuals choose between two candidate platforms, discussions of involvement in other political activities have assumed that individuals choose between the status quo and policy change. Thus, while participation benefits associated with voting in two candidate contests are computed as: $u_x - u_y$, where u_x is the utility associated with the favorite candidate and u_y is the utility associated with the other candidate; benefits associated with participation in other activities are better represented by the following expression: $u_1 - u_0$, where u_1 is the utility associated with change in the preferred direction, and u_0 is the utility associated with keeping the status quo.

Fiorina (1999a, page 421) argues that activists are not motivated by instrumental considerations, but by "expressive considerations" linked to the strength of ideology positions and dissatisfaction with the status quo. Specifically, the author writes that "someone deeply dissatisfied with the status quo will take greater satisfaction in expressing his or her dissatisfaction than someone not comparatively dissatisfied." Fiorina suggests writing the expected benefits from participation as:

$$U_i = P_i \times (u_1 - u_0) - C_i + E_i$$

where E_i is an expressive term analogous to Riker and Ordeshook's (1968) "D term" (see Section 2.3.4) that captures "the intrinsic value of an action." According to Fiorina (1999a, page 422), the expressive value "is directly related to the distance of the actor from the status quo or another contending alternative" and can be written as: $E_i = f(B_i)$, where f is increasing in B_i.

2.3 The Paradox of Collective Action: Voting

2.3.1 The Paradox

Voting is no doubt one of the most fundamental and common forms of political participation in democracies. In contrast to other forms of participation, voting is often understood as a precondition for the existence of a democratic polity. In addition to the normative and objective relevance of the voting act, the application of formal modeling techniques to the study of participation in elections is particularly appealing because the situation has a clear structure: a well-defined set of eligible participants, of eligible alternatives that may be chosen by each voter (such as candidates or support/opposition to initiatives or referenda), allowed actions (namely, voting or abstention), and rules for aggregating individual choices. In this subsection, I begin with a discussion of rational choice theories of voter turnout, and then discuss extensions of the theory that have been proposed to help explain observed levels of participation.

According to Downs (1957), individuals evaluate the benefits and costs of participation and participate when the expected benefit of participating outweigh participation costs—that is, they participate if and only if $P \times B > C$. Ferejohn and Fiorina (1974) explain how this condition can be derived from information about the probabilities of breaking and creating ties, and information about the utility perceived under each state of the world. Assuming the election outcome is decided by plurality voting for two alternatives x and y, it is possible to define five states of the world that may obtain when the individual abstains (Ferejohn and Fiorina, 1974):

- s_1: candidate x wins by more than one vote.
- s_2: candidate x wins by one vote.
- s_3: there is a tie between candidates x and y.
- s_4: candidate y wins by one vote.
- s_5: candidate y wins by more than one vote.

Table 2.1 gives a utility matrix containing the utility obtained by the voter by engaging in each possible behavior, under each state of the world:[1]

[1] This table is equivalent to Table 2 in Ferejohn and Fiorina (1974), except that the authors set $u_x = 1$ and $u_y = 0$.

	s_1	s_2	s_3	s_4	s_5
Support x	$u_x - C$	$u_x - C$	$u_x - C$	$\frac{u_x+u_y}{2} - C$	$u_y - C$
Support y	$u_x - C$	$\frac{u_x+u_y}{2} - C$	$u_y - C$	$u_y - C$	$u_y - C$
Abstain	u_x	u_x	$\frac{u_x+u_y}{2}$	u_y	u_y
State probability	p_1	p_2	p_3	p_4	p_5

Table 2.1: Actions, State of the World, and Utilities.

Assuming probabilities of the different states are known and given by p_j, with $j \in \{1, 2, 3, 4, 5\}$ and $\sum p_j{}_j = 1$, the individual participates and votes for her favorite alternative if $p_3 + p_4 > \frac{2C}{u_x - u_y}$; or letting $B = u_x - u_y$ and $P = p_3 + p_4$, if:[2]

$$P \times \frac{B}{2} > C$$

Thus, the individual participates if voting costs are small enough relative to the benefits of deciding the outcome in favor of alternative x times half the probability of breaking or creating a tie. An empirical implication of this theory is that absolute participation rates are positively related to the closeness of the election, as the probability of affecting the outcome is largest when there is a near-tie. It has been found that in large electorates, the objective probability that a single individual affects the election outcome is negligibly small (Beck, 1975a; Margolis, 1977; Chamberlain and Rothschild, 1981; Feddersen, 1992; Gelman et al., 1998, 2002).[3] Since the likelihood that an individual is decisive for the outcome is so small, she should have no incentive to participate as the participation condition is unlikely to be met. Rational choice theories have been interpreted as predicting that the act of voting is "irrational" in large elections. A limitation of this basic theory is that it is incapable of explaining observed levels of participation in large elections. According to some scholars (Green and Shapiro, 1996), the "paradox of voting" represents one of the main failures of rational choice theory as it evidences the theory's inability to explain actual political behavior.

[2]This condition follows from solving the following inequality: $p_1(u_x - C) + p_2(u_x - C) + p_3(u_x - C) + p_4 \frac{u_x+u_y}{2} - C + (1 - p_1 - p_2 - p_3 - p_4)(u_y - C) > p_1 u_x + p_2 u_x + p_2 \frac{u_x+u_y}{2} + p_4 u_y + (1 - p_1 - p_2 - p_3 - p_4)u_y$. The resulting condition is analogous to condition (1) in Ferejohn and Fiorina (1974), which obtains by setting $u_x = 1$ and $u_y = 0$.

[3]Gelman et al. (1998) write that they "estimate the (prospective) probability that a single vote will affect the outcome of the U.S. presidential election to be very low, typically of order of magnitude 1 in 10 million, rising to as much as about 1 in 1.5 million for some small states in some close elections (...) and less than 1 in 100 million for all states in landslide elections such as 1972."

2.3.2 Solution 1: Minmax Regret Approach

Another limitation of the assumption of expected-utility maximization is that it may be unrealistic to assume that state-of-the-world probabilities are known. If a voter assumes that everyone else has no incentive to participate, the likelihood that her vote is decisive becomes large, and therefore this individual might decide to participate. If individuals interact strategically in this manner, state-of-the-world probabilities become difficult to assess. As noted by Ferejohn and Fiorina (1974), this situation may be more accurately described as one of decision under uncertainty (where state-of-the-world probabilities are not known) than one of decision under risk (where state-of-the-world probabilities are known, as above). Ferejohn and Fiorina (1974) propose an alternative decision-theoretic approach where individual behavior is independent from state-of-the-world probabilities. According to this alternative theory, individuals choose the action that minimizes their maximum regret, where the regret is defined as "the difference between what the decision maker could have attained had he known the true state of nature before he chooses his action and what he actually obtains" (Ferejohn and Fiorina, 1974, page 528). Table 2.2 gives a "regret matrix" containing the utility obtained by the voter by engaging in each possible behavior, under each state of the world:[4]

	s_1	s_2	s_3	s_4	s_5
Support x	C	C	0	0	C
Support y	C	$\frac{u_x-u_y}{2}+C$	u_x-u_y	$\frac{u_x-u_y}{2}$	C
Abstain	0	0	$\frac{u_x-u_y}{2}-C$	$\frac{u_x-u_y}{2}-C$	0

Table 2.2: Regret Matrix.

Assuming costs are small relative to the utility differential (specifically, assuming $C < \frac{u_x-u_y}{2}$) an individual participates in support of her favorite alternative instead of abstaining, if the following condition holds: $\frac{u_x-u_y}{4} > C$; or letting $B = u_x - u_y$, if:[5]

[4] Table 2.2 is equivalent to Table 3 in Ferejohn and Fiorina (1974), except that the authors set $u_x = 1$ and $u_y = 0$. Regrets are computed by considering the utility associated with the utility-maximizing behavior under each state (given by column maximums in Table 2.1), and subtracting the utility associated with each cell in Table 2.1. For instance, the regret associated with supporting alternative x under state s_1 is computed as u_x (the maximum utility that may be obtained given the state of the world), minus $u_x - C$. This computation yields the value C given in the corresponding cell of Table 2.2.

[5] This condition is analogous to condition (2) in Ferejohn and Fiorina (1974), which obtains by setting $u_x = 1$ and $u_y = 0$.

$$\frac{B}{4} > C$$

In contrast to the utility-maximization approach, the minmax regret approach results in a participation condition that does not depend on the probability that an individual is decisive for the outcome. As long as participation costs are small compared to the benefits of affecting the collective decision, this theory is capable of explaining large participation rates.

But the minmax regret criterion has also been criticized as unreasonable (Beck, 1975b; Mayer and Good, 1975; Tullock, 1975). Mayer and Good (1975) argue that the decision situation should not be characterized as one of risk, nor as one of uncertainty. Instead, they claim that "there is an entire continuum of situations interposable between the two," and that the minmax regret approach is inappropriate as "it ignores relevant information" (page 916). Likewise, Beck (1975b) argues that even if state-of-the-world probabilities are unknown, rational individuals should be aware that the likelihood of being decisive for the outcome is very small and behave as if the situation were one of decision under risk, by "comparing the near certainty of a small loss against the near impossibility of a large gain" (page 918). Tullock (1975) describes an additional limitation of the minmax regret approach in an electoral context: if individuals disregard state-of-the-world probabilities, then voters who would prefer being elected themselves rather than seeing another candidate get elected should write in their own names (whenever possible) and vote for themselves.[6]

2.3.3 Solution 2: Game Theoretic Approach

In the basic expected-utility framework described at the beginning of this section, individuals took others' behaviors and state-of-the-world probabilities as given. One of the criticisms of this approach is that if rational individuals use all available information, then they should expect other individuals to face similar incentives. If voting costs are large relative to the expected benefits associated with participation, no one should vote; but then, if no one votes the individual suddenly faces incentives

[6] In their response, Ferejohn and Fiorina (1975) find no evidence that the closeness of the election affects turnout decisions, and conclude that while there is no empirical evidence in favor of the expected utility maximization theory, the evidence does not allow rejecting the minmax regret criterion "*as a descriptive model of the turnout decision*, regardless of its weaknesses as a prescriptive theory of decision making" (page 925).

to participate, as the probability of being decisive becomes non negligible; but if all individuals have similar expectations, many will decide to vote instead of abstaining; and so on. The main criticism posed by Ferejohn and Fiorina (1974) is that if individuals interact strategically, then state-of-the-world probabilities are not known a priori and the expected-utility criterion cannot possibly be applied.

Ledyard (1978, 1984) and Palfrey and Rosenthal (1983, 1985), develop game-theoretic models of voter behavior that are consistent with the concept of expected utility maximization, but where voters interact strategically, make their decisions simultaneously, and state-of-the-world probabilities are determined endogenously. According to Palfrey and Rosenthal (1983), models that ignore the simultaneity of voter decisions do not lead to "a true paradox" but to "a logical fallacy" (page 10).

Suppose that every individual knows the probability that any randomly-selected participant supports x, y, or abstains, and denote these probabilities r_x, r_y, and r_a. The probability of casting a decisive vote in favor of one of the candidates can be written as a function of these probabilities, as $p_x = f(r_x, r_y)$, and $p_y = f(r_y, r_x)$. According to Ledyard (1984), if individuals have rational expectations, then they should evaluate probabilities r_x and r_y based on the distribution of issue positions and voting costs across the electorate. If this is the case, the probability that a randomly-selected individual participates and supports x is a function of the probability of creating or breaking a tie in favor of candidate x (meaning that r_x is a function of p_x). Thus, the probability of casting a decisive vote for candidate j and the probability that any randomly-selected participant supports x, y, or abstains, are mutually dependent. Ledyard (1984) writes that "a fully rational voter with fully rational expectations will require these calculations to be consistent with one another, and will be able to compute the values of [r_j's] and [p_j's] for which consistency obtains" (pages 8-9). He shows that equilibrium turnout is positive under certain conditions and concludes that "contrary to naive expectations based on partial equilibrium analysis, a full rational general equilibrium consideration of voter behavior yields positive turnout in equilibrium unless each voter refuses to vote even when they know they are the only voter."

Palfrey and Rosenthal (1983) also show that the probability of voting is not always negligibly

small in large electorates. As in Ledyard (1978, 1984), they determine individual voting probabilities simultaneously with the probability that a voter is decisive for the election outcome. The main difference between their approach and Ledyard's is that all voters face the same voting costs, and belong to one of two teams, where one team prefers alternative x (team T_1), and the other team prefers alternative y (team T_2). Within this framework, there is no room for indifference between alternatives—a situation that arose in Ledyard's framework when candidates chose the same platforms and resulted in lack of turnout in equilibrium. Palfrey and Rosenthal's main findings is that two types of equilibria may occur in large electorates: equilibria where almost no one votes, and equilibria where a large proportion of the electorate votes.[7] Additionally, they find that turnout might be large in situations where the majority is much larger than the minority, or where voting costs are very high; and that turnout might actually be increasing in voting costs.[8] Palfrey and Rosenthal's analysis also has important implications for representation, as they find that "the actual split of the vote is likely to be a biased measure of the actual distribution of preferences of the electorate. Because majorities will have greater incentives to free ride, they will turn out less heavily than minorities" (page 47).

Palfrey and Rosenthal (1985) extend their analysis of participation in elections to situations where voters may experience different types of "strategic uncertainties"; specifically: uncertainty about participation decisions, preferences, and voting costs experienced by other voters. The analysis done in this second paper is similar to Ledyard's study of voter behavior, in the sense that voters know their own characteristics (preferences and voting costs) but not the ones of other voters. However, voters know about the distribution of preferences and voting costs across the population, and can use this information to construct beliefs about others' behavior. In contrast to Ledyard, Palfrey and Rosenthal allow for negative voting costs, which may obtain when individuals derive consumption benefits from the act of voting.[9] Their results differ considerably from the ones discussed

[7] Specifically, a proportion that equals $2m$, where m is the size of the minority group as a proportion of the electorate.

[8] This may happen in situations where "all voters on a team must increase their [turnout] probabilities in order for the probability of being pivotal to increase and offset the increase in cost" (page 42).

[9] The discussion of consumption benefits associated with participation is studied in some depth in the expressive voting section of this chapter.

in the previous paragraph: once strategic uncertainty is introduced, the large turnout equilibrium disappears and the only voters are those who derive consumption benefits from voting. Thus, they conclude that "we have come full circle and are once again beset by the paradox of not voting" (page 64).

Uncertainties considered by Palfrey and Rosenthal (1985) are restricted to imperfect information about others' behavior, and incomplete information about others' preferences and voting costs. The authors mention that it is also possible that voters are uncertain about policy outcomes associated with the victory of each alternative, yet claim that this type of uncertainty is "of no consequence" to the strategic interaction between voters, as "each citizen will simply replace the final lottery with its expected utility value" (page 62). But if voters are risk averse, uncertainty about the outcome associated with each alternative may affect participation decisions. For instance, uncertainty about candidate issue positions may result in utility loss and affect the relative preference for the different candidates (Alvarez, 1997). Since the participation decision follows from a comparison of expected benefits and costs, to the extent that voters are risk averse, uncertainty about policy outcomes may affect equilibrium turnout rates (Wilson, 2003). Feddersen and Pesendorfer (1996) take issue with Palfrey and Rosenthal's assumption regarding the impact of voter uncertainty about policy outcomes, and show that imperfect information about policy outcomes may affect participation as some individuals may decide to abstain to avoid "the swing voter's curse" and contribute to the achievement of a full information outcome.[10]

[10]Feddersen and Pesendorfer (1996) consider a setting where there are two alternatives, one associated with a good outcome, and one associated with a bad outcome. While some voters are informed and know the true state of the world (that is, which alternative leads to the good outcome), other voters are uninformed and only have prior beliefs about the probability that each alternative is associated with a good or bad outcome. Authors argue that, under these conditions, rational voters should not only consider their own private information, but also the information possessed by other voters. Behaving naively, by deciding according to expected utilities computed based on private information would lead to the "swing voter's curse": if uninformed voters support the alternative with the highest probability of a good outcome, the only situation where an uninformed voter may be pivotal for the election outcome is when informed voters (who know the true state of the world) support the other alternative, and the swing voter causes the victory of the wrong alternative. According to the authors, uninformed voters can avoid the curse by abstaining. Specifically, they argue that "abstention is an optimal strategy because it maximizes the probability that the informed voters decide the election" (page 409-410). Battaglini et al. (2010) test Feddersen and Pesendorfer's predictions in a laboratory setting and find strong support for the theory.

2.3.4 Solution 3: Expressive Incentives

In previous sections, I discussed theories of voter turnout that assumed individuals are selfish and short-term instrumentally motivated. Most of the theories that deal with the paradox of participation outside a purely rational choice framework relax one of the following three assumptions: that prospective participants perceive probabilities objectively, that they only consider their own participation benefits, and that they solely care about affecting political outcomes. Expressive choice theories focus on relaxing the last assumption, and take into account non-instrumental factors that may affect individual's participation decisions. Yet scholars do not always agree about what constitutes "expressive value": while some refer to psychological "consumption" benefits associated with the voting act (Palfrey and Rosenthal, 1985; Riker and Ordeshook, 1968); others refer specifically to the desire to express a social identification, such as attachment to a group or political party (Engelen, 2006; Fiorina, 1976; Schuessler, 2000); and still others refer to individuals' reactions to deeply-held values or social expectations (Engelen, 2006).

At the heart of the discussion about the role of expressive motivations lies the question of what constitutes a rational decision. According to Downs (1957), "rational behavior [is] directed primarily toward selfish ends" and individuals vote for the party providing the largest expected benefits. But Downs himself falls into a contradiction when—trying to deal with the paradox of voting—he claims that individuals vote in order to contribute to the maintenance of democratic institutions, which he calls the "long term participation value." If turnout rates are large, the abstention of a single individual is unlikely to hurt democracy. And, conversely, if most prospective voters abstain, the participation of a single individual is unlikely to prevent others from perceiving election outcomes as lacking representativeness and being skeptical about the health of the democratic system. Democratic institutions are a public good, and as a result selfish individuals should face incentives to free ride on the participation of others. Thus, Down's solution to the paradox of voting contradicts his definition of individual rationality (Barry, 1978).

Instead of solving the paradox by assuming individuals vote to contribute to the provision of a public good, Riker and Ordeshook (1968) argue that individuals may be driven by a desire to enjoy

non-instrumental benefits associated with participation. Among the list of satisfactions that may result from the voting act, Riker and Ordeshook include the "the satisfaction from compliance with the ethic of voting", as well as satisfaction from affirming an "allegiance to the political system" and to a partisan preference. Within this framework individuals do not simply react to a feeling of "citizen's duty" by participating whenever these feelings are present, but incorporate these psychological considerations into the calculus of voting. If voting costs exceed the satisfaction resulting from behaving in line with feelings of citizens duty, then even individuals with a strong commitment to the political system may decide to abstain. Also, note that the type of non-instrumental incentives considered by Riker and Ordeshook differ from Olson's "selective incentives": while the latter consist of economic goods and services enjoyed exclusively by interest group members—such as services provided by a union to union members—the former are psychological in nature.

In simple decision-theoretic terms, Riker and Ordeshook's argument can be represented formally using the following expression:

$$U_i = P_i \times B_i - C_i + D_i$$

where U_i is the utility associated with the voting act, P_i is the probability that the individual is decisive for the election outcome, B_i is the expected individual benefit associated with the victory of the favorite alternative, C_i represents participation costs, and D_i represents psychological consumption benefits associated with the voting act. According to this theory, individuals evaluate instrumental and non-instrumental benefits of voting, and participate whenever these benefits exceed participation costs:

$$P_i \times B_i + D_i > C_i$$

Fiorina (1976) studies the impact of psychological cross-pressures on political participation using a "hybrid model" that incorporates both instrumental and expressive factors. The main difference with respect to Riker and Ordeshook's model is that expressive benefits vary across alternatives,

and are a function of the strength of partisan attachments. Specifically, the individual perceives utility ("psychic satisfaction") whenever voting in line with his partisan preference, and disutility ("psychic cost") when voting against it. In Fiorina's model, "cross-pressured" individuals are those who prefer a certain party, but whose instrumental benefit (B) motivate them to vote for some other party, and "consistent" individuals are those whose instrumental calculations motivate them to vote in line with their partisan identification. Contrary to what is found for consistent individuals, who behave in line with standard models, Fiorina finds that instrumental benefits and the closeness of the election may have a negative impact on the probability that cross-pressured individuals participate in the election.

Schuessler (2000) expands the theory of expressive voting, but in a different direction. The author claims that Riker and Ordeshook's theory is limited because it treats the non-instrumental term as a residual and simply attributes to it everything that cannot be explained by the instrumental part of the model. According to Schuessler, individuals participate as a result of a desire to acquire and express a social identification, such as partisan identification, and to attach themselves to outcomes. By participating, voters "express who they are, and they attach to a collective they feel is like them" (Schuessler, 2000, page ix). Moreover, voters "purchase [themselves] the status of outcome-producers" (Schuessler, 2000, page 23). Individuals do not only want to express an identification, they also want to acquire it: someone is not perceived nor feels like a Republican unless she votes for a Republican candidate or the alternative endorsed by the Republican party; the vote is a form of "self-definition" (Schuessler, 2000, page 5).

Additionally, Schuessler argues that the "expressive value" of participation varies by alternative as a function of *who else* and *how many* participate in favor and against each alternative. The author also argues that the "expressive value" may be negatively related to factors affecting instrumental benefits such as the probability of being decisive for the election outcome, and positively related to participation costs such as the time spent waiting in line to cast a ballot. Schuessler's argument has important implications for the design of political campaigns. In order to increase the perceived expressive value of participation to voters, candidates must sometimes harangue voters with arguments

that have a negative impact on instrumental incentives, like portraying themselves as sure winners. Moreover, candidates may resort to strategies such as "symbolic ambiguity" to produce "multiple meanings" intended to attract a many voters as possible (Schuessler, 2000). Since expressive value is modeled as a function of who else and how many others participate in support of the candidate, and "emerges from social practice," Schuessler concludes that that "symbolic value is endogenous" to the voting act and not exogenous as was assumed in previous theories of expressive voting.

Schuessler's theory has several aspects in common with the social movements approach, where the importance of "collective identity" and "identity construction" is often emphasized. For instance, in discussing the formation of social movements, Tarrow argues that in addition to "a 'pull' toward particular forms of collective actions and targets ... the 'push' of solidarity and collective identity is also required" (Tarrow, 1998, page 266). The idea that prospective participants may perceive participation costs as a benefit is also parallel to ideas discussed in the social movements literature, where scholars have claimed that rather than perceiving collective action as a costly activity as Olson assumed, individuals may perceive collective action itself as a benefit (Tarrow, 1998, page 29). Finally, the emphasis on the relevance of symbols and meanings constitutes another commonality between Schuessler's logic of expressive choice and sociologists' explanation of social movements. The main difference between both approaches is that while sociologists see individuals as "responding" to changes in political opportunities and other stimuli, Schuessler develops a model of "micro-level incentives" where, very much in line with Riker and Ordeshook, expressive considerations enter the utility function of prospective participants.

Similar to the social movements' approach, and contrary to rational choice and expressive choice theories of voting discussed so far, Engelen (2006) argues that individuals do not engage in reasonable deliberation, comparing participation benefits and costs, but simply respond to stimuli, values, or social expectations. Engelen claims that "rationality does not require standard instrumental cost-benefit analysis." Instead, he defines "as rational those acts that are based on considerations which the individual itself judges to be reasons worth acting on." If the individual considers that belonging to a particular social group implies, by definition, participating and voting in a certain

way—regardless of his preferences over alternatives—Engelen interprets this behavior as rational. Specifically, the author argues that "if certain things are constitutive of my identity, I will decide to base my actions upon these, irrespective of whatever enjoyment this may yield me" (page 9). Among the "intermediary variables" guiding participation decisions, Engelen includes commitments, loyalties, moral principles, feelings of duty, and "democratic awareness." In particular, he writes that "voting is not a means to experiencing utility, but simply a way of living up to social expectations, norms and values that stipulate what it is to be a good citizen."

2.4 Empirical Evidence

Scholars have expressed concerns about the testability of the theories described in previous sections, specially those theories that extended the basic rational choice model to take into account a variety of non-instrumental considerations. For instance, Wolfinger and Rosenstone (1980, page 10) write that "like other formulations that in principle explain everything, cost-benefit calculations run the risk of explaining nothing (...). This is particularly true when all manner of tangible and emotional benefits and cost are included." Similarly, Verba et al. (1995, pages 283-84) argue that "once the range of selective benefits is, as it must be, enlarged to encompass such psychic benefits as the satisfaction attendant to doing one's civic duty, political participation delivers more than enough benefits to satisfy any rational actor. The theory, however, becomes almost unfalsifiable once we enlarge the set of benefits and, thus, loses its analytical bite."

Instead of focusing on testing instrumental choice theories that cannot possibly explain observed levels of political participation, or expressive choice theories that are capable of explaining any observed behavior, most empirical studies have followed one of two alternative paths.[11] One path is the one followed by Wolfinger and Rosenstone (1980) who do not try to explain overall levels of political participation, but concentrate on examining the comparative statics of a Socio-Economic

[11] Although note that there have been notable attempts at testing instrumental choice theories of political participation, including studies that measured the impact of the closeness of the election on aggregate voter turnout which have usually found a weak relationship between this variable and political participation Ferejohn and Fiorina, 1975; Cox, 1988, and studies that have looked at the impact of issue distances on voter turnout by modeling individual participation in elections simultaneously with voter choice (Sanders, 1998, 2000).

Status (SES) model—specifically, they focus "on differences among the turnout rates of different types of individuals rather than trying to explain why anyone bothers to vote" (Wolfinger and Rosenstone, 1980, page 10). The other path is the one followed by Verba et al. (1995, page 23) who choose to "pay attention to the cost side of the cost-benefit calculus." The model that they develop, a re-interpretation and extension of the more basic SES model termed the Civic Voluntarism Model (CVM), "highlights the resources necessary to bear the costs of various kinds of activity and the way in which a given configuration of resources enhances, or places constraints on, the ability to participate in politics" (Verba et al., 1995, page 285).

Generally, empirical studies have avoided looking at the benefits side of the participation decision, and instead have focused on testing narrow comparative statics hypotheses or studying the costs side of the participation decision. This explains the misalignment or lack of overlap between the subject of theories of political participation and the subject of empirical studies of political participation. While theorists have focused on developing more compelling accounts of the benefits side of the cost-benefit analysis, empiricists have focused on measuring the effect of differences in specific individual attributes and interventions, or studying the impact of barriers to participation and ability to overcome these barriers. The paradox underlying this observation is that the motivation for incorporating non-instrumental considerations into the theoretical analysis of political participation was to produce "descriptive" theories capable of explaining observed levels of political participation (Riker and Ordeshook, 1968), yet these extended theories of political participation have been found to explain too much of the observed behavior, even to the extent of becoming non-testable.

Inasmuch as there is wide disagreement about the factors affecting the benefits side of the cost-benefit analysis, everyone agrees that participation costs matter; not only political scientists but also policy makers, as evidence by the fact that policies directed at increasing turnout rates have usually focused on reducing participation costs (see Section 2.4.3).[12] Most of the theories discussed in previous sections assume that the benefit or gratification from participation must exceed participation costs. But the attention paid to participation costs has been much greater in the empirical

[12]Even scholars that focus on expressive accounts of political participation highlight the importance of participation costs. For instance, Schuessler (2000, page 95) writes that "the presence of C_i gives us a sense of the magnitude this expressive utility must take on in order to drive the voter to the polling booth."

literature. Among other things, scholars have measured the impact of factors that affect individuals' abilities to bear participation costs, such as education and occupation (Wolfinger and Rosenstone, 1980), access to politically-relevant resources, including money, time, and civic skills (Verba et al., 1995), personal and national economic conditions (see Section 6.2.1), and legal barriers to participation (Rosenstone and Wolfinger, 1978). Next, I summarize some of the main factors that have been considered in the empirical literature on political participation, as well as some of the main results.

2.4.1 Socio-Economic Status and Resources

According to Verba and Nie (1972), the main idea underlying this Socio-Economic Status (SES) model of political participation is that "individuals of higher social status develop such civic orientations as concern for politics, information, and feelings of efficacy, and these orientations in turn lead to participation" (Verba and Nie, 1972, page 126). The indicator of socio-economic status that has been found to have the most consistent positive relationship with political participation is educational attainment (Leighley and Nagler, 1992a; Verba and Nie, 1972; Wolfinger and Rosenstone, 1980; although see Kam and Palmer, 2008). The interpretation of this relationship is that education contributes to the development of cognitive skills, psychological involvement, and politically-relevant skills, which in turn increase individuals' abilities to bear participation costs (Lewis-Beck et al., 2008; Wolfinger and Rosenstone, 1980).[13] Still, some scholars have argued that the impact of education is not direct but mediated by more proximate motivational determinants of political participation, such as political involvement and sense of citizen's duty (Verba et al., 1995). The discussion in the empirical literature is not limited to the average effect of education, but also to how these effects vary across individuals with different baseline participation propensities, for instance, across minimally- and highly-educated individuals, as well as how education mediates the impact of other factors such as voter registration laws (Wolfinger and Rosenstone, 1980; Nagler, 1991).

[13]For instance, Wolfinger and Rosenstone (1980, pages 35-36) write that education "increases cognitive skills, which facilitates learning about politics. Schooling increases one's capacity for understanding and working with complex, abstract, and intangible subjects such as politics. This heightens one's ability to pay attention to politics, to understand politics, and to gather information necessary for making political choices. Thus education is a resource that reduces the costs of voting by giving people the skills necessary for processing political information and for making political decisions." Also, the authors argue that " schooling imparts experience with a variety of bureaucratic relationships: learning requirements, filling out forms, waiting in lines, and meeting deadlines. This experience helps one overcome the procedural hurdles required first to register and then to vote."

Another socio-demographic variable that has been found to have a substantial impact on participation is age. While some scholars have found that the impact of age on political participation is non-linear, that it increases until middle-age and then decreases (Almond and Verba, 1963; Campbell et al., 1964; Nie et al., 1974), others have found that the impact is always increasing (Wolfinger and Rosenstone, 1980). Nie et al. (1974) argue that the bell-shaped effect of age on political participation can be explained based on a "startup" and "slowdown" account. Reasons given for the relatively low levels of participation of the young are different from the reasons given for the relatively low levels of participation of the old. The young have difficulties starting up as they do not have enough reasons to be concerned about politics. According to Nie et al. (1974, page 333) motives for participation come "with extended residence in a locality, full involvement in the work force, marriage, and a family." In contrast, the reason participation slows down among the old is that they experience a "psychological withdrawal" after retiring from the work force, as well as "physical infirmities and fatigue that lower the rate of participation in political activities." Wolfinger and Rosenstone (1980) provide a different account of the effect of age. These authors argue that after controlling for individual attributes such as education, participation increases constantly with age, and that the increase can be explained by the experience accumulated throughout the years, which helps compensate for the lack of education for some individuals.

It is beyond the scope of this chapter to discuss in detail all of the factors that have been found to have an impact on political participation, but other socio-demographic variables that have often been found to have a positive effects on participation include income, male gender, White race, certain occupational categories that contribute to the acquisition of politically-relevant skills, being married, and length of residency at the same address.

2.4.2 Psychological Motivations and the Civic Voluntarism Model

Scholars have also studied the impact of psychological factors on political participation. Campbell et al. (1964), in particular, discuss the impact of partisan intensity, concern over the election outcome, feelings of political efficacy, and sense of citizen duty on voter turnout. They find that strength of

partisanship and sense of citizen duty are positively associated with voter turnout. Still, it is worth noting that Campbell et al. (1964) only look at bivariate relationships—that is, they do not control for differences in socio-demographic attributes that might affect both partisan intensity and voter turnout—and this omission might lead to biased inferences. Moreover, the authors acknowledge that past attitudes might affect voter turnout in subsequent elections, and that this may lead to downward biased measures of the impact of psychological factors for a particular election. It is also possible that past turnout affects current political engagement, which in turn affects current turnout. Disregarding the recursive relationship between psychological factors and participation might also lead to biased estimates. The difficulties associated with measuring the effect of political engagement on political participation are discussed in more detail in Chapter 5.

Concerned about the weak theoretical foundations of the SES model, Verba et al. (1995) develop a theory of political participation called the Civic Voluntarism Model (CVM), which delineates a causal mechanism behind political participation. This theory claims that political participation is the result of causal relationships between socio-demographic characteristics, life events and experiences, involvement in non-political institutions, access to politically-relevant resources, and political engagement. In particular, they argue that political participation does not emerge from a black box where all sorts of factors are mixed at random, but that a clear causal mechanism underlies political participation: initially, individuals come into the world carrying *intrinsic characteristics* such as their gender, race or ethnicity, and education of their parents. These characteristics subsequently affect *pre-adult experiences*, such as educational attainment, religion, and the degree of exposure to politics at home. After that, individual characteristics and pre-adult experiences determine individuals' *institutional involvement* in non-political organizations such as the level of church attendance. Later, the previous three features influence the accumulation of *politically-relevant resources* such as household income, availability of free time, and organizational and communication skills, as well as *political engagement*, including interest in politics, political knowledge and information, and strength of partisanship. Ultimately, it is the complete set of factors, causally connected to each other, that determines the types of political activity chosen by the individual (if any), as well as the "amount"

of participation contributed, such as the amount of money donated to a campaign, number of letters written to a public official, or hours dedicated to campaign work.

2.4.3 Legal Barriers to Participation

Studies of voter turnout have paid much attention to the impact of electoral laws on political participation. Until the 1960s, voters in several American states needed to overcome many hurdles in order to be able to cast a ballot, including polling taxes, literacy tests, strict residency requirements, and registering to vote in person before Election Day (Rosenstone and Wolfinger, 1978; Wolfinger and Rosenstone, 1980). These requirements were often unequally implemented, and resulted in the disenfranchisement of certain demographic groups, particularly Southern Blacks. In response to the claims of the Civil Rights Movement, polling taxes were abolished by constitutional amendment and a subsequent Supreme Court ruling in 1964-1966, and literacy tests were banned by the 1965 Voting Rights Act (VRA). The VRA additionally limited residency requirements to no more than 30 days, and allowed voters to register by mail. But several barriers to voting remained, as until today voters still have to go through a two-stage process in order to be able to cast their ballots: first register to vote, and then go to the polling place on Election Day.[14] Moreover, some states make the process even more costly by requiring voters to re-register periodically or after not voting for a certain period, or by having early registration closing dates. Wolfinger and Rosenstone (1980) found that the easing of registration requirements, particularly moving registration closing date closer to Election Day, has a positive and significant impact on voter turnout, particularly for citizens with low socio-economic status (although see Nagler 1991). In spite of these reforms, aggregate turnout levels did not increase but decreased until the late 1990s.

The 1993 National Voter Registration Act (NVRA) was passed by Congress with the intent of making registration even more convenient, by allowing voters to register in a variety of locations, such as the Department of Motor Vehicles (DMV) while carrying out other common transactions such as renewing their driver's license or notifying the DMV of a change of address (this is why

[14] According to Wolfinger and Rosenstone (1980, page 61), "registration is usually more difficult than voting, often involving more obscure information and a longer journey at a less convenient time, to complete a more complicated procedure. Moreover, it must usually be done before interest in the campaign has reached its peak.

this reform is commonly referred to as "Motor Voter"). In spite of the further flexibilization of registration procedures, turnout continued to decrease during the 1990s. In response to the continued decline in turnout, several states introduced or considered additional reforms, such as allowing voters to register at the polls on Election Day (EDR), allowing no-excuse absentee and early voting, with some states even moving to all by-mail elections. So far, empirical evidence regarding the success of these reforms has been mixed, with some studies finding that some of these reforms had a positive impact on voter turnout, others finding that NVAR only increased "nonvoting registrants" (Wolfinger and Hoffman, 2001), and yet others finding that the composition of the electorate changed significantly as a result of these reforms. Berinsky (2005) does a review of recent literature on the impact of some of convenience voting reforms, and argues that they usually benefited high-socio-economic status individuals, although Alvarez et al. (2002) find just the opposite with respect to EDR. Other reforms that have been proposed, but have not been implemented on a wide-scale in the United States, include Internet voting, automatic registration through a national registry system, and moving Election Day to weekends or making it a holiday (Alvarez et al., 2011b).

But not all electoral reforms enacted in recent years were introduced with the intention of increasing voter turnout. Other reforms were passed with the idea of preventing voter fraud, preserving the integrity of the electoral process, and increasing the perceived fairness of the election outcome. After the problems that occurred during the 2000 presidential election in Florida, Congress passed the Help America Voter Act (HAVA) in 2002 to improve the administration of elections in the United States. Among other things, HAVA imposed photo identification requirements on voters who register by mail for the first time. Following HAVA, some states imposed even stricter requirements and now require all voters to present photo identification at the polls. Alvarez et al. (2011a) find that strict photo identification requirements have a negative impact on voter turnout, particularly among low-socio-economic status populations. Nonetheless, not all HAVA reforms are likely to have a negative impact on voter turnout; other changes, like requiring provisional ballots be given to voters who were incorrectly purged from the voting rolls, making polling places and voting devices accessible to disabled voters, and requiring the availability of foreign language ballots in polling

places where the minority language population exceeds 5%, are all changes likely to be conducive to larger proportions of voters being able to successfully cast their ballots at the polls and therefore to greater voter turnout.

A trade-off must be considered when assessing the impact of reforms intended to preserve the integrity of the electoral process. While reforms like requiring photo identification might impose additional hurdles on voters and make voting more costly, they might have a positive indirect impact on voter turnout through their effect on attitudes such as voters' confidence that their votes will be correctly counted. Other changes promoted by HAVA, such as the replacement and certification of voting systems, might also be conducive to greater voter confidence. Alvarez et al. (2008) found that attitudes toward the electoral process and particularly voting technology affect voter confidence significantly, and argue that the latter factor in turn can have considerable effects on voter turnout. In a study of voting in the 2006 general election in Mexico, Levin and Alvarez (2009) found that a related concept—voters' confidence in the cleanness of the electoral process—has a positive effect on voter turnout.

Legal barriers do not only limit voter turnout, they may also affect involvement in non-electoral political activities. Levin (2011) tests whether Latino immigrants who have acquired American citizenship—and therefore have already cleared the hurdle of the naturalization process—participate more than non-citizen Latino immigrants in non-electoral activities such as contacting officials and participating in the activities of groups and organizations. There are several reasons why non-citizen status may have a negative impact on participation in political activities in the host country, including lack of interest in public affairs, believing that immigrant participation is inappropriate, and fear that participation may trigger deportation. Even though naturalization may contribute to overcoming some of these limiting factors, many immigrants do not naturalize because they lack the necessary documents, are not confident in their ability to go successfully through the naturalization process, or distrust immigration authorities. Levin (2011) found that while non-citizen Latino immigrants are as likely as their naturalized counterparts to participate in the activities groups and organizations, or to solve problems with others, naturalized immigrants are considerably more

likely to contact non-Latino government officials.

2.4.4 Mobilization and Recruitment Efforts

Rosenstone and Hansen (1993, page 25) define mobilization as "the process by which candidates, parties, activists, and groups induce other people to participate" and distinguish between two types of mobilization: direct (such as door-to-door canvassing, direct mail, or tv appeals), and indirect (when mobilization is done through some intermediary contact). Rosenstone and Hansen (1993, page 28) highlight the role of social networks, and argue that "social networks multiply the effect of mobilization: direct mobilization reverberates through indirect mobilization." Since campaigns, groups, and movements count with limited resources, leaders and campaign managers need to employ mobilization strategies. According to the authors, the most likely targets of mobilization campaigns are: activists' close contacts, individuals centrally-located within social networks, individuals who can make a significant contribution to the outcome, and people who are likely to respond positively to mobilization requests.[15] Previous studies have found that political participation increases as a result of mobilization efforts (Rosenstone and Hansen, 1993; Verba et al., 1995), in spite of the fact that most participation requests are turned down (Verba et al., 1995).

There is an increasing number of studies that use field experiments to gauge the effectiveness of voter mobilization efforts (Adams, 1980; Alvarez et al., 2010; Arceneaux, 2009; Eldersveld, 1956; Gerber and Green, 2000; Gerber et al., 2003; Gerber and Green, 2004; Green et al., 2003; Gosnell, 1927; Nickerson, 2006, 2007). In recent years scholars have also used field experiments to study how participation is affected by targeted advertising (Clinton and Lapinski, 2004), newspaper subscriptions (Gerber et al., 2009), and get-out-the-vote tactics under conditions of social pressure and interpersonal influences (Gerber et al., 2008; Gerber and Rogers, 2009; Nickerson, 2008). The main advantage of field experiments, relative to observational studies, is that the randomized administration of the treatment guarantees that effects are measured without bias.[16] Moreover, in contrast

[15]Regarding the implication of mobilization for political representation, Rosenstone and Hansen (1993, page 33) argue that mobilization strategies "exacerbate rather than reduce the class biases in participation" as they imply "efforts to move the organized, the employed, the elite, and the advantaged into politics."

[16]The main difference between *observational* and *experimental* studies is that scholars making use of observational data do not have control over the exposure of individuals to the variable whose effect they want to measure (the

to observational studies based on survey data, the outcome variable used to measure the effect of randomized mobilization efforts is actual turnout, based on public records, instead of self-reported figures. This feature of field experiments protects results from a second source of bias, which is the high incidence of turnout over-reporting in surveys of voter behavior (Silver et al., 1986; Burden, 2000; Katz and Katz, 2010; Sigelman, 1982). Still, field experiments may also lead to biased estimates whenever there are failures in randomization, problems of non-compliance (units assigned to control who receive the treatment, or vice-versa), or violations of the stable unit treatment value assumption (Rubin, 1980, 1986, 1990), such as spillovers or macro-effects of the treatment (Garfinkel et al., 1992; Heckman et al., 1998; Morgan and Winship, 1999). In recent years scholars have developed methods for measuring unbiased treatment effects in the presence of issues like non-compliance (Angrist, 1996). Also, there is ongoing debate about whether statistical methods such as matching are appropriate for correcting failures in randomization (Imai, 2005; Gerber and Green, 2005).

2.5 Conclusion: Limitations of Existing Theoretical and Empirical Approaches

This chapter summarized some of the main rational and expressive choice theories of political participation, as well as existing evidence regarding the determinants of individual involvement in political activities. I first described basic models of voting and collective action that assume that individuals participate when the expected benefit of affecting the outcome outweighs participation costs. Since the chance of affecting the outcome is exceedingly small for ordinary citizens, these models have been criticized for their inability to explain the non-zero observed levels of political participation. To overcome the limitations of the basic rational choice approach, scholars have extended the basic model by considering alternative decision rules, the strategic interaction between prospective participants, private and psychological benefits associated with political participation, or instead dismissed the rational choice approach in favor of theories that assume that individuals do not en-

treatment).

gage in reasonable deliberation but simply react collectively. But these alternative theories are also limited, as they either predict very small levels of political participation (as is the case with some of the main game theoretic accounts), or are not testable because they allow for the consideration of as many factors as necessary to account for the behavior of every prospective participant (as is the case with some of the main expressive choice accounts). None of these theories consider the possibility of heterogeneous populations, for example situations where some citizens are rational but others fail to consider the benefits and costs of political participation. In the next section I introduce a merged theoretical account that allows for the possibility of heterogeneous populations with different predispositions toward political participation. I term this theory the *dual-process* account of political participation. This new theory has the double advantage of being capable of explaining observed behavior and producing testable empirical implications.

On the empirical side, researchers have repeatedly criticized the limitations of existing theories, and focused on studying narrow questions related to the impact of specific covariates—particularly covariates related to individuals' ability to bear participation costs—and have avoided explaining observed levels of political participation. Even though it has been found that certain individual attributes such as socio-economic status exhibit consistent impacts on political participation, standard covariates explain very little of the variation in political participation. As is the case with the main theories of political participation, empirical models have disregarded the possibility of heterogeneous populations of citizens with different predispositions toward political participation. Standard empirical approaches explain participation in terms of observable individual attributes such as socio-economic status and systemic factors such as electoral laws in the individual's state of residence, and assume that after accounting for observable differences, individual identities do not matter. It is assumed that if two individuals look the same in terms of observable factors included in the model, any differences in behavior between both individuals happen completely at random. In this thesis I argue that the homogeneity assumption constitutes the main limitation of existing empirical approaches to the study of political participation, and show that imposing this assumption in the presence of heterogeneities leads to faulty inferences about baseline participation probabilities

and covariate effects.

In subsequent chapters I develop and apply a model that allows learning about individual participation propensities by looking at a wide range of political activities, that is consistent with the dual-process account of political participation. The model compares individuals with similar socioeconomic status and resources, and determines whether some of these individuals participate more or less than expected conditional on observable attributes. Finding that a respondent over- or underparticipates across activities is interpreted as evidence of a latent predisposition toward participation or abstention, respectively, and is used to classify respondents into latent types that differ systematically in their propensity to participate—which I term *participatory types*. This is possible because the method that I use relaxes the assumption of homogeneous distribution of other factors, and allows for learning about heterogeneities in political participation caused by systematic differences in the distribution of excluded or unobservable factors. Heterogeneities in the distribution of omitted factors may drive certain individuals to systematically participate more or less than others. After classifying survey respondents into a finite number of participatory types, individual-specific type-assignment estimates can be used to profile the different participatory types and determine whether excluded (but observable or measurable) factors are capable of explaining observed differences in behavior.

Chapter 3

A Dual-Process Account of Political Participation

3.1 Introduction

In this brief chapter I lay out the basis for a different theory of political participation that is supported by recent findings in cognitive psychology and to some extent constitutes a synthesis of the different theories of political participation discussed in the previous chapter. Instead of the emphasis being placed on whether decisions are guided by instrumental or expressive considerations, I focus on the way cognitive systems mediate and constrain individuals' ability to engage in rational thinking, and how underlying cognitive processes affect the relationship between expected utilities and participation decisions.

I define rationality similarly as it is usually defined in the economic and rational choice literature. Rational individuals are able to order all alternatives in a complete and transitive manner, and choose the highest-ranked alternative (Alvarez and Kiewiet, 2009; Alvarez et al., 2011c). In the context of political participation, rational individuals are those who behave as if they were expected utility maximizers, and who participate if expected benefits associated with participation exceed participation costs (Downs, 1957; Olson, 1965; Riker and Ordeshook, 1968). However, in step with what has been argued in other areas of the social sciences, I do not assume that individuals are perfectly rational, but that they are boundedly-rational (Simon, 1955).[1]

[1] In the past, bounded-rationality theories have been used to relax rationality assumptions in game-theoretic models, and have even been applied to the study of voter turnout in a laboratory setting (Battaglini et al., 2010). Existing

In order to engage in reasonable deliberation, individuals must be able to imagine themselves taking all possible courses of action: they must be able to visualize themselves participating and abstaining, as well as the consequences of each decision. As noted by Gilboa (2009, page 9), "whatever free will is, it is closely related to the ability to conceive of different possible worlds, differing only in one's choice and its consequences. The ability to think of such different worlds, if not simultaneously then at least in the process of making a single decision, is essential to rational choice." But not all individuals are capable or willing to engage in the type of abstract thinking required to imagine the different worlds associated with participation and abstention; some respond *naively* to feelings of what they should do in order to behave consistently with their social identifications, democratic values, and pressures placed upon them by the social environment (Engelen, 2006; McAdam et al., 2001; Tarrow, 1998); others, respond *strategically* by employing cognitive shortcuts intended to avoid the cost of engaging in reasonable deliberation (Mondak, 1993).

Instead of assuming that while some individuals behave in a perfectly rational manner others simply react automatically based on a variety of considerations, I argue in favor of a dual-process explanation of political participation. According to recent theories of cognitive processing, two cognitive systems (System 1 and System 2) underlie human reasoning and compete simultaneously to control individual behavior (Chaiken and Trope, 1999; Evans, 2003, 2008). System 1 processes are automatic, instinctive, and fast. In contrast, System 2 processes are controlled, slow, and allow "abstract hypothetical thinking" (Evans, 2003, 454). Some of the factors that affect System 1 processes include prior beliefs, heuristic processes, and previous behaviors and experiences. One of the main roles of System 2 processes constitutes "suppressing default knowledge and belief based responses" (Evans, 2003, page 454).[2]

Following a dual-process approach, I argue that the probability that an individual participates

bounded-rationality theories include: *Cognitive Hierarchy* theory (Camerer et al., 2004), which assumes that players have limited ability to anticipate other players' best responses; the *Quantal Response Equilibrium* concept (Goeree et al., 2008; McKelvey and Palfrey, 1995), which assumes that even though players are more likely to choose optimal actions, they sometimes choose sub-optimal actions by mistake; and the *Cursed Equilibrium* concept (Eyster and Rabin, 2005), which assumes that players underestimate the relationship between other players' actions and other players' private information.

[2]The inhibitory role of System 2 is reminiscent of what has been deemed a contradiction of rational choice: while rationality requires learning about regularities in the behavior of others and ourselves, the need to conceive of all possible states of the world (even those that seem impossible given past experiences) implies that as rational individuals we will often need to "suspend knowledge that we have about ourselves" (Gilboa, 2009, page 10).

in a particular political activity depends on a reasonable consideration of benefits and costs that affect the utility associated with participation, as well as the individual's ability to suppress automatic responses that predispose her to participate or abstain regardless of the expected utility of participation. To help distinguish between factors affecting behavior under each cognitive systems, I assume that while considerations underlying the hypothetical-thinking system are activity-specific, considerations underlying automatic responses are common to all forms of political participation. For instance, if strong partisan identifications predispose individuals to go to the polls on Election Day, they also increase the chance that individuals donate money or contribute in other ways to political campaigns. The same assumption is made regarding other factors that may affect automatic responses, such as extremism of issue positions and sense of civic duty. However, I do not make a priori assumptions about the direction or magnitude of the response produced by any of these factors. In subsequent chapters, I refer to individuals who are a priori predisposed to participating in political activities as "activists," and to individuals who are a priori predisposed to abstaining as "apathetics."

3.2 Considerations Underlying Automatic Responses

Table 3.1 lists some of the considerations that may affect cognitive processes under each system. I focus on those considerations that are likely to predispose an individual toward participation or abstention independently of the objective evaluation of the benefits and costs associated with participation, which are listed in the second column of Table 3.1.

[SEE TABLE 3.1]

Commitment to issue positions. In the previous literature, two opposite views exist regarding the impact of extreme issue positions. One branch of literature has argued that extreme issue positions lead to alienation and "policy-based abstention," as voters supporting extreme positions are not interested in supporting centrally-located candidates (Downs, 1957; Fiorina, 1999b; Katz,

2007). Another branch of literature has argued that extremists are more likely to participate in political activities than individuals with more moderate preferences, and that activists are more likely to hold extreme issue positions or "purist" orientations (Fiorina, 1999a, 2002), particularly primary voters (Legle, 1981; Polsby, 1983; although see Norrander, 1989; Geer, 1988), and party activists and national convention delegates (Roback, 1975; Soule and Clarke, 1970; Stone and Abramowitz, 1983).[3] I argue that both hypotheses are perfectly consistent with a dual-processing account of political participation. While extreme issue positions in the presence of centrally-located candidates may lead to low instrumental benefits from participation, they may simultaneously have a positive impact on an individuals' urges to express their preferences and opinions. If a researcher counts with enough information about participatory behavior of a sufficiently large set of individuals across multiple activities, then this hypothesis can be tested, as instrumental considerations are activity-specific but expressive considerations affect involvement in all activities.

Core values. In *The Civic Culture*, Almond and Verba (1963, page 178) argue that "[i]f a democratic political system is one in which ordinary citizens participate in political decisions, a democratic political culture should consist of a set of beliefs, attitudes, norms, perceptions, and the like, that support participation." According to the authors, if democratic institutions are introduced in a country or community but no "norms that one ought to participate" are in place, then a "participatory democracy" is unlikely to emerge.[4] Alvarez and Brehm (2002, page 18) define core values as "deeply held, widely shared, enduring beliefs." Authors argue that such considerations are used as a "foundation" for producing opinions on public issues. Likewise, it has been argued that core values are used as a basis for participation decisions (Engelen, 2006; Schuessler, 2000). Feeling a moral obligation to participate, such as a sense of citizen duty or beliefs about what it means to

[3]Fiorina (1999a, 2002) describes activists in a way that is more consistent with a System 1 type of thinking than the type of reasonable deliberation associated with System 2, and argues that activists are driven to participate by extreme issue positions. Specifically, Fiorina (1999a, 412) writes that "not only do the activists debate extreme alternatives ... purist 'true believers' have a style different from that of ordinary people. They place more weight on symbols (dubbed 'principles'), reject what appears to be reasonable compromises, draw bright lines where many people see only fuzzy directions, and label those who disagree with them as enemies." Also, Fiorina (2002, 528) writes that "the principal factor motivating [activists] is that they care deeply about the subject of their participation ... They are intense, and their intensity leads to their participation."

[4]Almond and Verba (1963, page 178) also argue that "before the norm that one ought to participate can be translated into the act itself, the individual will probably have to perceive that he is able to act." Consistently with the dual-processing explanation of participation, they write that "one can believe he ought to participate, but perceive himself as unable to do so. Or one can perceive himself as able to participate but not feel any obligation to do so."

be "a good citizen," may motivate individuals to vote on Election day or induce positive responses to participation requests, even when no economic or psychological satisfaction is associated with the participation act.

Social identifications. According to Miller et al. (1981, page 495), "group *identification* connotes a perceived self-location within a particular social stratum, along with psychological feeling of belonging to that particular stratum." Social or group identifications may lead to participation when the individual feels urged to express his attachment to the group by supporting policy alternatives preferred by most members, or voting for a candidate that belongs to the group (Fowler and Kam, 2007; Green et al., 2002; Schuessler, 2000); when group grievances have political implications and members become "politically aware" (Miller et al., 1981, page 495);[5] or when group identifications are used as efficiency heuristics (Abrajano and Alvarez, 2010; Downs, 1957; Popkin, 1991; Rahn, 1993).

The one social identification that has been linked not only to participation but to other forms of voter behavior is partisan attachments. On the one hand, it has been argued that individuals develop stable party attachments as a result of pre-adult experiences and early socialization, which later affect political attitudes (Berelson et al., 1954; Campbell et al., 1964). Scholars supporting this sociological approach claim that individuals participate in order to express and acquire a party identification (Schuessler, 2000), or to attach themselves or express support for a candidate or social group sharing their party identification (Fowler and Kam, 2007; Green et al., 2002; Schuessler, 2000). On the other hand, it has been argued that since acquiring and processing the information necessary to engage in reasonable deliberation is costly, individuals use partisan cues as informational shortcuts or heuristics in making their decisions (Downs, 1957; Popkin, 1991; Rahn, 1993). In a partisan context, both the desire to express a partisan identity and the use of partisan cues as informational shortcuts may predispose individuals toward participation or abstention.

Another social identification that may affect System 1 responses are ethnic identities. Garcia (2008, page 14) argues that ethnic identities, and social identities more in general, "generate feelings

[5]Miller et al. (1981, page 495), defines group consciousness as "identification with a group *and* a political awareness or ideology regarding the group's relative position in society along with a commitment to collective action aimed at realizing the group's interests."

of solidarity with certain people and they give rise to actions that otherwise would probably not take place."[6] Some factors related to ethnic identity that have been considered in the literature include group consciousness, such as the perception of common opportunities and "linked fate" (Abrajano and Alvarez, 2010; Alvarez and Brehm, 2002; Fraga et al., 2010; Miller et al., 1981), the cohesiveness of policy positions among individuals sharing a common ethnic identity (Uhlaner et al., 1989), attitudes toward out-groups and perceptions of group conflict (Leighley and Vedlitz, 1999), opinions regarding the group's status in the society (Stokes, 2003), and in the case of immigrants the conflict between pan-ethnic identities, attachment to the country of origin, and assimilation into the American society (Fraga et al., 2010). Even though some scholars have argued that ethnic identities affect participation through their impact on politically-relevant resources like English proficiency and social networks Verba et al. (1993), others have found that ethnic identities have an independent impact on political participation and may compensate for the lack of resources (Uhlaner et al., 1989).

Habitual behavior: In *The American Voter*, Campbell et al. (1964, page 52) argue that "it is possible to think of voting as a type of conduct that is somewhat habitual and to suppose that as the individual develops a general orientation toward politics he comes to incorporate either voting or nonvoting as part of their normal behavior." According to Plutzer (2002, page 54), first-time voting decisions are determined by parental resources and political involvement, and from then on "inertia ensures that parental resources continue to distinguish voters from nonvoters in succeeding elections."[7] Similarly, Fowler (2006, page 335) argues that "some individuals are *inertial*, meaning that they do not update their propensities or their aspirations in a given period." According to Gilboa (2009, page 11), "rationality ... requires that we be able to question these choices from time to time," individuals who do not question or update past choices behave consistently with System 1 cognitive processes; that is, respond automatically instead of engaging in reasonable deliberation.

[6] According to the author "an identity is a source of feelings and actions, it originates through consciousness and unconscious historical processes, and it is subject to change." Regarding the last point—that ethnicities are subject to change—it is important to note that even though ethnic identity is largely determined by factors such as race, language, and in the case of immigrants country of origin, individuals are to some extent free to "choose one identity and discard the talk about the others" Garcia (2008, page 5).

[7] According to Plutzer (2002, page 43), "citizens can outgrow the nonvoting habit if the costs of voting remain relatively constant over the life course but the resources available to overcome those costs increase."

Education and reasoning abilities play a special role in the dual-process account of individual behavior, as they are the key for resolving conflicts between instinctive and logical cognitive systems Evans (2003, 2008).[8] Education can affect the ability of individuals to suppress automatic responses produced by System 1 processes, and help them engage in the type of reasonable deliberation characteristic of System 2 processes. To the extent that education suppresses the impact of some of the considerations described above, it may be the case that higher educational attainment leads to a lower level of political participation. Nonetheless, most of the existing empirical literature contradicts this possibility, as indicators of education have consistently been found to have a positive impact on almost every form of political participation. Moreover, higher education attainment is likely to have a positive impact on u_{ij}, as more developed cognitive skills help deal with barriers to participation, evaluate the expected benefit more easily, and also because more educated individuals are likely to experience higher psychological satisfaction from involvement in political activities.

3.3 General Model

An empirical implication of the dual-process account is that some individuals are more likely to participate relative to the prediction of a purely rational account (as automatic responses predisposed toward participation), and yet other individuals are less likely to participate relative to the prediction of a purely rational account (as automatic responses predisposed toward abstention).

Let Y_{ij} denote a binary indicator of participation in activity j by individual i, α_i indicate the degree to which automatic responses affect i's participation decision, and U_{ij} indicate the expected utility from participating in activity j for the same individual. Suppose further that:

- If $\alpha_i < 1$, the individual is less likely to participate in activity j relative to an identical individual who makes his decision solely on the basis of U_{ij}. (That is, the individual is predisposed toward abstention.)

- If $\alpha_i = 1$, the individual completely suppresses the influence of System 1 automatic responses,

[8] Evans (2008, page 455) writes that "of particular importance are problems that bring beliefs and logic into conflict (...). The ability to resolve such conflict in favour of logic is known to be correlated with measures of general cognitive ability and to decline sharply with age."

and participates if $U_{ij} > \epsilon_{ij}$, where ϵ_{ij} is a zero-mean and symmetrically distributed random variable.

- If $\alpha_i > 1$, the individual is more likely to participate in activity j relative to an identical individual who makes his decision solely on the basis of U_{ij}. (That is, the individual is predisposed toward participation.)

The probability that an individual i participates in activity j can be written as follows:

$$P(Y_{ij} = 1) = F_{\alpha_i}(U_{ij})$$

where F_{α_i} is an increasing function that maps U_{ij} into a [0,1] interval. The shape of F_{α_i} is regulated by the parameter α_i, such that:

- If $\alpha_i < 1$, $F_{\alpha_i}(U_{ij}) < F_1(U_{ij})$
- If $\alpha_i = 1$, $F_{\alpha_i}(U_{ij}) = F_1(U_{ij})$
- If $\alpha_i > 1$, $F_{\alpha_i}(U_{ij}) > F_1(U_{ij})$

where $F_1(U_{ij})$ is the participation probability that obtains when the individual completely suppresses the influence of System 1's automatic responses.

In statistics, the function that maps latent utilities to participation probabilities is termed a "link function." These functions are non-linear in the parameters: when baseline participation probabilities are close to 100%, an increase in U_{ij} has almost no effect on participation probabilities; but when baseline participation probabilities stand at intermediate levels, such as 50%, an increase in U_{ij} can have considerable effects on participation probabilities. As a result of this non-linearity, the parameter α_i that regulates the shape of the link function does not only have a direct impact on participation probabilities, but also mediates the effects of factors entering individuals' utility functions. In the next chapter, I discuss alternative model specifications that provide an accurate representation of this dual-process model of political participation.

System 1: Hypothetical Thinking	System 2: Automatic
Issue distances	Issue positions
Pivot probabilities	Core values
Participation costs	Social identifications
Selective incentives	Habitual behavior
Expressive incentives	

Table 3.1: Cognitive Processes and Considerations Affecting Participation Decisions.

Chapter 4

A New Empirical Approach to the Study of Political Participation

4.1 Introduction

4.2 Traditional Empirical Approaches

Common binary choice models used to study voter decisions assume that individual behavior does not depend on the identity of the respondent after accounting for a set of relevant observed attributes. In other words, they assume that all units are exchangeable. As explained by Ohlssen et al. (2007, page 3), it is usually assumed that "any covariates that are expected to lead to predictable differences between (respondents) have been included in the model," and this is "essentially equivalent to assuming (responses) are drawn from a common population distribution." The main purpose of the method implemented in this chapter is to relax that assumption in a way that allows testing new hypotheses about voter behavior, such as differences in participation propensities and varying effects of observed individual attributes across unobserved or latent subpopulations. Next, I describe the usual random utility specification used to model involvement in specific political activities, and explain how I extend it to obtain a better model of political participation.

Suppose the latent utility citizen i perceives from participating in activity j, y_{ij}^* , can be expressed

as an affine function of the elements of covariate-vector $\mathbf{x}_i$ and random disturbance ϵ_{ij}:

$$(1) \quad y^*_{ij} = a_j + \mathbf{x}_i^{'}\mathbf{b}_j + \epsilon_{ij}$$

where the scalar a_j is an activity-specific intercept and $\mathbf{b}_j$ is a vector of activity-specific slopes. In the rest of this chapter I set $z_{ij} = a_j + \mathbf{x}_i^{'}\mathbf{b}_j$ and refer to z_{ij} as an individual i's representative utility of engaging in activity j. Also, suppose citizens behave in accordance with the usual decision rule: if y_{ij} is a binary indicator of involvement in activity j, then:

$$y_{ij} = \begin{cases} 1 & \text{if } y^*_{ij} \geq 0; \\ 0 & otherwise. \end{cases}$$

Given these assumptions about the decision-making process, individuals participate whenever $\mathbf{x}_i^{'}\mathbf{b}_j \geq -\epsilon_{ij}$. Thus, the distribution of ϵ_{ij} determines the extent to which the decision depends on observed variables represented in z_{ij} or other factors.

When researchers study binary choices using probit or logistic regressions, they assume ϵ_{ij}'s are drawn from normal or logistic distributions, respectively. According to these models, error terms are homogeneously distributed across the population, and the distribution is symmetric around zero. Since the expected value of ϵ_{ij} is zero, individuals who are indifferent conditional on the estimated level of representative utility—that is, those who have $z_{ij} = 0$ and are predicted to participate 50% of the time—are the ones most sensitive to changes in z_{ij}, as small variations in model covariates may affect their decisions.

4.3 Alternative Approach: Mixture Modeling

4.3.1 Varying Intercepts

Suppose instead that while there is a type of individual who behaves as above, there are other types for whom the distribution of error terms is symmetric but centered at a value different from zero,

such that:

$$\epsilon_{T[i]j} = \overline{u}_{T[i]j} + u_{ij}$$

where $T[i]$ gives the type membership of individual i, $\overline{u}_{T[i]j}$ is a constant giving the mean of the distribution of $\epsilon_{T[i]j}$ for type $T[i]$ and activity j, and u_{ij} is a symmetric and zero-mean distributed error term. At baseline covariate levels, types with $\overline{u}_{T[i]j} > 0$ are systematically more likely to participate than types with $\overline{u}_{T[i]j} = 0$, and the opposite for those with $\overline{u}_{T[i]j} < 0$. If this were the case, a model assuming error terms are identically distributed across the population would be misspecified. To solve this issue, we could modify expression (1) in the following manner:

$$(2) \quad y^*_{ij} = \widetilde{a}_{T[i]j} + \mathbf{x}_i^{'}\mathbf{b}_j + u_{ij}$$

where $\widetilde{a}_{T[i]j} = a_j + \overline{u}_{T[i]j}$.

The re-specified model captures the heterogeneity in behavior by allowing the intercept to vary across types, while assuming that the new error term u_{ij} is homogeneously distributed across the population. Suppose for instance, that there were three types—A, B and C—with different baseline participation probabilities (with $\widetilde{a}_{Aj} < \widetilde{a}_{Bj} < \widetilde{a}_{Cj}$), that educational attainment were the only variable important for explaining participation, and that participation in activity J were explained by the following model:

$$y^*_{iJ} = \widetilde{a}_{T[i]J} + 0.4\ education + u_{iJ}$$

where u_{iJ} follows a logistic distribution, and $\widetilde{a}_{T[i]J}$ takes values -1, 0, and 1 for individuals in type A, B, and C, respectively. The impact of relaxing assumptions of homogeneity can perhaps be seen more readily in the following example. If we find that three individuals, a, b, and c, drawn from types A, B, and C with level of educational attainment equal to 3, then their participation probabilities would be those shown in Figure 4.1 and upper section of Table 4.1. Still, the fact that individuals in the first type have lower baseline participation probabilities does not mean that they always participate less than any individuals in other types. For instance, if some individual

a' in type A is more educated than individual b in type B, it is possible that a' participates more frequently than b, as shown in the lower section of Table 4.1 and location of a' in Figure 4.1.

[SEE TABLE 4.1]

[SEE FIGURE 4.1]

Thus, a characteristic of model (2) is that as long as covariates have significant impact on participation, a change in the value of some individual characteristic may compensate for the under-participation of individuals in low-propensity types, or for the over-participation of individuals in high-propensity types. A second characteristic is that while varying intercepts allow for considerable differences in baseline probabilities, they usually do not allow for much flexibility in covariate effects across types. Among other things, model (2) assumes that individuals in the type with baseline participation probabilities closer to 50% are the most sensitive to changes in covariates (see Nagler, 1994).

4.3.2 Varying Skewness Parameter

Now I discuss an alternative specification, which does not only allow for differences in baseline participation probabilities across types, but also allows for greater flexibility in the impact of covariates. Specifically, suppose y^*_{ij} is given by expression (1), where the intercept is constant across types, but ϵ_{ij} are heterogeneously distributed, with the skewness of the distribution of error terms varying across types, such that:

(3) $p_{ij} = 1 - (1 + e^{z_{ij}})^{-\alpha_{T[i]}}$

where $\alpha_{T[i]} > 0$ is a skewness parameter regulating the shape of the distribution of error terms, and

$z_{ij} = a_j + \mathbf{x}_i^{'}\mathbf{b}_j$. This specification is a generalization of the scobit model (Nagler, 1994), in which skewness parameters are not assumed fixed but are allowed to vary across the population and are estimated based on information about individual involvement in multiple political activities.[1] For example, suppose that there are three types, A, B and C with $\alpha_A < \alpha_B < \alpha_C$, that educational attainment is the only variable important for explaining participation, and that participation in activity J is explained by the following model:

$$y^*_{iJ} = 0.4\ education + \epsilon_{iJ}$$

[SEE FIGURE 4.2]

where skewness parameters used to translate y^*_{iJ} to p_{ij} take values 1.57, 1.00, and 0.546 for individuals in type A, B, and C, respectively. If we found three individuals, a, b, and c, drawn from types A, B, and C with level of educational attainment equal to 3, then their participation probabilities would be similar to those previously given in the upper section of Table 4.1, and Figure 4.2. In Figure 4.2, the upper curve corresponds to $\alpha = 1.57$, the black curve corresponds to $\alpha = 1$ (where the model becomes equivalent to that shown in Figure 4.1), and the lower curve corresponds to $\alpha = 0.546$. Similarly to the varying-intercepts model, this alternative specification allows for considerable differences in baseline participation probabilities across types. Still, in contrast to the varying-intercepts model, differences in type membership do not lead to movements along the curve, but to changes in the functional form. This implies that differences in baseline probabilities are more "permanent" and are harder to compensate for with changes in covariate values. For instance, Figure 4.2 shows that individuals in type A (lower curve) are usually not expected to participate more than 90% of the time, not even for very high levels of the representative utility. Thus, in contrast to model (2), even when covariates have significant impact on an individual's representative utility, a change in the value of some individual characteristic is often not enough to compensate for the under-participation

[1] In the binary choice literature, there exist a number of generalizations of common specifications that allow for asymmetries in the distribution of error terms, such as scobit (Nagler, 1994) and its reflection power logit (Achen, 2002), or skewed probit (Bazán et al., 2006; Chen et al., 1999). In each of these models, a single parameter regulates the shape of the distribution of error terms.

of individuals in low-propensity types, or for the over-participation of individuals in high-propensity types.

[SEE FIGURE 4.3]

While the logistic regression imposes the assumption that indifferent individuals are the ones more sensitive to changes in the level of representative utility, this model relaxes this assumption by estimating α for each type based on the data instead of assuming it is fixed at $\alpha = 1$ as in the logit model.[2] Thus, the α parameter determines the baseline value of representative utility (and corresponding choice probability) for which a change in z_{ij} leads to the largest effects. In Figure 4.3, I plotted the changes in $P(y_{ij} = 1)$ produced by marginal changes in z_{ij} for several levels of α and baseline z_{ij}, where the thick curve corresponds to $\alpha = 1$ (logistic regression). Several features of the model become apparent when looking at this plot: first, the baseline level of z_{ij} leading to larger changes in $P(y_{ij} = 1)$ is decreasing in α; second, the maximum impact of a marginal change in z_{ij} on $P(y_{ij} = 1)$ is increasing in α; third, when α is large, marginal changes in z_{ij} lead to large changes in $P(y_{ij} = 1)$, but only for relatively low levels of baseline z_{ij}; and conversely, when α is small, marginal changes in z_{ij} lead to relatively larger impact on $P(y_{ij} = 1)$ when baseline z_{ij} is large, but generally $P(y_{ij} = 1)$ is relatively insensitive to changes in the level of representative utility.

Thus, an advantage of models allowing for skewed distributions of error terms is that they allow for model-based estimation of individuals' sensitivity to levels and changes in the representative utility from participation. In previous research, the similarity of results obtained when alternating between logit and probit specifications has led researchers to believe that functional assumptions are of minor importance for studying binary choices (Koenker and Yoon, 2009). But, as illustrated in Figure 4.3, if the data were generated by a scobit model with α different from 1, estimating a logistic regression could lead to misleading inferences (Nagler, 1994).

[SEE FIGURE 4.4]

[2]This is also true for scobit (single-type case), where the skewness parameter is estimated based on the data (see Nagler, 1994).

One limitation of this model is that identifying the skewness parameter requires sufficient variation in representative utilities across individuals, which sometimes can only be found in large data sets. Suppose, for instance, that no covariates were important for explaining participation in one particular activity, that the true intercept equaled zero, and that skewness parameters equaled 0.4, 1, and 2 for low, middle, and high propensity types, such that expected participation probabilities were 25%, 50%, and 75% for individuals a, b, and c drawn from each of these types, respectively (see first pane of Figure 4.4). In this extreme case, it would be impossible to identify the intercept and skewness parameter based on information about involvement in this activity, as different values of the intercept and skewness parameter yield the same set of expected participation probabilities. For example, the second pane of Figure 4.4 shows that when the intercept equals -1, and skewness parameters equal 0.9, 2.2, and 4.4, expected participation probabilities also equal 25%, 50%, and 75%. In this case, since there is absolutely no variation in representative utilities among individuals, it is impossible to identify the model, no matter how large the size of the data set.[3]

I take advantage of the fact that I simultaneously model several political activities to borrow information about propensities toward activism across different forms of participation and identify both intercepts and type-specific parameters. In doing so, I assume that type membership and skewness parameters are fixed across choices, such that if one respondent is assigned to the lowest propensity type in one activity, she/he is also assigned to the low-propensity type in other activities. The consideration of multiple activities and the *stable type assignment* assumption allows pooling information about type behavior across activities and enables the identification of model parameters.

[SEE FIGURE 4.5]

Figure 4.5 gives an example where skewness parameters equal 0.5, 1.1, and 1.9 for low-, middle-, and high-propensity types, and there are two activities in which covariates are again not important

[3]Note that this identification problem does not only come up in multiple-type examples, but also complicates the estimation of the most simple scobit model where all individuals have the same skewness parameter. For instance, Figure A.1 in Appendix A shows that when the level of representative utility equals zero for all individuals and the skewness parameter equals one—such that everyone is expected to participate 50% of the time—the scobit model cannot be identified, as an intercept equal to -1 and skewness parameter equal to 0.5 yields the same expected participation probabilities.

for explaining participation, although intercepts vary across activities. For the first activity, the intercept equals -1, and for the second one it equals 1, leading to lower expected participation in the first activity relative to the second one. In this example, even though it is possible to find alternative values of the intercept and skewness parameters which leave participation probabilities unchanged for the first activity, modifying skewness parameters diminishes the likelihood of the model as doing so affects expected participation probabilities for the second activity. This example illustrates why it is that simultaneously studying participation in a variety of political activities helps identify model parameters.

When examining real data it often happens that some covariates are important for explaining participation, and since skewness parameters do not only affect baseline probabilities but also mediate the impact of covariates, the presence of variation in values of relevant covariates across the population contributes to identifying skewness parameters for each type. Thus, separation of skewness parameters across types, variation in relevant covariates, and availability of information about type tendencies toward participation across multiple different activities are all factors which contribute to identifying model parameters.

4.4 Estimation

As mentioned previously, I simultaneously model the decision to participate in multiple political activities. In doing so, I allow the propensity toward activism to vary across types of respondents by assuming the parameter regulating the asymmetry of the scobit link follows a finite mixture distribution, and fit the model using standard Markov Chain Monte Carlo methods. Specifically, I make the following distributional assumptions:

$$y_{ij} \sim \text{Bernoulli}(p_{ij})$$

where $p_{ij} = 1 - (1 + e^{z_{ij}})^{-\alpha_{T[i]}}$, $\alpha_{T[i]} > 0$, and $z_{ij} = \mathbf{x}_i^{'}\mathbf{b}_j$

This is a mixture model where parameters in z_{ij} do not vary across types—that is, b_j's are

constant across respondents—but skewness parameters are allowed to change depending on $T[i]$. Note that except for $T[i]$ and $\alpha_{T[i]}$, all parameters are allowed to vary across activities. In specifying the distribution of the parameters of the linear predictor, I use a random effects approach that allows borrowing information about individual behavior across different forms of political participation:

$$\mathbf{b}_j \sim MVN(\overline{\mathbf{b}}, \Sigma)$$

Also, in specifying the distribution of skewness parameters, I take into account the fact that the latter must take positive values for all types and impose an order restriction to address the well-known "label-switching problem," a common identification problem arising during the estimation of mixture models.[4] To address these estimation difficulties, I set $\alpha_k = exp(\tilde{\alpha}_k)$ to ensure that skewness parameters are always positive, assume $\tilde{\alpha}_1 \sim N(\overline{\alpha}_1, \sigma_{\alpha_1})$, and impose the following order restriction (following Spiegelhalter et al., 1996, page 9):

$$\tilde{\alpha}_k = \tilde{\alpha}_{k-1} + \theta_k \text{ for } k > 1$$

where

$$\theta_k \sim HN(\overline{\theta}_k, \sigma_{\theta_k})$$

Since θ_k's are restricted to be positive (assumed drawn from a half-normal distribution), this assumption implies that if the mixture distribution contains K components, then:

$$\alpha_1 \geq \alpha_2 \geq ... \geq \alpha_K$$

Finally, I assume indicators of type assignment follow a categorical distribution, and mixing probabilities $\mathbf{P}$ follow a truncated Dirichlet process (a distribution over the space of probabilities)

[4] Specifically, problems may arise during the estimation of mixture models due to the fact that the model likelihood is invariant to re-assignment of type labels (Jasra et al., 2005).

with a finite number of components or types:

$G_i \sim$Categorical($\mathbf{P}$)

$\mathbf{P} \sim$Dirichlet($\mathbf{P}_0$)

[SEE FIGURE 4.6]

Figure 4.6 gives a directed graphical representation of the model (based on Spiegelhalter et al., 1996), useful for understanding its structure as well as conditional independence assumptions used to factorize posterior distributions. In each iteration, the MCMC algorithm (implemented using WinBUGS) samples from the conditional distribution of model parameters: draws vectors of latent type assignment (G_i) conditional on mixing probabilities (P); draws skewness parameters for each type (α_k, θ_k) conditional on hyperparameters ($\overline{\alpha_k}, \overline{\theta_k}, \tau_{\alpha_k}, \tau_{\theta_k}$); and draws coefficients of the linear predictor (B) also conditional on hyperparameters ($\overline{B}, \Sigma$). After making sure that model parameters converged to their stable posterior distribution, I summarize posterior distributions of model parameters using the second half of saved MCMC samples.

4.5 Simulation Study

Mixture variable models such as those described in Sections 4.3.1 and 4.3.2 cannot always be identified. Situations that might complicate the identification of model parameters include:

- Existence of a single true type. In which case the estimation algorithm will have difficulties identifying type assignments, or will often assign individuals to a single class and be unable to identify model parameter for empty classes.

- Lack of separation across type-specific parameters. In which case the estimation algorithm will not be able to identify individual type assignments.

- When the consideration of multiple activities does not add information about participation propensities. This may happen when the researcher only considers low-cost activities, or only considers high-cost activities, which may cause the estimation algorithm to produced biased inferences of model parameters.

- When there is only information about individual participation in a few activities. Due to the lack of information, the estimation algorithm will often be unable to identify model parameters and/or individual participation propensities.

In this section I discuss the results of a simulation study intended to show that, if there is enough separation across types and each activity provides additional information about individual behavior, parameters of the varying skewness model can be easily recovered even in situations where the sample size is relatively small (N=1,000) and when the number of political activities under consideration is of moderate size (specifically, the simulation study is done with six activities). I first consider a situation where the true model has a varying skewness parameter, and assess whether alternative specifications are cable of approximating true coefficients and type assignments. The four alternative specifications that I consider are: logistic regressions, scobit regressions, a varying skewness model, and a varying model where intercepts vary across types and activities. This exercise is useful for showing that the mixture model with varying intercepts provides a relatively accurate approximation to the varying skewness model. Second, I consider a situation where the true model is a set independent logistic regressions, and assess whether more complex specifications such as scobit and varying skewness specifications are capable of approximating true coefficients.

True Model = Varying Skewness

In Table 4.2 I present the results of the first simulation exercise, where the true model has varying skewness and the sample size equals 1,000. The first column gives the true parameters used to generate the data, where α_i indicates the skewness parameter corresponding to participatory type i, which is only estimated for the scobit and varying skewness specifications; b_{jk} indicates the coefficient associated with covariate k for activity j, where $k = 0$ indicates the intercept of logistic,

scobit, and varying skewness specifications; and a_{ji} indicates the intercept corresponding to activity j and participatory type i for the varying intercepts model. The remaining columns give mean estimates and corresponding standard deviations produced by the four alternative specifications. The last two rows give the log-likelihood and Deviance Information Criterion (DIC) corresponding to each specification.[5]

[SEE TABLE 4.2]

Results presented in Table 4.2 show that the varying skewness specification recovers true parameters strikingly well, even with as few as 1,000 observations and only six activities. More interestingly, the varying intercepts model also does a remarkable job at recovering most of the coefficients. In contrast, logistic and scobit regressions that ignore the heterogeneity in participation propensities across participatory types produce seriously biased estimates of model parameters. Log-likelihood and DIC indicators suggest that while the varying skewness specification fits the data better than any of the remaining models, the varying intercepts model fits the data almost as well. Logistic and scobit regressions, in contrast, fit the data comparatively much worse.

Table 4.3 gives a summary of the type assignments produced by the varying skewness and varying intercepts models. Panel (a) gives the true proportion of observations assigned to each participatory type, the second and third columns give the average assignment probabilities and predicted proportions produced by the varying skewness specification, and the fourth and fifth specification gives the same but for the varying intercepts specification.[6] The last row of panel (a) gives the proportion of correctly classified observations for each mixture model. Panel (b) gives the relationship between true proportions and proportions predicted by the varying skewness specification. For each true category, it gives the proportion of individuals assigned a low, middle, and high type (that is, it gives row percentages). Finally, panel (c) gives the same information but for the varying intercepts specification.

[5]The DIC is a measure of goodness of fit that penalizes model complexity. It decreases with the likelihood and increases with the number of model parameters. Thus, models with smaller the DIC are preferred.

[6]Predicted proportions are computed by allocating observations to the type that has the highest assignment probability.

[SEE TABLE 4.3]

According to results presented in the first panel of Table 4.3, the varying skewness specification overestimates the proportion of middle-propensity observations, underestimates the proportion of high-propensity observations, and overall correctly classifies 76% of the observations. According to Table 4.3, panel (b), 88% of low-type observations are assigned a low type, 12% are assigned a middle type, and 0% are assigned a high type; 83% of middle-type observations are assigned a middle type, 13% a low type, and 5% a high type; and 59% of high type observations are assigned a high-type, 41% a middle type, and 0% a low type. The overall result is that the varying skewness model recovers type assignments relatively well for low and middle types, and somewhat worse for high types. Also, it is important to note that whenever the model misclassifies one observation, it always assigns it to the next-most-similar type (for instance, a low-propensity type is never assigned a high type, and vice-versa).

The varying intercepts model, in turn, underestimates the proportion of low- and middle-propensity observations, overestimates high-propensity observations, and overall correctly classifies 65% of the observations. According to Table 4.3, panel (c), 91% of low-type observations are assigned a low type, 6% are assigned a middle type, and 3% are assigned a high type; 49% of middle-type observations are assigned a middle type, 14% a low type, and 37% a high type; and 91% of high type observations are assigned a high type, 0% a middle type, and 9% a low type. While the varying intercepts model recovers type assignments well for a large proportion of observations, assignment of middle-propensity observations is considerably biased in favor of assignment to the high type.

In Table 4.4 I present the results of a similar simulation exercise (where the true model has varying skewness), but where the sample size is larger (N=3,000). Results are very similar to those given in Table 4.2, except that mixture models approximate true parameters even more accurately. Similarly to what was found before, even though the varying skewness specification fits the data better than any of the remaining models, the varying intercepts model fits the data almost as well, and logistic and scobit regressions do a very poor job at recovering actual behavior. Table 4.5, analogous to

Table 4.3, gives a summary of the type assignments produced by the varying skewness and varying intercepts models, when the sample size equals 3,000. Results given in Table 4.5 show that while both mixture models correctly classify a larger number of observations as a result of observations, the increase in the proportion of correctly-classified observations is only slight relatively to results produced with the smaller sample size.

[SEE TABLE 4.4]

[SEE TABLE 4.5]

The most important factor that contributed to estimating coefficients and type-specific parameters, and to correctly classifying a large number of observations in the above simulation exercise, was not the large sample size (true parameters and assignments can be approximated pretty well with as much as 1,000 observations), but the diversity of behavior across political activities (intercepts and slopes of different size and magnitude across activities). Regarding the accuracy of type assignments, the one change in the simulation design that would contribute to a better identification of type assignments would be to consider a larger number of (informative) political activities.

True Model = Independent Logistic Regressions

The next question that I would like to address is the following: What happens when observations have the same true type? How does the varying skewness model perform when there is a single type with $\alpha = 1$ as in a logistic regression? In Table 4.6 I present the results of the second simulation study, where the true model are independent logistic regressions. The first column gives the true parameters used to generate the data, where b_{jk} indicates the coefficient associated with covariate k for activity j, and $k = 0$ indicates model intercepts. The remaining columns give mean estimates and standard deviation of estimates produced by the three alternative specifications (logistic regressions,

scobit regressions, and varying skewness model), and the last two rows give the log-likelihood and Deviance Information Criterion (DIC) corresponding to each specification.

The scobit model is only a generalization of the logistic regression, it does not exclude the possibility of a logistic regression (where $\alpha = 1$). According to the results given in Table 4.6, the scobit model approximates true behavior just as well as a logistic regression. Even though the α parameter is slightly higher than 1, it is statistically indistinguishable from 1 at conventional confidence levels. Further, the variance of estimates produced by the scobit specification is only slightly higher than the variance of estimates produced by logistic regressions. What is striking about these results is that when the skewness of the link function is estimated by considering individual involvement in multiple activities, recovering true parameters is fairly easy, even when the number of observations is not large. This result stands very much in contrast to those found in previous studies that tried to estimate a scobit model by only considering voter turnout. Under the assumption that the skewness remains constant across activities, considering multiple forms of political participation contributes considerably to identifying model parameters.

The varying skewness model is a generalization of the scobit regression, where skewness parameters are allowed to vary across participatory types. Results shown in Table 4.6 indicate that α_i parameters are statistically indistinguishable from 1 when the data is generated based on independent logistic regressions, although they exhibit considerable variance (specially for the high-propensity type). An interesting result not shown in Table 4.6 is that, in contrast to the previous simulation exercise, the algorithm has much trouble classifying individuals into three participatory types, as assignment probabilities have very large variance. This is understandably so because observations were generated based on logistic regressions where there is a single participatory type. Continuing with the discussion of 4.6, results indicate that the varying skewness model approximates most of the coefficients fairly well. Indicators of goodness of fit indicate that the varying skewness model overfits the data, and this is evidenced by the fact that even though it produces somewhat biased estimates of model coefficients, the log-likelihood is higher but the DIC is lower.

All in all, considering that the true data-generating process is unknown when analyzing real world

data, results from both simulation exercises suggest that it is better to err on the side of estimating a mixture model when the true data-generating processes are logistic or scobit regressions, than to err on the side of estimating logistic or scobit regressions when the true data-generating process is a mixture model.

Individual	Education	Type (T)	$P(y_{ij} = 1 \mid education, G)$
a	3	1	55.0%
b	3	2	76.9%
c	3	3	90.0%

Individual	Education	Troup (T)	$P(y_{ij} = 1 \mid education, G)$
a'	6	1	80.2%
b	3	2	76.9%

Table 4.1: Example of Model with Varying Intercepts.

	True	Varying skewness		Varying intercepts		Logit		Scobit	
	value	mean	s.d.	mean	s.d.	mean	s.d.	mean	s.d.
α_1	0.10	0.08	0.02					—	—
α_2	0.70	0.64	0.15					0.11	0.02
α_3	6.00	5.86	1.51					—	—
b_{10}	-3.0	-2.8	0.3			-2.0	0.1	0.8	0.4
b_{11}	4.0	4.4	0.4	4.1	0.5	2.2	0.2	7.1	0.9
b_{12}	-2.0	-2.1	0.2	-2.0	0.3	-1.1	0.1	-3.6	0.5
b_{20}	-2.0	-2.0	0.3			-1.5	0.1	2.0	0.5
b_{21}	-3.0	-3.7	0.4	-3.2	0.3	-1.7	0.1	-6.2	0.8
b_{22}	3.0	3.3	0.3	2.8	0.3	1.4	0.1	5.2	0.7
b_{30}	-1.0	-0.5	0.4			-0.8	0.1	4.6	0.8
b_{31}	2.0	2.5	0.3	2.2	0.3	0.9	0.1	3.7	0.6
b_{32}	-4.0	-4.6	0.4	-4.1	0.4	-1.9	0.1	-7.4	1.0
b_{40}	0.0	0.2	0.4			-0.5	0.1	5.7	0.9
b_{41}	-2.0	-2.6	0.3	-2.0	0.2	-1.0	0.1	-4.1	0.6
b_{42}	4.0	4.7	0.5	3.4	0.3	1.7	0.1	7.1	1.0
b_{50}	1.0	1.8	0.5			0.2	0.1	8.3	1.2
b_{51}	3.0	3.1	0.3	1.9	0.2	1.0	0.1	4.7	0.7
b_{52}	-3.0	-3.5	0.4	-2.1	0.2	-1.3	0.1	-5.6	0.8
b_{60}	2.0	2.9	0.6			0.4	0.1	9.5	1.4
b_{61}	-4.0	-5.2	0.5	-3.6	0.4	-1.6	0.1	-7.6	1.0
b_{62}	2.0	2.5	0.3	1.7	0.3	0.6	0.1	3.4	0.6
a_{11}				-9.1	1.2				
a_{12}				-7.4	0.8				
a_{13}				-13.1	5.6				
a_{14}				-6.9	0.9				
a_{15}				-4.4	0.7				
a_{16}				-6.1	1.1				
a_{21}				-5.0	0.7				
a_{22}				-4.3	0.6				
a_{23}				-2.8	0.4				
a_{24}				-1.8	0.3				
a_{25}				-0.7	0.2				
a_{26}				-0.2	0.3				
a_{31}				-1.2	0.2				
a_{32}				-0.5	0.2				
a_{33}				0.9	0.2				
a_{34}				1.3	0.2				
a_{35}				2.1	0.2				
a_{36}				3.2	0.4				
Log-likelihood		-1,419.0	21.3	-1,495.8	19.7	-2,638.5	3.0	-2,537.8	3.2
DIC		3,750.7		3,826.1		5,295.0		5,094.0	

Table 4.2: Simulation: True Model = Varying Skewness Parameter Model, N=1,000.

		Varying Skewness		Varying Intercepts	
	True Proportions	Probabilities	Proportions	Probabilities	Proportions
Low	30.5%	31.8%	31.4%	15.8%	17.6%
Middle	35.8%	37.2%	47.2%	37.6%	26.7%
High	33.7%	31.0%	21.4%	46.6%	55.7%
% correctly predicted		76.4%		64.7%	

(a) Type assignment probabilities and predicted proportions (N=1,000).

		Predicted Type		
		Low	Middle	High
True Type	Low	**88.2%**	11.8%	0.0%
	Middle	12.6%	**83.0%**	4.5%
	High	0.0%	41.2%	**58.8%**

(b) True versus predicted type assignment:
Varying-skewness model (N=1,000).

		Predicted Type		
		Low	Middle	High
True Type	Low	**91.4%**	5.9%	2.8%
	Middle	14.0%	**49.1%**	36.9%
	High	0.0%	9.1%	**90.9%**

(c) True versus predicted type assignment
Varying-intercept model (N=1,000).

Table 4.3: Simulation: Type Assignments, N=1,000.

	True	Varying Skewness		Varying Intercepts		Logit		Scobit	
	value	mean	s.d.	mean	s.d.	mean	s.d.	mean	s.d.
α_1	0.10	0.10	0.01					—	—
α_2	0.70	0.74	0.11					0.13	0.01
α_3	6.00	6.23	0.93					—	—
b_{10}	-3.0	-3.1	0.2			-2.0	0.1	0.2	0.2
b_{11}	4.0	4.1	0.2	4.0	0.2	2.1	0.1	5.9	0.4
b_{12}	-2.0	-2.0	0.1	-2.0	0.1	-1.0	0.1	-3.0	0.2
b_{20}	-2.0	-1.8	0.2			-1.3	0.1	2.2	0.3
b_{21}	-3.0	-2.9	0.1	-2.7	0.1	-1.5	0.1	-4.2	0.3
b_{22}	3.0	2.8	0.2	2.6	0.1	1.4	0.1	4.1	0.3
b_{30}	-1.0	-0.9	0.2			-0.9	0.1	3.4	0.3
b_{31}	2.0	2.0	0.1	1.9	0.1	0.9	0.1	2.9	0.2
b_{32}	-4.0	-4.1	0.2	-3.6	0.2	-1.7	0.1	-5.6	0.4
b_{40}	0.0	0.0	0.2			-0.5	0.0	4.7	0.4
b_{41}	-2.0	-2.0	0.1	-1.8	0.1	-0.8	0.1	-2.9	0.3
b_{42}	4.0	4.0	0.2	3.6	0.2	1.6	0.1	5.9	0.4
b_{50}	1.0	1.0	0.3			-0.1	0.0	6.1	0.5
b_{51}	3.0	3.2	0.2	2.1	0.1	1.2	0.1	4.4	0.4
b_{52}	-3.0	-3.2	0.2	-2.1	0.1	-1.2	0.1	-4.4	0.3
b_{60}	2.0	2.2	0.3			0.3	0.0	7.6	0.6
b_{61}	-4.0	-4.2	0.3	-2.8	0.2	-1.4	0.1	-5.7	0.4
b_{62}	2.0	2.2	0.2	1.5	0.1	0.7	0.0	3.0	0.3
a_{11}				-9.9	0.8				
a_{12}				-6.7	0.5				
a_{13}				-7.6	0.8				
a_{14}				-7.8	0.6				
a_{15}				-4.2	0.4				
a_{16}				-4.8	0.4				
a_{21}				-4.4	0.3				
a_{22}				-3.2	0.2				
a_{23}				-2.7	0.2				
a_{24}				-1.7	0.2				
a_{25}				-1.0	0.1				
a_{26}				-0.1	0.1				
a_{31}				-1.3	0.1				
a_{32}				0.1	0.1				
a_{33}				1.0	0.1				
a_{34}				1.7	0.2				
a_{35}				2.1	0.1				
a_{36}				3.0	0.2				
Log-likelihood		-4,291.3	34.6	-4,520.4	32.6	-8,058.7	2.9	-7,789.2	3.1
DIC		10,976.4		11,180.4		16,135.4		15,597.1	

Table 4.4: Simulation: True Model = Varying Skewness Parameter Model, N=3,000.

		Varying Skewness		Varying Intercepts	
	True Proportions	Probabilities	Proportions	Probabilities	Proportions
Low	33.6%	35.2%	35.2%	18.2%	19.6%
Middle	31.9%	30.5%	20.8%	40.1%	28.9%
High	34.5%	34.3%	44.0%	41.6%	51.5%
% correctly predicted		77.7%		66.6%	

(a) Type assignment probabilities and predicted proportions (N=3,000).

		Predicted Type		
		Low	Middle	High
True Type	Low	**55.7%**	41.6%	2.6%
	Middle	1.7%	**39.1%**	59.2%
	High	0.0%	0.0%	**100.0%**

(b) True versus predicted type assignment
Varying-skewness model (N=3,000).

		Predicted Type		
		Low	Middle	High
True Type	Low	**56.9%**	40.4%	2.7%
	Middle	1.6%	**44.3%**	54.1%
	High	0.0%	3.3%	**96.7%**

(c) True versus predicted type assignment
Varying-intercept model (N=3,000).

Table 4.5: Simulation: Type Assignments, N=3,000.

	True	Logit		Scobit		Varying Skewness	
	value	mean	s.d.	mean	s.d.	mean	s.d.
α_1	—			—	—	1.12	0.26
α_2	1			1.30	0.24	1.44	0.36
α_3	—			—	—	2.19	1.35
b_{10}	-3.0	-3.3	0.3	-3.5	0.3	-3.6	0.3
b_{11}	4.0	4.1	0.3	3.9	0.3	3.9	0.3
b_{12}	-2.0	-2.2	0.2	-2.1	0.2	-2.0	0.2
b_{20}	-2.0	-2.0	0.2	-2.2	0.2	-2.3	0.2
b_{21}	-3.0	-3.0	0.2	-2.8	0.2	-2.8	0.2
b_{22}	3.0	3.1	0.2	3.0	0.3	2.9	0.2
b_{30}	-1.0	-0.9	0.1	-1.2	0.2	-1.3	0.3
b_{31}	2.0	1.7	0.2	1.6	0.2	1.6	0.2
b_{32}	-4.0	-3.8	0.3	-3.6	0.3	-3.6	0.3
b_{40}	0.0	0.0	0.1	-0.4	0.3	-0.5	0.3
b_{41}	-2.0	-1.8	0.2	-1.7	0.2	-1.7	0.2
b_{42}	4.0	3.7	0.2	3.4	0.3	3.4	0.3
b_{50}	1.0	1.1	0.1	0.7	0.3	0.6	0.3
b_{51}	3.0	3.0	0.2	2.8	0.2	2.8	0.2
b_{52}	-3.0	-3.1	0.2	-2.8	0.3	-2.8	0.2
b_{60}	2.0	2.1	0.2	1.5	0.4	1.4	0.4
b_{61}	-4.0	-4.1	0.3	-3.7	0.3	-3.7	0.3
b_{62}	2.0	1.9	0.2	1.7	0.2	1.7	0.2
Log-likelihood		-1552.049	3.0	-1,550.1	3.2	-1,535.0	12.8
DIC		3,122.2		3,118.9		3,400.9	

Table 4.6: Simulation: True Model = Independent Logistic Regressions, N=1,000.

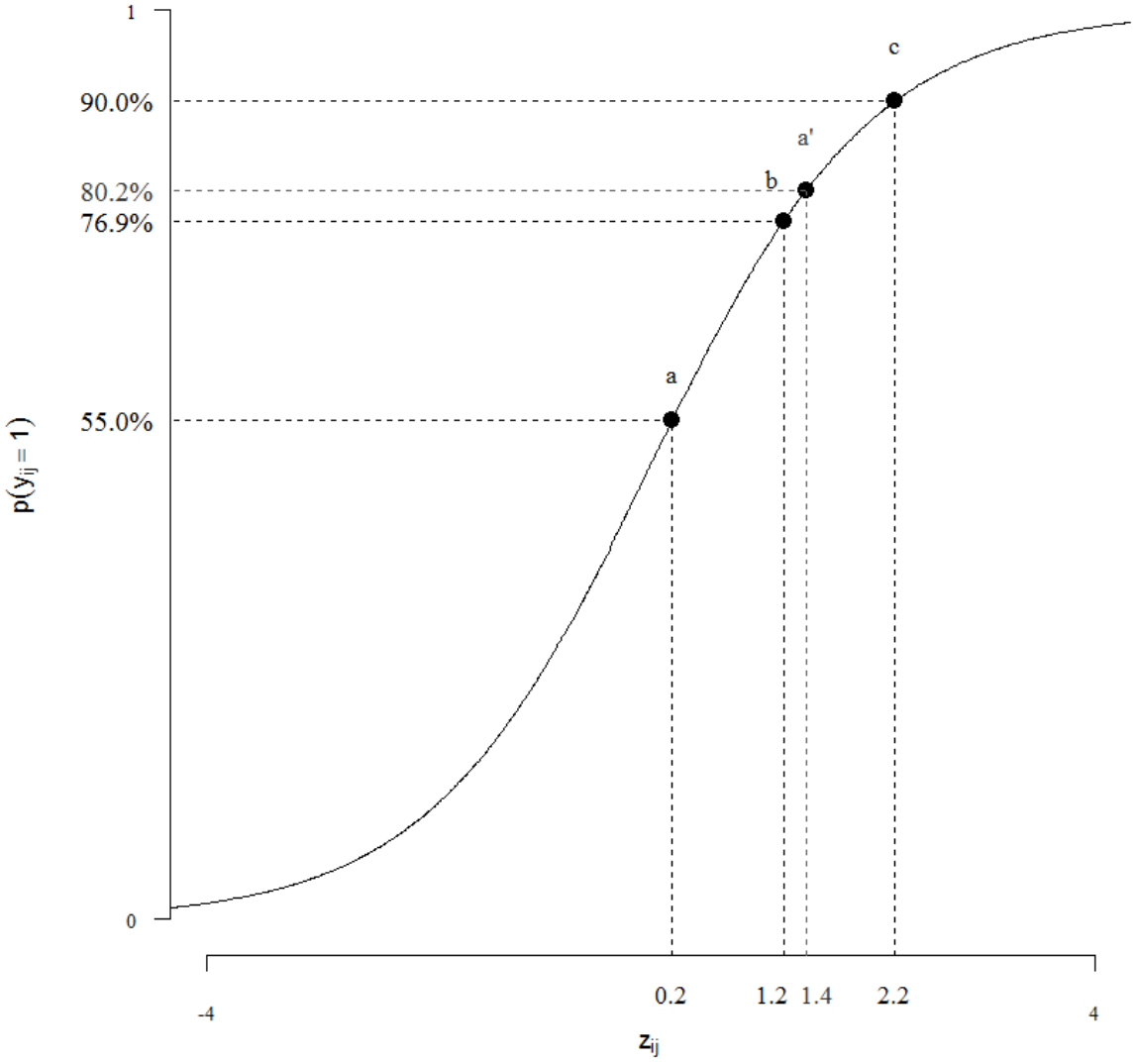

Figure 4.1: Example of Logit Mixture Model with Varying Intercepts.

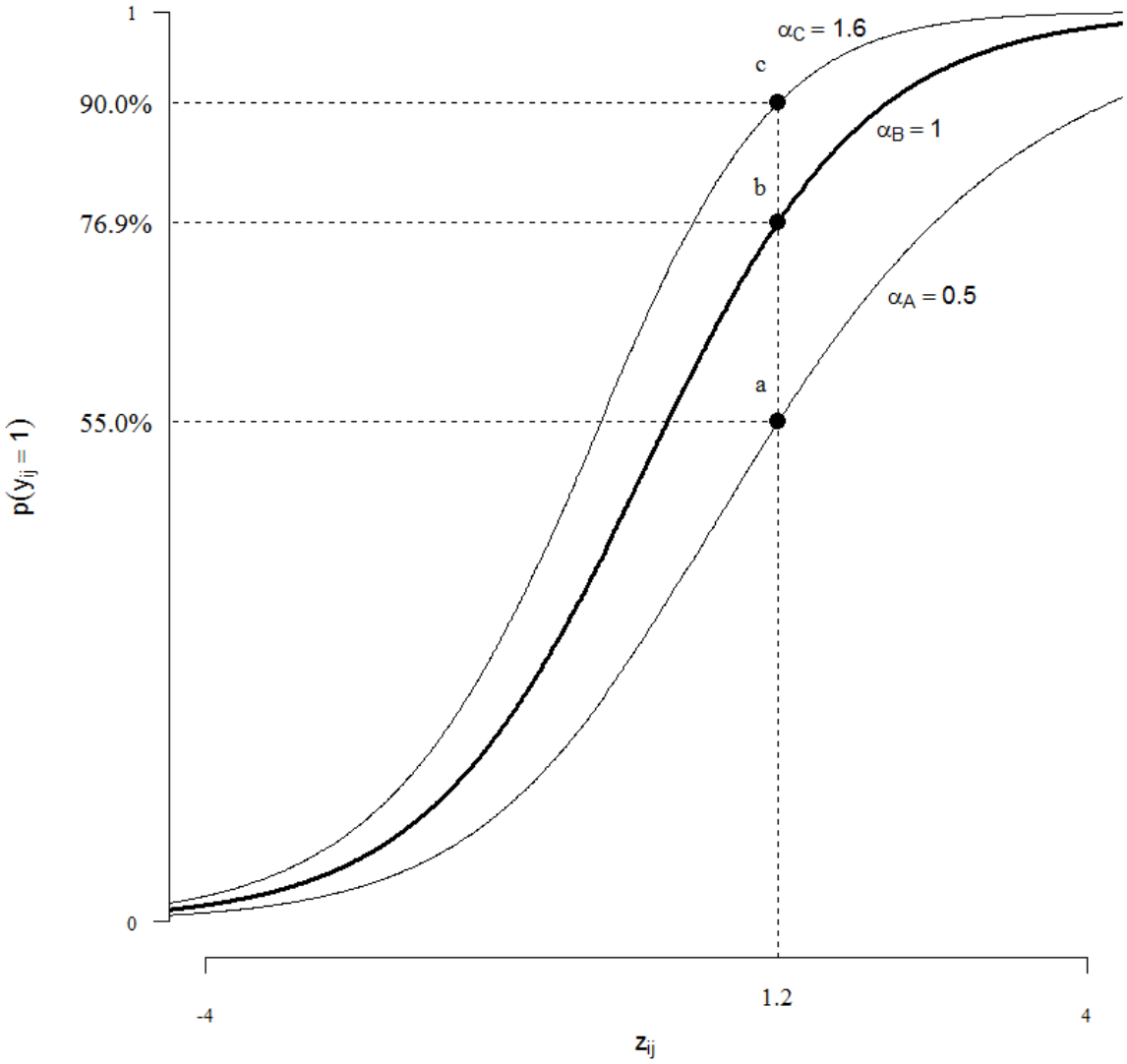

Figure 4.2: Example of Scobit Mixture Model with Varying Skewness Parameter.

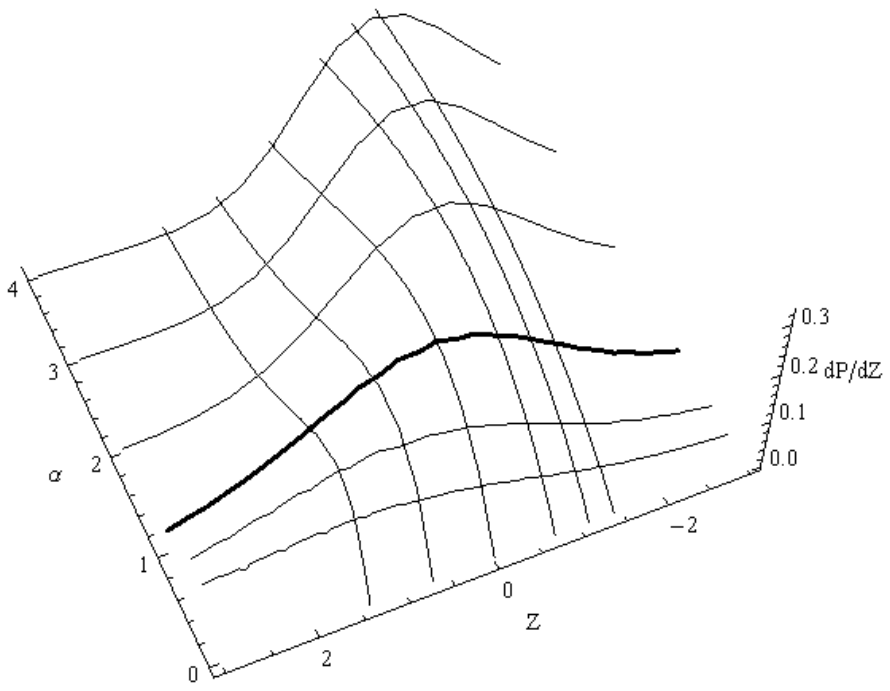

Figure 4.3: Effect of Changes in z_i on $P(y_i = 1)$, Scobit Model.

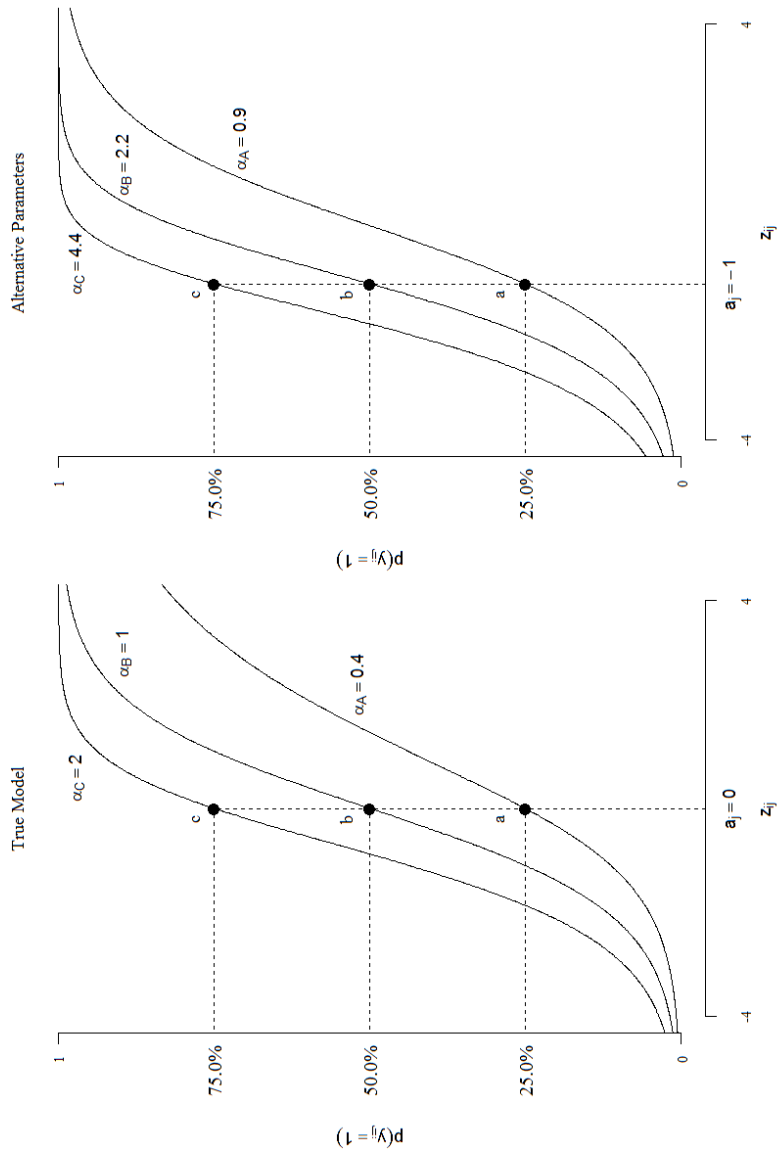

Figure 4.4: Example of Identification Difficulties with a Single Activity.

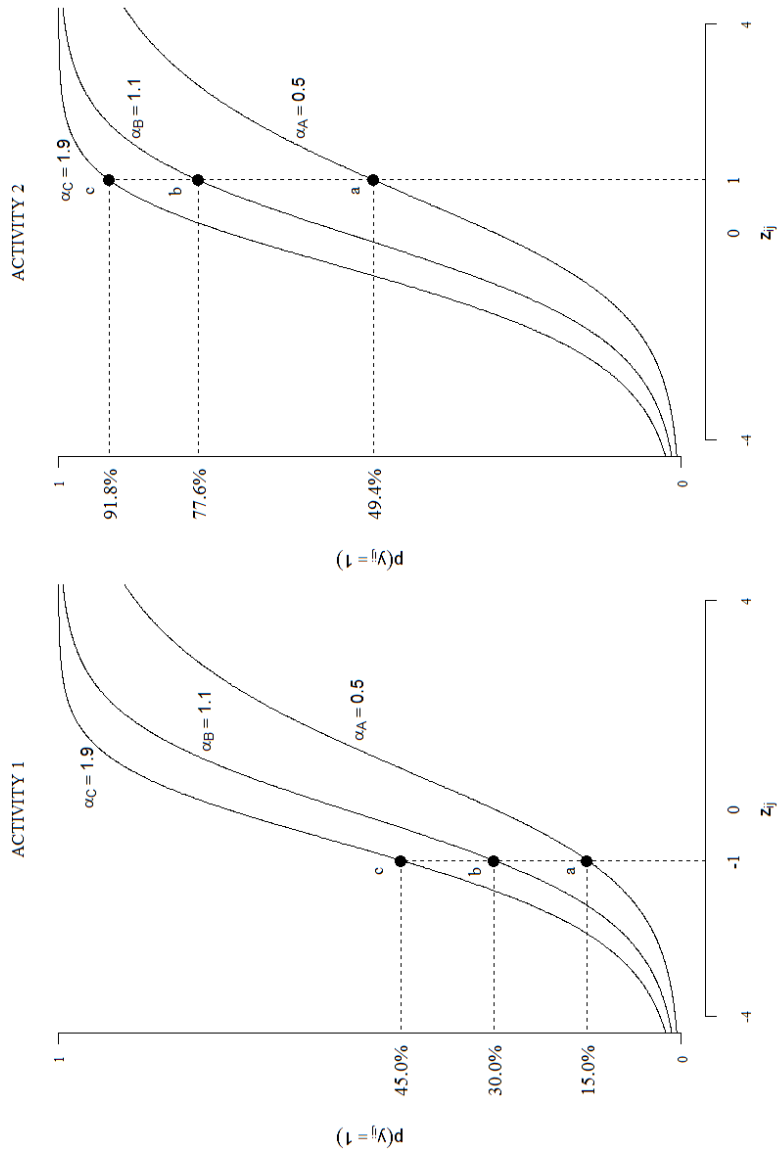

Figure 4.5: Example of Participation in Multiple Activities.

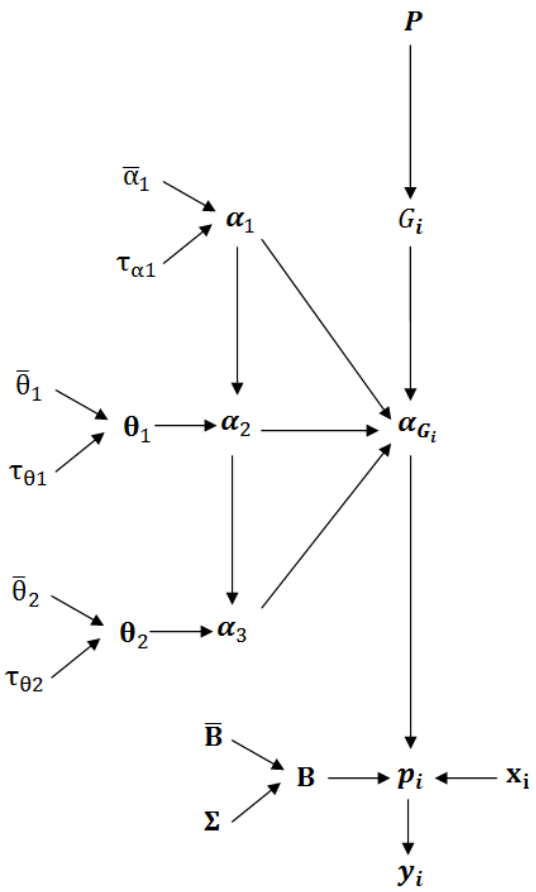

Figure 4.6: Estimation: Graphical Model.

Chapter 5

Resources, Civic Skills, and Political Participation

5.1 Introduction

Voter turnout in the United States decreased steadily in elections taking place between 1960 and 1996, creating concerns about a deterioration of civic engagement and its negative impact on the health of America's democracy (Patterson, 2002).[1] Some scholars argue that this tendency was not restricted to voting but was also evidenced in declining involvement in other forms of political, organizational, and religious activities (Putnam, 1995a,b; Rosenstone and Hansen, 1993). This phenomenon is puzzling because neither the drop in participation, nor the subsequent recovery observed since 2000, can be explained by standard theories of political participation, which claim that liberalization of registration laws and higher socio-economic status lead to greater political participation (Brady et al., 1995; Rosenstone and Wolfinger, 1978; Verba and Nie, 1972; Verba et al., 1995; Wolfinger and Rosenstone, 1980). For instance, the above-mentioned decline in voter turnout occurred amidst loosening of registration requirements and increasing levels of educational attainment within all socio-economic groups (Brody and Sniderman, 1977; Leighley and Nagler, 1992b), suggesting that participation is not only a function of resources and electoral laws, but that variations in civic engagement are explained by factors disregarded by the standard resource model of political participation.

[1] This decline is evidenced not only when turnout is computed as a proportion of the voting age population, but also when it is computed as a proportion of the eligible population, although it is less severe and irregular in the latter case (McDonald and Popkin, 2001).

According to Fiorina (2002, page 528), a fundamental problem of the resource-mobilization explanation of political participation is that "many people who have the resources don't expend them, many people who have the motivation don't act on it, and many people who are asked refuse—and we are not very good at picking out the small minority who are different." This chapter develops a new estimation method that identifies types of individuals on the basis of participation propensities; that is, who systematically exhibit low, medium, or high tendencies toward participation across political activities, after accounting for differences in a standard set of attributes. The intuition underlying the proposed procedure is the recognition that there are other factors that are unequally distributed across the population and lead to systematic differences in participation rates across individuals.[2] After identifying these types, I study the distribution of variables excluded from the model to determine whether differences in other factors can explain variation in behavior, including the direction and intensity of issue preferences, personal grievances, level of political engagement, and exposure to recruitment efforts.

What does it mean for one type of individuals to have high "participation propensity"? It does not mean that they participate more than expected in *one* particular political activity, but that they participate more than expected in a variety of political activities. Repeatedly, when studying their involvement in a variety of political activities that can be used to affect political outcomes, one finds that they participate more than expected across the board, after controlling for variables such as education, occupation, and civic skills. They are activists in the broad sense of the word, and the explanation of this behavior lies in political and expressive factors disregarded by standard models of political participation, which often are not observable. Similarly, types that have low participation propensity, conditional on the socio-economic status and access to politically-relevant resources, under-participate for most forms of civic engagement. In practical terms, as I explain in more detail later, the fact that some individuals tend to over- and under-participate across activities allows me to identify the participatory type of each individual (low, middle, or high propensity), and to estimate type-specific covariate effects.

[2]This intuition is consistent with Fiorina's claim that "participatory arguments about improving American democracy have gone astray because they overlook an important feature of participation. Not only is the desire to participate not widely distributed, but even more importantly, it is not randomly distributed" (page 530).

The idea of activist, apathetic, and ordinary classes of citizens who behave differently and exhibit different propensities toward participation is not new (Fiorina, 1999a, 2002; Lohmann, 1993; Oliver, 1985). However, the way this hypothesis has been tested in empirical studies—assessing to what extent overall participation, or probability of engaging in specific acts, varies as a function of observed attributes such as education, income, or other resources, cannot fully account for observed variation in political behavior. As noted by Fiorina (1999a), some of the models discussed in the literature (in particular, in Verba et al., 1995) have little explanatory power. After controlling for these factors, standard model specifications assume that excluded variables are either irrelevant or equally distributed across the population. A key question motivating my analysis is the following: given our limited knowledge of the determinants of political participation, is it reasonable to assume that there are no systematic differences in other factors which may drive some types of individuals to participate more than others, and vice-versa? In this chapter, I relax the assumption of homogeneous distribution of other factors, and apply a new method that allows identifying types of individuals who systematically differ in their propensity to participate.

Before moving on, it is important to clarify what activities constitute "political participation." For decades political scientists have studied the motives underlying individual engagement in political activities, but most efforts have concentrated on understanding the determinants of voting decisions—that is, the *who votes* question as in Wolfinger and Rosenstone (1980)—and in particular, of voting in national elections. However, many means can be used to influence political outcomes. Verba and Nie (1972, page 2) define participation as "acts that aim at *influencing* the government, either by affecting the *choice* of government personnel or by affecting the *choices made* by government personnel." In the electoral arena, in addition to voting in national elections, citizens can also vote in statewide and local elections, or try to influence the nomination of candidates running for office by voting in primary elections or attending caucuses. Alternatively, they can volunteer for working for a candidate or campaign, wear a campaign button or display a bumper sticker, attempt to persuade others to vote and support a particular candidate or issue position, or contribute money to candidates or political action committees. Unless all forms of electoral participation are

intrinsically equal, focusing on the determinants of voting in national elections provides very limited information on the determinants and representativeness of electoral outcomes.

But involvement in the electoral process is not the only available channel for affecting public decisions (Verba et al., 1995). Citizens can also try to affect the decisions taken by government officials. When a resident is concerned about issues like community infrastructure, street maintenance, trash and recycling, or water usage, she/he can try to directly contact a local official, attend meetings of local government boards or councils, or engage in informal activities with neighbors sharing similar concerns. Similarly, someone wanting to express his/her position on a public issue can directly contact a representative, sign a petition, or become active in a political organization sharing similar issue positions. Moreover, individuals may join protests or demonstrations to oppose or show support for a bill or cause. Until recently, involvement in protest and demonstrations was often disregarded for having ceremonial or support character, or for having anti-system or illegal nature (Schonfeld, 1975; Verba and Nie, 1972), but this tendency has changed in recent years, with engagement in protest being one of the "time-based acts" analyzed by authors such as Verba et al. (1995). A final form of participation is that aimed at affecting self or others' psychological involvement, and includes political discussion, exposure to political stimuli, or writing newspaper and magazine articles.[3] According to Schonfeld (1975), psychological involvement may be relevant if it later affects behavioral involvement—that is, it matters when it affects the desire to participate in activities with more direct influence on political outcomes, or the subject of participation.[4]

The types of participation discussed above differ in many ways. They provide varying degrees of information about citizens' preferences, interests, and needs. For instance, the act of voting provides

[3]Since the emergence of the Internet, individuals can also communicate their opinions online by commenting on blogs, streaming online videos, discussing or joining groups in social networks, or posting comments in response to news stories or other online materials.

[4]Campbell et al. (1964, pages 50-51) discuss four indicators of involvement in political activities, in addition to voting: belonging to political clubs or organizations, donating to candidates or parties, attending rallies or political meetings, and working for candidates or parties. However, they argue that other activities, including political discussions, may also be considered political participation. In particular, they write that "beyond these modes of participation there are several informal, less well-defined ways in which large numbers of people become 'engaged' in a presidential contest. One of the most important of these is informal political discussion. In each of the Eisenhower elections about a fourth of the electorate reported having talked to other people and having tried to persuade them to vote a given way. The causal nature of this behavior should not conceal its importance either as expression of individual motivation or as means by which the final distribution of preferences in the electorate is achieved. Discussion of this sort is undoubtedly one of the most significant forms of political behavior by a mass public, even if it does not draw the individual directly into organized political activity." They later argue that simply following the campaign in the mass media can be considered "a type of informal participation."

very limited information, and an electoral victory hardly implies that a majority of voters stand by the winner on all issues, that they agree on agenda priorities or ways to address every problem (Key, 1966).[5] However, involvement in other activities can be used to communicate clear statements about citizens' expectations. A letter sent to an elected official may contain very clear instructions about what the citizen expects from her/his representative. Similarly, signing a petition or joining a demonstration and holding a banner in opposition to a bill provides unequivocal information about an individual's preference on the issue at hand. Secondly, activities also differ broadly on their influence on public policy. While democratic governments must always accept electoral outcomes, they may choose to pay scant attention or completely disregard messages expressed through non-electoral means.

Additionally, activities are highly heterogeneous in terms of the skills and resources they require (Verba and Nie, 1972; Verba et al., 1995), as well as the costs and risks they entail. Among the types of participation mentioned above, high-cost forms of participation include time-consuming activities like volunteering to work for a candidate or campaign, or involvement in community boards. There are also activities that are intensive in monetary resources, like contributing money to campaigns or political organizations. Other activities such as contacting elected or appointed government officials, writing newspaper articles or letters, or online activism are not necessarily costly in terms of money and time, but may require considerable vocabulary skills. In contrast, participation in protests is not particularly costly in terms of resources, but may also involve significant risks. Voting, even though it includes costs like registering to vote, mobilizing to the polling place, and sending absentee ballots, does not stand out as a particularly costly political activity.[6] Other easy and relatively low-cost activities include those affecting psychological engagement, like political discussion and exposure to political stimuli.[7]

[5] In Key's (1966) words, "it thus can be a mischievous error to assume, because a candidate wins, that a majority of the electorate shares his views on public questions, approves of his past actions, or has specific expectations about his future conduct.... The election returns establish only that the winner attracted a majority of the votes—assuming the existence of a modicum of rectitude in election administration. They tell us precious little about why the plurality was his."

[6] Regarding informational costs, it has been argued that voters are unlikely to invest in acquiring more information than the one they are exposed to and assimilate during day-to-day activities (Downs, 1957).

[7] In the same way that activities vary in terms of resources required for participation, they vary in the rewards perceived by those who participate. Depending on the individual and activity, rewards may be associated with the likelihood and benefit of affecting political outcomes, or may be affected by hard-to-quantify factors such as

Earlier I mentioned that one feature that distinguishes individuals with high or low propensities toward participation is their tendency to over- or under-participate across political activities. But there is an additional feature that distinguishes these types, which is their sensitivity to changes in their access to resources—which I argue is linked to participation costs. When activities are relatively inexpensive, e.g., participating in political discussion or voting in a general election, individuals in the high-propensity type are almost sure to participate, and their behavior is relatively insensitive to marginal changes in their access to resources. For these activities, individuals in the low-propensity type, who are unsure about whether to participate or not, are the most sensitive to stimuli. And conversely, for high-cost activities, like working for a campaign or involvement in local community boards or councils, individuals in the low-propensity type are almost sure not to participate, and are relatively insensitive to marginal changes in their access to resources. For these activities, individuals in the high-propensity type, who have non-negligible probabilities of involvement, are the most sensitive to stimuli.

In line with the previous discussion, the following are the four hypotheses I test in this chapter:

[SEE FIGURE 5.1]

H1.1 There is an activist class of individuals who over-participate across political activities, relative to the prediction of standard models. They almost always participate in low-cost activities, and are the only ones who often participate in high-cost activities.

H1.2 Changes in socio-economic variables and civic skills have only minor effects on activists' likelihood of involvement in low-cost activities (as they are already almost sure to participate, regardless), but considerable effects on the probability of engaging in high-cost activities. (This hypothesis is illustrated by the filled points in Figure 5.1.)

H2.1 There is an apathetic class of individuals who under-participate across political activities,

non-instrumental benefits (Riker and Ordeshook, 1968), incidental "relational" payoffs (Uhlaner et al., 1989), and expressive incentives such as desire to attach oneself to political outcomes (Schuessler, 2000).

relative to the prediction of standard models. These individuals almost never participate in high-cost activities, but often participate in low-cost activities.

H2.2 Changes in socio-economic variables and civic skills have only minor effects on apathetics' likelihood of involvement in high-cost activities (as they are very unlikely to participate, regardless), but considerable effects on the probability of engaging in low-cost activities. (This hypothesis is illustrated by the empty points in Figure 5.1.)

Also, I test the following hypothesis:

H3 There is a third class of individuals with intermediate tendencies toward participation. In contrast to individuals belonging to the passive or activist class, the standard resource-based model of political participation provides an accurate approximation to their behavior. Depending on the level of socio-economic variables and access to politically-relevant resources, these individuals are more or less likely to participate in different political activities, but other unobserved or excluded factors play no systematic role in their decisions.[8]

After identifying the three types, I test whether they differ systematically in terms of factors that may motivate or inhibit political participation, such as intensity of issue positions, personal concerns, and levels of political engagement.

H4.1 Higher-propensity types exhibit relatively more extreme issue positions.

H4.2 Lower-propensity types experience higher incidence of personal concerns and economic difficulties.

H4.2 Higher-propensity types exhibit higher levels of political engagement and exposure exposure to recruitment efforts.

To test these hypothesis, I estimate a model that combines two different statistical methodologies: (1) finite mixture modeling (Frühwirth-Schnatter, 2006; Hill and Kriesi, 2001) and (2) a

[8]By construction, there is always an intermediate propensity type. Still, the behavior of this type need not be accurately explained by the standard resource model of political participation—for a given level of politically-relevant resources, they may under- or over-participate. For this reason, hypothesis H3 may or may not be satisfied; it does not hold by assumption.

particular generalization of the logistic regression (Nagler, 1994). The first of these methods allows clustering respondents into different classes or types depending on the distribution of unobserved factors. According to Hagenaars and McCutchen (2002, xii), a heterogeneous population is one "consisting of several unidentified types that behave differently regarding a problem at hand." The purpose of methodologies akin to latent class analysis is to help identify these types. The second method, a generalization of the logistic regression model, is appealing because the model contains a parameter regulating individuals' responses to levels and changes in measures of the systematic benefits of participation (Nagler, 1994). In combining the two methodologies, I assume a function of this parameter follows a finite mixture of normals distribution, and estimate individual assignment into each component of the mixture distribution—where values of the skewness parameter are estimated based on the data and vary across types. This model allows identifying types with different propensities toward political participation. Finally, I study the relationship between estimates of type assignment and numerous indicators of issue positions, personal concerns, and political engagement, in an attempt to understand some of the potential sources of variation in behavior across types.

In the next section of the chapter, I discuss the motivation and interpretation of the model specification, and describe the estimation procedure. After that, I move to the empirical section, starting with a description of the 1990 American Citizen Participation Study, discussion of the political activities analyzed in the chapter, and a review of some of the main conclusions of Verba et al. (1995) regarding participation in specific political acts. I also explain some of the main differences between statistical approaches used in previous studies and the one discussed in this chapter. Lastly, I present the results of the multivariate analysis and continue to a conclusion where I summarize the main ideas and results discussed in the chapter. I find that, even after controlling for a standard set of individual attributes, some individuals are considerably more likely to participate than others. Moreover, these individuals are not just outliers; non-negligible proportions of individuals consistently under- or over-participate across activities. Overall, results indicate that the comprehensive mixture model of political participation contributes greatly to advancing our

understanding of the inequalities in political participation.

5.2 Data and Model Specification

In this section I study the determinants of participation in a series of political activities using data from an in-person survey conducted as part of the 1990 American Citizen Participation Study (Verba et al., 1995). This national-level survey was conducted during the Spring of 1990 by the National Opinion Research Center, and includes data gathered from interviews with 2,517 adults 18 years and older. In addition to a comprehensive set of questions related to political attitudes, politically-relevant resources, and civic voluntarism, this survey over-sampled racial minorities and political activists, making it an ideal source of information for studying political participation. Additionally, this data has been throughly analyzed in the past in a series of influential publications (Verba et al., 1995; Brady et al., 1995; Schlozman et al., 1995). In this chapter, I use the model described in the previous section to extend the analysis done in previous studies. The alternative specification leads to different conclusions relative to those found by Verba et al. (1995) and allows learning about systematic differences in behavior across types of respondents that remain unaccounted for after controlling for socio-economic status and politically-relevant resources.

The first two political activities that I consider are voting in the 1988 presidential election (67.6% participation) and voting in a local election since November 1988 (65.9% participation).[9] In *Voice and Equality*, Verba, Schlozman, and Brady (1995) construct a scale measuring tendencies to vote in national and local elections, and estimate an OLS regression to explain voting habits in terms of individual attributes. Their main result is that education is not significant after accounting for measures of political engagement, suggesting that "the effect (of education) is not direct, but occurs through engagement" (page 360), although the effect of vocabulary skills remains significant. They also find that job level, involvement in non-political organizations, and an aggregate measure of civic skills are all non-significant, concluding that "resources play virtually no role for voting" and that "civic skills are unimportant" (page 359). According to the authors, in contrast to other

[9]Percentages reported in this section are computed using sample weights.

activities, the act of voting is mainly driven by a desire to fulfill civic duties, as opposed to a desire for socialization or material rewards, and therefore expectedly, what matters for voting should be "civic orientations" reflected in the degree of interest in politics and political engagement. In line with these expectations, they find that political interest and information have the largest effects on voting habits.[10]

In this study, I intentionally avoid controlling for differences in measures of political engagement, such as level of political information, political interest, feelings of political efficacy, strength of partisanship, and exposure to recruitment efforts. One difficulty associated with using political engagement as explanatory variable in models of political participation is that while there are good reasons to believe that more engaged individuals participate more, there are also good reasons to expect individuals who participate more to become more engaged as a result. For instance, they might become more politically informed through their involvement in political activities, and they might become more frequent targets of recruitment efforts. Controlling for these variables can lead to inflated estimates of the impact of political engagement, and downward bias in the estimate of the impact of variables such as education, which might help explain why it is the case that variables such as education become insignificant in Verba et al.'s model of voter turnout after differences in political engagement are taken into account.

An additional difficulty associated with the consideration of the impact of political engagement is that the 1990 ACPS is a cross-sectional survey, where questions related to political engagement and participation are asked during the same interview. The contemporaneous measurement of attitudes and behaviors makes it even more difficult to come up with a convincing argument in favor of the idea that indicators of political engagement can be included in the model without leading to serious bias, as it is likely that responses to both types of questions are affected by similar unobserved factors unaccounted for by the model. Verba et al. acknowledge the existence of endogeneity problems, and deal with this issue by conducting a two-stage estimation of the model of political participation. The

[10]They also find that, in contrast to what is found for other activities, citizenship has a large positive effect on voting habits, which is of course not surprising as only citizens are allowed to vote. I omit this variable in my analysis because the survey sample contains only 5% non-citizens (unweighted) and the small number of foreign-born non-naturalized respondents does not allow computing reliable estimates.

limitation of this approach is that it seems unlikely that the set of socio-demographic variables and other individual attributes they use as instruments are capable of solving the endogeneity problem, as the exclusion restriction is unlikely to be satisfied.[11]

The assumption that these variables are valid instrument, in the sense that they do not have a direct effect on participation and only affect participation indirectly through political engagement, seems unwarranted. Instead, the approach followed in this chapter is the following: exclude measures of political engagement from the main model specification, and later study the relationship between participation and engagement but in an indirect manner. If some individuals are systematically more likely to participate due to higher political engagement, then the model should assign them higher propensity types. Thus, I first use the model to estimate participatory types, and then do a profiling of types to determine whether individuals with higher participation propensities also exhibit higher levels of political engagement. In contrast to the estimation stage, the profiling stage does not have a causal interpretation, as it is not possible to determine the direction of causality

In addition to voting in national and local elections, I consider two political activities that can also be thought of as low-cost in terms of effort or time commitment required to get involved, including membership or contribution to an organization taking stands on public issues (48.1% participation) and engagement in political discussion (52.5% report discussing *local* politics and affairs at least once or twice a week, and 59.8% report discussing *national* politics and affairs at least once or twice a week). In their book, Verba et al. argue that this activity does not constitute political participation because it is not aimed at affecting political outcomes, but still estimate a model of political discussion and use it as a basis of comparison. They find that resources play no important role, to the extent that "even vocabulary skill does not have an impact on the propensity to chat

[11] In a model of overall participation that controls for political engagement, Verba et al. (1995) use the following variables as instruments and exclude them from the participation equation: "working, retired, job level, organizational affiliation, religious attendance, Catholic, number of children under 18, preschool children at home, sex, spouse working full or part-time, Black, Latino, education of parents, age dummies, and three variables from the screener survey—political interest, information, and partisan strength" (Verba et al., 1995, page 353, Table 12.6). Authors assume that these variables are exogenous, arguing that "it is hard to imagine that any of the socioeconomic and demographic variables in the ... list are determined by levels of political participation" (Verba et al., 1995, page 606). But to be valid instruments for measuring the impact of political engagement, these variables do not only need to be exogenous: they must only affect participation indirectly through political engagement. With respect to this second requirement, authors only mention that some variables are left out from the participation equation "because we believe they are mediated by those variables included in the model" (Verba et al., 1995, page 606). Since the authors do not offer any empirical evidence in support of this claim, this second assumption seems unwarranted.

about politics" (page 362).

The next four political activities are ones that require considerable effort or time commitment to get involved in, and that Verba et al. characterize as "time based acts." These activities include voluntary campaign work (8.5% participation), voluntary activity in official local boards or councils (16.6% participation), informal activity in the respondent's community or neighborhood (17.0% participation), and participation in protests, marches, or demonstrations (5.7% participation). For these variables, the results I find are largely consistent with those found by Verba et al. in their model of overall participation in time-based acts: significant effects of politically-relevant resources (including education) and civic skills, although results vary considerably across activities.

The last four political activities are monetary contributions to candidates, parties, political action committees, and other organizations supporting candidates (23.6% participation), donations made in response to mail requests (9.8% participation), contacting local government officials (18.0% participation), and contacting national government officials (28.7% participation). Results corresponding to these activites are interpreted separately, as they cannot be classified as low-cost or high-cost on a non-arbitrary manner; the effort associated with making a monetary contribution depends on the amount of money donated, and the effort associated with contacting a government official depends on the means used to contact officials (telephone, letter, in-person, or online contact). Regarding monetary contributions, Verba et al. model the overall size of monetary contributions, and find that "income is overwhelmingly the dominant factor" (page 361), but other politically-relevant resources (including education) play no role. Instead, I model the binary decision of making a donation (regardless of its size), and find substantively different results.

Before proceeding to the results of the multivariate analysis, it is important to note that the methodology used in this chapter differs considerably from common statistical methods applied in the participation literature. For instance, the analysis of the determinants of political involvement done in Verba et al. makes use of the following type of dependent variables: an additive indicator of overall political participation, a voting scale based on reported tendency to vote in local and national elections, the amount of money contributed to candidates and campaigns, and additive

index of participation in time based-acts (similar to the overall index, except that it excludes voting habits and monetary contributions). The limitation of using additive indices is that doing so imposes the strong assumption that a one-step increase in involvement in one activity has the same impact on underlying participation propensities as one-step increases in other components of the additive index (Treier and Jackman, 2008). If this assumption does not hold, using additive indices as proxies to overall participation may lead to inaccurate inferences. Another limitation of this approach is that it completely pools information across activities and does not allow assessing the impact of covariates on specific forms of participation.

Another methodology commonly used in the literature is the estimation of separate binary dependent variable models for each political activity (and, particularly, voting). A shortcoming of this procedure is that it is inefficient, in the sense that it ignores common patterns of behavior existing across activities, and therefore disregards information that could be used to learn more about baseline participation propensities and covariate effects. The approach used in this chapter does not only differ from the ones used in previous studies of political participation in that it allows overall propensities to vary across types, but is also more efficient due to the estimation of a common skewness parameter, and use of a random effects procedure to partially-pool information across activities.[12] In the next section, I compare the results obtained using a mixture model, with the results obtained using logistic regressions, to demonstrate how the extent to which the mixture model allows learning more about differences in baseline participation propensities and covariate effects across the population.

The multivariate analysis I conduct in this section has three objectives. First, I consider the average impact of a set of covariates, including socio-demographic indicators, a latent measure of civic skills, and involvement in social networks. Second, after controlling for all of these indicators, I use the model to classify individuals into high-, middle-, and low-propensity types, depending on the distribution of other factors, and study differences in baseline participation probabilities and covariate effects across types. Finally, I study the relationship between type assignment and

[12] In this sense, the methodological approach discussed in this chapter exhibits similarities with that proposed by Revelt and Train (1998).

indicators of positions on numerous issues, incidence of personal concerns, measures of political engagement, and exposure to recruitment efforts. The mixture model, together with the subsequent analysis of the determinants of type assignment, allows estimating the proportion of individuals assigned to each type, computing baseline participation propensities and covariate effects for each activity and type, and studying the relationship between type assignment and variables excluded from the model.

I use the model specification discussed in the previous section to explain the decision to participate in the above-mentioned political activities, and classify individuals into three participatory types depending on their engagement in multiple political activities. Dependent variables correspond to binary indicators of participation in twelve political activities:

- **Low-cost activities:** Voting in the 1988 presidential election, voting in local elections since 1988, membership in political organizations, and frequency of political discussion.
- **High-cost activities:** Campaign work, participation in formal community activities (like local boards or councils), participation in informal community activities, and participation in protests.
- **Other activities:** Monetary campaign contributions, donations made in response to mail requests, and contacting local or federal government officials.[13]

Regarding control variables, the systematic part of the model includes the following covariates:

- **Socio-demographic variables:** Gender, education, household income, and age. To take into account the non-linear variation of participation throughout the life-cycle, the model also controls age^2.
- **Latent measure of civic skills:** Computed based on indicators of politically-relevant resources, including vocabulary skills, the level of education required to perform the respondent's

[13] Activities where the difficulty does not depend on the amount of effort made or time investment, but on the amount of money contributed or contact mode.

job (job level), and skills accumulated through writing letters, attending meetings where decisions are made, planning or chairing meetings, and giving presentations or speeches at work, church, or through involvement in organizations.[14]

- **Social networks:** Church attendance, and involvement in non-political activities.

5.3 Results

[SEE TABLE 5.1]

[SEE FIGURE 5.2]

For each individual, the model does not produce deterministic-type assignments, but assignment probabilities. Table 5.1 gives skewness parameter estimates (means and standard deviations), average assignment probabilities, and the number of individuals assigned to each type (assuming they belong to the type exhibiting the largest assignment probability). While the second type exhibits a value of α that is statistically indistinguishable from that assumed by a logit specification (where the parameter is assumed fixed at one), the first and third types exhibit considerably lower and larger values, respectively. Clearly, the model suggests that, after accounting for systematic differences in politically-relevant resources, wide unexplained heterogeneities remain, and are captured by the large differences in α across types. The upper plot in Figure 5.2 gives MCMC draws for two individuals: the usual pattern is that each respondent is assigned to one type most of the time, although she is also assigned to other types with a lower frequency. The lower plot in Figure 5.2 gives a ternary plot with the distribution of estimated assignment-probabilities across the whole sample: 59% of respondents are assigned to the middle-propensity type more frequently than to the lower- or high-propensity types, 32% are assigned to the lower-propensity type more frequently than the middle- or high-propensity types, and 8% are assigned to the high-propensity type more frequently than the lower- or middle-propensity types.

[14] See Appendix B.2 for more details about the computation of the latent measure of civic skills.

[SEE FIGURE 5.3]

Even though α's are assumed fixed across activities, coefficients of the linear predictor are allowed to change. Figure 5.3 gives 90% posterior intervals and mean coefficient values corresponding to the main model specification, for each political activity. Additionally, I overlay the results produced by the mixture model (black posterior intervals) with those arising from simple logistic regressions (grey posterior intervals), to help visualize differences in inferences across methodologies. An observation that immediately comes out of Figure 5.3 is that both approaches differ little in terms of estimated coefficients, although logistic regressions consistently over-estimate the impact of variables such as education and civic skills. Another result that becomes apparent by comparing results across activities is that the impact of covariates on the linear predictor is mostly symmetric across activities, with variables such as age, family income, civic skills, and involvement in non-political activites usually exhibiting positive and significant effects.

One of the main discrepancies between the results of the mixture model and the findings of Verba et al. is that the impact of education and/or civic skills remains strong and significant for the twelve forms of political participation, even after controlling for other covariates related to socio-economic status and institutional involvement, contradicting the argument that education and civic skills have little impact on participation in some political activities. Another important discrepancy is that education, gender, civic skills, and institutional involvement have significant effects on the decision to contribute money to campaigns (including by-mail contributions), and this contradicts the claim that family income is the only important factor for explaining campaign donations.[15] Most interestingly, these discrepancies are not a result of the model specification suggested in this chapter, but also come up in the estimation of logistic regressions. Thus, differences are most probably due to the fact that Verba et al. use aggregate indicators of voluntarism, which might lead to an under-estimation of the relationship between individual attributes and participation decisions.

[15] Although it is important to take into account that Verba et al. (1995) model the amount of money contributed to candidates, campaigns, or political organizations; not the binary decision of whether to make a donations (regardless of the amount).

[SEE TABLES 5.2, 5.3, and5.4]

But the most important findings produced by the mixture model do not have to do with the extent to which average effects differ from those found in the previous literature, but are related to aspects of civic engagement that are just impossible to learn about using a more traditional technique: the extent to which baseline participation propensities and covariate effects differ across latent participatory types, depending on the characteristics of the political activity in question (low-cost or high-cost). Tables 5.2 through 5.4 give marginal changes in participation probabilities caused by marginal changes in covariates, for each participatory type (low-, middle-, and high-propensity), and form of political participation (low-cost, high-cost, and other unclassified activities).[16]

Low-Cost Activities

According to Table 5.2, high-propensity types have close to 100% chance of participating in low-cost activities; middle-propensity types have relative large baseline participation probabilities, ranging between 70% for membership in political organizations to 92% for engaging in political discussion; and low-propensity types have relatively low baseline participation probabilities, ranging from 36% for membership in political organization to 61% for engagement in political discussion. Regarding covariate effects, increasing education from some college to college graduate, increasing age from 35-39 years old to 40-44, and involvement in one additional non-political activitiy, have positive and significant effects on involvement in low-cost political activities, particularly for individuals of low- and middle-propensity types. A marginal increase in education, in particular, has an especially large impact on the likelihood that low-propensity individuals participate in national elections (approximately 5%, compared to 4% for middle-propensity types). Gender differences, in contrast, matter only for organizational memberships (8%, 12%, and 4% for low-, middle-, and high-propensity types, respectively) and engagement in political discussion (10%, and 6%, for low-, and middle-propensity types, respectively). The impact of a 0.5 increase in the latent measure of civic skills (close to two

[16]Baseline participation probabilities are computed for a hypothetical individual with median characteristics: male gender, some college education, 35-39 years old, household income between $30,000 and $34,999, average civic skills, church attendance between 2 and 3 times per month, and involvement in two non-political activities.

standard deviations) varies considerably across activities: it has small and often insiginifcant effects on voting in national and local elections, considerable impact on engagement in political discussion (6% and 3% for low- and middle-propensity types, respectively), and large impact on membership in political organizations (9% and 10% for low- and middle-propensity types, respectively). Finally, marginal changes in household income and church attendance have small and/or statistically insignificant effects for all participatory types and political activities.

High-Cost Activities

According to Table 5.3, low-propensity types have less than 10% chance of participating in costly activities; middle-propensity types have relative low baseline participation probabilities, ranging from 10% for participation in protests to 19% for involvement in formal or informal community activities; and high-propensity types have relatively large baseline participation probabilities, but always lower than 50%, ranging from 29% for membership in political organization to 48% for involvement in formal or informal community activities. In contrast to low-cost activities, while a marginal increase in education has no significant effects on involvement in high-cost activities, a 0.5 increase in the latent measure of civic skills has considerable effects, specially on participation in formal community activities (18%, 11%, and 5% for high-, middle- and low-propensity types, respectively). Involvement in one additional non-political activity also has positive and significant effects on participation in high-cost activities, although small in magnitude compared to those associated with civic skills. With respect to age, an increase from 35-39 to 40-44 has positive and significant effects on voting propensities (although usually small in magnitude), and negative and significant effects on participation in protests. A marginal increase in church attendance has a negative impact on participation in protests, and also has a negative impact on participation in formal community activities (although again, effects are usually small in magnitude). In contrast to low-cost activities, gender has no statistically significant effects on involvement in high-cost activities, except for participation in formal community activities where changing gender from male to female has a negative impact on participation (10%, 5%, and 2% for high-, middle-, and low-propensity types, respectively). Finally,

a marginal change in household income does not have significant effects on involvement in high-cost activities.

Other Activities

Table 5.4 gives baseline participation propensities for other activities that are difficult to classify as low-cost or high-cost in a non-arbitrary manner. Starting with donations, baseline probabilities are 67%, 30%, and 13% for monetary campaign contributions (for high-, middle-, and low-propensity types, respectively), and 24%, 9%, and 3% for donations made in response to by-mail requests. As expected, household income has positive and significant effects for both forms of donation, but marginal effects are considerably higher for civic skills, where a 0.5 increase causes 12%, 9%, and 5% increase in donation probabilities (for high-, middle- and low-propensity types, respectively), and 6%, 2%, and 1% increase in the probability of donating in response to mail requests. Other variables that have positive and significant effects on donation probabilities, larger in magnitude than the impact of household income, are education, age, and participation in non-political activities. Finally, switching gender from male to female, and a marginal increase in church attendance from 2-3 times a month to nearly every week, have 12% and 2% negative effects on the probability of making monetary campaign contributions, respectively.

Moving to the determinants of contacting elected or appointed government officials, there are considerable differences in baseline participation probabilities depending on whether the person tries to contact local or national government official. Baseline probabilities are 78%, 39%, and 17% for contacting local officials (for high-, middle-, and low-propensity types, respectively), and compare with 50%, 20%, and 8% for contacting national government officials. Nonetheless, covariate effects are relatively similar across both types of contact. The variables that have the largest effects are civic skills, where a 0.5 marginal increase has 11%, 14%, and 8% positive effects on the contact probability (for high-, middle-, and low-propensity types, respectively), and gender, where a change from male to female gender causes 6%, 3%, and 1% reductions on contact probabilities. Involvement in non-political activities also has a positive and significant effect on contact probabilities, and the

remaining covariates have small and/or statistically insignificant effects.

Comparison with Logistic Regressions

[SEE FIGURES 5.4, 5.6, and 5.5]

Even though logistic regressions approximate average behavior fairly well (see Tables B.2 and B.3 in Appendix B.3, which contain average effects produced by logistic regressions and by the mixture model), they do not allow learning about heterogeneities in baseline participation propensities or covariate effects. To help visualize the heterogeneity that exists across groups and form of political participation, as well as differences with respect to results produced by standard logistic regressions, Figures 5.4-5.6 give the relationship between three covariates (civic skills, age, and education) and participation probabilities, for each political activity. In these plots, smooth lines indicate predictions from the logistic regression model, and the other three lines correspond to predictions for each type produced by the mixture model. Logistic regressions severely underestimate baseline participation probabilities for respondents in the high-propensity type, and overestimate participation probabilities for those respondents in the low-propensity type. Also, while logistic regressions approximate the behavior of middle-propensity types when looking at the impact of civic skills (Figure 5.4), they do not accurately approximate the behavior of any particular participatory type when considering the impact of age or education (Figures 5.6 and 5.5). Finally, since the logistic regression overestimates parameters of the linear predictor for education and civic skills, effects are also overestimated for these covariates. In particular, logistic regressions overestimate (meaning that lines are steeper) the impact of civic skills on voting in local and national elections (see Figure 5.4), as well as the impact of education on organizational membership, involvement in political discussion, participation in high-cost activities, and contacting public officials (see Figure 5.6).

Overall, results discussed so far give strong support to the first two hypotheses (regarding the behavior of high- and low-propensity types), but do not offer evidence in favor of the third hypothesis (regarding the behavior of middle-propensity types). High-propensity types are the only ones

exhibiting above 20% probability of participating in high-cost activities, for median covariate levels, and almost always participate in relatively low-cost activities like voting in national elections. In contrast, low-propensity types are the only ones exhibiting below 60% probability of participation in low-cost activities, and almost always abstain from high-cost activities like campaign work, formal and informal community activities, and participation in protests. In contrast to high- and low-propensity types, middle-propensity types are very likely to participate in low-cost activities (probabilities always larger than 70%), and exhibit small but non-negigible probabilities of participating in high-cost activities. Further, even though the skewness parameter associated with the intermediate type is statistically indistinguisable from that assumed by standards logistic regressions, the latter type of model does not allow an accurate approximation of the behavior of middle-propensity types. In general, regarding differences between results produced by the mixture model and standard logistic regressions, I identified the following disadvantages associated with the latter approach: it does not allow learning about heterogeneities in political participation that exist across latent participatory types; it leads to biased measures of the impact of certain covariates; and although it does a good approximation of weighted average effects across groups, it does not allow learning about the behavior of any particular participatory type (not even the middle-propensity type).

Determinants of Type Assignment

[SEE TABLES 5.5 and 5.6]

First, I study the relationship between type assignment and issue positions. Table 5.5 gives the proportion of respondents in each type expressing more or less support for a series of statements on issues including attitudes toward welfare policy, religion in public schools, and abortion. High-propensity types are significantly more likely to disagree with the idea that people should get ahead on their own, as well as with the idea that abortions should never be permitted, relative to low-propensity types. High-propensity types are also significantly more likely to agree that government should provide more services, and to agree with the idea that there should be no religion in public

schools, relative to low-propensity types. These results suggest that activists exhibit relatively more progressive and socially-liberal issue positions. Also, for some issues (whether government should provide more services, and whether there should be religion in public schools), a significantly larger proportion of high-propensity types exhibit extreme issue positions (either full agreement or full disagreement). Table 5.6 gives the proportion of respondents in each type expressing more or less opposition to affirmative action for Blacks, women, or Hispanics. High-propensity types are significantly more likely to support affirmative action for Blacks and Hispanics, relative to low-propensity types. However, in the case of positions on affirmative action, there is no evidence that the extremism of issue positions is related to type assignment.

[SEE TABLE 5.7]

The first section of Table 5.7 gives the relationship between type assignment and positions on yes/no public issues. High-propensity types are more likely to oppose removing pro-gay and racist books from public libraries, to support allowing authoritarian and anti-religious speeches, and to oppose requiring a permit for carrying handguns—although differences between high- and low-propensity types are only significant for whether to remove pro-gay books and require a permit for carrying a handgun. Thus, activists are also relatively more likely to exhibit libertarian issue positions.

The rest of Table 5.7 gives the relationship between type assignment and personal concerns, including education, health, day-care, housing, employment, and cash problems.[17] Differences across type are large and significant, with high-propensity types being more likely to report experiencing all of these concerns, relative to both middle- and low-propensity types. The direction of the differences contradicts expectations, as results contradict previous findings from the participation literature that suggest that personal grievances inhibit participation.

[SEE TABLE 5.8]

[17]Cash problems include: problems paying medical or dental treatments, paying the rent, needing to cut back the amount or quality of food, needing to cut back on entertainment and recreation, or needing to work extra hours.

Finally, Table 5.8 gives the relationship between type assignment and measures of civic engagement, including: level of political information, interest in politics, feelings of political efficacy, strength of partisanship, and exposure to recruitment efforts. Differences across type are again large and significant, with high-propensity exhibiting higher levels of political engagement relative to middle- and low-propensity types. These results are consistent with the following explanations: that higher levels of political engagement lead to higher participation propensities, that political participation leads to higher levels of political engagement. It is likely that a reciprocal relationship exists between participation and engagement, and that both explanations are true to some extent. The reason why I cannot test a hypothesis regarding the impact of engagement on participation is because both variables are measured contemporaneously and no valid instruments (for instance, variables that can safely be assumed to affect engagement but have no direct impact on participation) are available.

The profiling of participatory types offers limited support for the hypothesis that activists exhibit more extreme issue positions (H4.1). Even though there is evidence that high-propensity types prefer certain positions, the proportion of individuals choosing extreme issue positions is not always larger than for middle- and low-propensity types. Also, I found strong evidence against the hypothesis that individuals experiencing personal grievances participate less (H4.2). If anything, personal grievances seem to motivate participation. Finally, I found strong evidence in favor of the hypothesis that individuals who participate more are also more likely to report higher levels of political engagement and greater exposure to recruitment efforts (H4.3).

5.4 Conclusions

The study of the determinants of political outcomes is challenging because multiple channels can be used to affect collective decisions. In aiming to affect a particular political outcome some individuals may decide to participate in the election of officials representing their interests, others may donate money in support of a candidate or political organization, and yet others may choose to join demonstrations in support of a particular position on a public issue. If different forms of

political participation attract different types of activists, obtaining reliable estimates of the impact of individual attributes on overall participation and political outcomes requires a comprehensive examination of the determinants of involvement in all relevant political activities.

Still, most studies of political participation have focused on explaining voting in presidential elections, or on conducting independent analyses of the decision to participate in different activities. Alternatively, others have modeled overall tendencies toward participation using aggregate indicators of the decision to participate in multiple activities. The first approach is limited because it ignores patterns of behavior that remain mostly constant across different forms of political participation, and therefore does not make efficient use of all the available information. The second approach is also limited, but for the opposite reasons: it completely pools information across activities and does not allow measuring the extent to which impacts of individual attributes vary across political activities.

The standard resource model of political participation assumes that respondent identities do not matter after accounting for socio-economic variables and politically-relevant resources. This assumption is violated whenever significant heterogeneities in individual behavior remain due to differences in excluded factors affecting individual motivations to get involved in politics, such as issue positions and personal concerns. In this chapter, I used finite mixture modeling to relax this assumption and generalize the specification of a particular binary choice model, allowing a parameter regulating propensities to get involved in political activities to vary across clusters of respondents. Additionally, in modeling coefficients affecting the systematic utility from participation, I used a random effects approach that allows borrowing information regarding common patterns of individual behavior across political activities.

To evaluate the ability of the proposed model specification to provide new insights about the determinants of political participation, I applied it to data from the 1990 American Citizen Participation Study, and found that after controlling for systematic differences in socio-demographic attributes, civic skills, and involvement in non-political social activities, large heterogeneity in participation remain. Education and/or civic skills are important for explaining participation in all

activities, including contributing money, where it was previously argued that income was the main determinant of individual involvement. But the main contribution of this chapter is that it showed that baseline participation propensities and covariate effects vary considerably across latent types, as a function of the characteristics of each activities.

For low-cost activities, while high- and middle-propensity types are very likely to participate, low-propensity types do so less frequently—in particularly, they are considerably less likely to vote in local elections and be a member of a political organization. Moreover, an increase in the level of politically-relevant resources has particularly large effects for low- and middle-propensity types, but no significant effects for high-propensity types, as the latter almost always participate. Conversely, for high-cost activities, even high-propensity types are more likely to abstain than participate, and other types participate very rarely. In contrast to what was found for low-cost activities, an increase in the level of politically-relevant resources has large effects for high- and middle-propensity types, but no significant effects for low-propensity types, as the latter are unlikely to participate under any circumstance.

What are the implications of these findings for the design of political campaigns? Contrary to low- and high-propensity types, middle-propensity types are sensitive to changes in the level of politically-relevant resources for most activities. This suggests that if campaigns and organizations want to target individuals such that mobilization efforts lead to greater involvement in a wide range of activities, regardless of participation costs (for instance, if they want their efforts to simultaneously drive people to the polls, contribute, and get involved in campaigns), then they should target middle-propensity individuals. Alternatively, if campaigns are interested in promoting participation in a particular political activity, then they should take into account that recruitment into low-cost activities is most effective if directed at low- and middle-propensity individuals, and recruitment into high-cost activities is most effective if directed at middle- and high-propensity individuals.

Another important finding is that the large differences in participation rates across types are not innocuous from the point of view of political representation, as those who participate the most exhibit issue positions and concerns that differ significantly from those exhibited by individuals with

intermediate- or low- participation propensities. Higher-propensity types exhibit more progressive issue positions, like thinking that government should provide more services; favor socially liberal issue positions, like pro-abortion policies and not allowing religious activities in public schools; and are more likely to hold libertarian views, like allowing for speeches and library books that defend controversial or extremist positions. Overall, the mixture modeling approach contributed greatly to advancing our understanding of the inequalities in political participation. Results showed that unobserved expressive and political motivations for participation lead to large inequalities in civic engagement that cannot be completely accounted for by differences in socio-economic status, civic skills, and other measures of politically-relevant resources. Taking these heterogeneities into account is important because disregarding it—as is usually done with standard models of political participation—may lead to inaccurate inferences about participation rates and covariate effects.

	Skewness parameter (α)	Average type probability	Predicted proportion
Low propensity	0.34 (0.10)	34.6	32.3
Middle propensity	0.94 (0.28)	53.1	59.4
High propensity	2.94 (0.96)	12.3	8.3

Table 5.1: 1990 ACPS: Estimates of Skewness Parameter and Type Assignment.

	Vote national			Vote local			Political organization			Political discussion		
						Low propensity type						
Baseline	43.6	**51.1**	58.0	33.5	**39.8**	45.9	30.6	**36.3**	42.0	54.0	**61.0**	67.4
Education (4 to 5)	2.8	**5.3**	7.9	1.8	**3.9**	6.1	1.9	**3.5**	5.2	1.7	**3.3**	4.9
Male (yes to no)	-8.0	**-3.7**	1.0	-6.5	**-2.4**	1.9	-11.7	**-8.4**	-5.0	-13.2	**-9.5**	-5.9
Age (35-39 to 40-44)	1.9	**2.9**	4.0	3.0	**3.9**	4.9	2.3	**3.0**	3.8	1.2	**1.8**	2.5
Income (7 to 8)	0.5	**1.3**	2.2	0.4	**1.1**	1.8	0.9	**1.4**	2.0	0.2	**0.8**	1.3
Skills (0.5 increase)	-0.8	**2.1**	4.6	0.8	**2.9**	5.0	7.5	**9.3**	11.4	4.2	**5.7**	7.1
Church Att. (6 to 7)	0.1	**1.0**	2.0	0.4	**1.3**	2.2	-1.9	**-1.1**	-0.4	-0.9	**-0.2**	0.5
Non-Pol Acts (2 to 3)	1.0	**2.4**	3.8	2.3	**3.6**	4.9	2.5	**3.6**	4.7	1.1	**2.1**	3.1
						Middle propensity type						
Baseline	78.1	**85.0**	90.8	66.3	**74.1**	81.5	62.0	**70.0**	77.7	87.2	**91.7**	95.5
Education (4 to 5)	2.0	**3.8**	6.0	2.0	**4.2**	6.4	2.3	**4.2**	6.1	0.8	**1.7**	2.7
Male (yes to no)	-7.0	**-3.1**	0.8	-7.6	**-2.8**	2.3	-16.1	**-11.7**	-7.0	-9.6	**-6.3**	-3.7
Age (35-39 to 40-44)	1.3	**2.2**	3.3	3.1	**4.2**	5.4	2.7	**3.6**	4.6	0.6	**1.0**	1.5
Income (7 to 8)	0.4	**1.0**	1.8	0.4	**1.2**	2.1	1.1	**1.8**	2.5	0.1	**0.4**	0.8
Skills (0.5 increase)	-0.7	**1.6**	3.5	0.9	**3.2**	5.3	8.2	**10.3**	12.4	1.7	**2.8**	4.0
Church Att. (6 to 7)	0.1	**0.8**	1.6	0.5	**1.4**	2.4	-2.5	**-1.4**	-0.5	-0.6	**-0.1**	0.3
Non-Pol Acts (2 to 3)	0.8	**1.9**	3.1	2.4	**3.9**	5.4	3.0	**4.3**	5.6	0.5	**1.1**	1.8
						High propensity type						
Baseline	98.8	**99.6**	100.0	95.8	**98.2**	99.7	94.1	**97.3**	99.4	99.8	**99.9**	100.0
Education (4 to 5)	0.0	**0.2**	0.6	0.1	**0.7**	1.6	0.3	**0.9**	1.9	0.0	**0.0**	0.1
Male (yes to no)	-0.9	**-0.3**	0.1	-2.0	**-0.6**	0.5	-7.7	**-4.3**	-1.6	-0.8	**-0.3**	0.0
Age (35-39 to 40-44)	0.0	**0.1**	0.4	0.2	**0.7**	1.5	0.2	**0.8**	1.6	0.0	**0.0**	0.1
Income (7 to 8)	0.0	**0.1**	0.2	0.0	**0.2**	0.6	0.1	**0.4**	0.9	0.0	**0.0**	0.0
Skills (0.5 increase)	0.0	**0.1**	0.3	0.1	**0.5**	1.3	0.5	**1.9**	3.8	0.0	**0.0**	0.2
Church Att. (6 to 7)	0.0	**0.1**	0.2	0.0	**0.3**	0.6	-0.9	**-0.4**	-0.1	0.0	**0.0**	0.0
Non-Pol Acts (2 to 3)	0.0	**0.1**	0.4	0.1	**0.7**	1.4	0.3	**1.0**	1.9	0.0	**0.0**	0.1

Mean effects (bold) and 90% confidence intervals by activity and type

Table 5.2: 1990 ACPS: Marginal Effects, Low-Cost Activities.

	Campaign work			Formal community			Informal community			Protest		
						Low propensity type						
Baseline	4.0	**5.1**	6.3	6.0	**7.6**	9.3	6.0	**7.5**	9.1	3.1	**4.0**	5.0
Education (4 to 5)	-0.4	**-0.1**	0.3	-0.8	**-0.2**	0.4	-0.2	**0.3**	0.8	-0.1	**0.3**	0.7
Male (yes to no)	-1.1	**-0.3**	0.5	-3.2	**-2.0**	-0.9	-1.2	**-0.2**	0.9	-0.7	**0.1**	1.0
Age (35-39 to 40-44)	0.1	**0.3**	0.5	0.4	**0.7**	1.0	-0.1	**0.2**	0.4	-0.6	**-0.4**	-0.2
Income (7 to 8)	-0.1	**0.0**	0.1	0.0	**0.2**	0.4	-0.2	**0.0**	0.2	-0.2	**-0.1**	0.1
Skills (0.5 increase)	1.7	**2.4**	3.2	3.4	**4.7**	6.1	1.7	**2.5**	3.4	1.0	**1.6**	2.2
Church Att. (6 to 7)	-0.3	**-0.1**	0.0	-0.7	**-0.4**	-0.1	-0.4	**-0.2**	0.1	-0.4	**-0.3**	-0.1
Non-Pol Acts (2 to 3)	0.6	**0.8**	1.1	1.2	**1.6**	2.1	0.6	**1.0**	1.3	-0.1	**0.2**	0.4
						Middle propensity type						
Baseline	10.3	**13.1**	16.3	15.1	**19.0**	23.5	15.3	**19.0**	23.1	8.0	**10.4**	13.2
Education (4 to 5)	-1.0	**-0.2**	0.8	-1.8	**-0.4**	0.9	-0.5	**0.6**	1.9	-0.2	**0.8**	1.8
Male (yes to no)	-2.6	**-0.7**	1.2	-7.6	**-4.8**	-2.1	-2.9	**-0.4**	2.1	-1.8	**0.3**	2.4
Age (35-39 to 40-44)	0.2	**0.6**	1.1	0.9	**1.6**	2.3	-0.1	**0.4**	1.0	-1.4	**-0.9**	-0.5
Income (7 to 8)	-0.3	**0.0**	0.4	0.0	**0.5**	1.0	-0.4	**0.0**	0.5	-0.5	**-0.1**	0.2
Skills (0.5 increase)	4.2	**5.8**	7.5	8.0	**10.5**	13.4	4.1	**5.8**	7.6	2.5	**3.8**	5.4
Church Att. (6 to 7)	-0.8	**-0.3**	0.1	-1.6	**-0.9**	-0.3	-0.9	**-0.4**	0.2	-1.1	**-0.7**	-0.2
Non-Pol Acts (2 to 3)	1.4	**2.0**	2.7	2.7	**3.7**	4.8	1.5	**2.2**	3.0	-0.2	**0.4**	1.0
						High propensity type						
Baseline	27.4	**35.4**	45.0	38.3	**48.1**	59.4	38.6	**47.9**	58.7	21.8	**29.0**	37.7
Education (4 to 5)	-2.4	**-0.4**	1.7	-3.6	**-0.9**	1.8	-1.1	**1.2**	3.5	-0.4	**1.9**	4.4
Male (yes to no)	-6.0	**-1.6**	2.9	-15.8	**-10.0**	-4.5	-5.8	**-0.9**	4.1	-4.4	**0.7**	5.9
Age (35-39 to 40-44)	0.4	**1.4**	2.5	1.8	**3.1**	4.4	-0.3	**0.8**	1.9	-3.6	**-2.3**	-1.2
Income (7 to 8)	-0.7	**0.0**	0.8	0.0	**1.0**	1.9	-0.7	**0.1**	0.9	-1.2	**-0.3**	0.5
Skills (0.5 increase)	9.4	**12.3**	15.6	14.5	**18.0**	21.6	7.9	**10.6**	13.4	6.0	**9.0**	12.4
Church Att. (6 to 7)	-1.8	**-0.8**	0.2	-3.2	**-1.9**	-0.6	-1.8	**-0.7**	0.4	-2.7	**-1.6**	-0.5
Non-Pol Acts (2 to 3)	3.1	**4.5**	6.0	5.2	**7.0**	8.8	2.9	**4.3**	5.8	-0.4	**1.0**	2.4

Mean effects (bold) and 90% confidence intervals by activity and type

Table 5.3: 1990 ACPS: Marginal Effects, High-Cost Activities.

	Donate money			Donate by mail			Contact local			Contact national	
					Low propensity type						
Baseline	10.0	**12.5**	15.1	2.4	**3.3**	4.2	13.8	**17.0**	20.2	6.2	**7.9**	9.6
Education (4 to 5)	1.5	**2.6**	3.9	0.1	**0.5**	0.9	-1.1	**0.0**	1.0	-0.4	**0.1**	0.7
Male (yes to no)	-5.1	**-3.3**	-1.5	-0.7	**-0.1**	0.5	-6.4	**-4.3**	-2.3	-2.4	**-1.3**	-0.3
Age (35-39 to 40-44)	0.9	**1.4**	1.9	0.1	**0.2**	0.4	0.6	**1.1**	1.6	0.1	**0.4**	0.6
Income (7 to 8)	0.7	**1.0**	1.4	0.0	**0.1**	0.3	-0.3	**0.1**	0.4	-0.2	**0.0**	0.2
Skills (0.5 increase)	3.2	**4.6**	6.0	0.5	**0.9**	1.4	5.7	**7.5**	9.5	2.9	**4.0**	5.2
Church Att. (6 to 7)	-1.0	**-0.6**	-0.2	-0.3	**-0.1**	0.0	-1.1	**-0.7**	-0.2	-0.6	**-0.4**	-0.2
Non-Pol Acts (2 to 3)	1.3	**1.9**	2.5	0.3	**0.5**	0.7	1.8	**2.5**	3.3	0.9	**1.2**	1.6
					Middle propensity type						
Baseline	24.5	**30.1**	36.3	6.3	**8.5**	11.1	32.8	**39.2**	46.2	15.8	**19.8**	24.1
Education (4 to 5)	3.2	**5.4**	7.8	0.4	**1.2**	2.2	-2.1	**-0.1**	2.0	-1.0	**0.3**	1.5
Male (yes to no)	-11.1	**-7.2**	-3.4	-1.9	**-0.3**	1.4	-12.9	**-8.7**	-4.8	-5.6	**-3.1**	-0.6
Age (35-39 to 40-44)	2.0	**2.9**	3.9	0.2	**0.6**	1.0	1.3	**2.2**	3.1	0.3	**0.9**	1.5
Income (7 to 8)	1.5	**2.2**	3.0	0.1	**0.4**	0.7	-0.6	**0.1**	0.8	-0.4	**0.1**	0.5
Skills (0.5 increase)	6.8	**9.3**	11.9	1.2	**2.3**	3.5	10.9	**13.5**	16.3	6.8	**9.0**	11.4
Church Att. (6 to 7)	-2.1	**-1.2**	-0.4	-0.7	**-0.3**	0.0	-2.2	**-1.3**	-0.4	-1.5	**-1.0**	-0.4
Non-Pol Acts (2 to 3)	2.7	**3.9**	5.2	0.7	**1.1**	1.7	3.5	**4.8**	6.1	2.0	**2.8**	3.7
					High propensity type						
Baseline	56.3	**66.9**	78.2	17.8	**24.3**	32.2	68.7	**78.3**	87.7	39.8	**49.5**	60.8
Education (4 to 5)	4.6	**7.1**	9.8	0.9	**3.0**	5.5	-2.4	**-0.1**	2.0	-1.9	**0.5**	2.9
Male (yes to no)	-17.6	**-11.5**	-5.5	-4.9	**-0.7**	3.5	-16.2	**-10.9**	-5.8	-11.3	**-6.2**	-1.3
Age (35-39 to 40-44)	2.8	**4.0**	5.2	0.5	**1.5**	2.6	1.3	**2.2**	3.3	0.5	**1.7**	2.8
Income (7 to 8)	2.1	**3.1**	4.1	0.2	**0.9**	1.7	-0.6	**0.1**	0.9	-0.7	**0.1**	1.0
Skills (0.5 increase)	8.6	**11.6**	14.7	3.0	**5.7**	8.7	7.7	**11.4**	15.0	12.4	**15.4**	18.5
Church Att. (6 to 7)	-3.2	**-1.8**	-0.5	-1.8	**-0.9**	0.0	-2.6	**-1.4**	-0.4	-3.0	**-1.9**	-0.8
Non-Pol Acts (2 to 3)	3.7	**5.3**	7.0	1.7	**2.9**	4.3	3.2	**4.7**	6.3	3.8	**5.2**	6.8

Mean effects (bold) and 90% confidence intervals by activity and type

Table 5.4: 1990 ACPS: Marginal Effects, Other Activities.

	People should get ahead on their own						
	Disagree						Agree
	1	2	3	4	5	6	7
Low propensity	11.0	6.6	12.0	24.0	21.1	13.0	12.3
Middle propensity	8.8	8.7	15.3	23.3	18.3	13.9	11.7
High propensity	11.2	13.0	17.4	20.5	17.4	9.9	10.6

	Government should provide more services						
	Disagree						Agree
	1	2	3	4	5	6	7
Low propensity	6.6	9.5	16.1	29.3	14.5	10.8	13.2
Middle propensity	7.2	8.7	13.5	24.6	17.7	12.9	15.5
High propensity	7.4	8.6	11.7	21.5	13.5	12.9	24.5

	No religion in public schools						
	Disagree						Agree
	1	2	3	4	5	6	7
Low propensity	34.3	9.1	8.9	14.4	5.3	6.5	21.5
Middle propensity	34.9	9.9	7.3	14.4	4.3	9.2	19.9
High propensity	35.2	4.4	5.7	13.8	3.8	2.5	34.6

	Abortions should never be permitted						
	Disagree						Agree
	1	2	3	4	5	6	7
Low propensity	38.1	10.5	7.2	12.4	7.2	8.8	15.8
Middle propensity	40.8	9.8	7.8	12.2	5.4	9.6	14.5
High propensity	50.6	10.5	4.9	10.5	2.5	10.5	10.5

Extreme positions (% choosing 1 or 7)

	People get ahead on their own	Government provide more services	No religion public schools	Abortions never permitted
Low	22.9	22.0	54.9	53.6
Middle	19.9	22.1	55.2	57.0
High	21.3	26.9	69.6	55.9

Table 5.5: 1990 ACPS: Type Assignment and Issue Positions.

	No affirmative action for Blacks						
	Disagree						Agree
	1	2	3	4	5	6	7
Low propensity	11.5	4.6	10.7	29.0	14.9	14.2	15.0
Middle propensity	9.4	6.6	10.4	29.7	14.4	14.0	15.6
High propensity	15.3	8.6	11.0	30.7	11.7	6.7	16.0

	No affirmative action for women						
	Disagree						Agree
	1	2	3	4	5	6	7
Low propensity	11.2	5.4	13.8	28.6	15.8	11.7	13.4
Middle propensity	10.5	6.8	13.0	29.0	15.3	13.6	11.7
High propensity	13.5	10.4	16.6	27.0	11.7	9.2	11.7

	No affirmative action for Hispanics						
	Disagree						Agree
	1	2	3	4	5	6	7
Low propensity	9.0	4.3	10.8	30.8	13.5	14.1	17.5
Middle propensity	7.9	6.3	10.6	29.7	14.3	15.2	16.1
High propensity	14.7	8.0	11.7	31.9	9.8	10.4	13.5

	Extreme positions (% choosing 1 or 7)		
	Against affirmative action for Blacks	Against affirmative action for women	Against affirmative action for Hispanics
Low propensity	26.6	24.6	26.5
Middle propensity	24.9	22.3	24.0
High propensity	31.3	25.2	28.2

Table 5.6: 1990 ACPS: Type Assignment and Opposition to Affirmative-Action.

	Position on yes/no issues				
	Remove pro-gay book	Remove racist book	Allow authoritarian speech	Allow anti-religious speech	Require permit for handgun
Low propensity	30.3	31.5	70.7	71.4	91.2
Middle propensity	27.5	28.3	72.6	73.1	88.3
High propensity	20.4	24.7	73.0	77.2	83.2

	Personal concerns					
	Education problem	Health problem	Day care problem	Housing problem	Employment problem	Cash problem
Low propensity	12.8	25.9	6.1	5.5	9.2	38.2
Middle propensity	16.0	32.0	5.1	6.3	11.6	39.1
High propensity	25.2	42.9	6.9	8.6	12.9	45.7

	Number of cash problems				
	Zero	One	Two	Three	Four
Low propensity	61.8	13.6	12.5	7.1	5.1
Middle propensity	60.9	17.0	12.3	6.7	3.1
High propensity	54.3	20.4	8.6	11.1	5.6

Table 5.7: 1990 ACPS: Type Assignment, Position on Yes/No Issues, Personal Concerns, and Economic Difficulties.

	Political engagement and recruitment				
	Information (range: 0-10)	Interest (range: 0-10)	Efficacy (range: 0-16)	Strength PID (range: 1-4)	Recruit (range: 0-5)
Low propensity	4.3	5.3	9.0	2.8	0.5
Middle propensity	4.9	6.3	9.7	3.1	1.0
High propensity	5.5	7.1	11.0	3.2	1.8

	Recruitment efforts by activity				
	Ask work for campaign	Ask make contribution	Ask contact officials	Ask participate protest	Ask participate community act.
Low propensity	4.3	5.3	9.0	2.8	0.5
Middle propensity	4.9	6.3	9.7	3.1	1.0
High propensity	5.5	7.1	11.0	3.2	1.8

Table 5.8: 1990 ACPS: Type Assignment, Political Engagement, and Recruitment.

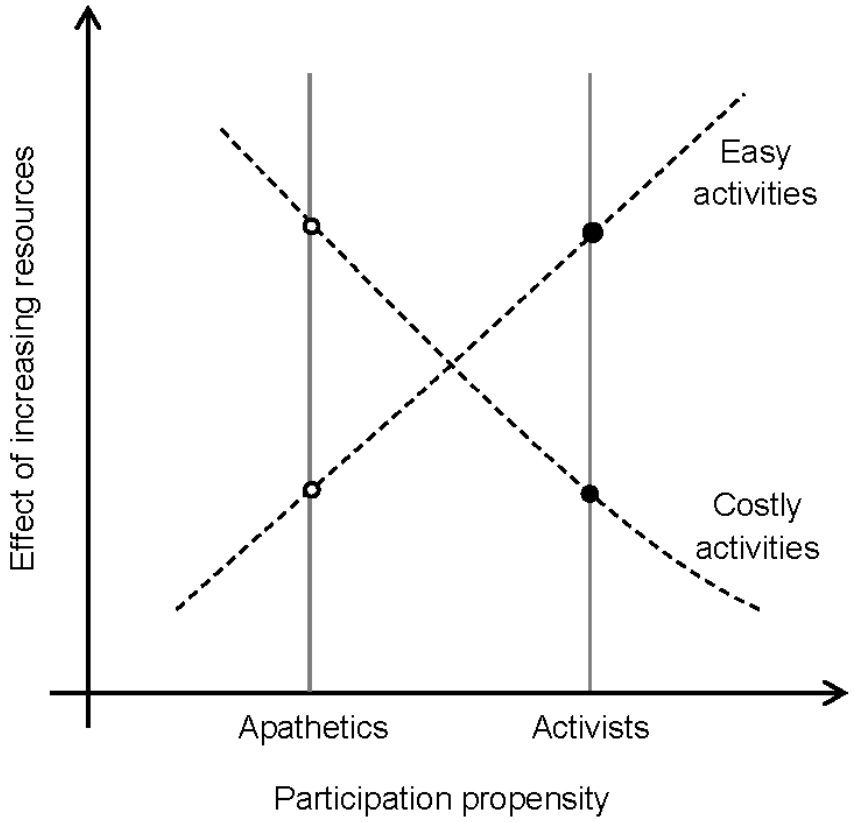

Figure 5.1: Illustration of Hypotheses H2.1 and H2.2.

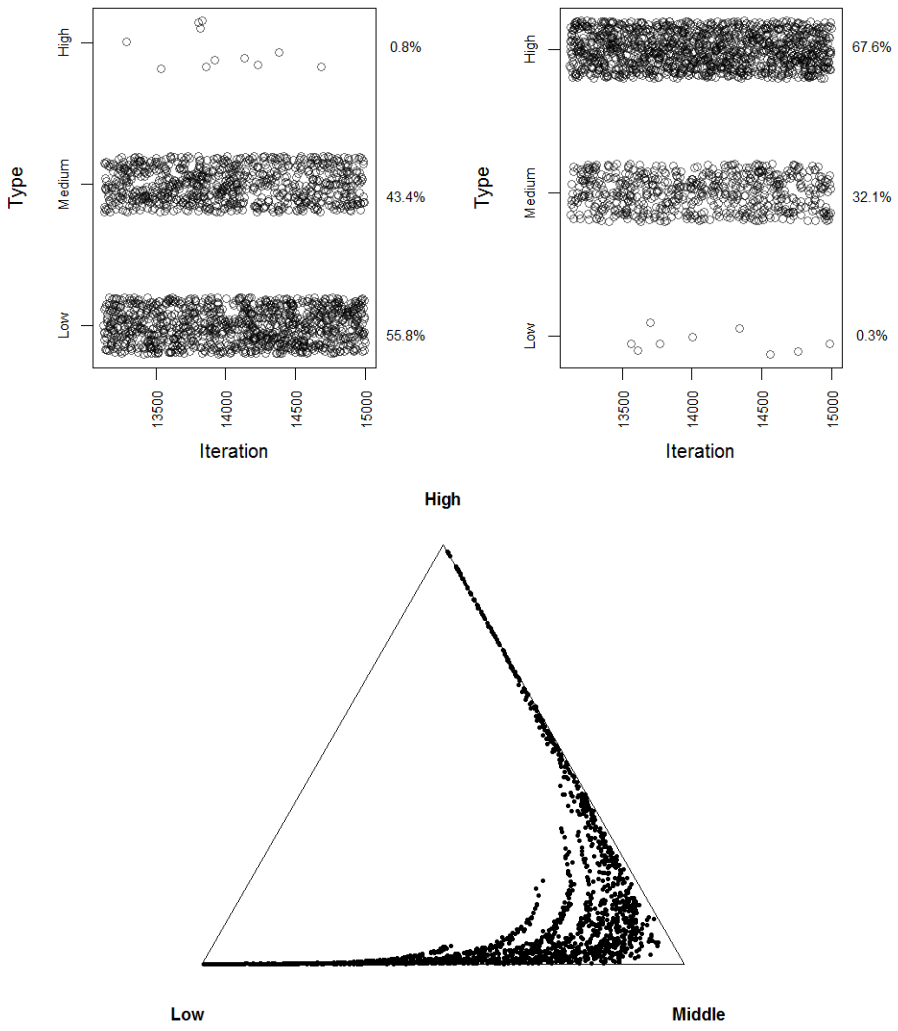

Figure 5.2: 1990 ACPS: Distribution of Type Assignments.

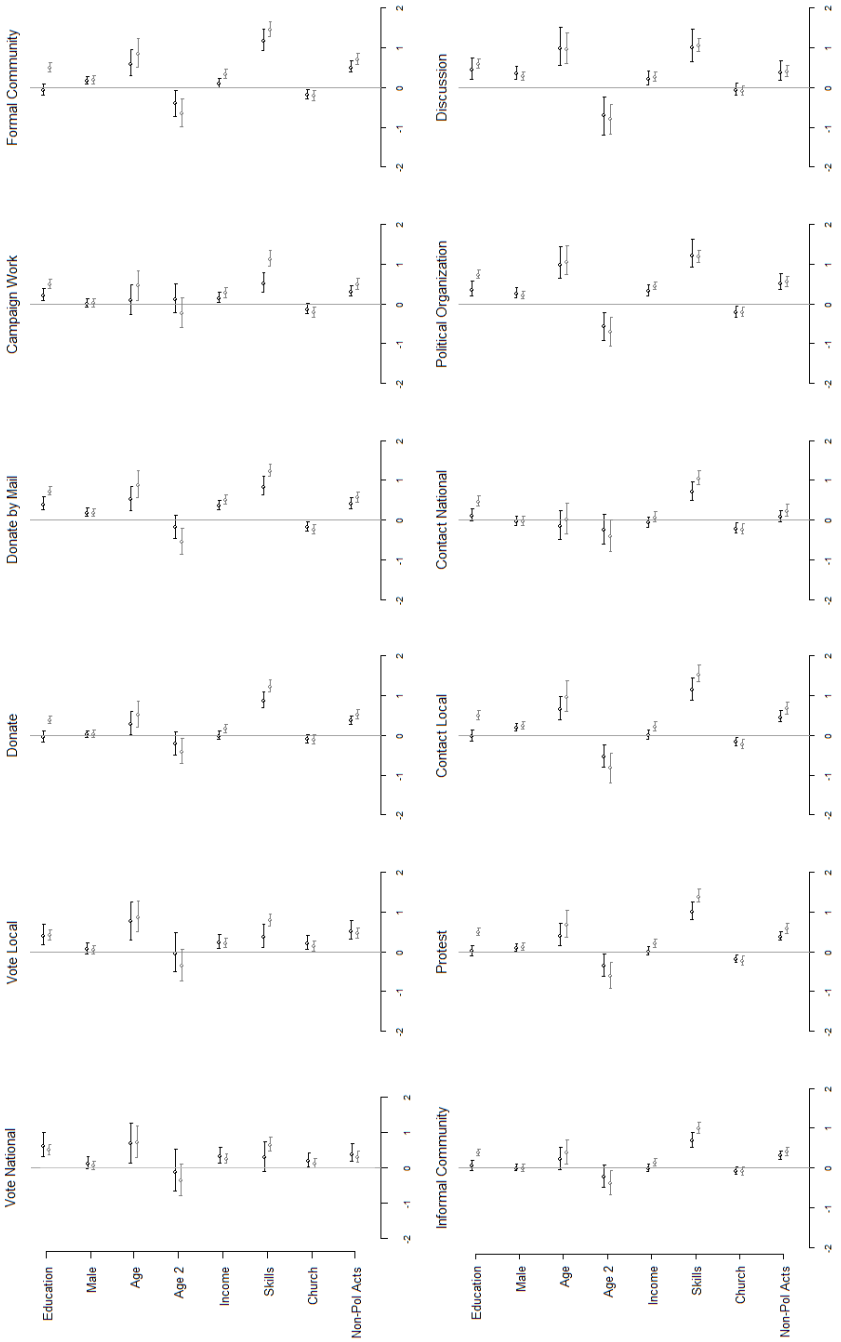

Figure 5.3: 1990 ACPS: Coefficients of Varying Skewness Parameter model.

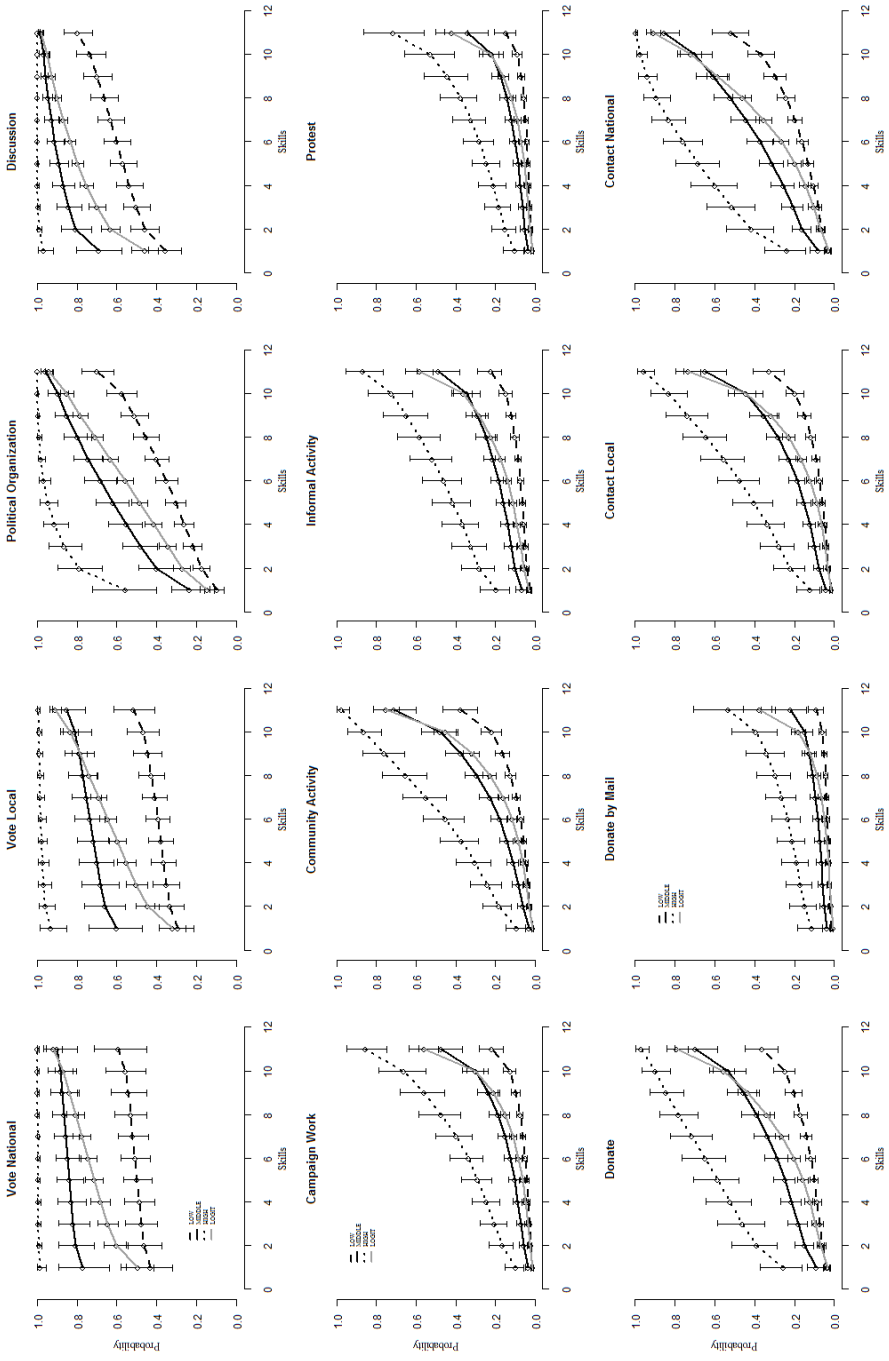

Figure 5.4: 1990 ACPS: Participation Probabilities and Politically-Relevant Skills.

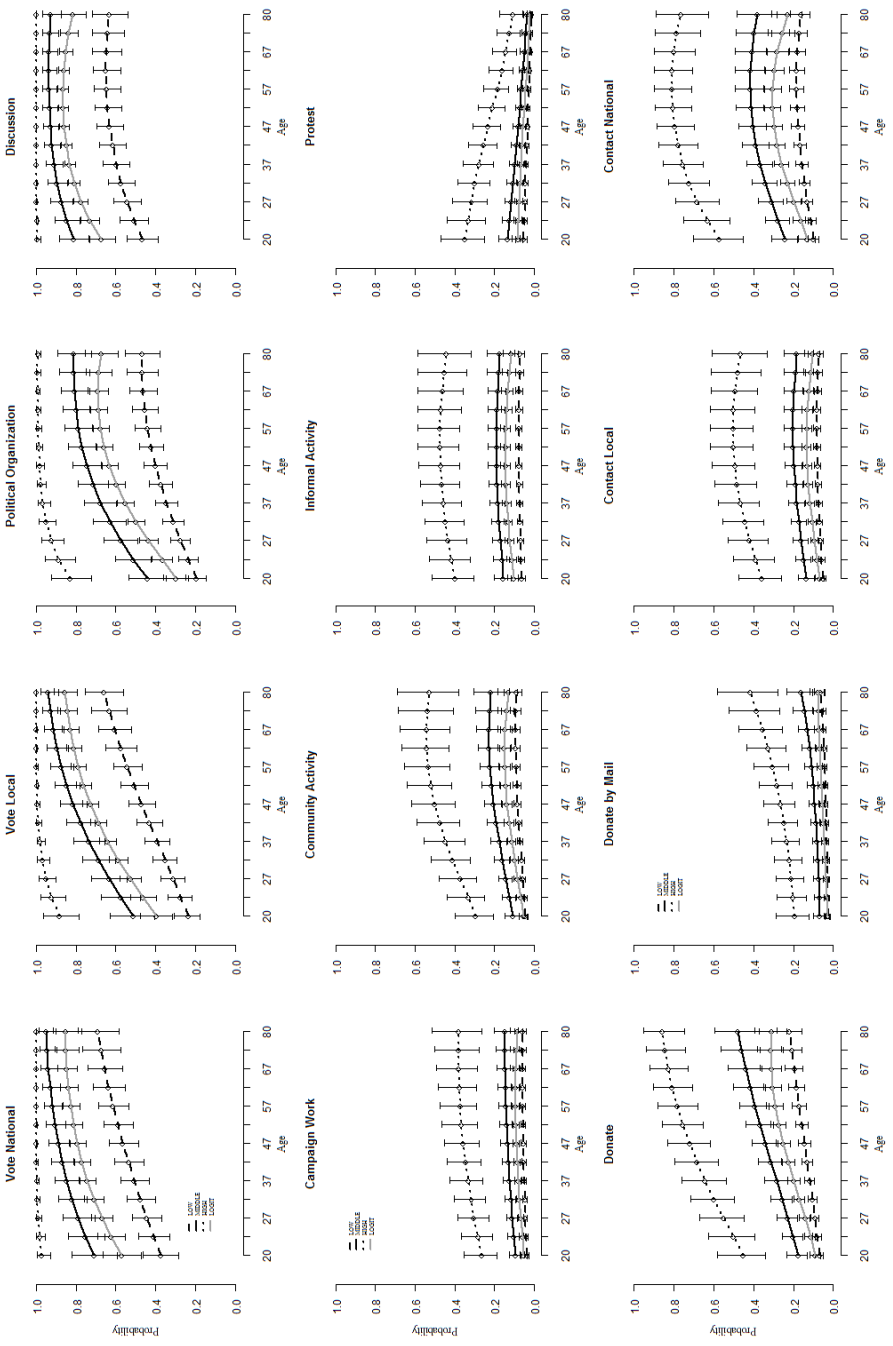

Figure 5.5: 1990 ACPS: Participation Probabilities and Age.

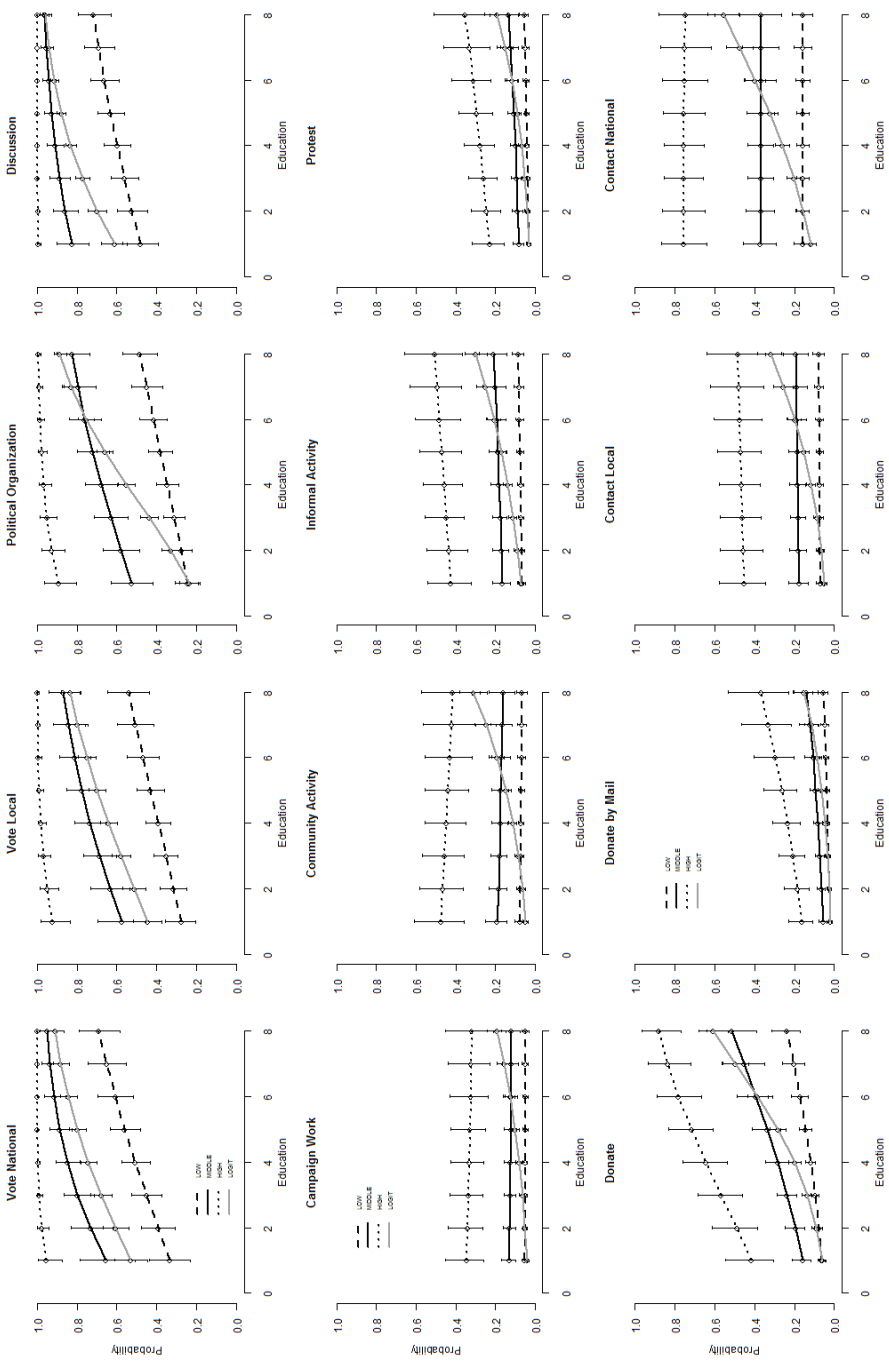

Figure 5.6: 1990 ACPS: Participation Probabilities and Educational Attainment.

Chapter 6

Economic Adversity, Emergency Economic Policies, and Political Participation

6.1 Introduction

In the months preceding the 2008 presidential election, the United States financial system entered a period of major turmoil. By November 4, 2008, housing prices had fallen sharply, foreclosures had soared across the country, and the economy had started to contract. In the midst of the confusion caused by the deterioration of economic conditions, the government enacted a series of emergency economic acts to restore confidence in markets, and to prevent a deepening of the recession, including a financial system bailout, a fiscal stimulus package, and a housing relief bill. While there has been much research about the impact of economic conditions and issue positions on voter choice, there has been relatively little research about the impact of these variables on civic engagement. In this chapter, I study the extent to which evaluations of the economy, as well as support for the three economic acts, had an impact on political participation using data from the 2008 Cooperative Congressional Election Study (Ansolabehere, 2008). Instead of modeling participation in each political activity independently, or using an additive index of overall political participation as dependent variable, I simultaneously model participation in a series of political activities, allowing model intercepts to vary across latent participatory types with different propensities toward political participation. This modeling strategy does not only allow measuring how baseline participation probabilities vary across

types, but also how the impact of economic conditions and approval of economic acts varies across high-, middle- and low-propensity individuals, as well as across activities. Additionally, I estimate a latent measure of overall political participation, and model it as a function of the same covariates included in the mixture model.

Two theories exist about the potential impact of economic adversity on political participation (Brody and Sniderman, 1977; Rosenstone, 1982; Radcliff, 1992). According to the mobilization hypothesis, individuals make the government accountable for the deterioration of economic conditions, and participate in political activities to express their disapproval with the handling of the economy done by the government. In contrast, according the withdrawal hypothesis, economic adversity inhibits political participation because it reduces individuals' ability to participate, and because citizens assume responsibility for their personal economic problems. Most of the existent empirical evidence points in favor of the withdrawal hypothesis. However, authors have focused mainly on the relationship between macroeconomic indicators and aggregate voter turnout, or the relationship between personal concerns and reported voting behavior. Little has been done to measure the impact of approval of salient economic policies implemented in response to economic crises.

In the next section, I review previous studies that look at the relationship between economic conditions, voter attitudes and behavior, and political participation. After that, I describe the characteristics of the three economic acts enacted in 2008, and give a first look at the data from the 2008 Cooperative Congressional Election Study (Ansolabehere, 2008) to determine whether there is any association between evaluation of economic conditions, approval of economic acts, and participation in a series of political activities. Subsequently, I introduce the methodological procedure, and discuss the results of the multivariate analysis. Finally, I proceed to the conclusion, where I summarize some of the main findings. I find that evaluations of the economy and approval of economic acts usually exhibit a negative relationship with political participation, suggesting that those who believe the situation has gotten worse or oppose some of the 2008 economic acts participate more. However, effects are small in magnitude and usually statistically insignificant at conventional confidence levels.

6.2 Voter Behavior, Participation, and the Economy

Most of the studies of the impact of the economy on political behavior have focused on the effect of the economy on voter choice, and have found support for the hypothesis that citizens vote for the incumbent when economic conditions have improved, and against him otherwise. According to Anderson (2007), economic voting is desirable from a normative point of view because it is in line with the idea that, in representative democracies, government should be accountable for its actions. In addition, the "reward-punishment" hypothesis is more likely to hold when the institutional context allows voters to attribute responsibility for economic conditions to a specific political actor, and when there is a clear viable alternative to the incumbent government. A salient feature of the economic voting literature is the variety of methodological approaches. In particular, scholars have considered alternative indicators of economic evaluations and a large number of indicators of economic conditions have been included as independent variables in multivariate regression analyses. For instance, some scholars have estimated models of aggregate election results to explain variation of support for the incumbent as a function of changes in macroeconomic outcomes; while others have used survey data to explain government popularity and voter choice as a function of objective and subjective measures of economic conditions.

Among the usual objective measures of economic conditions are macroeconomic outcomes such as changes in gross national and domestic product, disposable income, unemployment, and consumer prices. A difficulty with these measures is that researchers need to be careful about the lag structure and time period associated with the different indicators. Moreover, as noted by Lewis-Beck and Stegmaier (2000), it might be the case that individuals react to their perceptions of economic conditions instead of to objective circumstances. In more recent studies, scholars focused on the effect of evaluations of economic conditions on individual voter behavior. These studies tried to test a variety of hypotheses, such as whether individuals react to changes in their personal finances (pocketbook explanation) or to changes in the national economy (sociotropic explanation). Most studies find little or inconsistent support for the pocketbook explanation, and stronger support for the hypothesis that individuals vote for the incumbent when the national economy is perceived to

be doing well, and for the opposition when it is perceived to be doing badly (Kiewiet, 1983; Kinder and Kiewiet, 1979). One possible explanation for the lack of support for the pocketbook hypothesis is that individuals take responsibility for their personal circumstances (Sniderman and Brody, 1977), and attribute blame to the government only for those changes in living conditions affecting the general population.

In addition, scholars have considered the effect of both retrospective and prospective evaluations of the national economy. According to Lewis-Beck and Stegmaier (2000), the availability of both types of measures is useful because it allows testing of the rational expectations hypothesis—whether they have adaptive expectations and react to the evolution of the economy in the recent past, or whether they behave rationally and react to the expected future performance of the economy under alternative governments. Authors who highlight the importance of prospective economic evaluations argue that "its theoretical impetus comes from Downs" (Lewis-Beck and Stegmaier, 2000, 194). According to Downs (1957), individuals choose the candidate who maximizes their expected party differential—equal to the difference in expected utilities perceived under the different candidates. If individuals are rational, then the expected utilities used in the computation of the party differential should not only consider the recent evolution of the national economy, but also how candidate abilities might affect future economic conditions.

A different theoretical justification for the use of prospective economic evaluations is based on Political Business Cycle (PBC) theories. If voters reward incumbents when economic conditions are doing well, then incumbents have incentives to manipulate economic policies and outcomes before the election, to increase their vote shares (Norhaus, 1975; Tufte, 1978). Indeed, scholars have found substantial evidence in favor of the existence of political cycles in monetary aggregates, social security transfers, and economic policies, although not so much evidence of cycles in real economic outcomes (Franzese, 2002).[1] Thus, if Political Business Cycles are a regularity, rational voters should realize that the pre-electoral increase in disposable income will disappear after the election,

[1] According to Franzese (2002, 372), incumbents' incentives to electioneering vary as a function of: who votes, because it determines the "effective electoral demand for redistribution"; the closeness of the election; the ability to manipulate macroeconomic aggregates; domestic and international economic institutions; and accumulated obligations.

and at the moment of evaluating the performance of the incumbent government they should behave prospectively by focusing "only on that part of growth likely to persist after the election" (Alesina et al., 1993, cited in Lewis-Beck and Stegmaier, 2000).

But the idea that "prospective voters behave more as bankers, retrospective voters as peasants" (Lewis-Beck and Stegmaier, 2000, 187) is not necessarily an accurate interpretation of voter behavior. Not only is it the case that retrospective voting is cheaper, but even if voters were capable of behaving prospectively they might find it optimal to just base their decision on past economic performance. For instance, Downs (1957) concludes that since most of the information possessed by the voter relates to recent government performance, "in effect, every election is a judgment passed upon the record of the incumbent party" (page 41). Moreover, since the chance the voter affects the election outcome is negligibly small, Downs argues that rational individuals have no incentive to gather more information than what they can receive and assimilate for free during their everyday lives. If this is the case, then prospective evaluations of the economy will be mostly based on information about the recent performance of the incumbent party, and highly correlated with retrospective evaluations.

Finally, scholars have studied whether individuals care about the national economy in the context of specific policies, or whether they evaluate economic conditions more in general (Lewis-Beck and Stegmaier, 2000). Although evaluations of the national economy have the most sizable effect, scholars have also found that approval of specific economic policies—such as inflation, unemployment, social security, and welfare policies—also has a significant impact on voter choice (Kiewiet, 1983; Alvarez and Nagler, 1995, 1998). In this chapter, I focus on a very particular set of economic policies, designed to prevent the deepening of the 2008 economic recession and financial system subprime-mortgage crisis. These policies have the particular characteristic of having been sponsored by Democratic representatives at the end of 2007 and beginning of 2008, and only ratified by Republican President George Bush to prevent further economic deterioration—and sometimes with the opposition of most Republican representatives. In Franzese's terms, these policies were enacted during a period where the government had very little "maneuvering room" for manipulating policy, and acted mostly reactively. Thus, even though it is certainly true that it was convenient for

the Republican government to prevent a major economic recession during an electoral year, these policies can hardly be interpreted as part of a typical partisan or political business cycle.

Based on the previous literature, it is likely that most voters blamed the incumbent Republican party for the 2008 economic recession, so the impact of evaluations of the economy is expected to go in the same direction as in previous studies. However, it is less clear whether support or opposition to emergency economic policies translated into support or opposition for one party or the other—after all, these policies were sponsored and voted for by the opposition, and then ratified by the executive. In the next section, I review some of the main theories and empirical results related to the impact of the economy on participation, then explain the details of the 2008 economic acts, and after that I move on to the empirical analysis.

6.2.1 Economic Participation: Mobilization, Withdrawal, or No Effect?

The hypothesis that economic adversity may motivate participation is not new. Lipset (1960, pages 192-193) argued that "groups subjected to economic pressures with which individuals cannot cope, such as inflation, depression, monopolistic exploitation, or structural change in the economy, might ... be expected to turn to government action as a solution and to show a high voting average," although he also argued that "need alone does not appear to be sufficient."

Brody and Sniderman (1977) hypothesize that personal problems may have an impact on political involvement and participation. On the one hand, self-located personal problems, like perceptions of discrimination, time pressure, marital problems, and health anxiety may drive individuals to withdraw from the political process, look inwards, and take it upon themselves to improve the quality of their lives and families. On the other hand, socially-located personal problems, like economic and job anxiety, concerns about the cost of living, class anxiety, and concerns about family security may motivate individuals to connect with the political process and activate political participation. Additionally, Brody and Sniderman (1977) argue that the ethic of self-reliance is predominant amongst most Americans, regardless of class, so voters are likely to assume responsibility for their personal problems and not attribute blame to the government. As a result, they expect personal problems

to have little impact on political participation, except when individuals feel they cannot solve these problems by themselves and believe government should help.

Similar to Brody and Sniderman (1977), Rosenstone (1982) argues that economic adversity may motivate or inhibit participation. On the one hand, it may mobilize or activate political participation when individuals think the government is responsible for the deterioration in economic conditions. On the other hand, it may cause inhibition or withdrawal from the political process when concerns about personal well being drive individuals to look inwards and disregard "external matters," or when personal economic adversity reduces the capacity of individuals to participate. Additionally, Rosenstone argues that economic adversity may have no effect whenever individuals are self-reliant and do not attribute blame to the government for their personal economic problems. Rosenstone uses data from the Current Population Survey to study how voter turnout is affected by unemployment and worsening of personal financial conditions, and finds evidence in favor of the withdrawal hypothesis.

Southwell (1988) also tests the mobilization and withdrawal hypotheses and argues that the effect of economic adversity interacts with the context of the election. The author pools SRC/CPS data from surveys conducted between 1974 and 1982 and finds evidence that worse-off individuals did not withdraw from the political process in the 1982 electoral period, a time when national economic adversity provided "a clear identifiable target ... for the disgruntlement of those experiencing economic adversity" (Southwell, 1988, 273). Moreover, working class and Black citizens who thought Democrats were better qualified for handling the unemployment problem were significantly more likely to turn out to vote in 1982, and the author interprets this as evidence that sociotropic evaluations of party's abilities mobilized individuals to the polls. Therefore, contrary to Rosenstone (1982), Southwell finds some evidence in favor of the sociotropic mobilization hypothesis, as well as evidence that withdrawal might not hold in times of economic recession.

The results I have summarized up to the moment relate to the impact of personal economic concerns on voter turnout. Verba et al. (1995) consider several political activities in addition to voting, and study the impact of issue positions and personal concerns on political participation.

After classifying issues into categories depending on their scope—particularistic, affecting the local community, or affecting the whole nation—they find that "the overwhelming majority of participants indicated that the issue at stake affected others beyond themselves and their families," leading them to a similar conclusion as that reached by Brody and Sniderman (1977). Specifically, they write that "political activity, in general, is not about personal problems but about public issues" (Verba et al., 1995, 85). Regarding the nature of the issues at stake, they found that content varied according to political activity. For instance, while 52% of those voting mentioned economic or tax-related issues, the proportion is much lower for other types of activity.

Additionally, in a multivariate analysis of political activity, Verba et al. (1995) compare the effect of having extreme positions on abortion and one economic issue—whether the government should secure provision of jobs—and find that only positions on abortion have a significant impact on overall political activity. After that, they conduct a similar analysis comparing the effect of extreme positions on the same economic issue and the Vietnam war and find parallel results. The authors argue that the relative importance of abortion and the Vietnam war in each election is linked to the high saliency of these issues and strong issue commitment of some respondents during the particular time these interviews were conducted, and conclude that "if we had the capacity to undertake this kind of analysis at appropriate moments throughout the American history we would expect to find similar political mobilization around various other issues" (Verba et al., 1995, 409). Far from implying that economic issues are not relevant for explaining political mobilization, Verba et al.'s results suggest that the importance of these issues—or any issue, not just economic—will depend on the context of each election. In this paper, I hypothesize that opinions on economic issues are likely to mobilize participation during periods of high saliency of national economic problems, such as during the 2008 electoral period.

6.2.2 The Economic Acts of 2008

The 2007-08 financial crisis began after a major housing bubble burst and the subsequent collapse of the market of mortgage-backed securities, which severely damaged the value of assets owned by U.S.

financial institutions. Later in 2008, the deepening of the financial crisis led to a tightening of bank credit, deterioration of investor and consumer confidence, and contraction of the real economy—which among other things, translated into an increase in unemployment levels and a fall in real gross domestic product. In response to worsening national economic conditions, the U.S. government enacted a series of economic acts during 2008. The objective of this chapter is to measure the effect of evaluations of the national economy and support to each of these emergency economic policies on political participation. Next, I briefly summarize the main characteristics of the three 2008 economic acts.

The Economic Stimulus Act

The stimulus bill was sponsored by a Democratic representative, approved by the House of Representatives on January 29, 2008 (with bi-partisan support), approved by the Senate on February 7, 2008 (with bi-partisan support), and signed into law by President Bush on February 13, 2008. The act came as a response to a imminent recession and was explicitly designed "to provide economic stimulus through recovery rebates to individuals, incentives for business investment, and an increase in conforming and FHA loan limits."[2] The act included tax rebates for low-income individuals, and tax incentives for business investment. Also, to stimulate credit, it included a temporary increase in the maximum original principal obligation of mortgages eligible for purchase by government-sponsored enterprises (GSE) Fannie Mae and Freddie Mac. The estimated cost of the act amounted to approximately $168 billion over the first two years. This act became commonly known as the fiscal stimulus package of 2008.[3]

The Housing and Economic Recovery Act

The housing bill was initially sponsored by a Democratic representative, approved by the House of Representatives on August 4, 2007 (with mostly Democratic support), approved by the U.S. Senate on April 10, 2008 (with bi-partisan support), and enacted into law by the President on

[2] `http://www.govtrack.us/congress/billtext.xpd?bill=h110-5140`.

[3] The Economic Stimulus Act of 2008 should not be confused with the American Recovery and Reinvestment Act of 2009 (commonly known as the fiscal stimulus package of 2009, passed under the Obama administration).

July 30, 2008. The act came as a response to the crisis in the subprime-mortgage market, to restore confidence in government-sponsored enterprises (GSE) Fannie Mae and Freddie Mac, and was explicitly designed to "to provide needed housing reform and for other purposes."[4] Among other things, the act increased the national debt limit, insured "up to $300 billion for 30-year refinanced loans for distressed borrowers between October 1, 2008-September 30, 2011," and created the federal housing financial agency (FHFA).[5] This act became commonly known as the housing relief bill of 2008.

The Emergency Economic Stabilization Act

An initial bill had been approved by the House of Representatives on March 5, 2008 (with mostly Democratic support), but was never approved by the Senate. Then, on September 20, 2008, U.S. Treasury Secretary Henry Paulson submitted a proposal to Congress "requesting authority to purchase troubled assets from financial institutions in order to promote market stability, and help protect American families and the U.S. economy."[6] After that, the U.S. Senate modified the initial bill and approved it in October 1, 2008 (with bi-partisan support), and the House of Representatives ratified the changes on October 3, 2008. Finally, the bill was enacted into law by the President on October 3, 2008. The act came as a response to the crisis in the subprime-mortgage market and collapse of large part of the U.S. financial system, to restore confidence in financial institutions, and was explicitly designed "to provide authority for the Federal Government to purchase and insure certain types of troubled assets for the purposes of providing stability to and preventing disruption in the economy and financial system and protecting taxpayers... ."[7] This act became commonly known as the financial system bailout of 2008.

[4] http://www.govtrack.us/congress/billtext.xpd?bill=h110-3221.
[5] http://www.govtrack.us/congress/bill.xpd?bill=h110-3221&tab=summary.
[6] http://www.ustreas.gov/press/releases/hp1150.htm.
[7] http://www.govtrack.us/congress/billtext.xpd?bill=h110-1424.

6.3 Data and Descriptive Statistics

The data used in this study proceeds from the 2008 Cooperative Congressional Election Study (CCES), a study composed of 30 online surveys with 1,000 observations each. For each survey, half of the questionnaire corresponds to CCES Common Content (Ansolabehere, 2008), and the other half to questions developed by different research teams. Questions from the 2008 CCES study were asked in two waves, one conducted during October 2008 and the other one two weeks after Election Day. All explanatory variables included in the multivariate analysis were taken from the pre-election wave and dependent variables (participation indicators) were taken from the post-election-wave.[8] Instead of only focusing on the CCES Common Content, I used data from the Caltech CCES survey (Alvarez, 2008) which, among other things, contains pre-election questions about individuals' approval of each of the 2008 economic acts. The specific questions I am interested in are:

On the Economic Stimulus Act (Fiscal Stimulus Package):

> *In February 2008 Congress approved a $168 billion fiscal stimulus package. The plan included tax rebates for individuals and families with incomes below a certain level. Do you approve or disapprove of February's 2008 fiscal stimulus package?*

On the Housing and Economic Recovery Act (Housing Relief Bill):

> *In July 2008 Congress approved a housing bill offering support to the mortgage sector. Some of the approved measures included emergency financing to mortgage buyers Fannie Mae and Freddie Mac, as well as the set up of a $300 billion fund for troubled homeowners. Do you approve or disapprove of July's 2008 housing relief bill?*

On the Emergency Economic Stabilization Act (Financial System Bailout):

> *On September 20, 2008 the Treasury Department proposed to Congress a $700 billion financial system bailout to purchase mortgage-related assets from financial institutions. Do you approve or disapprove the financial system bailout?*

[8] With the exception of two questions related to involvement in political activities, contacting a representative and voting in a primary or caucus, which were asked in the pre-election survey.

In response to these questions, respondents could specify whether they approved, disapproved, or were not sure about the approval of each of these policies. In Table 6.1 I present descriptive statistics for responses to these questions.[9] The one receiving largest support was the fiscal stimulus package (55.1%), followed by the housing relief bill (32.8%) and the financial system bailout (21.7%). In analyzing approval of each of these questions, I code responses as -1 if the individual disapproves, 0 if the respondent is not sure, and 1 in case of approval. Table 6.1 shows that individuals did not offer consistent answers to all of these questions. Specifically, only 30% of the respondents consistently supported or opposed all three policies, and only 6% were unsure about their approval of all economic acts. Correlations between answers to pairs of questions were all positive and significant, but not very high—the strongest relationship exists between approval of the housing relief bill and the financial system bailout (0.55), and the lowest one between approval of the fiscal stimulus package and the financial system bailout (0.18).

[SEE TABLE 6.1]

Table 6.2 shows how support for each economic act varied as a function of ideology distance, partisanship, interest in politics, and political information. Overall, individuals closer to Obama in the Liberal-Conservative spectrum were more likely to support all three policies, compared to individuals closer to McCain. The largest difference in approval among both groups happens for the housing relief bill. A similar pattern takes place for partisanship, where Democrats were more likely to support all economic acts. With respect to strength of partisanship, there is no clear pattern of behavior. Last, individuals more interested in politics and with more political information (measured according to whether they knew which party held the majority in the House of Representatives before the election), were more likely to disapprove all three economic acts. Not surprisingly, except for the fiscal stimulus package, the proportion of individuals unsure about their support for each policy was larger among those not interested in political affairs of knowledgeable of politics.

[9] All reported percentages are computed using sampling weights.

[SEE TABLE 6.2]

Additionally, in the CCES post-election Common Content, respondents were asked about their participation in several types of political activity. Specifically, the wording of the first question was:

During the past year did you...(check all that apply):

1 Attend local political meetings (such as school board or city council).

2 Try to persuade someone to vote.

3 Put up a political sign (such as a lawn sign or bumper sticker).

4 Work for a candidate or campaign.

5 Comment on political blogs or online forums (not surveys).

6 Donate money to a candidate, campaign, or political organization.

Respondents were asked the following yes/no questions:

7 Have you (or anyone in your family living here) ever contacted Representative X or anyone in X's office?

8 Did you vote in the Presidential primary or attend a caucus between January and June of this year?

Finally, there was a question regarding participation in the General Election:

9 Which of the following statements best describes you?

- *I did not vote in the election this November*
- *I thought about voting this time - but didn't*
- *I usually vote, but didn't this time*
- *I attempted to vote but did not or could not*
- *I definitely voted in the November General Election*

I use responses to each of these nine questions to model individual participation in non-electoral political activities, as well as to construct an overall measure of non-electoral political participation. In Table 6.3 I present observed participation rates for each political activity. In terms of proportion of respondents participating in each activity, voting in the general election was the most popular form of participation (70.8%), followed by persuading others (53.8%), voting in a primary or caucus (53.0%), donating money (29.4%), contacting a representative (28.7%), putting up a political sign (28.6%), commenting on a blog (27.4%), attending a political meeting (12.7%), and working for a campaign (11.0%).

[SEE TABLE 6.3]

Appendix C.1 contains tables that show the bivariate relationship between demographic attributes and reported participation rates. Except for commenting on a blog, older individuals were consistently more likely to participate. Regarding income and education, the relationship was positive for all forms of participation. And with regards to gender, females were less likely to participate in all activities. Moving on to ideology and partisanship, Democrats and respondents closer to Obama were more likely to attend political meetings, try to persuade others to vote, put up a sign, work for a campaign and donate money, but less likely than Republicans and respondents closer to McCain to contact a representative and vote in a primary or general election. The relationship was less clear for commenting on a blog, where ideological differences were small but Republicans participated more. Also, ideological positions (being closer to Obama or McCain) were usually associated with larger differences in participation rates, compared to differences in party identification.

In Table 6.4 I present descriptive statistics regarding the association between activism and approval of the 2008 economic acts. Respondents opposing the fiscal stimulus package were considerably more likely to participate in all activities, compared to those who were unsure or supported the measure. Similarly, individuals opposing the housing relief bill were usually more likely to participate (except for attending political meetings), although differences in participation rates with respect to those not sure or supporting were smaller compared to the fiscal stimulus package. Moving to

the financial system bailout, respondents opposing the bill were more likely to comment on a blog, contact a representative, and vote in the general election, but less likely to attend political meetings, try to persuade others, or put up a sign (relative to those who support), and there was no clear relationship between support for the financial system bailout and working for a campaign, donating money or voting in the primary election.

[SEE TABLE 6.4]

6.4 Methodology and Results

The purpose of the empirical analysis done in this chapter is to measure the effect of approval of emergency economic policies on the probability of participating in various political activities, as well as on an overall measure of political participation. In doing so, I use all observations from the Caltech sample of the CCES survey, which includes responses to questions regarding the 2008 economic acts, and also use 2,000 randomly-selected observations from the rest of the CCES survey to increase the sample size and precision of the multivariate analysis.

Using this data set, I estimate two models:

- A mixture model similar to the varying intercepts model discussed in Chapter 4 where participation probabilities are modeled using a logistic link, and where the intercept is allowed to vary across citizen types with different propensities toward political participation.

- An Item Response Theory (IRT) model, used to estimate a latent measure of overall political participation. In a second stage, I conduct a multivariate analysis to model the latent measure of political participation as a function of approval of emergency economic policies, and the same individual attributes considered in the varying intercepts model.

Since information about attitudes toward the three 2008 economic acts is only available in the Caltech CCES sample, I conduct a Bayesian imputation procedure simultaneously with both multivariate analyses to deal with missing values in responses to the three questions regarding the 2008

economic acts (coefficients of the imputation model are presented in Appendix C.2). In the remainder of this section I describe in more detail the different methodologies applied in this chapter, and discuss the results.

I estimated all models using standard Markov Chain Monte Carlo (MCMC) methods, letting algorithms run until parameter draws attained their stable posterior distribution. After that, I used MCMC samples of model parameters to estimate mean values and to construct posterior intervals for the latent propensities to participate, as well as for the impact of individual attributes on overall propensities toward participation.

6.4.1 Mixture Model

I estimated a varying intercepts model similar to the one described in Chapter 4 and considered among the alternatives to the model estimated in Chapter 5 (see Appendix B.3). The difference between this model and a standard logistic regression is that the intercept is allowed to vary across latent types with different propensities toward political participation. Since the relationship between the linear predictor and participation probabilities is non-linear, differences in intercepts across types do not only lead to variations in baseline participation propensities, but also to differences in covariate effects across types. Assignment of survey respondents to participatory types is not done arbitrarily, but estimated simultaneously with other model parameters. Suppose y_{ij} is an indicator of participation in activity j by individual i, and that latent utilities of participating in each activity (denoted u_{ij}) follow a logistic distribution. Then, the model can be written formally as:

$$y_{ij} \sim Bernoulli(p_{ij})$$

$$p_{ij} = (1 + e^{-u_{ij}})^{-1}$$

$$u_{ij} = a_{T[i]j} + \mathbf{x}_i^{'}\mathbf{b}_j$$

where $a_{T[i]j}$ is an intercept that varies by activity (j) and participatory type ($T[i]$), $\mathbf{x}_i$ is a vector of individual attributes, and $\mathbf{b}_j$ is a vector of activity-specific coefficients.

In Table 6.5 I present results about individual assignment to participatory types. The first column gives the average probability of being assigned each type. An average respondent has 60% chance of being assigned the middle-propensity type, and the remaining chance is almost equally split between being assigned a low- or high-propensity type. The second column gives the predicted proportion of respondents that was assigned each participatory type, which is computed by assuming that each individual is assigned the highest probability type. While 68% of the respondents are assigned a middle type, only 17% and 15% are assigned low and high types, respectively. Figure 6.1 gives the distribution of assignment probabilities across individuals and, consistently with Table, it shows that most individuals have higher probability of being assigned a middle type.[10]

[SEE TABLE 6.5]

[SEE FIGURE 6.1]

Similarly to what I found in Chapter 5 and consistently with the dual-process account of political participation discussed in Chapter 3, low-, middle-, and high-propensity individuals vary considerably in terms of psychological factors related to political engagement, although differences across types are not as large as in the previous application. According to the results given in Table 6.6, high-propensity types exhibit strong partisan attachments, are more knowledgeable of politics, follow a larger number of media outlets, and are more interested in political affairs. I conducted a series of independence tests to determine whether the different measures of political engagement are independent from type assignment, and strongly reject the independence hypothesis for the four indicators of political engagement.

[SEE TABLE 6.6]

[10]It is important to note that the proportion of respondents assigned to each type might vary as a result of the survey sampling procedure, and since assignment probabilities are not adjusted in any way, proportions need not be representative of the U.S. population, and are not comparable to those found in the analysis of the 1990 American Citizen Participation Study. However, the fact that a considerable proportion of the respondents was assigned to every participatory type implies that it is possible to estimate type-specific intercepts that do have a substantive interpretation.

In Figure 6.2 I present 90% posterior intervals for the intercepts corresponding to all participatory types and political activities, and in the first row of Table 6.7 I present 90% posterior intervals of average baseline participation probabilities, for each activity. Although the objective of this chapter is not to emphasize differences across types of activities as I did in the previous chapter, the model again predicts, as expected, that individuals are more likely to participate in low-cost activities like voting in general and primary elections, or simply trying to persuade others to vote, where intercepts are usually positive, and less likely to participate in high-cost activities like political meetings and doing campaign work, where intercepts are usually negative. For low-cost activities like voting in general and primary elections, or persuading others to vote, average participation probabilities stand at 97%, 78%, and 69%, respectively, compared to only 16% and 17% for costly activities like working for a campaign and attending political meetings. For other activities baseline participation probabilities range between 35% and 47%.

[SEE FIGURE 6.2]

[SEE TABLE 6.7]

Previous studies found that individuals of higher socio-economic status are more likely to participate in political activities, as they posses cognitive skills and politically-relevant resources that allow them to cope more easily with participation costs, and also because they exhibit higher psychological involvement that in turn leads to more satisfaction associated with political participation. Also, it has been found that men are more likely to participate in political activities, and that the probability of participating in political activities increases with age as a result of the acquisition of experience and civic skills throughout the years. In Figure 6.3 I present 90% posterior intervals for model coefficients corresponding to each political activity, and in Table 6.7 I present 90% posterior intervals of the average marginal effect of each individual attribute.

In line with expectations, I find that education has positive and significant effects on the probabilities of participating in political activities, and that effects are particularly large for donating

money (7%), followed by contacting a representative (4%), and voting in a primary or caucus (4%). The impact of education is low (1%) for voting in the general election, and this is not surprising because for this variable the average respondent is already almost sure to participate. For other activities the impact of education ranges between 2% and 3%. Household income also has positive and significant effects on the probability of participating in all political activities, although effects are small in size compared to education. The impact of household income is particularly sizable for donating money (5%), and is small and barely significant for commenting on a blog (1%). The effect of male gender is also positive and sizable for most activities, specially contacting a representative (7%) and donating money (7%), and is not statistically significant at conventional levels for persuading others and working for a campaign. With respect to age, while the effect is positive for most activities, specially contacting a representative (7%) and donating money (8%), it is negative for persuading others to vote (-1%) and commenting on a blog (-1%).

[SEE FIGURE 6.3]

Before moving on to the discussion of the effect of evaluations of the economy and the three 2008 economic acts, it is important to notice that the model also controlled for a measure of ideology differential—computed as the difference between the ideology distance from Obama and the ideology distance from McCain—and a three-point measure of party identification. The reason for including those variables is that they are likely to affect both positions on the three economic acts (as evidenced by the results of the imputation model presented in Appendix C.2) and political participation, so excluding them from the model may lead to biased differences. Indeed, I find that after controlling for a standard set of socio-demographic attributes, individuals closer to Obama were significantly more likely to participate in all political activities; specially putting up a sign and donating money, and the least to comment on a blog. Even after controlling for ideology distances, Republicans were less likely to participate in most activities with the exception of commenting on a blog and contacting a representative, where the effect was mild and statistically not indistinguishable from zero. The negative impact of Republican party identification was particularly sizable for donating

money (-12%), voting in a primary or caucus (-8%), working for a campaign (-7%), persuading others to vote (-6%), and putting up a sign (-6%), but was relatively small for voting in the general election (-2%).

After controlling for socio-demographic attributes, ideology distances, and partisanship, I find that evaluations of the national economy and personal financial conditions, as well as support for the three 2008 economic acts, do not affect individual involvement in most political activities. The only exceptions are the following: on average, individuals who believe economic conditions have gotten better are two points less likely to try to persuade others to vote, and almost two points less likely to work for a campaign; also on average, individuals who support the financial system bailout are four points less likely to contact a representative, and those who support the fiscal stimulus package are also four points less likely to try to contact a representative. Personal financial conditions and approval of the housing relief bill did not have significant effects on participation in any political activity. Still, it is important to note that even though other effects were not statistically significant, the direction of the effect of support for the fiscal stimulus package was negative for six of the nine activities under consideration, and the direction of the effect of support for the housing relief bill was negative for seven of the nine activities under consideration.

Overall, results for the average individual offer support for the hypothesis that negative evaluations of the national economy motivate individuals to participate in specific activities like working for a campaign and persuading others to vote, and that those who oppose the housing relief bill and the fiscal stimulus package are more likely to participate in most political activities although effects are small and insignificant for all activities except contacting a representative. Now I turn to the analysis of individual behavior within each participatory type. The reason for looking at type-specific effects is that it is probably the case that not only baseline participation probabilities vary considerably across types, but also covariate effects. Tables 6.8, 6.9, and 6.10 give 90% posterior intervals of baseline participation probabilities and average marginal effects for each political activity and participatory type (low-, middle-, and high-propensity, respectively).

[SEE TABLE 6.8]

[SEE TABLE 6.9]

[SEE TABLE 6.10]

Starting with low-propensity types (Table 6.8), I find that while these individuals are still very likely to vote in the general election (87%), they are extremely unlikely to work for a campaign (2%) or attend political meetings (5%). Since these individuals are so unlikely to participate in high-cost and even intermediate-cost activities like putting up a sign (9%), donating any amount of money (14%), and commenting on a blog (16%), covariate effects have the largest effects for activities where they have a more sizable baseline participation probability like contacting a representative (22%), persuading others to vote (36%), voting in a primary or caucus (33%), and voting in the general election. Focusing on the impact of economic evaluations and approval of the three 2008 economic acts, I find that a more positive evaluation of the national economy again has a negative impact on the probability of persuading others, but larger in magnitude relative to the average individual (2.5% compared to 2.0%). Since low-propensity types are very unlikely to work for a campaign, better evaluations of the national economy, which had a negative and significant effect for the average individual (-1.6%), have no significant effects for low-propensity types. The negative impact of approval of the financial system bailout and the fiscal stimulus package on contacting a representative is still significant but smaller in magnitude relative to the average individual (-2.8% and -3.1% compared to -3.8% and 4.2%).

Middle-propensity types have considerably larger baseline participation probabilities (Table 6.9); they are almost 100% likely to report that they voted in the general election, 88% likely to report that they voted in a primary election or caucus, and 73% likely to say that they tried to persuade others to vote, and for other activies participation probabilities range between 30% and 45%, except for attending political meetings (11%) and working for a campaign (6%) where participation proba-

bilities are still quite small. For this participatory type, I find that a more positive evaluation of the national economy again has a negative impact on the probability of persuading others (2.2%), and that these effects are slightly larger than those experienced by the average individual, but smaller than those experienced by low-propensity types. Also, for middle types who have a small but non-negligible probability of working for a campaign, more positive evaluations of the national economy have a negative and significant effect on the probability of working for a campaign (-1.0%). In the case of support for the financial system bailout and the fiscal stimulus package, the effects on the probability of contacting a representative are larger for middle-propensity types than low-propensity types and almost the same as for the average individual.

High-propensity types are not only 100% likely to report that they voted in the general election, they are 90% likely or more to say that they voted in a primary or caucus, tried to persuade others to vote, donated money, and put up a sign. They also have a high probability (63%) of contacting a representative. But most importantly, they have 60% and 50% chance of working for a campaign and attending political meetings, respectively, which implies that they are 44 and 49 points more likely to do so than middle-propensity types, a huge difference. Turning to the impact of economic evaluation and approval of the 2008 economic acts, more positive evaluations of the national economy on the probability of working for a campaign have the largest impact for this participatory type (-4.5% compared to -1.6% for the average individual). In contrast, since high-propensity types are very likely to try to persuade others to vote, better evaluations of the national economy, which had a negative and significant effect for the average individual (-2.2%), have no significant effects for high-propensity types. Lastly, support for the financial system bailout and the fiscal stimulus package has pretty much the same effect on the probability of contacting a representative for high-propensity types (-4.0% and -4.5%) as it does for middle- and low-propensity types.

Since the impact of economic evaluations and approval of the three economic acts is usually small in magnitude for all types, differences in the impact of these variables across types are also small. This is not the case for other variables like education and partisanship, that have sizable effects on all forms of political participation, and whose effects exhibit considerable variation across types. For

those covariates, the pattern of variation in the effects is very similar to that discussed in Chapter 5. For low-cost activities like persuading others to vote and voting in a primary or caucus, covariate effects are particularly large for low-propensity types. For donating money, covariate effects are particularly large for middle-propensity types. Finally, for high-cost activities like working for a campaign and attending political meetings, effects are particularly sizable for high-propensity types.

6.4.2 Latent Variable Model

A common procedure used in previous empirical studies is to approximate overall political participation using an additive index of reported participation in political activities. A limitation of this procedure is that additive indices impose strong assumptions about the nature of the relationship between participation in each activity and overall propensity toward participation. Additive indices assume that participation in activity j gives as much information about underlying propensities as participation in activity j'. But it may be the case that involvement in more costly activities (or abstention from relatively easy ones) gives more information about an individuals' desire to participate than to involvement in other activities. Thus, additive indices do not necessarily constitute accurate approximations to concepts such as underlying motivations to take part in politics.[11] Instead, I specify a Bayesian Item Response Model that allows me to explicitly model and estimate individuals' tendency towards political activism, as a function of observed participation in a series of activities, and later use this measure as dependent variable in a model of overall political participation.

The idea underlying the latent variable model is that participation in different activities is unlikely to be independent from each other, but can be assumed to be independent conditionally on a latent or underlying overall propensity toward participation. Assuming this "local independence" assumption holds, it is possible to estimate a simple model that allows measuring the underlying propensity toward participation using a set of binary indicators of involvement in a diverse set of political activities. Once again, suppose y_{ij} is an indicator of participation in activity j by individual i, and that latent utilities of participating in each activity (denoted u_{ij}) follow a logistic distribution.

[11] See Treier and Jackman (2008) for a discussion of the limitations of additive indices, and see Appendix C.3 for a comparison of the estimated latent variable with an additive index of political participation for this particular application.

Then, the model can be as follows:

$$y_{ij} \sim Bernoulli(p_{ij})$$

$$p_{ij} = (1 + e^{-u_{ij}})^{-1}$$

$$u_{ij} = disc_j x_i - diff_j$$

where x_i is the latent propensity to participate, $disc_j$ is a "discrimination" parameter indicating to what extent x_i affects the utility u_{ij} and probability p_{ij} of participating in activity j; and $diff_j$ is a "difficulty" parameter representing that part of the utility of participating in activity j which is unrelated to the underlying latent trait.[12]

As in the case of Bayesian factor analytical models, parameters of IRT models are not identified (Jackman, 2009). I solve the identifiability issue by imposing restrictions on model parameters—specifically, I standardize the latent trait and assume the discrimination parameter is drawn from a log-normal distribution, such that it can only take positive values. After estimating the model, I conduct a Q3 test (Yen, 1993) to assess whether activities are independent conditional on the estimated latent trait, to make sure the "local independence" modeling assumption is satisfied.[13]

Figure 6.4 gives means and posterior intervals for discrimination and difficulty parameters. For each activity, the discrimination parameter (left-most plot) should be interpreted as the increase in the perceived benefit of participating in each activity resulting from a unit increase in the underlying propensity toward participation. Alternatively, it can be interpreted as the amount of information about the underlying propensity provided by the observed decision to participate or abstain from each activity. According to Figure 6.4, the most informative activities are working for a campaign, donating money, voting in the general election, and putting up a sign. Then, attending meetings

[12]Suppose $\mathbf{y}_i$ is a vector containing indicators of participation in K activities for respondent i (that is, $\mathbf{y}_i = [y_{i1} \;\; y_{i2} \;\; y_{iK}]'$), then assuming the local independence assumption holds $p(\mathbf{y}_i) = \prod_{\forall j} p(y_{ij})$.

[13]The reason IRT model parameters are given these names is because this methodology is commonly applied in education studies for modeling underlying ability based on responses to a set of items in a test. In that context, the latent trait is usually assumed to be an indicator of an individual's underlying ability, the "discrimination" parameter is interpreted as the degree to which ability affects the probability of a correct answer (and therefore, an indicator of how much a test allows learning about individuals' abilities), and the "difficulty" parameter is interpreted as a factor affecting the probability of a correct answer, which is unrelated to ability (such as the objective difficulty of the test).

and voting in a primary election or caucus give moderate amounts of information. Last, persuading others, contacting a representative, and commenting on a blog or online forum give the lowest amount of information. Interestingly, the latter activities are relatively intensive in vocabulary skills, compared to those exhibiting higher correlation with the underlying propensity, suggesting there might be a second factor affecting involvement in these particular activities, and this should be taken into account in assessing the validity of the local independence assumption.

[SEE FIGURE 6.4]

In contrast, the difficulty parameter (right-most plot in Figure 6.4) gives information about the portion of the perceived benefit of involvement in each activity, which is unrelated to the underlying participation propensity. The higher this parameter for a particular activity, the lower the likelihood the respondent participates in this activity for all levels of the underlying propensity. Thus, the difficulty parameter can be interpreted as the perceived cost or difficulty of participating in each activity. For this reason, it comes as no surprise that time-consuming activities with high opportunity costs, like attending meetings and working for a campaign, exhibit the largest values of the difficulty parameter, while relatively easy or cheap activities like voting in primary or general elections, or trying to persuade others to vote, exhibit the lowest values of the difficulty parameter. More surprising is the relatively high value of this parameter exhibited by commenting on a blog or online forum, or the relatively low value of this parameter exhibited by donating money. Still, regarding the latter activity, it is important to take into account that the indicator of donations considers any contribution made to candidates or campaigns, regardless of the amount, and this may reduce the perceived cost of involvement in this activity.

Both average values and uncertainty about the latent trait vary considerably across respondents (see appendix Figure C.3). For the latent variable to correctly approximate underlying propensities toward participation, it is important to determine whether probabilities of engaging in each activity are indeed independent conditional on the latent trait. I conducted a common test of the local independence assumption consisting of computing correlations between regression residuals for pairs

of activities (Yen, 1993).[14] Ideally, correlations should be slightly negative, and re-specification of the model taking dependencies into account is recommended when high correlations are observed. In this case, I found that most pairwise correlations are negative or indistinguishable from zero, suggesting that remaining dependencies do not justify re-specifying the latent variable model.

Figure 6.5 gives the relationship between average latent propensities and predicted probabilities of participating in each activity.[15] These results suggest that relationships are highly non-linear. When respondents have very low baseline propensities toward participation, an increase in this latent variable only affects their likelihood of voting in the general election, persuading others, and voting in a primary or caucus. Then, for medium baseline propensities, an increase in this latent trait has the largest effects on putting up a sign and donating money, and also considerable effects on the likelihood of persuading others, voting in a primary or caucus, contacting a representative, and commenting on a blog. Finally, when respondents have very high baseline propensities, they are already highly likely to get involved in relatively easy activities, and an increase in the latent propensity mostly affects their likelihood of participating in costly activities like attending meetings and working for a campaign.

[SEE FIGURE 6.5]

After estimating a latent measure of propensities toward political participation, I estimate a multivariate model to explain overall participation in terms of socio-demographic variables, political attitudes, and support for the three 2008 economic acts. Specifically, the multivariate model estimated in the second stage can be written as:

$$x_i \sim N(\overline{x}_i, \sigma)$$

$$\overline{x}_i = \mathbf{z}_i\mathbf{b}_1 + \mathbf{e}_i\mathbf{b}_2$$

[14] Residuals are computed as: $\epsilon_{ij} = I(y_{ij} = 1) - p(y_{ij} = 1|x_i)$.

[15] These probabilities are computed using by transforming the perceived benefit of participating in each activity, $u_{ij} = disc_j x_i - diff_j$, into probabilities using a logit link, conditional on average estimates of discrimination parameters ($disc_j$), latent propensities (x_i), and difficulty parameters ($diff_j$).

where x_i denotes the latent measure of propensities toward participation, $\mathbf{z}_i$ denotes individual socio-demographic and political attitudes, $\mathbf{e}_i$ denotes indicators of support for 2008 economic acts, and $\mathbf{b}_1$ and $\mathbf{b}_2$ stand for coefficient vectors. Simultaneously with the estimation of this multivariate model, I impute the values of $\mathbf{e}_i$ for observations drawn from non-Caltech samples. In doing so, I assume that missing values of $\mathbf{e}_i$ are missing at random, which is reasonable since the Caltech sample (which includes measures of $\mathbf{e}_i$) can be interpreted as drawn at random from the complete CCES sample.

Figure 6.6 gives coefficient means and posterior intervals of estimated coefficients for two different dependent variables: average values of the latent propensity to participate (black lines) and a standardized additive index (grey lines), and found that using the former or latter dependent variable does not lead to considerable differences in model coefficients. In estimating the models, I assumed dependent variables follow a normal distribution with mean varying as a linear function of explanatory variables, and therefore the interpretation of the coefficients is straightforward. Starting with the effect of socio-demographic variables, I find a positive and significant impact of education, age, income, and male gender. Turning to political attitudes, I find a negative impact of Republican party identification, and a positive impact of relative ideological distance from McCain, suggesting the closer the perceived ideological proximity to Obama relative to McCain, the greater the tendency to participate. Finally, regarding the impact of attitudes toward the three 2008 economic acts, I find that none of these evaluations have a significant impact on the underlying propensity to participate.[16]

[SEE FIGURE 6.6]

6.5 Conclusion

For decades political scientists have studied the impact of positions on economic issues on voter choice, but little has been done to measure the impact of attitudes toward economic policy on

[16] In a previous version of this study I estimated a similar latent variable model where I did not control for party identification, and found a negative and almost 90% significant effect of approving the fiscal stimulus package and the financial system bailout, but no significant effect of approving the housing relief bill.

political participation. Moreover, a survey of the studies that have looked at this question suggests that these attitudes have only minor impact on the likelihood of participating in political activities. Reflecting on these previous findings, I suggested that a possible explanation for the small magnitude of the effect of positions on economic issues is that respondents were usually asked generic questions about preferences for economic policy, not specific to a particular electoral period or salient during the electoral campaign. If respondents felt that these policies were not in the agenda of the candidates running for office, and therefore not relevant for the voting decision, it is not surprising that positions on these issue had little impact on participation after controlling for a standard set of political attitudes. Instead, the purpose of this chapter was to assess the impact of attitudes toward economic policy during a period where economic issues were particularly salient and where the government had recently enacted a series of economic acts affecting everything from taxes and government welfare spending to the survival of the financial system.

In response to the 2008 economic recession the Republican president, with support of Democratic legislators, enacted a series of economic policies which were received with skepticism by large sectors of the electorate—specially by Republican and more conservative voters. In this study I measured the impact of how approval of these emergency economic policies affected on individual involvement in a variety of political activities, as well as on overall participation propensities. The main finding of the chapter is that evaluations of the economy and approval of the 2008 economic acts seem to have only minor impact on participation propensities. Those who think that the national economy has gotten worse and who oppose some of the acts tend to participate more, suggesting that views expressed by activists are probably not representative of the preferences and opinions of the population, but effects are usually statistically insignificant at conventional confidence levels and small relative to those produced by covariates such as education and partisanship.

In addition to findings related to the impact of attitudes toward economic policy on overall political participation, this paper is important for its methodological contributions. A common procedure used in previous empirical studies of political involvement is to compute measures of overall participation based on additive indices obtained by adding up the number of political activities the

individual participates in, and then use the resulting measure as dependent variable in multivariate models of overall participation. A limitation of this procedure is that additive participation indices do not necessarily reflect concepts such as underlying motivations to take part in politics, so it is difficult to conclude about the implications of multivariate results. Instead, I estimated a mixture model that allows estimating the impact of individual attributes on each form of political participation, while allowing covariate effects to vary across individuals with different participation propensities. Additionally, I estimated a Bayesian item response model to obtain a measure of overall political participation, and later modeled this latent variable as a function of individual attributes including evaluations of the economy and approval of the 2008 economic acts.

	n	Oppose	Not sure	Approve
Fiscal stimulus package	996	28.8	16.1	55.1
Housing relief bill	993	39.7	27.4	32.8
Financial system bailout	996	54.0	24.4	21.7

		Financial system bailout		
		Oppose	Not sure	Approve
Fiscal stimulus package	Oppose	20.4	4.0	4.4
	Not sure	5.5	7.4	3.2
	Approve	28.2	12.8	14.1

Correlation: 0.18

		Financial system bailout		
		Oppose	Not sure	Approve
Housing relief bill	Oppose	34.7	2.0	3.0
	Not sure	9.7	14.4	3.4
	Approve	9.3	8.0	15.5

Correlation: 0.55

		Fiscal stimulus package		
		Oppose	Not sure	Approve
Housing relief bill	Oppose	19.4	5.0	15.4
	Not sure	4.0	8.5	14.9
	Approve	5.5	2.6	24.5

Correlation: 0.31

Note:
18% oppose all three policies.
12% approve all three policies.
7% approve f.s.p. and h.r.b. but not f.s.b.
1% approve f.s.p. and f.s.b. but not h.r.b.
3% approve h.r.b. and f.s.b. but not f.s.p.
6% are unsure about all three policies.

Table 6.1: 2008 CCES: Approval of 2008 Economic Acts.

		Fiscal Stimulus Package			Housing Relief Bill			Financial System Bailout		
	n	Oppose	Not sure	Approve	Oppose	Not sure	Approve	Oppose	Not sure	Approve
Ideology distance										
Closer to McCain	402	36.1	18.8	45.1	60.5	23.4	16.0	65.4	18.8	15.8
Closer to Obama	444	27.6	13.7	58.7	27.6	27.1	45.3	48.7	25.0	26.3
Partisanship										
Democrat	356	27.4	14.6	58.1	25.4	34.0	40.6	50.1	24.1	25.8
Independent	279	31.4	17.9	50.7	47.5	20.6	32.0	55.9	21.5	22.6
Republican	266	31.5	13.7	54.7	57.0	22.0	21.0	60.7	20.3	18.9
Strength of partisanship										
Independent	146	28.0	9.8	62.2	40.7	23.5	35.9	55.6	28.0	16.5
Lean	187	33.4	18.5	48.1	50.5	15.3	34.2	56.9	19.1	24.0
Not Very	209	30.0	14.6	55.5	32.5	34.6	32.9	55.1	21.8	23.2
Strong	412	28.6	14.0	57.4	41.9	26.1	32.1	54.3	22.9	22.8
Interest in politics										
Not Much	110	9.8	16.8	73.4	9.6	42.6	47.8	37.0	40.6	22.4
Somewhat	303	14.6	20.8	64.7	32.2	35.2	32.6	50.2	29.5	20.3
Very Much	578	39.7	13.5	46.8	49.8	20.2	30.1	59.7	17.9	22.4
Knows house majority										
No	518	20.1	16.1	63.9	29.3	33.9	36.8	49.0	30.5	20.5
Yes	478	38.2	16.0	45.8	51.1	20.3	28.6	59.5	17.4	23.0

Table 6.2: 2008 CCES: Approval of 2008 Economic Acts and Political Attitudes.

	Yes
Vote general	70.8
Persuade others	53.8
Vote primary	53.0
Donate money	29.4
Contact house	28.7
Put up sign	28.6
Comment on blog	27.4
Political meeting	12.7
Work for campaign	11.0
n=32,800	

Table 6.3: 2008 CCES: Observed Participation Rates.

	Political meeting	Persuade others	Put up sign	Work for campaign	Comment on blog	Donate money	Contact represent.	Vote general	Vote primary
Fiscal Stimulus Package									
Oppose	18.7	60.6	37.5	14.5	42.5	47.8	47.4	85.2	69.3
Not sure	13.5	49.6	23.1	6.3	23.7	24.8	28.1	66.4	52.3
Approve	11.0	49.7	22.8	5.6	21.3	19.8	23.1	63.4	49.5
Housing Relief Bill									
Oppose	14.2	55.9	31.5	8.5	35.8	34.1	41.2	78.7	64.5
Not sure	11.8	49.8	19.9	6.6	21.8	17.7	24.8	57.5	45.4
Approve	14.7	52.2	28.1	9.7	22.4	32.0	23.9	70.4	53.7
Financial System Bailout									
Oppose	12.6	54.1	27.0	9.4	31.5	30.6	36.8	76.0	59.0
Not sure	11.5	46.0	22.8	4.9	23.0	25.6	25.5	55.5	42.7
Approve	19.1	57.4	33.5	9.9	25.7	30.0	22.4	73.1	61.5

n=1,000

Table 6.4: 2008 CCES: Approval of 2008 Economic Acts and Political Participation (Cont.).

	Average type probability	Predicted proportion
Low propensity	20.6	17.2
Middle propensity	59.7	67.7
High propensity	19.7	15.0

Table 6.5: 2008 CCES: Estimates of Type Assignment, Varying Intercepts Model.

	Strength PID (range: 1-4)	Pol. Information (binary)	Media Count (range: 1-5)	Pol. Interest (range: 1-3)
Low propensity	2.9	0.5	3.0	2.4
Middle propensity	3.2	0.6	3.4	2.7
High propensity	3.2	0.7	3.9	2.9

Table 6.6: 2008 CCES: Type Assignment and Political Engagement.

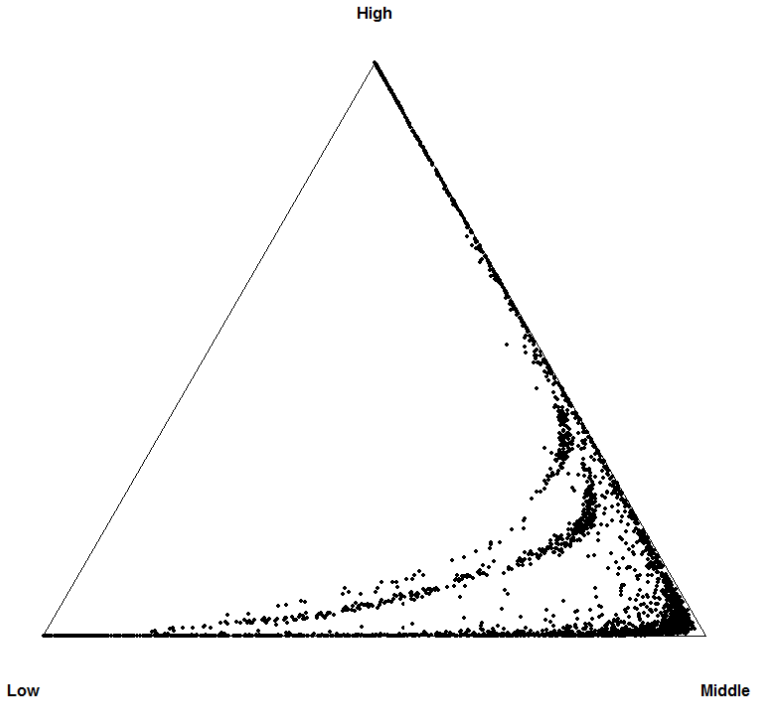

Figure 6.1: 2008 CCES: Distribution of Type Assignments.

		Persuade others			Vote primary			Vote general	
Baseline	65.3	**69.3**	73.2	74.7	**77.7**	80.5	95.9	**97.1**	98.1
Education	1.3	**2.3**	3.3	2.9	**3.7**	4.4	0.5	**0.8**	1.2
Male	-5.2	**-2.4**	0.2	-6.4	**-4.4**	-2.4	-2.5	**-1.5**	-0.7
Age	-2.3	**-1.3**	-0.3	3.5	**4.2**	5.0	0.8	**1.1**	1.6
Income	1.3	**2.2**	3.1	1.8	**2.4**	3.1	0.5	**0.8**	1.1
Ideology	1.5	**2.3**	3.1	1.2	**1.7**	2.3	0.3	**0.6**	0.8
Republican	-9.8	**-6.3**	-2.6	-10.3	**-7.5**	-4.9	-2.7	**-1.5**	-0.4
National Ec.	-4.0	**-2.0**	-0.1	-1.0	**0.3**	1.7	-0.7	**-0.2**	0.3
Personal Ec.	-3.1	**0.6**	4.3	-3.8	**-1.1**	1.5	-1.5	**-0.4**	0.5
Bailout	-2.9	**0.0**	2.9	-1.7	**0.3**	2.2	-0.7	**0.1**	0.7
Housing	-3.1	**-0.3**	2.5	-2.1	**-0.2**	1.7	-0.7	**0.0**	0.6
Stimulus	-2.2	**0.6**	3.4	-3.0	**-1.1**	0.8	-1.0	**-0.3**	0.4
		Put up sign			Contact congress			Donate money	
Baseline	35.0	**38.9**	43.0	37.6	**42.3**	47.1	42.7	**47.3**	52.1
Education	1.8	**2.8**	3.9	2.9	**4.0**	5.0	5.5	**6.6**	7.7
Male	-6.4	**-3.8**	-1.1	-10.1	**-7.3**	-4.6	-10.0	**-6.9**	-4.0
Age	-0.6	**0.6**	1.8	5.3	**6.5**	7.6	6.3	**7.7**	9.0
Income	1.5	**2.5**	3.5	1.1	**2.1**	3.0	4.1	**5.2**	6.3
Ideology	2.7	**3.8**	4.9	0.6	**1.6**	2.6	2.8	**3.8**	4.9
Republican	-9.6	**-6.0**	-2.6	-5.1	**-1.6**	2.2	-15.5	**-11.8**	-8.0
National Ec.	-3.3	**-1.2**	0.9	-1.6	**0.7**	2.9	-3.6	**-1.3**	0.9
Personal Ec.	-3.3	**0.6**	4.5	-3.0	**1.2**	5.4	-5.7	**-1.4**	3.0
Bailout	-2.6	**0.3**	3.3	-7.3	**-3.8**	-0.1	-2.8	**0.4**	3.6
Housing	-3.6	**-0.9**	1.9	-6.1	**-2.6**	0.8	-3.3	**-0.1**	3.1
Stimulus	-2.7	**0.1**	3.0	-7.7	**-4.2**	-0.9	-5.3	**-2.3**	0.8
		Work campaign			Political meetings			Comment on blog	
Baseline	13.2	**15.8**	18.7	14.7	**17.4**	20.2	30.7	**34.9**	39.3
Education	2.2	**3.0**	3.9	1.6	**2.4**	3.2	1.4	**2.4**	3.4
Male	-3.2	**-1.4**	0.5	-5.1	**-3.3**	-1.7	-6.7	**-4.1**	-1.5
Age	0.3	**1.2**	2.1	-0.1	**0.8**	1.7	-1.9	**-0.8**	0.3
Income	0.6	**1.3**	2.1	1.1	**1.8**	2.6	0.0	**0.9**	1.9
Ideology	0.9	**1.7**	2.4	0.6	**1.3**	2.1	0.1	**1.0**	1.9
Republican	-9.0	**-6.6**	-4.2	-5.2	**-3.0**	-0.7	-5.2	**-1.7**	1.8
National Ec.	-3.1	**-1.6**	-0.1	-1.3	**0.2**	1.6	-1.3	**0.9**	2.9
Personal Ec.	-2.3	**0.2**	2.7	-2.3	**0.1**	2.5	-2.0	**2.1**	6.0
Bailout	-1.4	**0.6**	2.7	-1.9	**0.0**	2.0	-5.6	**-2.4**	0.7
Housing	-1.5	**0.4**	2.4	-1.9	**-0.1**	1.9	-5.1	**-2.0**	1.2
Stimulus	-1.9	**0.0**	1.9	-2.4	**-0.6**	1.3	-5.4	**-2.4**	0.6

Mean effects (bold) and 90% confidence intervals by activity.

Table 6.7: 2008 CCES: Average Marginal Effects.

		Persuade others			Vote primary			Vote general	
Baseline	27.7	**35.5**	43.3	23.4	**33.0**	42.7	81.6	**87.4**	92.0
Education	1.8	**3.1**	4.4	5.8	**7.4**	8.9	2.2	**3.5**	5.1
Male	-6.4	**-3.0**	0.3	-10.2	**-7.0**	-3.8	-10.8	**-6.3**	-2.8
Age	-2.8	**-1.6**	-0.3	6.8	**8.6**	10.4	3.1	**4.9**	7.1
Income	1.8	**2.9**	4.2	3.4	**4.8**	6.1	2.1	**3.3**	4.9
Ideology	2.0	**3.1**	4.3	2.1	**3.3**	4.6	1.4	**2.4**	3.6
Republican	-11.6	**-7.4**	-3.0	-15.3	**-11.0**	-6.8	-11.7	**-6.3**	-1.5
National Ec.	-5.0	**-2.5**	-0.1	-1.9	**0.5**	3.0	-3.1	**-0.9**	1.3
Personal Ec.	-4.0	**0.8**	5.6	-6.7	**-1.9**	2.6	-6.4	**-1.9**	1.9
Bailout	-3.7	**0.1**	3.8	-2.9	**0.5**	4.2	-3.0	**0.2**	3.1
Housing	-3.9	**-0.4**	3.2	-3.8	**-0.3**	3.0	-3.1	**-0.1**	2.8
Stimulus	-2.8	**0.8**	4.4	-5.3	**-1.9**	1.5	-4.5	**-1.3**	1.7
		Put up sign			Contact congress			Donate money	
Baseline	5.6	**9.2**	13.4	16.8	**22.2**	28.0	9.4	**14.4**	19.9
Education	0.8	**1.5**	2.3	2.2	**3.1**	4.0	3.3	**4.7**	6.2
Male	-3.3	**-1.8**	-0.5	-7.4	**-5.2**	-3.1	-6.1	**-4.0**	-2.1
Age	-0.3	**0.3**	1.0	4.0	**5.2**	6.6	3.8	**5.6**	7.5
Income	0.7	**1.3**	2.1	0.8	**1.6**	2.4	2.4	**3.6**	5.0
Ideology	1.2	**2.0**	3.1	0.5	**1.3**	2.1	1.6	**2.6**	3.8
Republican	-4.8	**-2.7**	-1.0	-3.9	**-1.2**	1.6	-9.4	**-6.3**	-3.7
National Ec.	-1.7	**-0.6**	0.4	-1.2	**0.5**	2.2	-2.4	**-0.8**	0.6
Personal Ec.	-1.6	**0.3**	2.5	-2.3	**0.9**	4.1	-3.8	**-0.8**	1.9
Bailout	-1.3	**0.1**	1.7	-5.4	**-2.8**	-0.1	-1.8	**0.3**	2.4
Housing	-1.9	**-0.4**	1.0	-4.5	**-1.9**	0.6	-2.2	**-0.1**	2.0
Stimulus	-1.4	**0.1**	1.5	-5.8	**-3.1**	-0.6	-3.4	**-1.4**	0.5
		Work campaign			Political meetings			Comment on blog	
Baseline	0.7	**2.3**	4.2	2.5	**4.9**	7.7	11.3	**16.2**	21.8
Education	0.3	**0.9**	1.6	0.5	**1.0**	1.6	0.9	**1.7**	2.6
Male	-0.9	**-0.3**	0.1	-2.2	**-1.2**	-0.5	-4.6	**-2.7**	-0.9
Age	0.1	**0.3**	0.8	0.0	**0.3**	0.8	-1.3	**-0.6**	0.2
Income	0.1	**0.4**	0.7	0.3	**0.7**	1.3	0.0	**0.7**	1.3
Ideology	0.1	**0.4**	0.9	0.2	**0.5**	1.0	0.0	**0.7**	1.4
Republican	-2.5	**-1.3**	-0.4	-2.1	**-1.1**	-0.2	-3.6	**-1.1**	1.2
National Ec.	-0.9	**-0.4**	0.0	-0.5	**0.1**	0.7	-0.9	**0.6**	2.1
Personal Ec.	-0.6	**0.0**	0.8	-1.0	**0.0**	1.0	-1.4	**1.5**	4.3
Bailout	-0.4	**0.2**	0.8	-0.8	**0.0**	0.9	-3.8	**-1.6**	0.5
Housing	-0.4	**0.1**	0.7	-0.8	**0.0**	0.7	-3.6	**-1.4**	0.8
Stimulus	-0.5	**0.0**	0.5	-1.0	**-0.2**	0.5	-3.8	**-1.6**	0.4

Mean effects (bold) and 90% confidence intervals by activity.

Table 6.8: 2008 CCES: Marginal Effects, Low-propensity Types.

		Persuade others			Vote primary			Vote general	
Baseline	67.6	**72.7**	77.7	83.5	**87.2**	90.6	99.1	**99.5**	99.8
Education	1.5	**2.5**	3.6	2.3	**3.2**	4.1	0.1	**0.2**	0.3
Male	-5.9	**-2.8**	0.3	-6.5	**-4.3**	-2.3	-0.6	**-0.3**	-0.1
Age	-2.7	**-1.4**	-0.3	2.7	**3.6**	4.6	0.1	**0.2**	0.4
Income	1.5	**2.4**	3.5	1.5	**2.2**	2.8	0.1	**0.1**	0.3
Ideology	1.7	**2.6**	3.5	1.0	**1.5**	2.1	0.0	**0.1**	0.2
Republican	-11.4	**-7.3**	-3.0	-10.8	**-7.6**	-4.8	-0.6	**-0.3**	-0.1
National Ec.	-4.5	**-2.2**	-0.1	-0.9	**0.3**	1.6	-0.1	**0.0**	0.1
Personal Ec.	-3.5	**0.7**	4.8	-3.6	**-1.0**	1.4	-0.3	**-0.1**	0.1
Bailout	-3.2	**0.0**	3.2	-1.6	**0.2**	2.0	-0.1	**0.0**	0.2
Housing	-3.5	**-0.3**	2.8	-1.9	**-0.2**	1.6	-0.2	**0.0**	0.1
Stimulus	-2.4	**0.7**	3.9	-2.9	**-1.0**	0.8	-0.2	**-0.1**	0.1
		Put up sign			Contact congress			Donate money	
Baseline	26.3	**32.5**	38.9	36.9	**42.4**	48.1	38.0	**44.7**	51.6
Education	2.3	**3.8**	5.3	3.1	**4.3**	5.4	7.0	**8.5**	10.0
Male	-8.4	**-4.9**	-1.5	-10.8	**-7.9**	-4.9	-12.9	**-8.9**	-5.1
Age	-0.8	**0.8**	2.4	5.7	**7.0**	8.3	8.1	**9.9**	11.6
Income	1.9	**3.3**	4.7	1.2	**2.2**	3.3	5.3	**6.7**	8.2
Ideology	3.6	**5.0**	6.6	0.7	**1.8**	2.8	3.6	**5.0**	6.3
Republican	-12.4	**-7.8**	-3.3	-5.5	**-1.7**	2.3	-19.9	**-15.0**	-10.2
National Ec.	-4.3	**-1.5**	1.2	-1.7	**0.7**	3.1	-4.6	**-1.7**	1.2
Personal Ec.	-4.3	**0.8**	6.0	-3.2	**1.3**	5.9	-7.4	**-1.8**	3.8
Bailout	-3.4	**0.4**	4.4	-7.8	**-4.0**	-0.1	-3.7	**0.5**	4.7
Housing	-4.8	**-1.1**	2.5	-6.5	**-2.8**	0.9	-4.3	**-0.2**	3.9
Stimulus	-3.6	**0.1**	3.9	-8.2	**-4.5**	-0.9	-6.8	**-3.0**	1.1
		Work campaign			Political meetings			Comment on blog	
Baseline	4.0	**6.1**	8.7	8.4	**11.2**	14.2	25.2	**30.2**	35.9
Education	1.4	**2.2**	3.3	1.4	**2.1**	2.9	1.5	**2.6**	3.7
Male	-2.1	**-0.9**	0.3	-4.2	**-2.7**	-1.3	-7.1	**-4.3**	-1.6
Age	0.2	**0.9**	1.6	-0.1	**0.7**	1.5	-2.1	**-0.9**	0.3
Income	0.4	**0.9**	1.6	0.9	**1.6**	2.3	0.0	**1.0**	2.0
Ideology	0.6	**1.2**	2.0	0.5	**1.1**	1.8	0.1	**1.1**	2.1
Republican	-5.4	**-3.5**	-2.0	-4.3	**-2.4**	-0.6	-5.6	**-1.8**	1.9
National Ec.	-2.1	**-1.0**	-0.1	-1.1	**0.1**	1.4	-1.4	**0.9**	3.2
Personal Ec.	-1.5	**0.1**	1.9	-2.0	**0.1**	2.1	-2.1	**2.3**	6.5
Bailout	-1.0	**0.4**	1.9	-1.6	**0.0**	1.7	-6.0	**-2.6**	0.8
Housing	-1.0	**0.3**	1.7	-1.6	**0.0**	1.6	-5.4	**-2.2**	1.2
Stimulus	-1.3	**0.0**	1.3	-2.0	**-0.5**	1.0	-5.8	**-2.5**	0.6

Mean effects (bold) and 90% confidence intervals by activity.

Table 6.9: 2008 CCES: Marginal Effects, Middle-propensity Types.

		Persuade others			Vote primary			Vote general	
Baseline	91.2	**94.2**	96.7	93.1	**95.3**	97.0	99.6	**99.8**	100.0
Education	0.3	**0.7**	1.2	0.8	**1.3**	1.8	0.0	**0.1**	0.1
Male	-1.8	**-0.8**	0.1	-3.0	**-1.8**	-0.8	-0.3	**-0.1**	0.0
Age	-0.8	**-0.4**	-0.1	0.9	**1.4**	2.0	0.0	**0.1**	0.2
Income	0.3	**0.7**	1.1	0.5	**0.9**	1.3	0.0	**0.0**	0.1
Ideology	0.4	**0.7**	1.1	0.4	**0.6**	1.0	0.0	**0.0**	0.1
Republican	-3.9	**-2.2**	-0.8	-5.3	**-3.3**	-1.8	-0.3	**-0.1**	0.0
National E.	-1.4	**-0.6**	0.0	-0.4	**0.1**	0.6	-0.1	**0.0**	0.0
Personal Ec.	-1.0	**0.2**	1.3	-1.5	**-0.4**	0.6	-0.1	**0.0**	0.0
Bailout	-0.9	**0.0**	0.9	-0.7	**0.1**	0.8	0.0	**0.0**	0.1
Housing	-1.0	**-0.1**	0.8	-0.8	**-0.1**	0.6	-0.1	**0.0**	0.0
Stimulus	-0.7	**0.2**	1.1	-1.2	**-0.4**	0.3	-0.1	**0.0**	0.0
		Put up sign			Contact congress			Donate money	
Baseline	85.0	**89.4**	93.3	56.9	**63.1**	69.3	86.1	**89.8**	93.0
Education	0.8	**1.5**	2.3	2.8	**3.9**	5.1	1.9	**2.7**	3.7
Male	-4.5	**-2.4**	-0.7	-11.0	**-8.0**	-5.0	-6.3	**-4.0**	-2.0
Age	-0.3	**0.3**	0.9	5.1	**6.3**	7.4	2.2	**3.1**	4.1
Income	0.7	**1.3**	2.0	1.1	**2.1**	3.1	1.5	**2.2**	3.0
Ideology	1.2	**1.9**	2.8	0.6	**1.6**	2.6	1.1	**1.7**	2.3
Republican	-7.4	**-4.2**	-1.6	-5.3	**-1.6**	2.2	-11.0	**-7.7**	-4.7
National E.	-2.0	**-0.7**	0.5	-1.6	**0.7**	3.0	-1.9	**-0.7**	0.5
Personal Ec.	-1.8	**0.3**	2.5	-3.0	**1.3**	5.6	-2.9	**-0.7**	1.5
Bailout	-1.5	**0.2**	1.8	-7.8	**-4.0**	-0.1	-1.4	**0.2**	1.7
Housing	-2.2	**-0.5**	1.1	-6.4	**-2.7**	0.9	-1.7	**-0.1**	1.5
Stimulus	-1.5	**0.1**	1.7	-8.1	**-4.5**	-0.9	-2.7	**-1.2**	0.4
		Work campaign			Political meetings			Comment on blog	
Baseline	50.4	**59.7**	68.9	42.2	**49.6**	57.0	62.4	**68.7**	74.7
Education	5.7	**7.7**	9.9	3.4	**4.8**	6.3	1.4	**2.5**	3.7
Male	-9.4	**-3.9**	1.5	-11.4	**-7.6**	-3.8	-8.0	**-4.8**	-1.7
Age	0.9	**3.3**	5.4	-0.2	**1.6**	3.5	-2.2	**-1.0**	0.3
Income	1.6	**3.5**	5.4	2.3	**3.7**	5.2	0.0	**1.0**	2.0
Ideology	2.5	**4.4**	6.2	1.2	**2.7**	4.1	0.1	**1.1**	2.0
Republican	-29.1	**-21.5**	-13.8	-11.7	**-6.7**	-1.7	-5.9	**-1.9**	2.0
National E.	-9.0	**-4.5**	-0.3	-2.6	**0.4**	3.4	-1.3	**0.9**	3.2
Personal Ec.	-6.3	**0.6**	7.5	-5.0	**0.2**	5.2	-2.0	**2.2**	6.4
Bailout	-4.0	**1.5**	7.1	-4.1	**0.1**	4.3	-6.5	**-2.8**	0.8
Housing	-4.2	**1.2**	6.4	-4.1	**-0.1**	3.9	-5.8	**-2.3**	1.3
Stimulus	-5.3	**0.0**	5.4	-5.1	**-1.2**	2.7	-6.1	**-2.7**	0.7

Mean effects (bold) and 90% confidence intervals by activity.

Table 6.10: 2008 CCES: Marginal Effects, High-propensity Types.

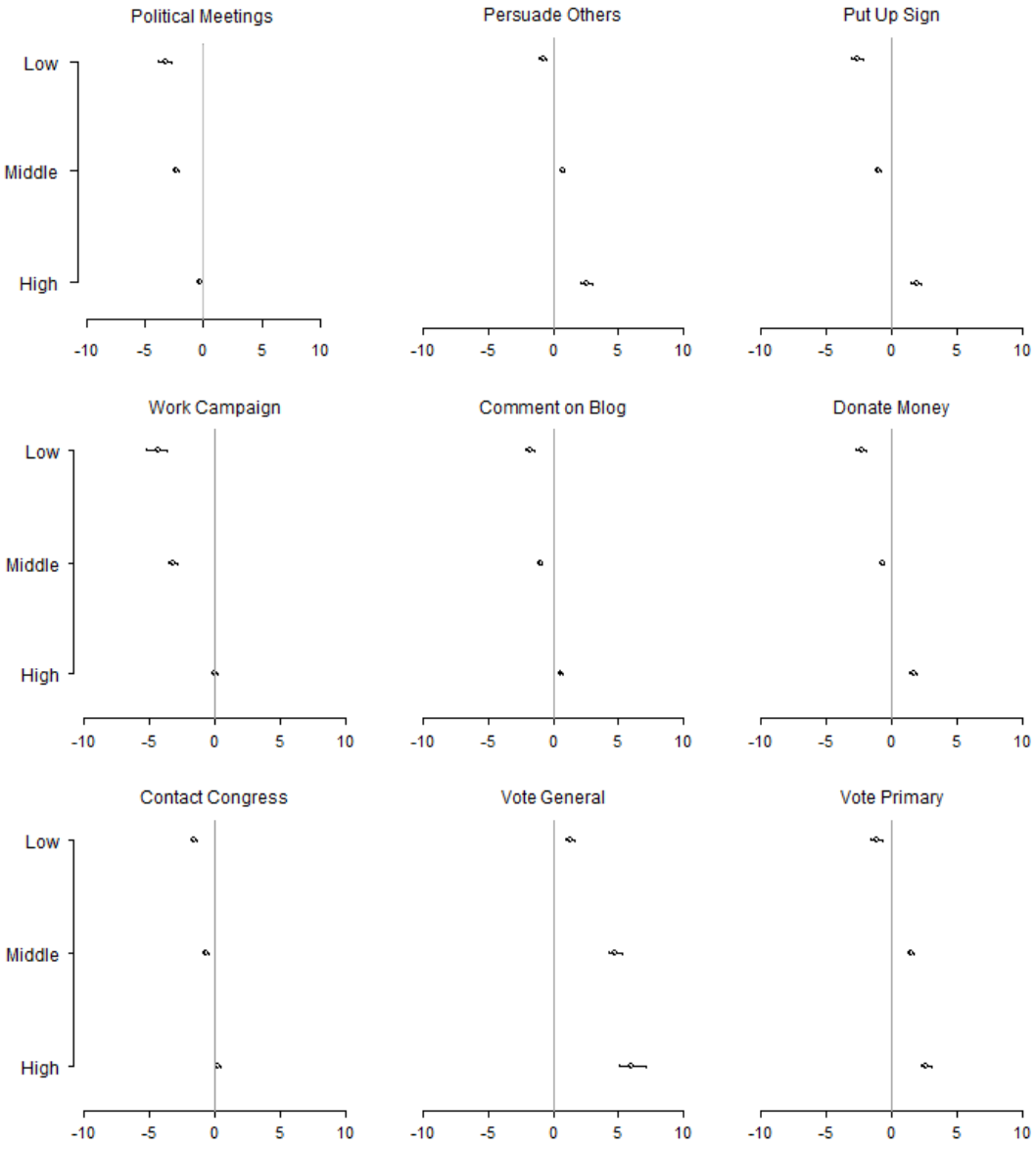

Figure 6.2: 2008 CCES: Intercepts of Varying Intercepts Model.

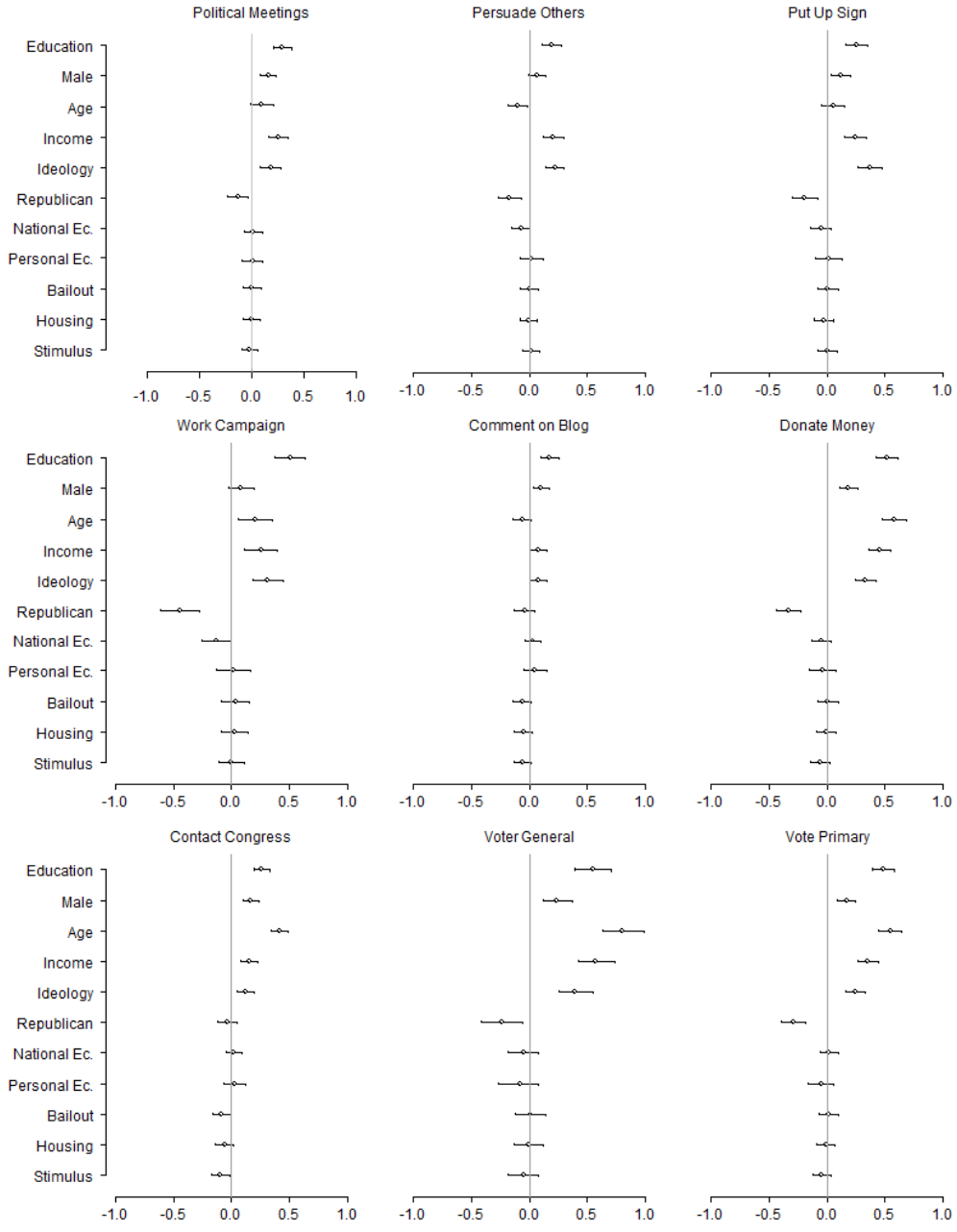

Figure 6.3: 2008 CCES: Coefficients of Varying Intercepts Model.

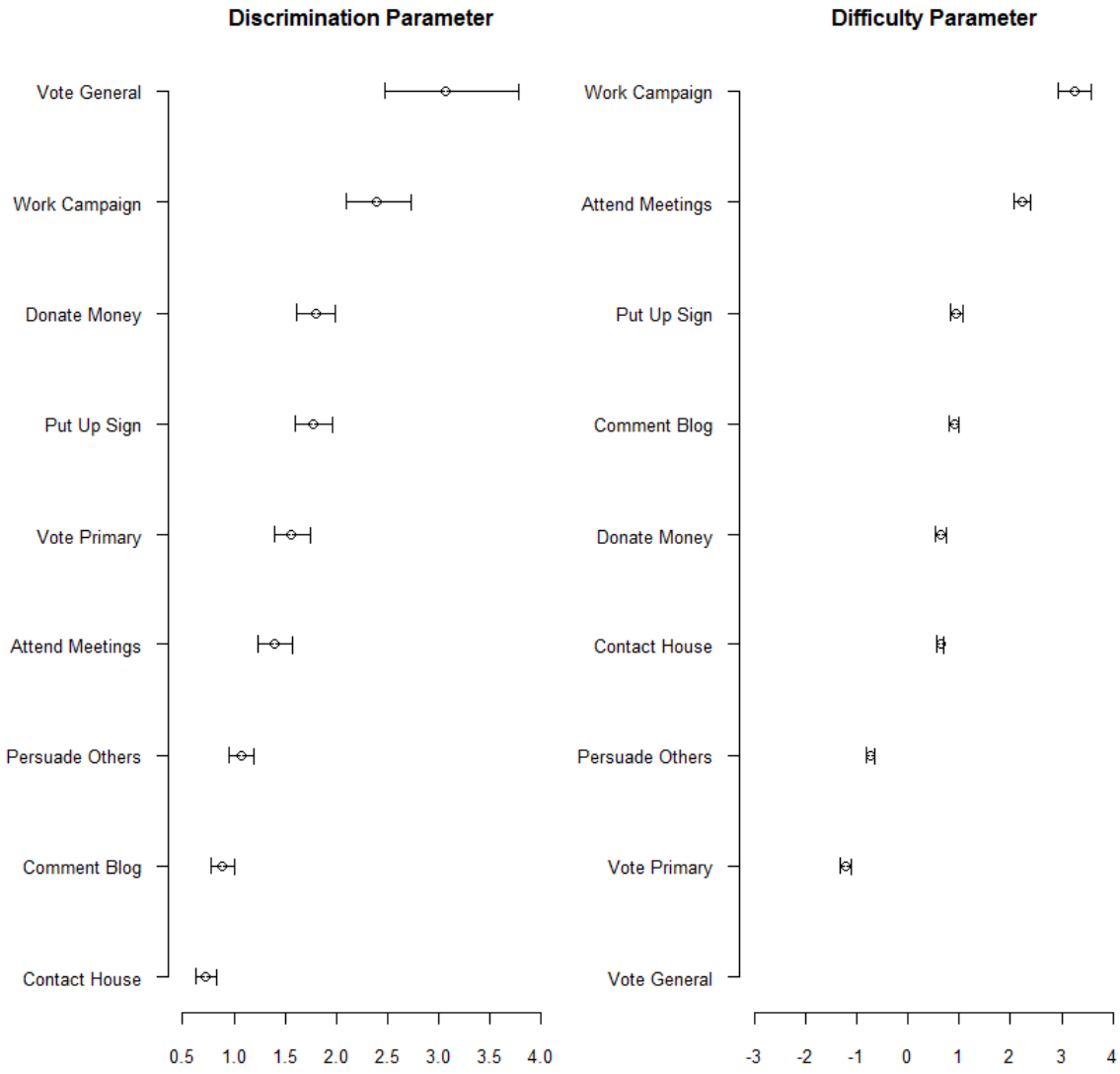

Figure 6.4: 2008 CCES: Parameters of the Latent Variable (IRT) Model.

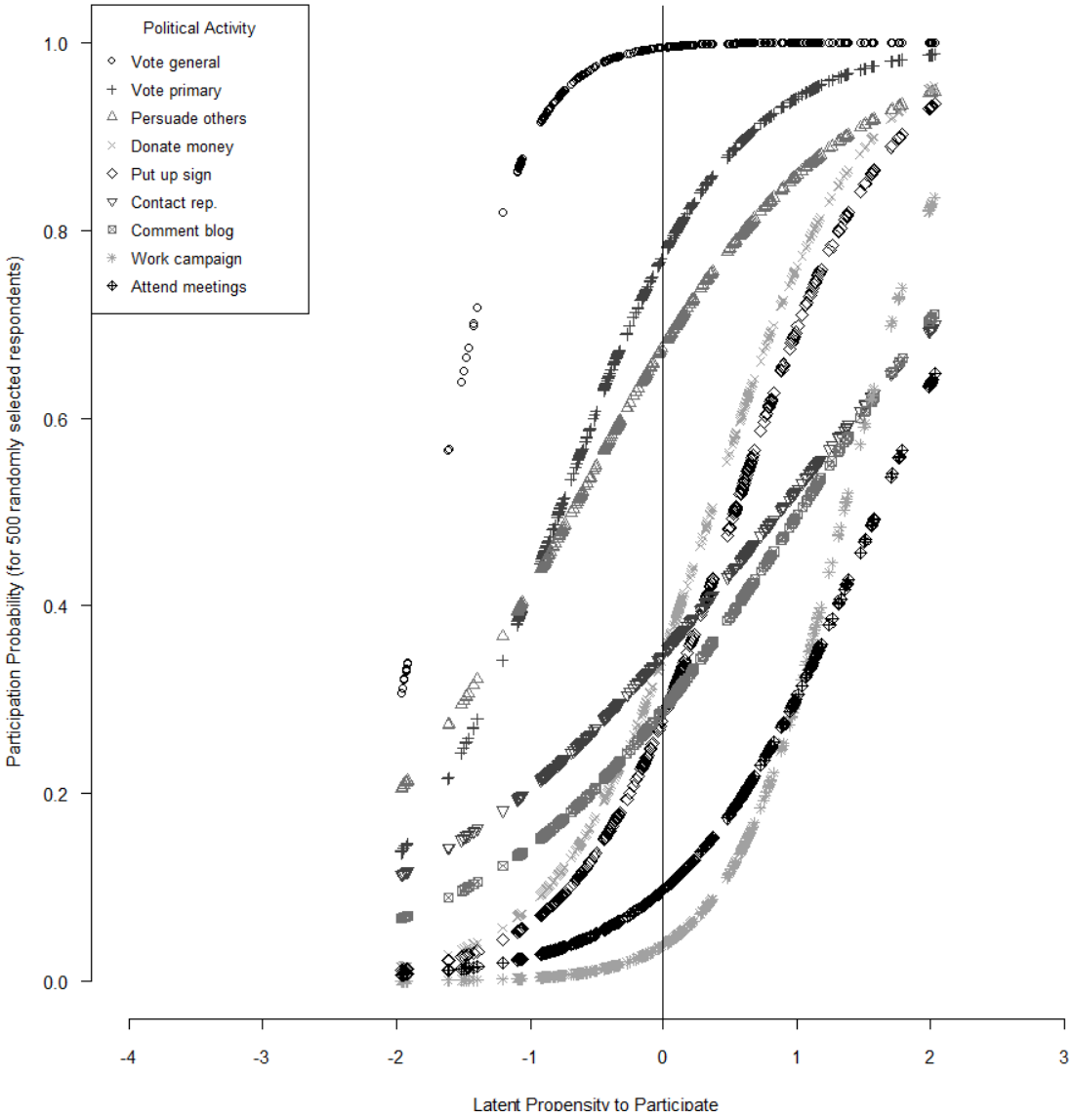

Figure 6.5: 2008 CCES: Relationship Between Latent Propensity and Participation Probabilities.

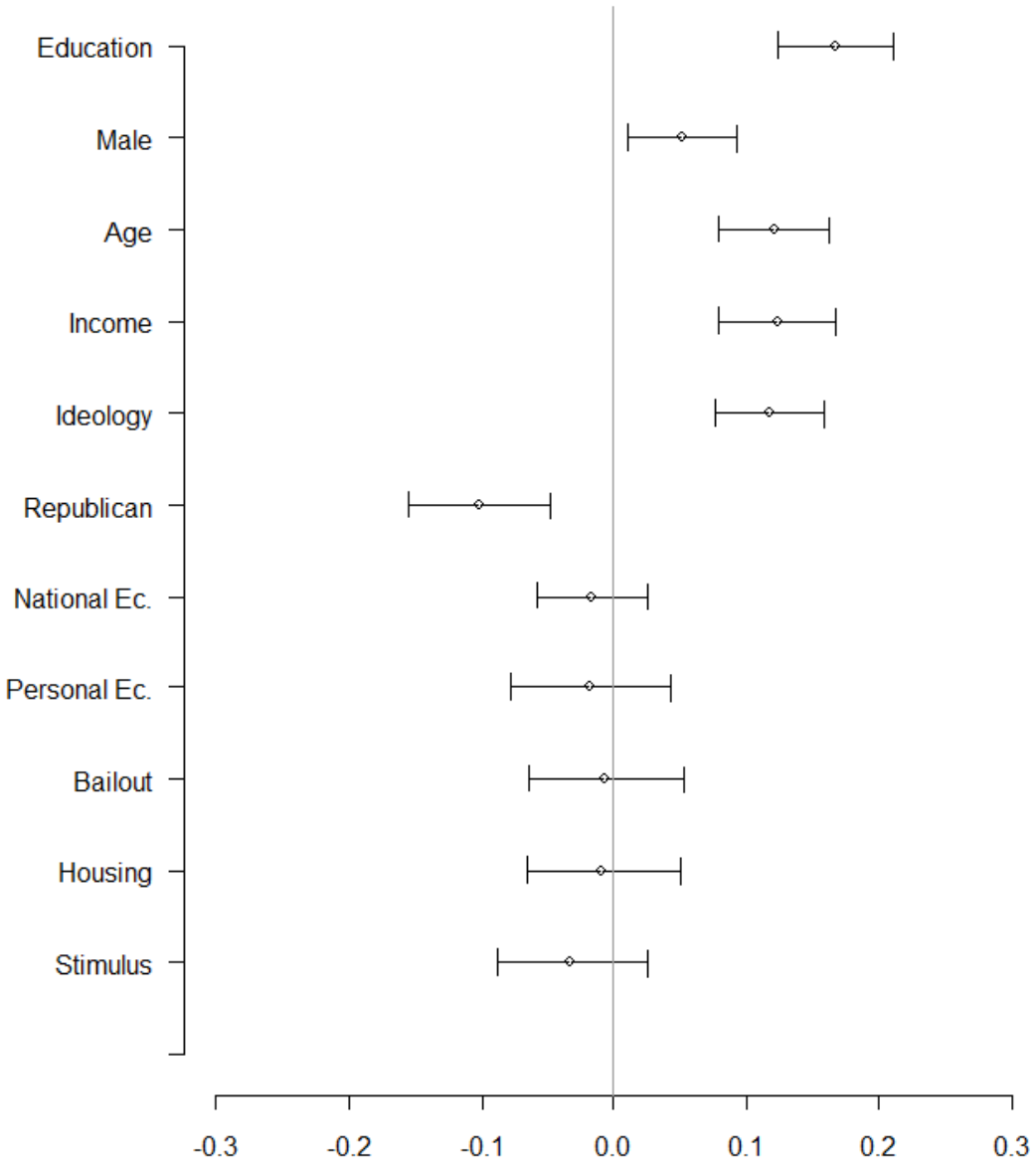

Figure 6.6: 2008 CCES: Coefficients of a Model of the Latent Propensity to Participate.

Chapter 7

Conclusion

In earlier chapters I developed and applied a new theoretical and empirical approach to the study of political participation that overcomes important limitations of existing approaches. I first introduced a new theoretical account of political participation that retains the strongest characteristics of rational choice theories, but at the same time is capable of explaining observed levels of political participation and can be tested using data from individual involvement in multiple activities. Rational choice theories are useful because they provide a convincing logical account of the way rational individuals make their participation decisions. But assuming that everyone behaves perfectly in line with rational choice theories is problematic because theoretical predictions are usually inconsistent with observed levels of political participation—it cannot even be argued that individuals behave "as if" they were perfectly rational. Extensions of the basic rational choice model that explain individual participation decisions by incorporating non-instrumental private and psychological benefits into the calculus of voting are also problematic because they are hardly falsifiable. Lastly, theories that completely dismiss the rational choice framework in favor a sociological account where individuals react collectively are of limited use because they disregard the importance of individual incentives for political participation and thus cannot explain the logic followed by individuals who choose to engage in reasonable deliberation regarding the benefits and costs of political participation.

In contrast to all of these theories, I argued that not all prospective participants behave in a purely rational way, nor do they all just react automatically to external stimuli. I introduced a dual-process account of political participation that is rooted in recent developments in cognitive

psychology. This theory assumes that decisions are determined by two distinct cognitive systems that compete to take control of individual behavior. While one cognitive system is instinctive and produces automatic responses that predispose the individual toward participation or abstention, the other cognitive system is logical and leads to behavior that is consistent with a reasonable evaluation of participation benefits and costs. In order to make rational decisions, individuals must be able to visualize themselves participating and abstaining, and also must be able to anticipate the potential consequences of each of these actions under different states of the world. One of the main role of the logical system is to suppress automatic responses that do not allow the individual to engage in reasonable deliberation. The central empirical implication of this dual-process account is the existence of heterogeneities in political participation because, for the same level of benefits and costs associated with each participation act, some individuals will be systematically more likely to participate than others.

Existing empirical methods for the study of political participation cannot be used to test the heterogeneity hypothesis. These methods assume that individual identities do not matter after accounting for differences in observable individual attributes and systemic factors included in the model. In earlier chapters I developed an alternative empirical approach that allows evaluating the magnitude of heterogeneities in political participation by considering individual involvement in multiple activities. Intuitively, the statistical method determines whether there are individuals who—everything else constant—systematically participate more or less than others across political activities, and based on this evidence classify survey respondents into latent participatory types that differ systematically in their propensity to participate. In contrast to what is assumed by standard models of political behavior, under the new approach it is no longer true that after accounting for the standard set of attributes individual identities do not matter. Due to heterogeneities in the distribution of *other factors*, participatory types are expected to differ in the frequency with which they are involved in political activities. Since covariate effects vary across participatory types depending on their baseline participation probability, ignoring the heterogeneities in political participation leads to faulty inferences.

In my first application, I reconsidered the impact of socio-demographic variables and civic skills on political participation, using survey data from the 1990 American Citizen Participation Study and found that wide heterogeneities in participation remain after controlling for socio-demographic attributes and politically-relevant resources. There are individuals who over-participate in political activities, and thus I called *activists*. Activists almost always participate in low cost activities, and are the only ones who often participate in high cost activities. There are also individuals who under-participate across political activities, and thus I called *apathetics*. Apathetics almost never participate in high cost activities, but often participate in low cost activities. I also found that covariate effects vary considerably across participatory types depending on the cost of each activity. In the case of activists, an increase in civic skills has minor effects on likelihood of involvement in low cost activities (as they are already almost sure to participate, regardless), but considerable effects on the probability of engaging in high cost activities. and in the case of apathetics, an increase in civic skills has minor effects on likelihood of involvement in high cost activities (as they are very unlikely to participate, regardless), but considerable effects on the probability of engaging in low cost activities.

In the second application, I reconsidered the impact of economic adversity and approval of emergency economic policies on political participation using data from the 2008 Cooperative Congressional Election Study. Previous studies analyzed the impact of national economic conditions and personal economic concerns on political participation, but little has been done to investigate the impact of approval of economic policies. Instead, I measured the impact of evaluation of national economic conditions, as well as the impact of approval of emergency economic policies enacted in response to the 2008 financial and economic crisis. In particular, I tested two competing hypotheses: the *mobilization* hypothesis, which argues that individuals attribute responsibility to the government for deteriorated economic conditions and participate to express their opinions about government's handling of the economy; and the *withdrawal* hypothesis, which argues that economic adversity reduces individuals' ability and desire to engage in political activities and causes them to withdraw to their inner selves to deal with problems on their own. I found that after controlling for partisanship

and ideology, evaluations of the economy and policies generally have little impact on political participation. Still, effects of economic variables were significant for specific activities like persuading others to vote, working for a campaign, and contacting a representative, and offered support for the mobilization hypothesis.

The two applications conducted in this dissertation focused on the impact of politically-relevant resources and evaluations of the economy. Since heterogeneities in political participation affect the impact of all individual attributes and systemic factors considered in the previous literature, in the future I plan additional applications to reconsider the impact of other individual attributes such as partisan attachments and evaluations of the political system, as well as the impact of systemic factors such as legal barriers to political participation. Another important question that I did not explore in earlier chapters is the implication of the dual-process account and heterogeneities in political participation for the design of political campaigns and the representativeness of political outcomes. If certain prospective participants exhibit higher predisposition toward political participation, these citizens will be likely targets of political campaigns and are likely to exert disproportionate influence on policy outcomes. In the future I plan to collect data regarding campaign strategies and the relationship between policy outcomes and constituency characteristics, to determine whether it is indeed the case that higher-propensity individuals exert disproportionate influence.

The method applied in earlier chapters was developed for cross-sectional survey data. In the future I plan to extend the methodology to time-series cross-sectional (TSCS) setting. Doing so will allow a stronger test of the theory, as it will be possible to determine whether heterogeneities in political participation subsist over time. Most importantly, extending the method to TSCS data will allow evaluating whether changes in the size of participatory classes can help explain changes in overall participation levels, such as the fall in civic engagement that occurred between the 1960s and 1990s in a context of increasing levels of educational attainment and easing of registration laws, as well as the subsequent recovery occurred since the early 2000s, and thus will contribute to addressing one of the existing unsolved puzzles of political participation. Finally, extending the method to TSCS data will allow evaluating whether changes in the composition of the different

participatory classes can help explain changes in public support for political parties and issues, such as electoral realignments.

Finally, it is important to note that the review of the empirical literature and applications done in earlier chapters focused on political participation in the United States. But scholars have also studied political participation from a comparative perspective, and have explored questions such as the impact of the electoral structure and political institutions on voter turnout (Blais, 2006; Franklin, 2004, 2010; Jackman, 1987; Norris, 2002; Powell, 1986). Comparative data is particularly useful for evaluating the impact of national-level institutions such as compulsory voting, where rules, penalties, and degree of enforcement vary considerably across countries (Blais, 2006; Franklin, 1999; Lijphart, 1997). Other systemic variables whose effects can only be studied using comparative data include national-level macroeconomic conditions, the closeness of national elections, and cross-national differences in election administration.[1] In the future I plan to extend the empirical method in a way that allows analyzing comparative data using a multilevel modeling approach, by allowing model parameters to vary across countries as a function of population characteristics and institutional structure. Extending the model to a comparative setting will also studying participation in the United States from a comparative perspective, and study the nature of the lower aggregate levels of political participation observed in the United States relative to other advanced democracies.

[1]For a review of the comparative literature on the determinants of voter turnout see Blais, 2006.

Appendix A

Appendix: Methodology

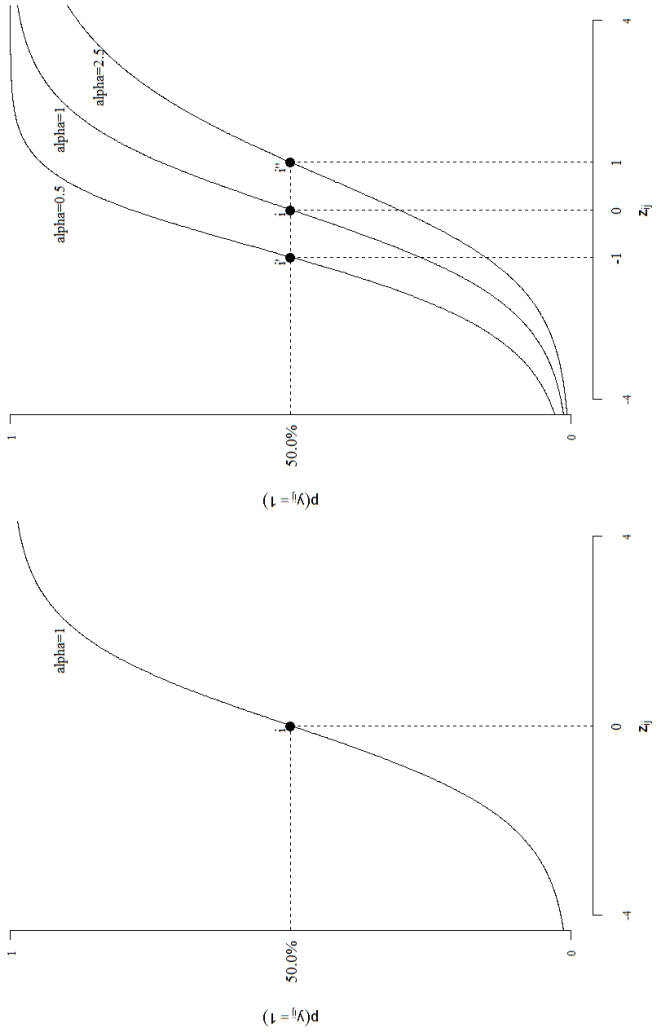

Figure A.1: Example of identification difficulties in scobit model.

Appendix B

Appendix: 1990 American Citizen Participation Study

B.1 Observed Participation Proportions

Discuss politics	69.0
Vote national	67.6
Vote local	65.9
Political organizations	48.1
Contact federal officials	28.7
Contribute money	23.6
Contact local officials	18.0
Informal community act	17.0
Formal community act	16.6
Contribute by mail	9.8
Campaign work	8.5
Protest	5.7

Table B.1: 1990 ACPS: Observed Participation Rates.

B.2 Summary Measure of Politically-Relevant Skills

I estimate a latent measure of politically-relevant skills (x_i), based on indicators of vocabulary skills, job level, organizational skills, church skills, and job skills. Civic skills indicators are denoted y_{ij}, with i indicating respondents, and $j \in \{1, 2, 3, 4, 5\}$ indicating each skill. Civic skills are assumed to be independent from each other conditional on x_i. Under this "local independence", it is possible to measure the latent variable of interest using the following factor-analytical model:

$$y_{ij} \sim N(diff_j + disc_j \;\; x_i, \sigma_j^2)$$

where $diff_j$ is the intercept associated with indicator j (usually termed the "difficulty parameter"), $disc_j$ is the slope associated with indicator j (usually termed the "discrimination" parameter, indicating the degree to which indicator j provides information about x_i), and $sigma_j$ indicates the variance of the distribution of y_{ij}'s.

The latent measure of politically-relevant skills is used as an explanatory variable in the three participation models estimated in the chapter (logit model, the varying-skewness-parameter model, and the varying-intercepts mode). To take into account uncertainty about the latent measure, I estimate this factor analytical model simultaneously with each participation model. In doing so, I specify flat priors for the distribution of $diff_j$, $disc_j$ and σ_j.

Figure B.1 gives 90% posterior intervals corresponding to the latent measure of politically-relevant skills, for a subset of randomly-selected individuals.

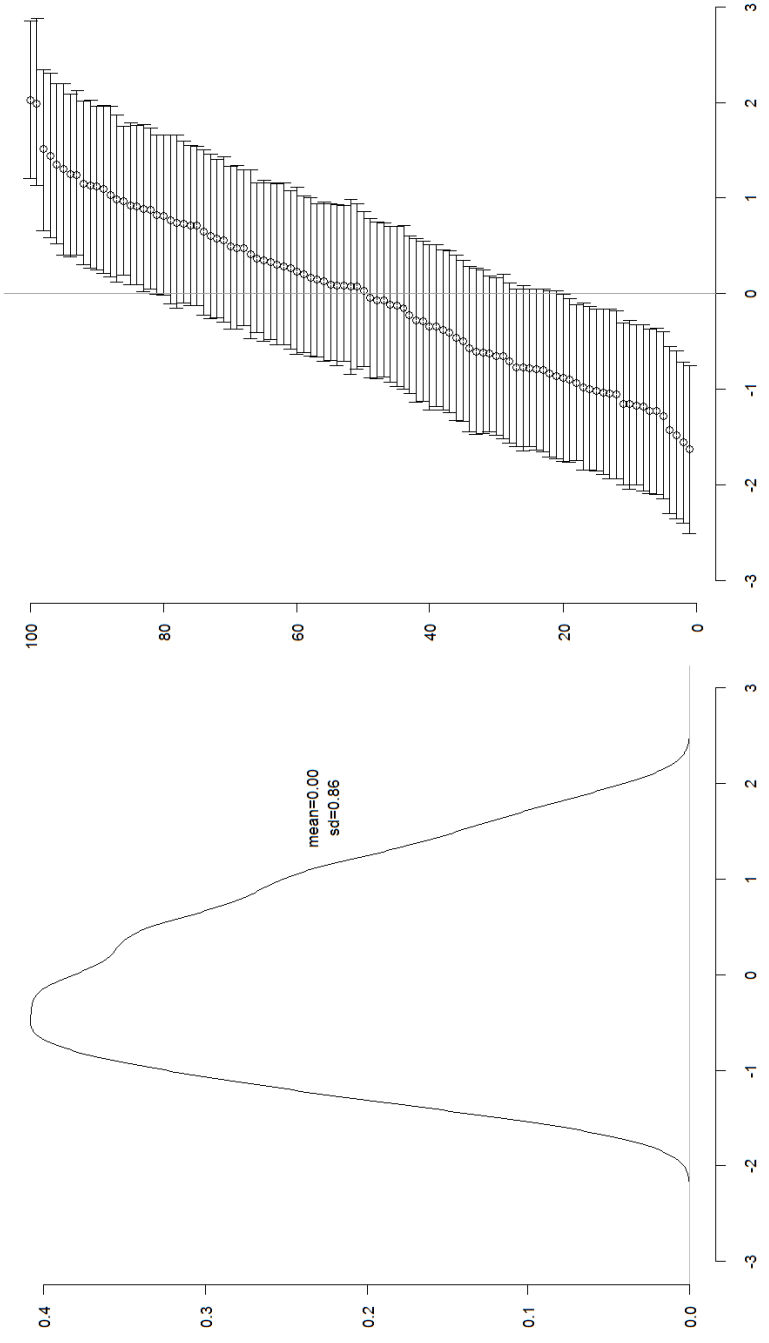

Figure B.1: 1990 ACPS: Distribution of Estimated Politically-Relevant Skills.

B.3 Alternative Model Specifications

In this appendix I present the results of two alternative specifications to the varying skewness model used in Chapter 5: one specification is a set of independent logistic regressions, and the other specification is a mixture model with varying intercepts.

In Tables B.2, B.3, and B.4 I present average marginal effects computed based on estimates produced by three alternative model specifications: independent logistic regressions, a mixture model with varying skewness (discussed in Section 5), and a mixture model with varying intercepts.

In Table B.5 I present indicators of type assignment produced by the mixture model with varying intercepts, analogous to those given in Table 5.1 for the varying skewness model. Figure B.2 gives the distribution of type assignments for the varying intercepts model, and is analogous to the distribution shown in Figure 5.2 for the varying skewness model.

Table B.6 compares type assignments produced by the varying intercepts and varying skewness models.

In Figures B.3 and B.4 I present average estimates and 90% confidence intervals corresponding to intercepts and coefficients estimated based on the varying intercepts specification.

In Tables B.7, B.8, and B.9 I present covariate effects corresponding to each type of activity (low-cost, high-cost, and other activities, respectively) computed based on estimates produced by the varying intercepts model. These tables are analogous to Tables 5.2, 5.3, and 5.4 that were computed based on estimates produced by the varying skewness model.

Finally, Figures B.5, B.6, and B.7 are constructed based on estimates produced by the varying intercepts model. These figures replicate Figures 5.4, 5.5, and 5.6 that were constructed based on estimates produced by the varying skewness model.

	Vote national			Vote local			Political organization			Political discussion		
Baseline	70.9	**75.5**	79.9	61.5	**65.8**	69.9	53.8	**57.9**	62.0	81.9	**84.6**	87.1
Education (4 to 5)	3.9	**5.4**	6.9	4.1	**5.7**	7.3	9.2	**10.7**	12.2	3.4	**4.3**	5.2
Male (yes to no)	-6.6	**-2.3**	2.1	-7.2	**-2.5**	2.2	-15.2	**-10.7**	-6.0	-12.3	**-9.1**	-6.1
Age (35-39 to 40-44)	1.7	**2.7**	3.7	3.6	**4.6**	5.6	3.4	**4.4**	5.4	1.0	**1.5**	2.1
Income (7 to 8)	0.6	**1.3**	2.0	0.6	**1.4**	2.2	2.4	**3.1**	3.9	0.6	**1.0**	1.4
Skills (0.5 increase)	4.1	**5.5**	6.8	6.9	**8.4**	9.9	12.0	**13.5**	15.1	4.9	**5.7**	6.6
Church Att. (6 to 7)	-0.1	**0.8**	1.7	0.2	**1.2**	2.2	-2.9	**-1.9**	-0.8	-1.0	**-0.4**	0.2
Non-Pol Acts (2 to 3)	1.2	**2.5**	3.7	3.2	**4.5**	5.8	4.6	**5.9**	7.2	1.5	**2.3**	3.1
	Campaign work			Formal community			Informal community			Protest		
Baseline	7.2	**8.8**	10.5	10.2	**12.5**	14.9	12.6	**14.7**	17.0	5.8	**7.3**	8.9
Education (4 to 5)	1.6	**2.2**	2.9	2.9	**3.9**	5.0	2.5	**3.3**	4.3	1.6	**2.3**	3.1
Male (yes to no)	-2.0	**-0.5**	0.9	-5.6	**-3.7**	-1.7	-2.2	**0.0**	2.1	-1.2	**0.4**	2.1
Age (35-39 to 40-44)	0.3	**0.6**	1.0	0.9	**1.5**	2.1	0.0	**0.5**	1.0	-1.0	**-0.6**	-0.3
Income (7 to 8)	0.2	**0.4**	0.7	0.7	**1.1**	1.5	0.2	**0.5**	0.9	-0.1	**0.2**	0.4
Skills (0.5 increase)	5.4	**6.4**	7.5	8.9	**10.4**	12.1	6.3	**7.5**	8.7	3.6	**4.5**	5.5
Church Att. (6 to 7)	-0.6	**-0.3**	0.1	-1.2	**-0.8**	-0.3	-0.8	**-0.4**	0.1	-0.8	**-0.5**	-0.2
Non-Pol Acts (2 to 3)	1.6	**2.1**	2.6	3.1	**3.8**	4.7	1.8	**2.4**	3.1	0.3	**0.7**	1.2
	Donate money			Donate by mail			Contact local			Contact national		
Baseline	18.7	**21.9**	25.1	3.8	**5.3**	6.8	25.0	**28.8**	32.7	10.9	**13.1**	15.4
Education (4 to 5)	7.3	**8.8**	10.4	1.3	**1.8**	2.5	5.3	**6.9**	8.6	3.1	**4.0**	5.0
Male (yes to no)	-8.8	**-5.7**	-2.8	-1.3	**-0.2**	0.8	-12.8	**-9.1**	-5.4	-4.6	**-2.7**	-0.8
Age (35-39 to 40-44)	2.2	**3.0**	3.8	0.3	**0.5**	0.8	1.5	**2.4**	3.4	0.5	**0.9**	1.5
Income (7 to 8)	2.1	**2.6**	3.2	0.2	**0.4**	0.6	0.7	**1.3**	2.0	0.4	**0.7**	1.1
Skills (0.5 increase)	10.7	**12.4**	14.2	2.9	**3.6**	4.5	15.6	**17.9**	20.5	8.7	**10.1**	11.7
Church Att. (6 to 7)	-2.1	**-1.5**	-0.8	-0.6	**-0.4**	-0.2	-2.5	**-1.6**	-0.7	-1.3	**-0.9**	-0.5
Non-Pol Acts (2 to 3)	3.7	**4.7**	5.7	0.8	**1.2**	1.5	5.2	**6.6**	8.0	2.6	**3.2**	3.9

Table B.2: 1990 ACPS: Marginal Effects, Logistic Regressions.

	Vote national			Vote local			Political organization			Political discussion		
Baseline	71.2	**75.2**	78.9	61.4	**65.2**	68.9	58.0	**61.7**	65.4	79.9	**82.2**	84.4
Education (4 to 5)	2.1	**3.9**	5.9	1.7	**3.7**	5.6	2.0	**3.6**	5.2	1.1	**2.0**	3.1
Male (yes to no)	-6.5	**-3.0**	0.8	-6.5	**-2.4**	1.9	-13.4	**-9.7**	-5.8	-9.4	**-6.7**	-4.2
Age (35-39 to 40-44)	1.4	**2.2**	3.1	2.8	**3.7**	4.6	2.4	**3.1**	3.9	0.8	**1.2**	1.6
Income (7 to 8)	0.4	**1.0**	1.7	0.4	**1.1**	1.8	0.9	**1.5**	2.1	0.1	**0.5**	0.9
Skills (0.5 increase)	-0.7	**1.6**	3.4	0.8	**2.8**	4.7	7.3	**9.0**	10.7	2.6	**3.5**	4.3
Church Att. (6 to 7)	0.1	**0.8**	1.6	0.4	**1.3**	2.1	-2.1	**-1.2**	-0.4	-0.6	**-0.1**	0.3
Non-Pol Acts (2 to 3)	0.8	**1.8**	2.9	2.2	**3.4**	4.7	2.6	**3.7**	4.8	0.7	**1.3**	2.0
	Campaign work			Formal community			Informal community			Protest		
Baseline	11.0	**12.9**	14.9	16.0	**18.4**	21.1	16.2	**18.4**	20.6	8.6	**10.3**	12.2
Education (4 to 5)	-1.0	**-0.2**	0.7	-1.7	**-0.4**	0.8	-0.5	**0.6**	1.7	-0.2	**0.7**	1.7
Male (yes to no)	-2.5	**-0.7**	1.2	-6.9	**-4.4**	-2.0	-2.7	**-0.4**	1.9	-1.7	**0.3**	2.3
Age (35-39 to 40-44)	0.2	**0.6**	1.0	0.8	**1.4**	2.1	-0.1	**0.4**	0.9	-1.3	**-0.9**	-0.5
Income (7 to 8)	-0.3	**0.0**	0.3	0.0	**0.4**	0.9	-0.3	**0.0**	0.4	-0.5	**-0.1**	0.2
Skills (0.5 increase)	4.1	**5.4**	6.8	7.4	**9.4**	11.6	3.8	**5.2**	6.7	2.4	**3.7**	5.0
Church Att. (6 to 7)	-0.7	**-0.3**	0.1	-1.4	**-0.9**	-0.3	-0.8	**-0.3**	0.2	-1.0	**-0.6**	-0.2
Non-Pol Acts (2 to 3)	1.4	**1.9**	2.4	2.6	**3.4**	4.2	1.4	**2.0**	2.7	-0.2	**0.4**	0.9
	Donate money			Donate by mail			Contact local			Contact national		
Baseline	25.2	**28.3**	31.6	6.8	**8.5**	10.4	32.8	**36.1**	39.4	16.8	**19.1**	21.5
Education (4 to 5)	2.9	**4.7**	6.5	0.4	**1.2**	2.0	-1.8	**-0.1**	1.7	-0.9	**0.2**	1.4
Male (yes to no)	-9.7	**-6.4**	-3.0	-1.9	**-0.3**	1.3	-11.0	**-7.5**	-4.1	-5.1	**-2.8**	-0.6
Age (35-39 to 40-44)	1.8	**2.5**	3.3	0.2	**0.6**	1.0	1.1	**1.8**	2.6	0.3	**0.8**	1.3
Income (7 to 8)	1.3	**1.9**	2.5	0.1	**0.4**	0.6	-0.5	**0.1**	0.7	-0.4	**0.1**	0.5
Skills (0.5 increase)	5.9	**8.0**	10.1	1.2	**2.2**	3.3	9.1	**11.3**	13.5	6.3	**8.0**	10.0
Church Att. (6 to 7)	-1.8	**-1.1**	-0.3	-0.7	**-0.3**	0.0	-1.9	**-1.1**	-0.3	-1.4	**-0.9**	-0.4
Non-Pol Acts (2 to 3)	2.4	**3.4**	4.4	0.7	**1.1**	1.6	3.0	**4.0**	5.1	1.9	**2.5**	3.3

Table B.3: 1990 ACPS: Average Marginal Effects, Varying Skewness Model.

	Vote national			Vote local			Political organization			Political discussion		
Baseline	68.9	**74.1**	78.9	59.9	**65.4**	70.7	51.9	**57.9**	64.0	77.9	**81.9**	85.8
Education (4 to 5)	-0.2	**1.7**	3.7	-0.4	**1.5**	3.4	0.8	**2.5**	4.2	0.1	**1.2**	2.3
Male (yes to no)	-5.5	**-1.2**	3.0	-4.8	**-0.5**	3.8	-10.6	**-6.6**	-2.6	-9.4	**-6.2**	-3.3
Age (35-39 to 40-44)	1.3	**2.2**	3.3	2.9	**3.8**	4.7	2.4	**3.2**	4.1	0.6	**1.1**	1.6
Income (7 to 8)	0.1	**0.8**	1.5	0.1	**0.8**	1.6	1.0	**1.6**	2.3	0.2	**0.6**	1.0
Skills (0.5 increase)	3.1	**5.2**	7.0	3.7	**5.7**	7.7	9.7	**11.8**	14.0	4.1	**5.4**	6.7
Church Att. (6 to 7)	-0.3	**0.5**	1.5	0.1	**1.0**	2.0	-2.8	**-1.9**	-1.0	-1.1	**-0.6**	0.0
Non-Pol Acts (2 to 3)	1.0	**2.2**	3.3	1.9	**3.1**	4.3	2.5	**3.6**	4.8	0.9	**1.6**	2.3
	Campaign work			Formal community			Informal community			Protest		
Baseline	9.8	**13.0**	16.6	16.6	**21.0**	25.9	16.3	**19.9**	23.7	7.5	**10.1**	13.1
Education (4 to 5)	-0.8	**0.0**	0.8	-1.0	**0.4**	1.7	-0.6	**0.5**	1.5	-0.4	**0.4**	1.3
Male (yes to no)	-2.4	**-0.5**	1.5	-8.1	**-5.1**	-2.3	-2.4	**0.2**	2.9	-1.3	**0.7**	2.9
Age (35-39 to 40-44)	0.3	**0.7**	1.2	1.0	**1.7**	2.5	-0.1	**0.4**	1.0	-1.3	**-0.8**	-0.4
Income (7 to 8)	-0.3	**0.1**	0.4	0.3	**0.8**	1.3	-0.3	**0.1**	0.5	-0.5	**-0.2**	0.1
Skills (0.5 increase)	4.0	**5.3**	6.9	7.1	**9.1**	11.5	4.3	**5.8**	7.3	2.7	**4.0**	5.4
Church Att. (6 to 7)	-0.5	**-0.1**	0.3	-1.4	**-0.7**	-0.1	-0.8	**-0.2**	0.3	-1.0	**-0.6**	-0.1
Non-Pol Acts	0.9	**1.4**	2.0	2.1	**3.0**	4.0	0.9	**1.6**	2.4	-0.3	**0.3**	0.8
	Donate money			Donate by mail			Contact local			Contact national		
Baseline	17.7	**24.3**	31.5	4.5	**7.9**	12.4	32.5	**39.9**	47.8	16.3	**20.6**	25.4
Education (4 to 5)	1.1	**2.4**	3.8	0.2	**0.7**	1.4	-1.1	**0.6**	2.2	-0.6	**0.6**	1.7
Male (yes to no)	-7.6	**-4.9**	-2.3	-2.4	**-1.1**	0.1	-10.8	**-6.8**	-3.2	-5.2	**-2.4**	0.1
Age (35-39 to 40-44)	1.7	**2.4**	3.1	0.4	**0.8**	1.2	0.9	**1.6**	2.4	0.3	**0.9**	1.5
Income (7 to 8)	1.0	**1.5**	2.1	0.1	**0.3**	0.6	-0.1	**0.5**	1.2	-0.3	**0.2**	0.7
Skills (0.5 increase)	5.8	**7.8**	9.9	1.3	**2.2**	3.2	7.5	**9.4**	11.6	6.4	**8.2**	10.2
Church Att. (6 to 7)	-1.5	**-1.0**	-0.4	-0.5	**-0.2**	0.0	-2.0	**-1.2**	-0.4	-1.4	**-0.8**	-0.3
Non-Pol Acts (2 to 3)	1.5	**2.3**	3.1	0.4	**0.7**	1.1	2.2	**3.1**	4.2	1.4	**2.1**	2.9

Table B.4: 1990 ACPS: Average Marginal Effects, Varying Intercepts Model.

	Average type probability	Predicted proportion
Low propensity	39.9	44.5
Middle propensity	44.0	42.0
High propensity	16.1	14.0

Table B.5: 1990 ACPS: Estimates of Type Assignment, Varying Intercepts Model).

		Varying-intercepts		
		Low propensity	Middle propensity	High propensity
Varying-skewness	Low propensity	**89.2**	10.5	0.3
	Middle propensity	26.3	**60.5**	13.2
	High propensity	0.0	31.9	**68.1**

Table B.6: 1990 ACPS: Type Assignments, Varying Skewness vs. Varying Intercepts Models.

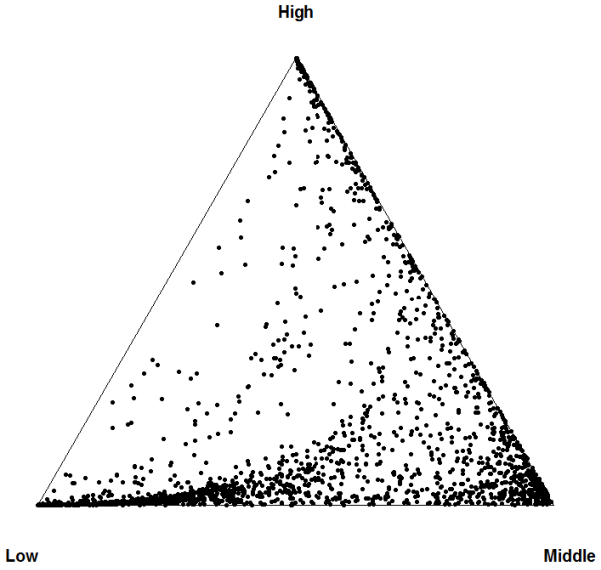

Figure B.2: 1990 ACPS: Distribution of Type Assignments, Varying Intercepts Model.

	Vote national			Vote local			Political organization			Political discussion		
					Low propensity type							
Baseline	57.6	**65.4**	72.2	38.9	**46.3**	53.4	31.6	**37.9**	44.2	61.1	**67.0**	72.7
Education (4 to 5)	-0.3	**2.1**	4.6	-0.5	**1.8**	4.2	0.9	**2.8**	4.7	0.2	**1.9**	3.7
Male (yes to no)	-6.6	**-1.5**	3.7	-5.8	**-0.7**	4.5	-11.0	**-6.8**	-2.7	-14.4	**-9.6**	-5.2
Age (35-39 to 40-44)	1.6	**2.8**	4.0	3.6	**4.7**	5.8	2.6	**3.6**	4.6	1.0	**1.8**	2.7
Income (7 to 8)	0.1	**0.9**	1.9	0.2	**1.0**	1.9	1.1	**1.8**	2.5	0.3	**1.0**	1.7
Skills (0.5 increase)	3.9	**6.5**	8.7	4.7	**7.2**	9.7	11.7	**14.1**	16.6	7.2	**9.1**	10.9
Church Att. (6 to 7)	-0.4	**0.7**	1.8	0.1	**1.3**	2.5	-2.9	**-2.0**	-1.1	-1.8	**-0.9**	0.0
Non-Pol Acts (2 to 3)	1.3	**2.7**	4.1	2.4	**3.8**	5.3	2.8	**4.0**	5.3	1.5	**2.7**	3.8
					Middle propensity type							
Baseline	68.5	**75.4**	82.1	68.1	**74.0**	79.3	57.1	**63.8**	70.1	84.7	**88.4**	91.6
Education (4 to 5)	-0.2	**1.6**	3.7	-0.4	**1.4**	3.2	0.9	**2.7**	4.4	0.1	**0.9**	1.7
Male (yes to no)	-5.5	**-1.2**	3.0	-4.5	**-0.5**	3.5	-11.6	**-7.2**	-2.8	-7.7	**-4.9**	-2.6
Age (35-39 to 40-44)	1.2	**2.2**	3.3	2.6	**3.4**	4.4	2.5	**3.4**	4.3	0.4	**0.8**	1.3
Income (7 to 8)	0.1	**0.8**	1.5	0.1	**0.8**	1.5	1.0	**1.7**	2.4	0.1	**0.5**	0.8
Skills (0.5 increase)	3.0	**5.1**	7.2	3.4	**5.1**	7.1	9.7	**12.0**	14.3	2.8	**3.9**	5.1
Church Att. (6 to 7)	-0.3	**0.5**	1.5	0.1	**1.0**	1.8	-3.1	**-2.0**	-1.0	-0.9	**-0.4**	0.0
Non-Pol Acts (2 to 3)	1.0	**2.2**	3.4	1.7	**2.9**	4.1	2.6	**3.8**	5.0	0.7	**1.2**	1.8
					High propensity type							
Baseline	83.9	**92.9**	100.0	76.0	**82.1**	88.3	82.6	**88.4**	93.7	92.4	**96.0**	100.0
Education (4 to 5)	0.0	**0.6**	1.7	-0.3	**1.0**	2.4	0.3	**1.1**	2.1	0.0	**0.3**	0.8
Male (yes to no)	-2.4	**-0.4**	1.2	-3.5	**-0.4**	2.8	-6.1	**-3.5**	-1.2	-3.9	**-1.9**	0.0
Age (35-39 to 40-44)	0.0	**0.8**	1.8	1.7	**2.6**	3.5	0.8	**1.4**	2.2	0.0	**0.3**	0.6
Income (7 to 8)	0.0	**0.3**	0.7	0.1	**0.6**	1.1	0.4	**0.8**	1.2	0.0	**0.2**	0.4
Skills (0.5 increase)	0.0	**1.7**	3.9	2.2	**3.8**	5.6	2.6	**4.7**	6.9	0.0	**1.4**	2.7
Church Att. (6 to 7)	-0.1	**0.2**	0.7	0.1	**0.7**	1.4	-1.6	**-0.9**	-0.4	-0.4	**-0.2**	0.0
Non-Pol Acts (2 to 3)	0.0	**0.7**	1.7	1.2	**2.2**	3.2	0.8	**1.6**	2.5	0.0	**0.4**	0.9

Table B.7: 1990 ACPS: Marginal Effects (Varying Intercepts), Low-Cost Activities.

	Campaign work			Formal community			Informal community			Protest		
					Low propensity type							
Baseline	2.5	**4.0**	5.6	1.2	**2.6**	4.2	4.0	**6.1**	8.4	2.8	**4.3**	5.9
Education (4 to 5)	-0.3	**0.0**	0.3	-0.2	**0.1**	0.3	-0.2	**0.2**	0.6	-0.2	**0.2**	0.7
Male (yes to no)	-0.9	**-0.2**	0.6	-1.4	**-0.8**	-0.3	-0.9	**0.1**	1.1	-0.6	**0.4**	1.4
Age (35-39 to 40-44)	0.1	**0.3**	0.5	0.1	**0.3**	0.5	-0.1	**0.2**	0.4	-0.7	**-0.4**	-0.2
Income (7 to 8)	-0.1	**0.0**	0.1	0.0	**0.1**	0.3	-0.1	**0.0**	0.2	-0.3	**-0.1**	0.1
Skills (0.5 increase)	1.4	**2.1**	3.1	1.0	**1.8**	2.9	1.5	**2.4**	3.4	1.2	**2.1**	3.1
Church Att. (6 to 7)	-0.2	**0.0**	0.1	-0.2	**-0.1**	0.0	-0.3	**-0.1**	0.1	-0.5	**-0.3**	-0.1
Non-Pol Acts (2 to 3)	0.3	**0.5**	0.8	0.3	**0.5**	0.8	0.3	**0.6**	1.0	-0.1	**0.1**	0.4
					Middle propensity type							
Baseline	9.6	**13.4**	17.5	25.0	**30.1**	35.3	22.4	**26.4**	30.5	6.4	**9.2**	12.4
Education (4 to 5)	-0.9	**0.0**	0.9	-1.5	**0.5**	2.4	-0.7	**0.6**	2.0	-0.4	**0.4**	1.4
Male (yes to no)	-2.7	**-0.5**	1.6	-11.5	**-7.2**	-3.3	-3.1	**0.3**	3.7	-1.3	**0.7**	2.9
Age (35-39 to 40-44)	0.3	**0.8**	1.3	1.4	**2.4**	3.4	-0.2	**0.5**	1.3	-1.4	**-0.8**	-0.4
Income (7 to 8)	-0.3	**0.1**	0.4	0.4	**1.1**	1.8	-0.4	**0.1**	0.7	-0.5	**-0.2**	0.1
Skills (0.5 increase)	4.5	**6.1**	7.9	10.4	**12.9**	15.7	5.7	**7.5**	9.3	2.7	**4.1**	5.7
Church Att. (6 to 7)	-0.6	**-0.1**	0.3	-1.9	**-1.0**	-0.1	-1.0	**-0.3**	0.4	-1.0	**-0.6**	-0.1
Non-Pol Acts (2 to 3)	1.0	**1.6**	2.3	3.0	**4.2**	5.5	1.2	**2.1**	3.0	-0.3	**0.3**	0.8
					High propensity type							
Baseline	28.8	**36.9**	46.2	28.0	**33.7**	40.3	25.5	**30.4**	36.1	22.0	**30.4**	40.8
Education (4 to 5)	-1.8	**0.0**	1.8	-1.6	**0.5**	2.5	-0.8	**0.7**	2.1	-1.0	**1.0**	3.2
Male (yes to no)	-5.4	**-1.1**	3.3	-12.3	**-7.8**	-3.5	-3.3	**0.3**	4.0	-3.3	**1.8**	7.0
Age (35-39 to 40-44)	0.6	**1.5**	2.5	1.5	**2.5**	3.6	-0.2	**0.6**	1.4	-3.3	**-2.1**	-1.1
Income (7 to 8)	-0.6	**0.1**	0.8	0.4	**1.2**	1.9	-0.5	**0.1**	0.7	-1.3	**-0.5**	0.3
Skills (0.5 increase)	8.7	**10.9**	13.3	10.8	**13.4**	16.2	6.2	**8.0**	9.9	6.6	**9.3**	12.1
Church Att. (6 to 7)	-1.2	**-0.3**	0.7	-2.0	**-1.1**	-0.2	-1.1	**-0.3**	0.5	-2.5	**-1.4**	-0.4
Non-Pol Acts (2 to 3)	2.0	**3.1**	4.3	3.2	**4.4**	5.8	1.3	**2.3**	3.3	-0.7	**0.7**	2.0

Table B.8: 1990 ACPS: Marginal Effects (Varying Intercepts), High-Cost Activities.

	Donate money			Donate by mail			Contact local			Contact national	
					Low propensity type						
Baseline	7.7	**10.8**	14.2	1.0	**1.9**	3.1	2.0	**4.0**	6.7	1.9	**3.3**	4.9
Education (4 to 5)	0.9	**1.8**	2.9	0.1	**0.3**	0.6	-0.2	**0.2**	0.6	-0.1	**0.1**	0.4
Male (yes to no)	-5.4	**-3.4**	-1.6	-0.8	**-0.4**	0.0	-2.3	**-1.2**	-0.5	-1.1	**-0.5**	0.0
Age (35-39 to 40-44)	1.2	**1.8**	2.5	0.2	**0.3**	0.5	0.2	**0.4**	0.7	0.1	**0.2**	0.4
Income (7 to 8)	0.7	**1.1**	1.6	0.1	**0.1**	0.2	0.0	**0.1**	0.3	-0.1	**0.0**	0.1
Skills (0.5 increase)	4.3	**6.3**	8.6	0.5	**0.9**	1.5	1.5	**2.8**	4.4	1.2	**2.1**	3.0
Church Att. (6 to 7)	-1.1	**-0.7**	-0.3	-0.2	**-0.1**	0.0	-0.5	**-0.2**	-0.1	-0.3	**-0.2**	-0.1
Non-Pol Acts (2 to 3)	1.1	**1.7**	2.4	0.1	**0.3**	0.5	0.4	**0.8**	1.3	0.3	**0.5**	0.8
					Middle propensity type						
Baseline	12.2	**19.1**	26.7	1.3	**2.6**	4.5	51.0	**58.0**	65.0	23.0	**28.0**	33.4
Education (4 to 5)	1.3	**2.9**	4.7	0.1	**0.4**	0.8	-1.5	**0.9**	3.1	-0.9	**0.8**	2.4
Male (yes to no)	-9.0	**-5.6**	-2.5	-1.1	**-0.5**	0.0	-15.2	**-9.8**	-4.6	-7.0	**-3.4**	0.2
Age (35-39 to 40-44)	1.9	**2.8**	3.8	0.2	**0.4**	0.7	1.2	**2.3**	3.3	0.4	**1.2**	2.1
Income (7 to 8)	1.1	**1.8**	2.6	0.1	**0.2**	0.3	-0.1	**0.8**	1.6	-0.4	**0.3**	0.9
Skills (0.5 increase)	6.7	**9.4**	12.2	0.6	**1.2**	2.1	10.6	**13.0**	15.8	9.1	**11.2**	13.6
Church Att. (6 to 7)	-1.8	**-1.1**	-0.4	-0.3	**-0.1**	0.0	-2.8	**-1.7**	-0.6	-2.0	**-1.2**	-0.4
Non-Pol Acts (2 to 3)	1.7	**2.7**	3.9	0.2	**0.4**	0.7	3.1	**4.4**	5.9	1.9	**2.9**	4.0
					High propensity type						
Baseline	76.2	**85.0**	93.0	32.2	**47.7**	67.4	55.5	**62.6**	70.1	29.7	**37.4**	46.7
Education (4 to 5)	0.7	**2.1**	3.8	1.2	**3.5**	6.2	-1.4	**0.8**	2.9	-1.0	**0.9**	2.7
Male (yes to no)	-10.5	**-6.0**	-2.3	-11.7	**-5.5**	0.4	-15.0	**-9.6**	-4.5	-8.2	**-3.9**	0.2
Age (35-39 to 40-44)	1.0	**2.1**	3.2	2.2	**3.7**	5.2	1.2	**2.2**	3.2	0.5	**1.4**	2.4
Income (7 to 8)	0.6	**1.4**	2.2	0.7	**1.7**	2.7	-0.1	**0.7**	1.6	-0.4	**0.3**	1.0
Skills (0.5 increase)	2.7	**5.5**	8.4	6.3	**9.7**	12.9	9.6	**12.2**	15.0	10.1	**12.3**	14.7
Church Att. (6 to 7)	-1.9	**-1.0**	-0.3	-2.3	**-1.1**	0.1	-2.8	**-1.6**	-0.6	-2.3	**-1.4**	-0.5
Non-Pol Acts (2 to 3)	0.9	**2.0**	3.3	1.9	**3.4**	4.9	2.9	**4.2**	5.7	2.2	**3.3**	4.5

Table B.9: 1990 ACPS: Marginal Effects (Varying Intercepts), Other Activities.

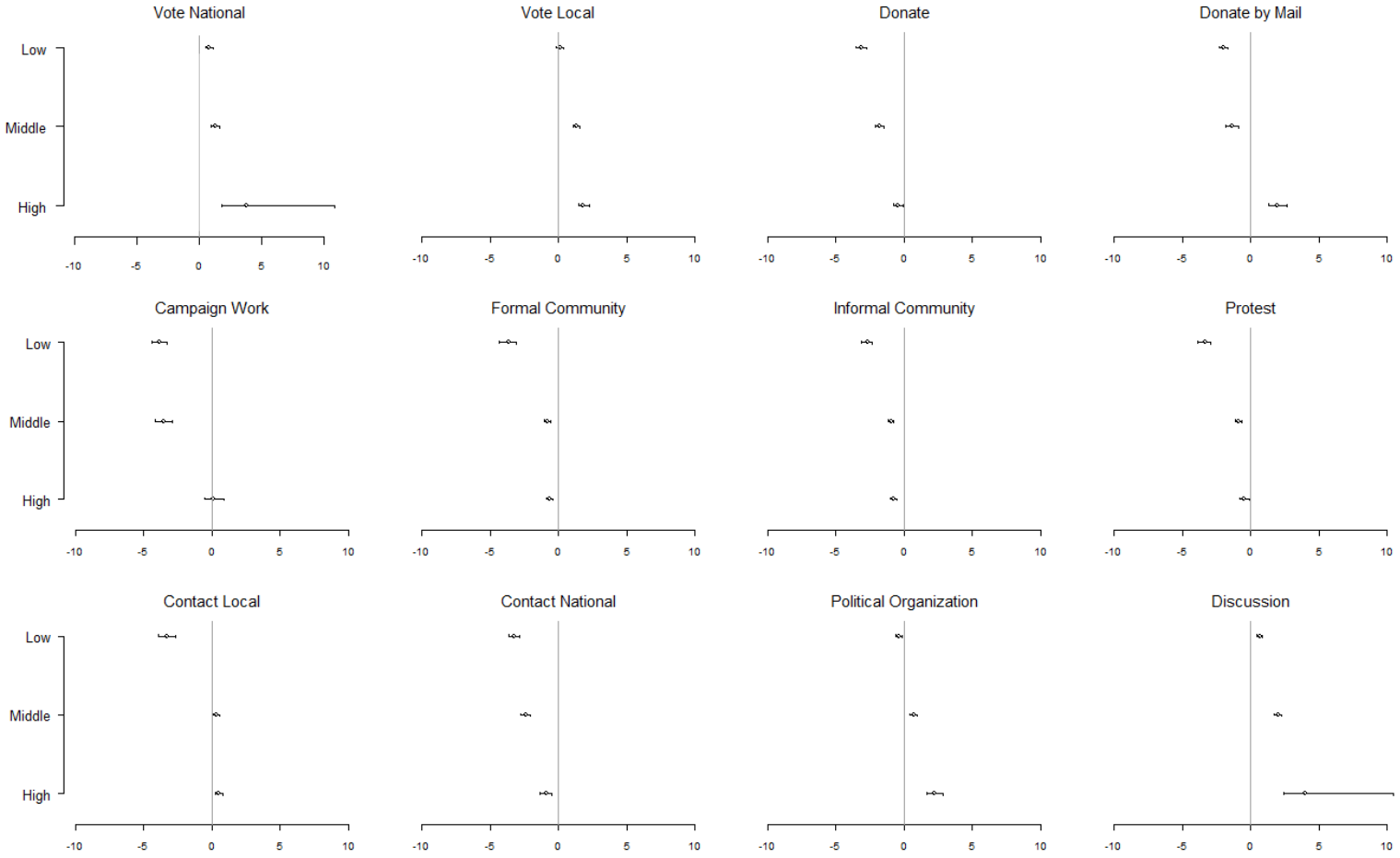

Figure B.3: 1990 ACPS: Intercepts of Varying Intercepts Model.

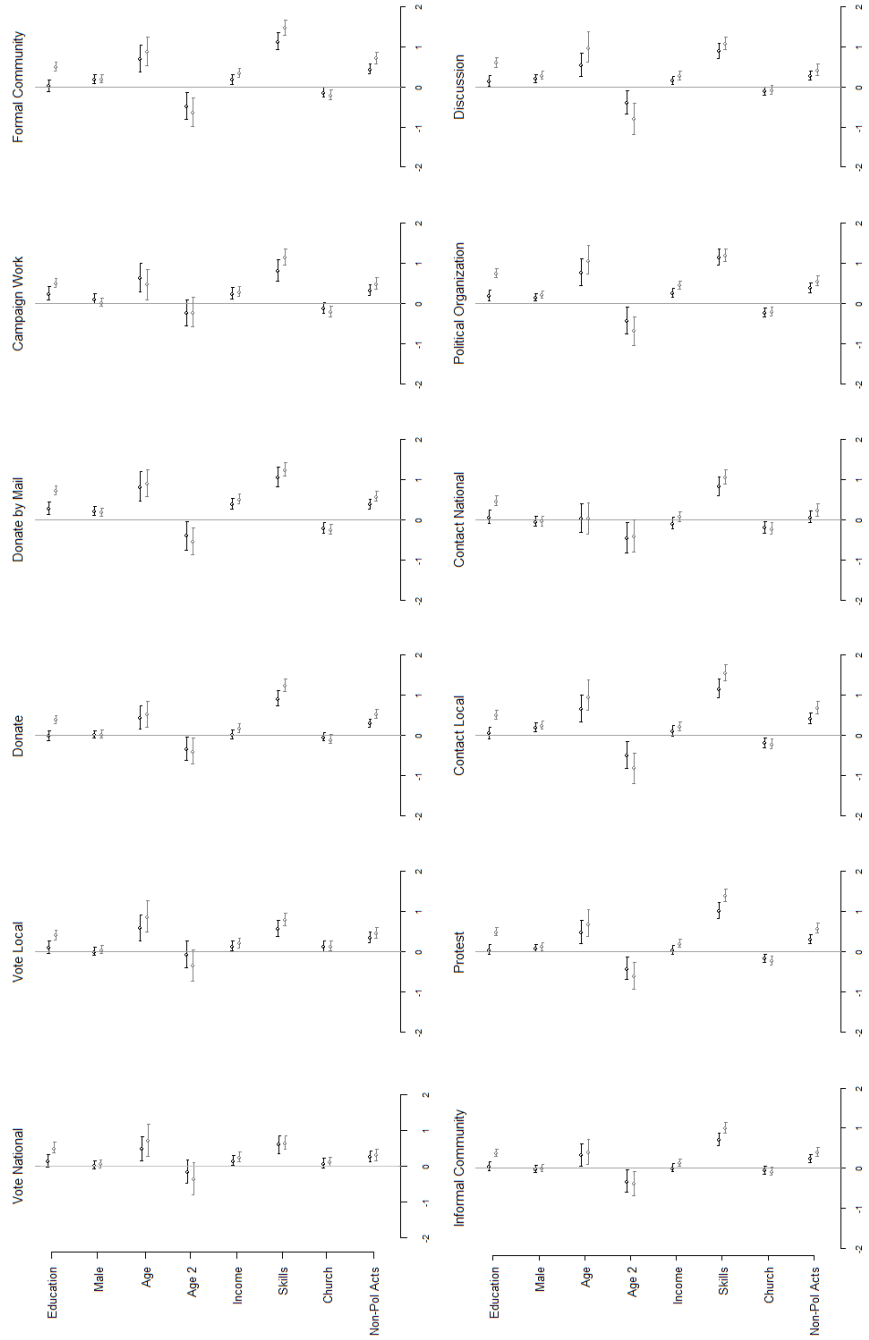

Figure B.4: 1990 ACPS: Coefficients of the Varying Intercepts Model.

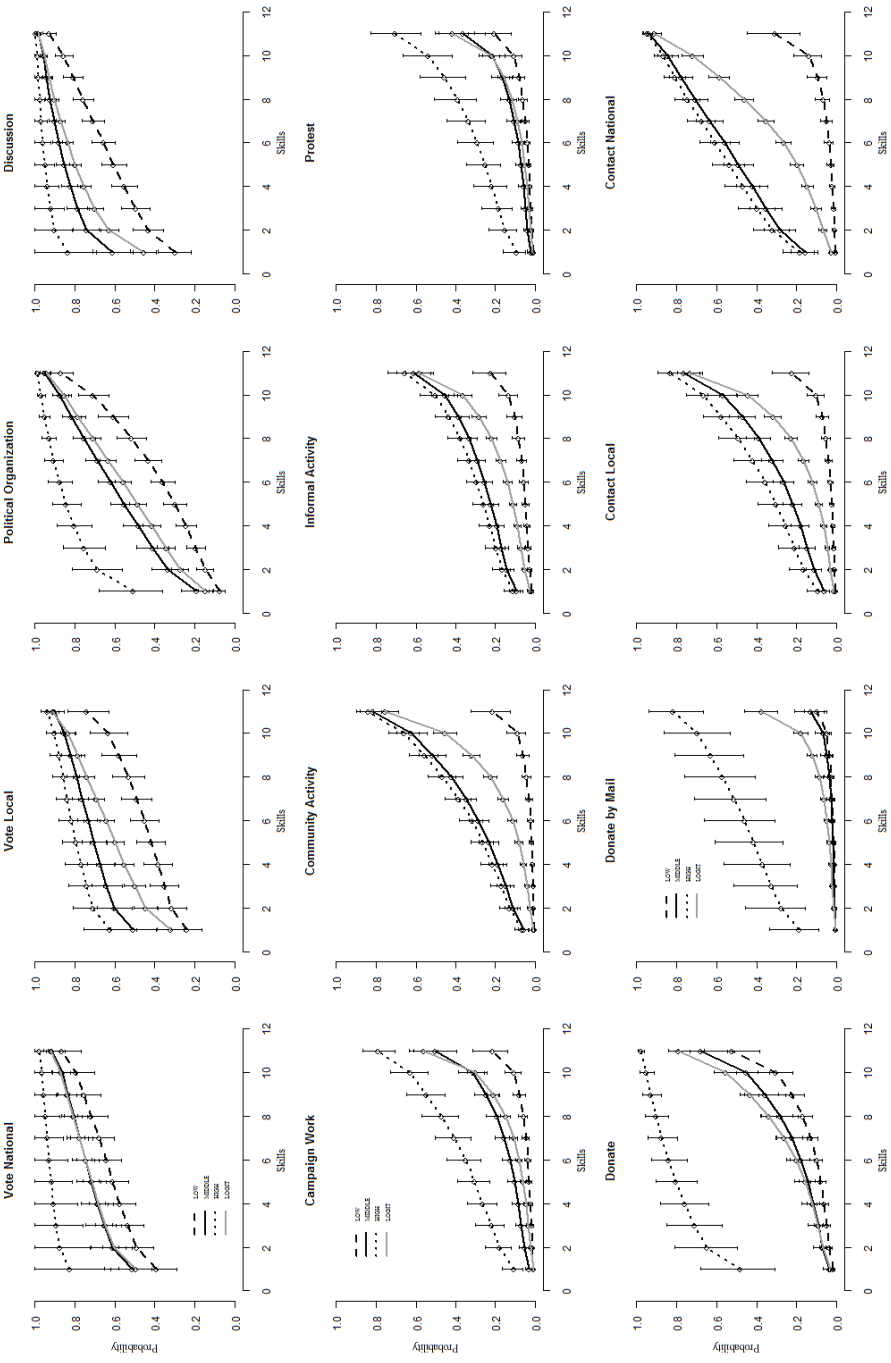

Figure B.5: 1990 ACPS: Participation Probabilities and Politically-Relevant Skills.

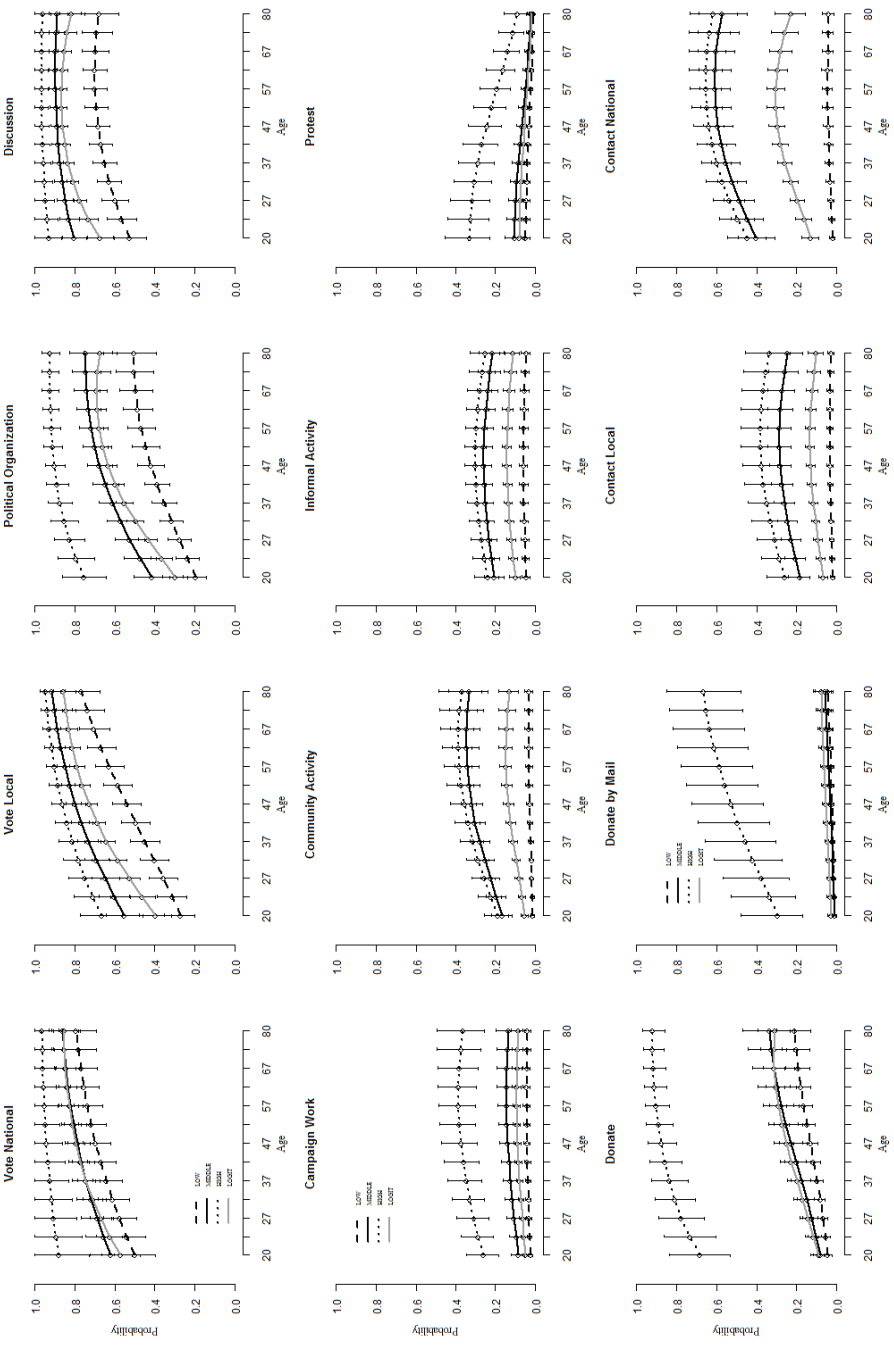

Figure B.6: 1990 ACPS: Participation Probabilities and Age.

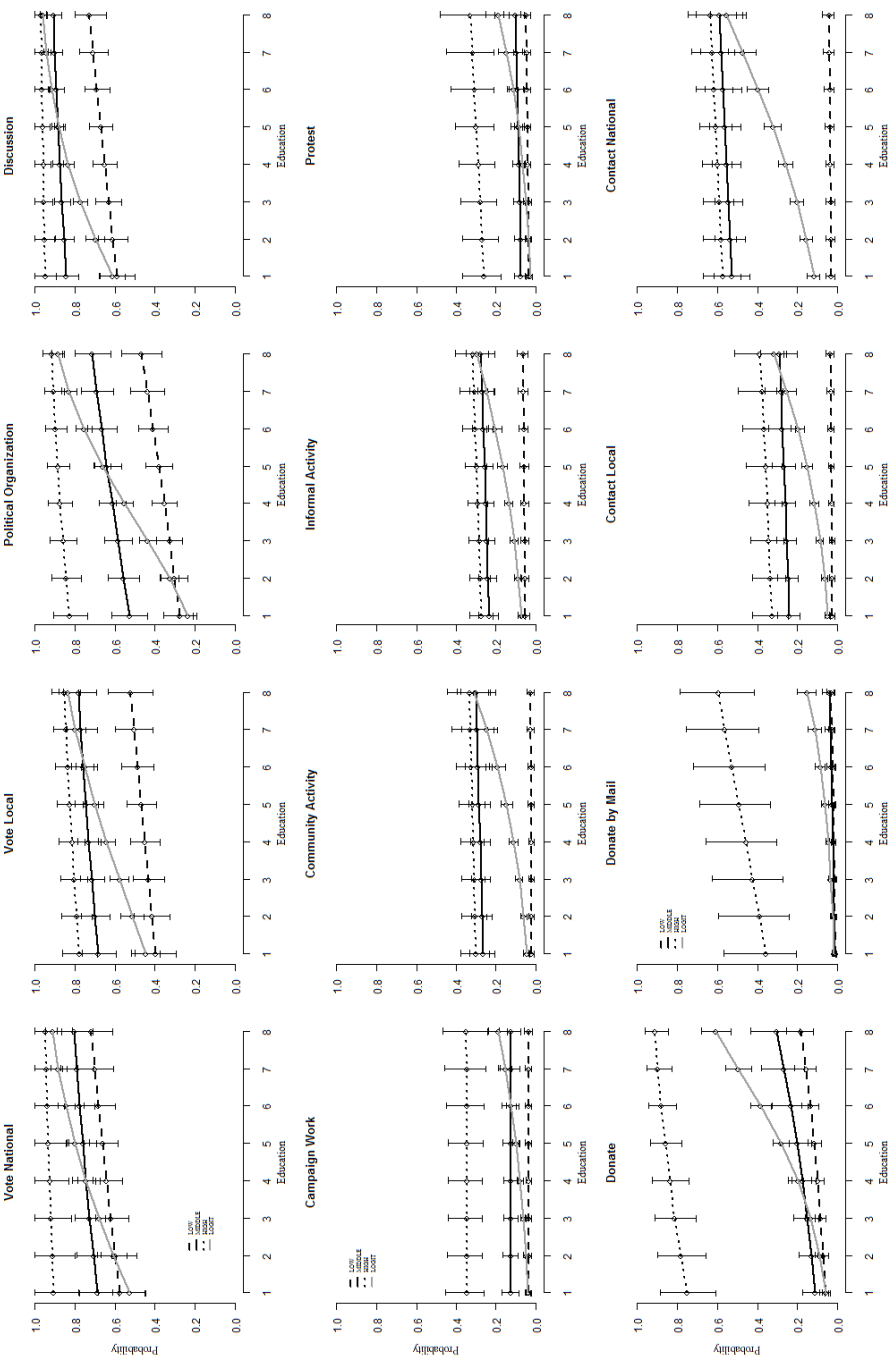

Figure B.7: 1990 ACPS: Participation Probabilities and Educational Attainment.

Appendix C

Appendix: 2008 Cooperative Congressional Elections Study

C.1 Descriptive Statistics

	Political meeting	Persuade others	Put Up sign	Work for campaign	Comment on blog	Donate money	Contact represent.	Vote general	Vote primary
Age group									
< 29	10.8	53.4	25.3	9.8	27.7	17.4	14.0	56.5	31.9
29-34	9.6	49.0	23.6	8.0	24.8	19.8	17.0	58.3	40.2
35-40	14.0	53.5	28.6	10.5	30.7	26.8	25.4	67.4	49.8
41-46	13.8	54.1	27.7	9.6	28.0	28.2	30.0	68.8	53.2
47-50	13.4	53.8	28.9	9.5	30.2	28.5	32.4	69.5	56.2
51-53	14.0	56.5	31.1	11.5	29.1	32.5	32.0	73.2	58.4
54-58	14.0	55.7	30.4	12.6	27.4	32.7	36.4	76.3	61.2
59-63	13.8	55.9	31.4	12.9	26.9	36.0	37.8	80.2	64.2
64-69	13.5	56.7	32.2	13.9	25.4	41.5	39.8	84.5	69.9
> 69	11.4	49.4	29.9	13.0	22.9	44.1	43.0	89.5	76.6
Income									
less than $10,000	6.3	39.2	13.6	4.1	18.0	9.8	14.7	42.3	31.2
$10,000-$14,999	7.0	42.6	18.0	6.9	18.4	12.5	21.4	51.2	33.9
$15,000-$19,999	7.1	42.3	19.7	6.8	20.9	13.0	21.0	52.1	36.0
$20,000-$24,999	6.5	45.8	19.9	6.1	20.2	16.9	19.1	58.8	39.2
$25,000-$29,999	7.8	45.6	21.0	7.1	20.7	18.0	21.3	58.1	43.3
$30,000-$39,999	8.4	46.3	22.1	8.0	23.2	19.7	23.7	64.8	45.5
$40,000-$49,999	10.5	49.7	26.5	8.4	24.6	23.3	26.8	69.1	51.5
$50,000-$59,999	12.9	56.8	30.5	11.2	28.4	31.9	29.1	74.4	55.8
$60,000-$69,999	13.5	56.8	29.9	11.6	29.2	30.0	30.0	73.2	57.0
$70,000-$79,999	15.0	59.7	33.6	12.2	31.6	36.3	34.1	82.1	64.3
$80,000-$99,999	16.4	63.6	36.9	14.8	33.1	40.4	37.5	83.7	65.3
$100,000-$119,999	21.0	65.3	39.5	16.2	36.0	46.2	38.0	86.3	69.1
$120,000-$149,999	21.2	68.1	40.4	18.1	38.6	53.6	37.4	91.5	72.1
$150,000 or more	23.2	67.9	43.6	23.0	38.6	61.0	41.7	88.7	72.6
Gender									
Male	15.0	56.9	31.2	11.5	31.4	33.4	32.9	74.2	57.2
Female	10.5	51.0	26.1	10.5	23.6	25.6	24.8	67.6	49.1
n=32,800									

Table C.1: 2008 CCES: Individual Attributes and Political Participation.

	Political meeting	Persuade others	Put Up sign	Work for campaign	Comment on blog	Donate money	Contact represent.	Vote general	Vote primary
Education									
No high school	7.2	45.4	21.5	6.3	18.1	16.2	17.3	51.7	31.8
High school	7.1	43.2	21.1	5.3	18.1	17.7	21.5	60.6	43.4
Some college	14.2	60.5	31.6	12.0	32.1	30.9	29.7	74.7	54.4
2-year degree	13.8	57.1	29.5	11.8	32.0	31.6	30.7	73.3	56.7
4-year degree	18.1	63.4	36.3	16.6	37.4	42.7	38.3	83.9	68.0
Post grad	26.6	68.4	43.8	26.5	39.0	60.3	48.3	90.2	76.3
Ideology									
Closer to McCain	13.2	57.2	30.1	8.4	30.6	29.8	36.5	80.2	60.5
Closer to Obama	15.5	61.7	34.4	16.9	31.2	37.9	28.7	76.0	58.5
Partisanship									
Democrat	14.3	59.5	33.3	15.8	26.9	34.9	26.8	76.4	61.8
Independent	12.7	52.2	24.7	9.7	31.7	27.9	31.0	69.4	45.4
Republican	13.1	59.0	33.2	8.6	28.7	31.3	34.8	82.6	64.0
Race									
White	12.8	53.0	29.5	10.9	27.6	30.5	32.1	71.8	53.9
Black	11.5	57.0	25.1	12.2	23.3	25.4	15.5	71.6	52.5
Hispanic	11.9	52.9	23.5	8.4	25.1	23.2	18.5	59.9	44.4
Asian	9.9	43.6	16.3	6.9	27.0	20.5	15.9	58.0	42.4
Native American	20.3	64.6	38.3	20.7	36.5	38.8	40.4	75.9	64.3
Mixed	12.9	71.0	34.8	15.2	38.0	33.1	27.1	79.1	56.0
Other	20.7	70.0	40.4	17.0	47.4	40.7	40.2	86.0	67.8
n=32,800									

Table C.2: 2008 CCES: Individual Attributes and Political Participation (Cont.).

C.2 Imputation Models

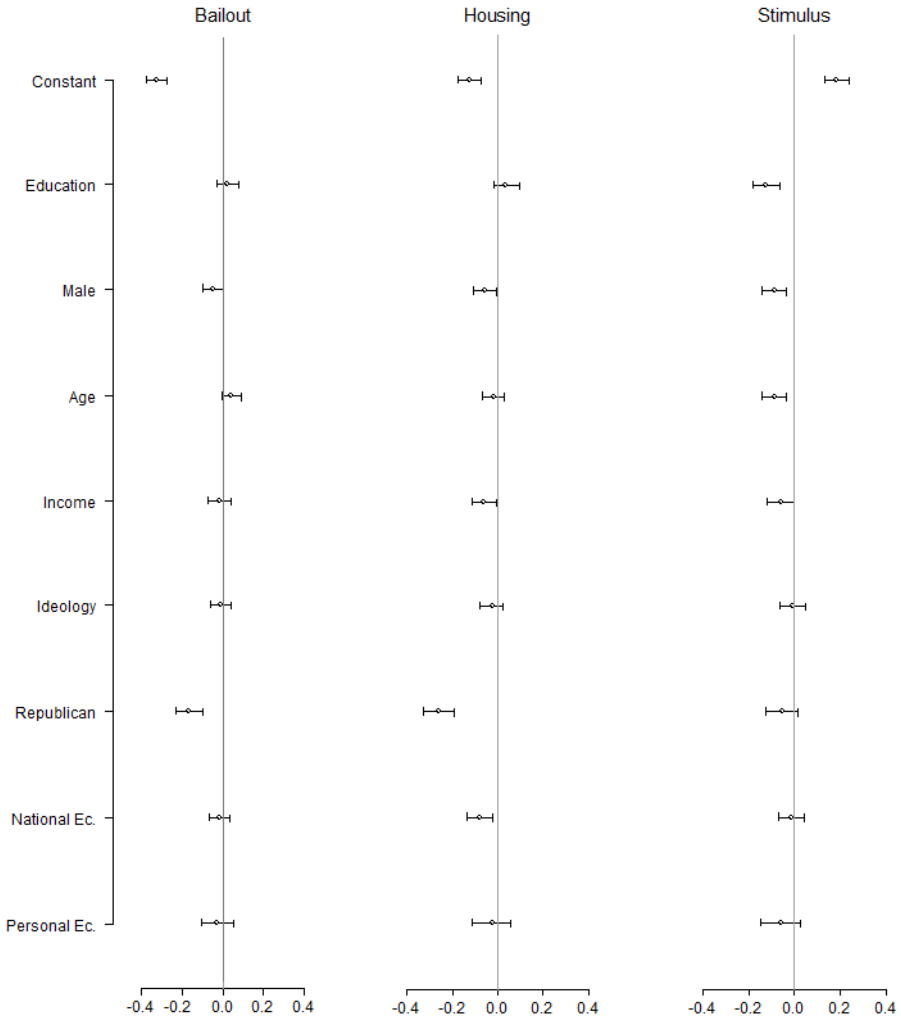

Figure C.1: 2008 CCES: Coefficients of Imputation Models.

C.3 Latent Variable versus Additive Index

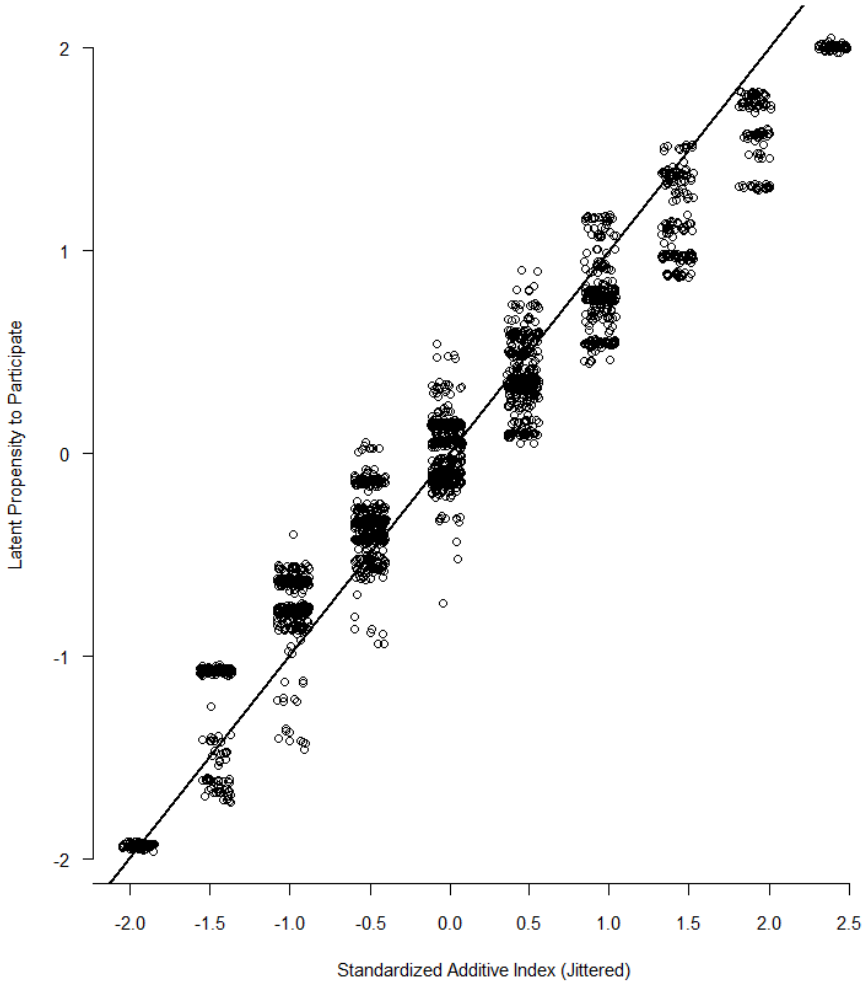

Figure C.2: 2008 CCES: Relationship between Additive Index and Latent Propensity to Participate.

I compared latent participation propensities estimated using an IRT model, with an additive index of political participation like the one usually employed in the literature to approximate overall political participation. Figure C.2 gives the relationship between average estimates of the latent propensity to participate and a standardized additive index. Since the latter is discrete, I added random noise to values of the additive index to prevent points from overlapping and improve visualization. The results shown in this plot are striking for the close relationship between both variables, suggesting that additive indices provide a relatively accurate approximation to average values of the underlying propensity toward participation.

It is important to note that latent variables and additive indices differ in important ways. First, the additive index tends to underestimate very low propensities, and overestimate very high propensities. Second, while underlying propensities are likely to be continuous, additive indices arbitrarily classify individuals into levels of overall participation, which may lead to considerable measurement error. Third, the latent variable model allows estimating discrimination and difficulty parameters that can be used to assess the relationship between underlying participation propensities and probability of involvement in each activity, while the additive index just assumes that all activities contribute equally to the underlying propensity. Finally, Figure C.3 below shows that for each individual there is a considerable amount of uncertainty regarding their underlying propensity toward participation, while additive indices assume propensities toward participation are known and certain quantities. Thus, compared to the complete output of a Bayesian latent variable models, additive indices provide considerably less information about individual behavior.

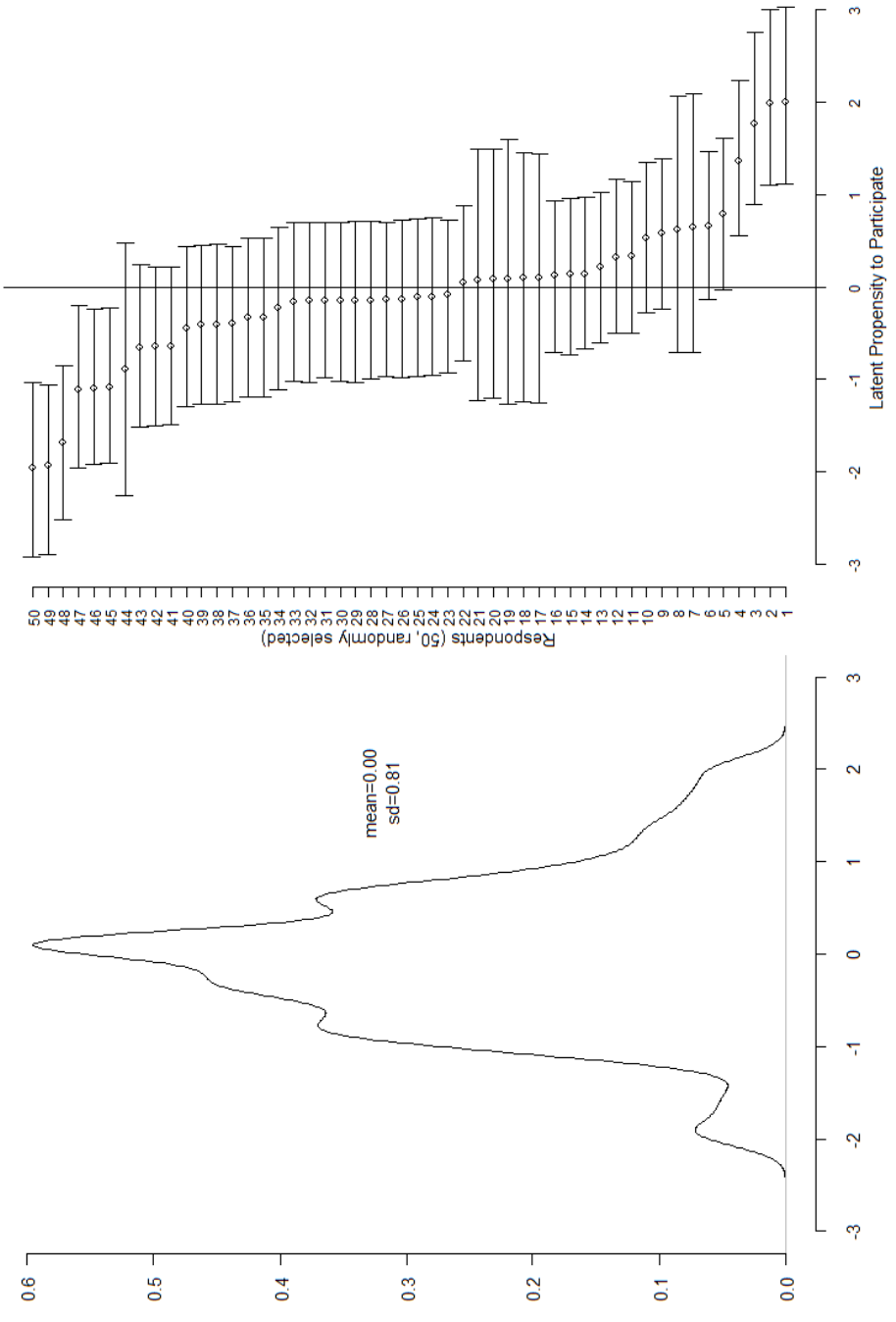

Figure C.3: 2008 CCES: Distribution of Estimated Participation Propensities.

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