VALUE SYSTEM STABILITY IN THE MASS PUBLIC

By

David Ciuk

A DISSERTATION

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

Political Science

2011

Abstract

VALUE SYSTEM STABILITY IN THE MASS PUBLIC

By

David Ciuk

Are individual value choices stable across different situational contexts? Traditional psychological theory provides a positive answer to this question. But, new research in political science concludes otherwise, causing many researchers to question whether values have the pervasive influence on human behavior that has long been assumed to exist. In this dissertation, I test the stability and relevance of value choices in several ways. First, I use an experimental design and new data funded by the TESS program to test whether value choices are subject to priming effects. Second, I use a matching design and data from three different time points over the past 16 years to examine the distribution of value choices at the aggregate level. Third, I return to the TESS data and test the relationships between values and various forms of political behavior.

In short, my results suggest, at the individual level, that *some* values are stable and some are not. At the aggregate level, values "move" over time, but they do so predictably. Lastly, my results suggest that values have a rather heavy influence on evaluations of Barack Obama, but their influence on turnout and vote choice is negligible, at best.

Taken as a whole, this dissertation speaks to a contentious body of literature that focuses on the theoretical status of values as fundamental influences on human behavior.

To Mom and Dad, to Dawn, and to Bruce and Trent:
Thanks for all your patience, support, and love.

Acknowledgments

I owe thanks to many of my graduate student colleagues at MSU. Without their continuous support and encouragement, graduate school would have been a much longer and much rougher road.

I also owe thanks to Steve Kautz and Chuck Ostrom for their support throughout my five years at MSU. Their advice and suggestions helped make me a well-rounded scholar and prepared me for life in academia.

I owe many, many thanks to Paul Abramson, Eric Chang, Sandy Marquart-Pyatt, and Sandy Schneider for all their effort, suggestions, and advice that improved my work. Meetings and conversations with these folks were a pleasure and always pushed my work forward.

And last, but certainly not least, I owe a very special thanks (a lifetime worth of thanks, in fact) to Bill Jacoby. Bill served as chair of the dissertation committee, and without him, this dissertation would not have been possible. His thoughtful critiques, his reading (and rereading) my work, and his ability to push, encourage, and to motivate propelled me to successfully finish and defend this dissertation.

Contents

List of Tables

List of Figures

Chapter 1

Introduction

Political information is abundant, and making sense of it all is no easy task. This information overload, along with the general lack of political knowledge of the American public, makes it easy to think that behavior among members of the electorate is random –that attitudes are generated with no rhyme or reason, and candidates' sense of style is as important as their stands on the issues. But, such is not the case. Peoples' attitudes are linked, belief systems are generally cohesive, and behavior is somewhat predictable. In this dissertation, I attempt to answer why behavior is predictable by examining the relationships between value structure and attitude formation, organization, and modification. I first ask *if* value systems can be a general framework by which people evaluate objects in the world, and I test this possibility using both an experimental design and an observational design. Second, I attempt to shed light on the degree to which value systems influence attitudes, and I do so using a regression–based design.

In short, my answers to these questions are not black and white. First, regarding whether or not value systems can structure attitudes, I find (1) that measurement matters –value systems measured with rankings exhibit *more* stability in the face of systematic changes in informational environment than do value systems measured with importance ratings– and that (2) when value systems are unstable, it is not all values in the system that fluctuate with respect to relative importance. Rather, it is a pair of values that seem to "trade" places. Regarding the relationship between values, attitudes, and behavior, I

find that values have non-negligible impact on attitudes. The relationship between values and behavior, however, is less clear cut and more complicated. On the whole, I conclude that the question of values structuring attitudes is more complicated than a simple "yes" or "no." The analyses presented in this dissertation suggest that values may be one of several devices that people use to organize attitudes, and, a story of mass public opinion is incomplete without considering the impact of values on choice and action.

1.1 Past Scholarship on Attitude Structure

Most research on attitude structure has focused on ideology (e.g. Downs 1957). And, while it has been shown that elites attitude structure conform to the left/right continuum (Huitt 1954; Macrae 1952; Poole and Rosenthal 1991), the story at the mass public level is much more complicated. Early public opinion research showed most people to exhibit little constraint between attitudes –individual attitudes seemed to be only loosely related, at best– and there seemed to be little use of a central organizational device (Campbell et al. 1960; Converse 1964). More recent research on ideology suggests that the degree to which belief systems conform to a recognizable left/right structure depends on education, political sophistication, and political involvement (Jacoby 1988, 1991). Those that pay less attention to politics might use ideological labels to classify attitudes (Conover and Feldman 1981; Levitin and Miller 1979), but not as a general organizational device.

With ideology out of the questions as the universal device by which people organize their beliefs, scholarly attention has turned toward values. According to psychological theory, values are beliefs about desirable end-states that determine goals and decision rules, which guide evaluations of behavior and events (Kohn 1977; Schwartz 1992). Psychological theory also states that values rarely act in isolation. For example, one can never *only* take the value of equality into account. Rather, one must think of equality, freedom, and security together, and choice is based on the relative ordering of relevant

values. In this way, values work in a "comparative and competitive" fashion (Rokeach 1973).

Political scientists have, for some time, incorporated values into various models of political behavior (e.g. Feldman and Zaller 1992), information processing (e.g. Grant and Rudolph 2003), and social group identity (e.g. Goren 2005). But, if values are a cause of various forms of behavior –if they do create decision rules based on their relative ordering– then these decision rules must remain the same from one situation to the next. In other words, if value systems do provide frameworks by which people can evaluate objects in the world, these frameworks must remain constant through various situational contexts. The definitional assumption, "(value systems) transcend specific actions and situations..." (Schwartz 2001, 262), must hold true.

1.2 New Research

Research on the "transsituational" nature of values is inconclusive. On one hand, scholars find consistency in value choices (e.g. Rokeach 1973). On the other, theories of value pluralism (e.g. Tetlock, Peterson and Lerner 1996), as well as research on various campaign effects (e.g. Grant and Rudolph 2003) and indifference (e.g. Maio et al. 1996) find evidence suggesting value systems are not stable. In this dissertation, I take a closer look at these contradictory results. I ask first whether or not different measurement strategies affect conclusions on value system dynamics. I then ask whether value systems change over time. Finally, I attempt to measure the degree to which value system ordering affects various political attitudes. At the most general level, this dissertation is not about whether value systems guide political behavior: it is simply about whether value systems *can* guide behavior. Specific questions concern value system measurement, value system stability, and the degree to which values affect attitudes, behavior, and choice.

1.3 Layout of Dissertation

The plan for the remaining chapters of the dissertation is as follows: Chapter two reviews values research from its inception in psychology through the most recent experiments on value system dynamics. I explain why the central question addressed in this dissertation and how this piece of research fits into the larger body of literature.

Chapter three focuses on value system dynamics and measurement. In it, I present a model of value ratings and value rankings. I point out important differences in the models, derive hypotheses, and test the hypotheses using a new experimental survey, fielded in 2010, funded by Time-sharing Experiments in the Social Sciences (TESS)[1] Results suggest that value choices are susceptible to small changes in informational context, but these effects are more apparent when relative importance is measured with importance ratings. Rankings, though not completely stable, exhibit *more* stability.

Chapter four assesses the temporal stability of values at the aggregate level. Using a matching design and data from 1994, 2003, and 2005, I find that large events (specifically, 9/11), affect value choices and value system ordering. I also find that this change is not permanent –that it may only be due to changes in the degree to which each value is "accessible" in individuals' memory banks.

Chapter five examines the degree to which value system ordering affects individuals' attitudes and behavior. I again use TESS data from 2010, and I find that the effect of value system ordering on attitudes is significant. The effect of value system ordering on behavior, however, is not clear. I also find that models of behavior that measure values with rankings tend to fit data better than models in which values are measured with ratings.

Chapter six serves as a conclusion and discussion of results. The discussion situates

[1]Time-sharing Experiments for the Social Sciences, NSF Grant 0818839, Jeremy Freese and Penny Visser, Principal Investigators.

where, in the body of literature, the findings presented in this paper fit. In addition to discussing strengths and weaknesses of the presented analyses, I discuss avenues for future research.

Chapter 2

Literature Review

A person forms and acts on a near infinite number of political attitudes throughout a lifetime. While many of these attitudes are interesting in their own right, a great deal of research across the social and behavioral sciences is directed at finding how these attitudes are structured and organized. Given the complexity of the political world and the low levels of political sophistication in the American public, one could believe that most of these attitudes are unrelated and unpredictable. This, however, is not the case. Attitudes do exhibit structure, and behavior is at least somewhat predictable; therefore, it must be the case that attitudes are organized and recalled in a systematic manner. This chapter lays out a comprehensive review of the literature on attitude structure. The review focuses first on ideology and partisanship. Second, the review examines values research, including definitions, measurement, and holes in the literature. Last, the review presents the set of questions that are central to this dissertation.

2.1 Previous Research on Attitude Organization

Most previous research on attitude organization focused on ideology (as in Downs 1957) and the degree to which individuals' attitudes conformed to the proposed left/right structure. Early research out of the Michigan school painted a somewhat troubling picture of the American public suggesting not only that a small portion of the electorates' attitudes conformed to a left/right structure (Campbell et al. 1960), but also that much

of the electorate seemed to generate opinions and attitudes at random, absent of any overall structure (Converse 1964). Subsequent research on ideology in the mass public suggests that people may not use the Downsian conception of ideology to organize attitudes; rather, they use the words "liberal" and "conservative" as tools to classify political objects in the same manner they use party labels (Conover and Feldman 1981; Levitin and Miller 1979). Research on the use of ideology in the mass public also suggests that answers may not be as easy as "yes" and "no." Rather, some people may use the left/right continuum "better" than others, and some issues are more conformable than others. Jacoby (1988, 1991), for instance, argues that a portion of the public characterized by high education and high political sophistication tend to apply the left/right continuum more often, and more accurately, than others. Also, individuals more often apply the left/right continuum to issues that are most easily defined in a liberal/conservative light (Jacoby 1990, 1994).

In short, research has shown the liberal/conservative continuum to structure attitudes for a portion of the population, but its application is not universal. This so, there may be a cognitive organizational tool that is more basic, and more universal, than ideology. Research out of psychology suggests that values and value structures may be this tool.

2.2 Definitions

In defining values, and value systems, it is necessary to first clarify what values are *not*. Concepts similar to, but distinct from values include attitudes, traits, norms, and needs. Psychological theory defines attitudes as favorable or unfavorable evaluations of an object. Values focus on ideals, not objects (Hitlin and Piliavin 2004). Relative to attitudes, values are more central to the formation of "personhood" (e.g. personality and individual characteristics) (Erickson 1995; Hitlin 2003), less directly implicated in behavior (Schwartz 1996), and, theoretically, they are more stable throughout a lifetime

(Konty and Dunham 1997).

Traits are defined as fixed aspects of personality (Hitlin and Piliavin 2004). Trait-based behavior is often confused with value-based behavior, but a key difference between them is that value-based behavior suggests one has cognitive control over one's actions (Roccas et al. 2002). For example, one may often act in an aggressive manner (a trait), but one may not value "aggressiveness" very highly (a value) (Epstein 1989). The difference that is most important to this project is that values, not traits, serve as standards by which one can evaluate objects and behaviors.

Norms and values are both group-level phenomena that are based on shared agreement. Norms, however, vary by situation where values, in theory, are "transsituational." Norms tend to capture an "ought" sense while values capture a personal ideal (Hitlin and Piliavin 2004). With respect to behavior, values and norms may be in conflict (Schwartz and Bardi 2001).

Needs, like values, influence behavior, but they do so in different ways. Needs are biologically based where values are social constructs, and often, it is argued that values are socially acceptable ways of packaging various needs (Hitlin and Piliavin 2004). For example, a biological need for sex can be repackaged as a need for love (Rokeach 1973). A value may be an expression of a need, but it is not the need itself.

A value, according to Rokeach (1973), is an enduring belief that a specific mode of conduct or end-state of existence is personally or socially preferable to an opposite mode of conduct or end-state of existence. Also, according to Rokeach, it is rare that values act in isolation from each other: rather, values work in a "comparative and competitive fashion." Thus, it is more useful to think in terms of *value systems*. A value system is defined as an enduring organization of beliefs concerning preferable modes of conduct or end-states of existence along a continuum of relative importance. For Schwartz (1992, 2001), values (1) are beliefs that (2) refer to desirable goals. They (3) transcend specific

situations, (4) are ordered by relative importance, and (5) serve as standards or criteria. Finally, (6) it is the *relative* importance of the set of relevant values that guides action.

Psychological research often describes values as "backstops" for individual level belief systems (Tetlock 2000). That is, an individual may prefer one candidate to another because one candidate better embodies a value, or set of values. But, when asked to justify the preference of one value over another, there is no response. Values, simply, are the most fundamental building blocks of choice.

2.3 Major Players in Values Research

Modern work on human values began in psychology with the influential work of Milton Rokeach (Feldman 2003; Jacoby 2006). The central questions of Rokeach's research revolved around the basic structure of value systems and how values related to various forms of behavior. Rokeach argued that values do not exist in isolation –no single attitude is a function of only one value (Rokeach 1973; Feldman 2003). Rather, values act in a comparative and competitive fashion. An attitude is often a function of how values intersect and how an individual prefers one value at the expense of another. Therefore, attitudes are, in part, functions of the relative ordering of values in the value system.

If Rokeach's first major contribution to values research concerns his conceptualization of value systems, then his second major contribution is in terms of value measurement. The Rokeach Value Survey consists of two separate 18-item scales (to differentiate between instrumental and terminal values)[1] on which respondents were asked to arrange all items with respect to personal importance, as guiding principles in life (Rokeach 1973, 27). By asking respondents to rank-order the values in each list, Rokeach effectively avoided problems with "end-piling" (e.g. respondents rating all values highly resulting in a measure that suffers from a lack of variance). At the same time, his scales are often

[1]Rokeach (1973) describes instrumental values as those that relate to "modes of conduct" while terminal values concern "end-states of existence" (Feldman 2003; Rokeach 1973).

argued to be too long and complicated to administer on a large-scale survey (Schwartz 2007). It has also been suggests that Rokeach's lists are incomplete, and adding omissions would significantly increase the number of items respondents would have to rank, thus making the survey longer and more complex (Braithwaite and Law 1985; Feldman 2003).

Shalom Schwartz builds on Rokeach's work, attempting to find a universal structure of values that is both comprehensive and simple. Starting with the same assumption as Rokeach, that values emerge from basic biological and social needs (Schwartz and Bilsky 1987), Schwartz argues that individuals and societies must be responsive to three sets of basic needs: the needs of individuals as biological organisms, requisites of coordinated social interaction, and the survival and welfare needs of groups (Schwartz 1992, 4). Using cross-national data and a 54 item survey, Schwartz found that there are 10 "fundamental value types." Schwartz further theorized that values are organized along two dimensions with compatible values (e.g. security and power) occupying adjacent space and opposing values (e.g. power and universalism) occupying space at opposite sides of the two-dimensional plane. Using a multidimensional scaling routine, Schwartz finds his data to conform to the expected pattern (Schwartz 1992, 1996, 2001, 2007).

Schwartz's comprehensive theory of value structure, along with the simplicity of his empirical findings, make his overall contribution to values research more theoretically sound than those before him (Feldman 2003). This so, it has been noted that the individual values get lost within the "value types" (Davidov, Schmidt and Schwartz 2008; Feldman 2003) and that the boundaries dividing values in Schwartz's multidimensional scaling analysis are somewhat arbitrary, based on a subjective interpretation of the multidimensional scaling output (Knoppen and Saris 2008).

Ronald Inglehart was among the first political scientists to incorporate values into political science research. Inglehart's theory of socioeconomic conditions and value change posits that social and economic conditions affect the relative orderings of individual's

value systems. Specifically, Inglehart suggests that those in industrial societies heavily emphasize materialist values (e.g. economic security) while those in post-industrial societies more heavily emphasize post-materialist values (e.g. self-expression) (Abramson and Inglehart 1987, 1995; Inglehart 1971, 1977). Inglehart's survey asked respondents to rank-order groups of four items (two tap into materialist values and two tap into post-materialist values). In short, Inglehart's findings suggest younger generations rank post-materialist values more highly than materialist values, suggesting that socioeconomic conditions through which one is raised affects value structure (Abramson and Inglehart 1995).

While Inglehart's analyses have taken a fair bit of criticism (see, for example, Braithwaite, Makkai and Pittelko 1996; Duch and Taylor 1993; Inglehart and Flanagan 1987), his work remains influential in political science, and particularly in research on European political behavior.

2.4 Values in Political Science

In political science, values have been most often used to explain various aspects of political behavior including attitudes, decision making, and partisan and ideological orientation. Theoretical work on values in American politics and American political culture started with McClosky and Zaller (1984), in which the authors examine opinions and values at both the mass and elite levels. Their findings show strong support for both democratic and capitalist values among the general public and elites, and the authors also make the argument that many of the ideas underpinning the American welfare state come out of the conflict between democracy and capitalism (in which two of the core values are equality and freedom, respectively). The big picture argument, here, is that the intersection of equality and liberty forms the crux of American political culture.

Later research in values and American politics narrowed the focus to values' effect

on politically relevant decision making processes. Feldman (1988) finds that attitudes regarding equality of opportunity and economic individualism tie tightly with ideology, party identification, general attitudes on government (e.g. limited government and social welfare spending), and presidential evaluations. Feldman and Zaller (1992) push a bit farther, analyzing open-ended responses on support for social welfare policy. In short, they find that a significant portion of the population use values central to political culture when discussing important political issues. Further, people often recognize, and are affected by value conflict when forming attitudes on controversial issues.[2]

Since Feldman and Zaller (1992), research has connected values to behavior and attitudes on specific issues, including abortion policy (Alvarez and Brehm 1995), campaign finance (Grant and Rudolph 2003), and national security (Davis 2007), among others. Research has also examined the conditions under which value structure is most likely to affect behavior. Zaller (1991) suggests that values may be more like ideology than previously thought. That is, ideology is only used as an organizational tool by a portion of the public characterized by high sophistication and political activity (Converse 1964; Lewis-Beck et al. 2008; Jacoby 1988). Values, according to Zaller, are applied only by a relatively sophisticated portion of the public as well.

While a great deal of research focuses on the relationship between values and behavior, no firm conclusions have been drawn. Research is unable to say, with a high degree of

[2]Additional research on value conflict and political attitudes suggests that when people realize the importance of two values, as they relate to a political issue, they may be equivocal. Zaller (1992) argues that those with high levels of information, that understand opposing sides of an issue, are more likely than others to express ambivalence. Alvarez and Brehm (1995) show that ambivalence plays an important role on equivocation on abortion policies, but not on racial policy or attitudes about the IRS (Alvarez and Brehm 1997, 1998). Grant and Rudolph (2003) argues that the values of free speech and equality affect attitudes on campaign finance, but this is often mitigated by group attitudes. Jacoby (2006), on the other hand, argues that seemingly inconsistent attitudes are not usually a result of ambivalence. Rather, they are due to low political sophistication.

confidence, that values are a widely used tool for forming, organizing, and modifying political attitudes.

2.5 Assumptions, or Testable Hypotheses?

Values research has recently refocused its attention on the most basic, definitional attributes of value systems in hope of determining whether or not value systems *can* serve as a framework by which individuals evaluate objects in the world. Traditional psychological theory defines values as beliefs about to desirable goals that serve as standards for evaluation, transcend specific situations, and are ordered by relative importance. Further, traditional theory suggests that a set of values is activated when making a decision, and it is the relative importance of the set of activated values that guides action (Schwartz 2001).

If values do provide people with a broad evaluative framework by which people determine what is good and bad in the world, then it must be the case that this framework provides the same bases for evaluation from situation to situation. That is, value systems cannot vary by context; they must actually transcend specific situations. And currently, scholarship on value system dynamics is at a crossroads. Rokeach (1973), in his seminal work, found that peoples' value choices are largely consistent over time. Respondents' rank-ordered value choices during the first wave of a survey correlated quite highly with rank-ordered value choices during later waves ($r \approx .75$). More recently, research shows not only that people are consistent in their value choices, but also that a considerable proportion of value systems, at the mass public level, exhibit a high degree of transitivity (Jacoby 2006). Further, value choices are stable through varying informational contexts (Jacoby 2008). On the other side of the debate, theories of value pluralism suggest that changes in situational context affect values, as anchors of the decision-making process, causing some values to increase in relative importance at the expense of others (Seligman

and Katz 1996; Tetlock 1986; Tetlock, Peterson and Lerner 1996). Similarly, research on media effects (Ball-Rokeach, Rokeach and Grube 1984), issue framing (Grant and Rudolph 2003; Nelson, Clawson and Oxley 1997), and campaign effects (McCann 1997) suggest that changes in informational context change the frames of reference by which individuals judge objects of evaluations.

Another problem for traditional values theory is indifference. Many individuals, when asked about abstract, loaded terms like equality, freedom, or morality, are unable to adequately and consistently distinguish relative importance. And, if individuals are unable to rank-order competing values with precision, then a stable relative ordering of a set of values is impossible (Maio and Olson 1998). Related research suggests that people do not often think through value choices. Instead, people make value choices quickly, then, when asked to justify their choices, they make different value choices altogether (Bernard, Maio and Olson 2003). If people are unable to meaningfully distinguish between values, then relative ordering and value consistency is irrelevant to choice and behavior.

A final problem for traditional theory is the possibility that values may not, in fact, lie at the base of belief systems. Goren (2005) finds that partisan identification is more stable than value ratings. Pushing this result, using experimental data, Goren, Federico and Kittilson (2009) finds that partisan cues actually drive value choices in partisans. Again, if values are not at the base of belief systems, they cannot provide a general framework for evaluation.

If traditional theory is correct –that value systems are invariant to situational contexts– implications are straightforward: value systems *can* provide a general framework for evaluation. If, on the other hand, newer streams of research are correct, value systems do not provide the same information from one situation to the next, and they cannot be a universal tool used in attitude formation, organization, and modification.

2.6 A New Contribution

I ask two basic questions in this dissertation. First, are value systems stable across situational contexts? To answer, I use an experimental design and an observational design. Second, is value system order an important determinant in various political attitudes and behaviors? I use a regression-based design and new data to test this possibility.

Currently, values research finds itself at an impasse where traditional psychological theory pushes against new empirical research. This dissertation, as a whole, speaks directly to this debate. And, the results of this the following analyses could possibly help values research beyond the impasse it now faces and clear a path for future research in the area.

Chapter 3

Measurement and Value System Stability

If values are at the roots of attitudes and behaviors –if they are the backstops of belief systems from which attitudes emerge– then they cannot change with the situational context. Current research on value system dynamics is at a crossroads. On one hand, traditional theory and research suggests people are consistent in their value choices. On the other, new research suggests that people may have multiple value systems, that value choices change based on the situation, and that peoples' value choices often change after introspection. This chapter asks why this rift between traditional theory and new research exists, and it does so by looking at the effects of measurement on value system dynamics.

3.1 Research on Value System Dynamics

Some of the earliest research on value systems suggested people make consistent value choices over time (Rokeach 1973). Newer research suggests not only that people make consistent value choices, but also that individuals' value systems are often highly transitive (Jacoby 2006). In contrast, a large body of research finds evidence suggesting otherwise. Theories of value pluralism suggest that people may have different value systems for different situations (Seligman and Katz 1996; Tetlock, Peterson and Lerner 1996). Also, research on media effects (Ball-Rokeach, Rokeach and Grube 1984), issue framing (Grant and Rudolph 2003; Nelson, Clawson and Oxley 1997), campaign effects (McCann 1997), partisanship (Goren 2005; Goren, Federico and Kittilson 2009), and indifference

(Bernard, Maio and Olson 2003; Maio and Olson 1998) suggest that value choices are susceptible to changes in context and informational environment.

3.2 Value System Measurement

The contradictory results can be traced back to decisions regarding value system measurement. Studies that find evidence of value system stability analyze preference-based, rank-ordered sets of values. Studies that find value systems to be dynamic, on the other hand, often analyze individual values, in isolation, via importance ratings. The difference between rank-ordered sets and importance ratings amounts to far more than a difference in measurement, however. The different measurement strategies reflect fundamental differences in the conceptualizations between individual values and value systems.

The measurement of values has long been a point of debate. Rokeach's measure, the Rokeach Value Survey (RVS), asked respondents to rank-order two sets of 18 values, terminal values first (which refer to desirable end-states of existence) and instrumental values second (which refer to preferable modes of behavior), based on personal importance (Rokeach 1968, 1973). The scales are meant to reflect the "comparative and competitive" nature of value systems, but are often thought to be too long and too difficult to administer on large-scale surveys (Schwartz 2001, 2007). Surveys continue to use trimmed versions of Rokeach's ranking measures –including only those values that are immediately relevant to attitudes and behavior of interest (e.g. Abramson and Inglehart 1995; Hofstede 2001; Kohn 1977)– but it has been suggested that these measures are flawed because they force respondents to differentiate between potentially unimportant values (Maio et al. 1996) and because they produce ipsative scales, which are problematic for analysis (Alwin and Krosnick 1985; Davis and Davenport 1999).

Rating procedures, the main alternative to rankings, are also widely used in values

research (Schwartz 1992, 2007). Ratings alleviate concerns about ad hoc differentiations, respondent fatigue, ipsative measures, and they are easy to administer during telephone interviews. This so, they are unable to account for the "relative ordering" of value systems.

Empirical research on the performance of rating and ranking measures also fails to reach a consensus. While methodological advances have made ipsative measures less of an issue (Borg and Groenen 2005; Jackson and Alwin 1980), it has been suggested that rating procedures produce more accurate value measurements for less sophisticated respondents (Maio et al. 1996). On the other hand, research has shown results from rating measures to be obscured by those who cannot differentiate between values (Krosnick and Alwin 1988) and that ranking measures possess less measurement error than other methods used to collect data on value systems (Miethe 1985).

Each measurement strategy emphasizes certain aspect of values systems, and these different points of emphasis come with different trade-offs. For example, the choice to use rankings over ratings means one will be able to account for the relative ordering of each respondent's value system, but it also means that data collection must not be done via telephone interview. On the other hand, the choice to use ratings makes data collection easier, but at the expense of the "comparative and competitive" aspect of values and value systems. The details of these trade-offs, with respect to value system dynamics, are not entirely clear.

3.3 Models of Importance Ratings & Rankings, and Assumptions

In this section, I discuss how individuals answer survey questions that ask of the importance of individual values in everyday life, how individuals construct make pairwise choices between values, and how individuals create full rank-ordered value preferences (i.e. value hierarchies). All of the models below are based on a basic random utility model (Luce 1959; Luce and Suppes 1965) that has been used extensively in research on

behavior and choice (see, for example Chapman and Staelin 1982; Dow and Endersby 2004; Kumar and Kant 2007; Skrondal and Rabe-Hesketh 2003). Each model includes a systematic component (e.g. true utility) and a random component (e.g. error). For all models, I assume random components are distributed normal with mean zero.

3.3.1 A Model of Value Importance Ratings

The model proposed in this sections concerns the process by which an actor determines the utilities of values and how the actor maps these utilities onto a set of survey responses. The model takes into account both the systematic and random components in the value ratings process. The systematic component concerns the importance that individual i attaches to value a, denoted I_{ia}. The random component is assumed to have a mean of zero and a finite variance, denoted e_{ia}. The process by which one calculates the utility of value a (denoted u_{ia}), which is later mapped onto a survey instrument, is described in equation 3.1. The process resembles that which is described in a traditional random utility model (see, for example Chapman and Staelin 1982; Heiss 2002).

$$u_{ia} = I_{ia} + e_{ia} \tag{3.1}$$

The model breaks I_{ia} down into two components: (1) true importance, denoted t_{ia} and contextual salience c_{ia} (e.g. the degree to which situational context brings a value to "the top of one's head"). Taking this into account, equation 3.1 becomes equation 3.2.

$$u_{ia} = \underbrace{t_{ia} + c_{ia}}_{I_{ia}} + e_{ia} \tag{3.2}$$

Determining the utility of each value is only half the process: the other half of the process involves mapping these utilities onto survey ratings (R). And, this process involves determining values for the $J-1$ cut points (τ) that separate the J categories (e.g.

"very important," "somewhat important," "moderately important," "somewhat unimportant," "very unimportant") and fitting the utilities into the appropriate survey category. In short, if the respondent judges the value in question to have utility (u_{ia}) greater than the final "cut point" on the scale (e.g. the point that separates the "very important" and "somewhat important" response categories), she will record her response as "very important." If the value's utility falls between the third and fourth cut points, the response recorded will be "somewhat important," and so on until the value's utility does not reach the first cut point, in which case the response will be recorded as "very unimportant." This process is described below in equation set 3.3 (where $J = 5$ and "very important" values are rated 5, and "very unimportant" values are rated 1).

$$\begin{aligned} R = 5 \quad & \texttt{if} \quad u_{ia} > \tau_4 + \varepsilon_4 \\ R = 4 \quad & \texttt{if} \quad \tau_4 + \varepsilon_4 \geq u_{ia} > \tau_3 + \varepsilon_3 \\ & \vdots \\ R = 1 \quad & \texttt{if} \quad \tau_1 + \varepsilon_1 \geq u_{ia} \quad . \end{aligned} \tag{3.3}$$

The ε terms represent the error an actor applies while determining the appropriate values of the cut points, and this error affects substantive conclusions when the survey instrument is too fine or too coarse (e.g. values may appear more stable than they actually are if the survey instrument is too coarse, or they may appear less stable than they actually are if the survey instrument is too fine).

A change in informational context can only change one systematic element of the model: contextual salience, c_{ia}. But, with attention to value system stability and the nature of the survey instrument (specifically, the cut points, $\tau_j + \varepsilon_j, \;\; j = 1, 2, \ldots, J-1$), an inappropriate number of cut points may cause a discrepancy between observed value system stability and actual value system stability (the difference between the manifest

utility of value a before and after the change in informational context, and how the values are mapped onto the survey instrument).

A Hypothetical Example: Importance Ratings

Let u_i range between 0 and 1 ($0 \leq u_i \leq 1$), let u_{ia} represent the manifest utility individual i attaches to value a before a change in the informational environment, and let u'_{ia} represent the manifest utility individual i attaches to value a after a change in the information environment. Recall that the components that factor into the manifest utility are t_{ia} (true importance), c_{ia} (contextual salience), and e_{ia} random error.

Allow t_{ia} to vary across individuals, but remain constant within individuals (e.g. so true importance does not vary within individuals by context). Let contextual salience equal c_{ia} before a change in informational environment, and c'_{ia} after a change in informational environment. And let e_{ia} be distributed normal with mean zero and variance σ^2.

Turning attention away from the psychological process by which individuals determine the utility they attach to values toward how the manifest utility maps onto the survey instrument, let τ_{J-1} separate the top two categories of the survey instrument, let τ_1 separate the bottom two categories of the survey instrument, and let τ_{J-2} through τ_2 separate the remaining categories of the survey instrument that are toward the center of the scale. And, let ε be distributed gamma with scale θ and shape k (where both θ and k are greater than zero).

Consider a hypothetical respondent r and his evaluation of value a. Individual r's true importance of value a is 0.75, the contextual salience of value a is 0, and random error is 0, so $u_{ra} = t_{ra} + c_{ra} + e_{ra} = 0.75 + 0 + 0 = 0.75$. Now, consider how respondent r maps u_{ra} onto a survey instrument with the appropriate number of categories (for example,

$J = 5$):

$$\begin{aligned} R = 5 \quad & \texttt{if} \quad u_{ra} > 0.8 + \varepsilon_4 \\ R = 4 \quad & \texttt{if} \quad 0.8 + \varepsilon_4 \geq u_{ra} > 0.6 + \varepsilon_3 \\ & \vdots \\ R = 1 \quad & \texttt{if} \quad 0.2 + \varepsilon_1 \geq u_{ra} \quad . \end{aligned} \tag{3.4}$$

The manifest utility of value a ($u_{ra} = 0.75$) maps onto the survey instrument at $R = 4$.

Now, consider respondent r's evaluation of value a after a change in informational environment. Individual r's true importance of value a is still 0.75, but the contextual salience (c'_{ra}) is increased to 0.1 (the error remains 0). Now, $u'_{ra} = 0.75 + 0.1 + 0 = 0.85$. And, using equation set 3.4, u'_{ra} maps onto the survey instrument at $R = 5$.

Now consider how u_{ra} and u'_{ra} would map onto survey instruments that were too fine or too coarse. If, for example, the survey instrument had ten categories ($J = 10$), then the way in which the respondent maps u_{ra} and u'_{ra} may be different:

$$\begin{aligned} R = 10 \quad & \texttt{if} \quad u_{ra} > 0.9 + \varepsilon_9 \\ R = 9 \quad & \texttt{if} \quad 0.9 + \varepsilon_9 \geq u_{ra} > 0.8 + \varepsilon_8 \\ R = 8 \quad & \texttt{if} \quad 0.8 + \varepsilon_8 \geq u_{ra} > 0.7 + \varepsilon_7 \\ & \vdots \\ R = 1 \quad & \texttt{if} \quad 0.1 + \varepsilon_1 \geq u_{ra} \quad . \end{aligned} \tag{3.5}$$

Here, u_{ra} maps onto the survey instrument at $R = 8$ and u'_{ra} maps onto the instrument at $R = 9$.

If, on the other hand, the survey instrument is too coarse (e.g. if $J = 3$), u_{ra} and

u'_{ra} would map onto the survey instrument differently.

$$\begin{aligned} R = 3 \quad & \texttt{if} \quad u_{ra} > 0.67 + \varepsilon_2 \\ R = 2 \quad & \texttt{if} \quad 0.67 + \varepsilon_2 \geq u_{ra} > 0.33 + \varepsilon_1 \\ R = 1 \quad & \texttt{if} \quad 0.33 + \varepsilon_1 \geq u_{ra} \quad . \end{aligned} \tag{3.6}$$

Here, both u_{ra} and u'_{ra} would map onto the survey instrument at $R = 3$, and the effect of the change in informational environment would go undetected.

Finally, it is necessary to consider the effects of $\varepsilon_1, \ldots, \varepsilon_{J-1}$ on how u_{ra} and u'_{ra} map onto various survey instruments. If the error in determining where each of the $J-1$ τ's falls on the underlying utility scale is constant (e.g. if the error is about the same for each τ in a survey instrument with three response categories as it is in an instrument with ten response categories), and if the underlying scale is the same length (e.g. if, for example, u ranges from 0 to 1 regardless of the survey instrument), then survey induced error could affect observed stability. If response categories overlap (e.g. if a respondent cannot meaningfully distinguish between $R = 7$ and $R = 8$), and the manifest utility of value a lies in that range, then it may be the case that the respondent chooses, at random, between the seventh and eighth response categories (see equation set 3.7 for an example). So, any "movement" between these categories may not be the result of the

difference between c_{ra} and c'_{ra}, rather, it may be due to measurement error.

$$\begin{aligned} R = 10 \quad & \texttt{if} \quad u_{ra} > 0.9 \\ & \vdots \\ R = 8 \quad & \texttt{if} \quad 0.78 > u_{ra} \geq 0.68^{*} \\ R = 7 \quad & \texttt{if} \quad 0.71 > u_{ra} \geq 0.60^{*} \\ & \vdots \\ R = 1 \quad & \texttt{if} \quad 0.1 \geq u_{ra} \quad . \end{aligned} \tag{3.7}$$

3.3.2 A Model of Ranked Value Preferences

This model considers a rank-ordered set of three values that are weakly ordered (e.g. ties are allowed) ($\mathcal{R} = [a \succ b \succ c]$, for example), changes in context (captured again with c, as above), and time, denoted t. Again, the utility of each value in the set is determined by the processes in equations 3.1 and 3.2. Changes in context, though they do not affect v, may affect c, which plays an important role in value system ordering and (in)stability.[1]

Rank-ordered value preferences can be thought of as a series of pairwise choices between all pairs of individual values in the set of values under consideration. The process by which an individual chooses one value over another depends on the perceived utility of each value in consideration. Using values a and b for illustrative purposes, this process is shown in equation set 3.8 (Jacoby 2008).

$$\begin{aligned} \texttt{Choice}(a) \quad & \texttt{if} \quad I_{ia} + e_{ia} > I_{ib} + e_{ib} \\ & \texttt{and} \\ \texttt{Choice}(b) \quad & \texttt{if} \quad I_{ia} + e_{ia} < I_{ib} + e_{ib} \quad . \end{aligned} \tag{3.8}$$

[1]This model is based that presented in Falmagne, Regenwetter and Grofman (1997).

If the the errors are small and randomly distributed with mean zero, and if the true utility of each value is relatively large, and if each I term is different from the next (for example, if $I_{ia} - I_{ib} \neq 0$), then errors will cancel out over successive iterations and the I terms will drive choice.

3.3.3 Differences Between the Models

There are three main differences between the models of ratings and rankings. First, in the model of importance ratings (equation 3.3), the quantity $u_{ia} - u_{ib}$ is meaningful both in terms of sign and magnitude. In the model of rankings (equation 3.8), however, the quantity $u_{ia} - u_{ib}$ only matters in terms of sign. Further, the quantity $u_{ia_t} - u_{ia_{t-1}}$ only matters relative to other values in the set. In short, it suffices to say that while rankings provide less information, the extra information that is picked up in importance ratings is possibly due to random fluctuations in ϵ.

Second, there are two steps to the ratings model and one step in the rankings model. The additional process of determining values for $\tau_1, \tau_2, \ldots, \tau_{J-1}$ adds another source of error to the process. The rankings process only involves one source of error, and to the extent that actors are able to clearly distinguish between values, this total error of the rankings process is less than the total error in the ratings process.

Finally, the values of u_{ia}, u_{ib}, and u_{ic} in the model of ratings can move freely of each other. That is, the value of u_{ia}, for example, does not depend on u_{ib} and all. The rank of each value in the ordered set depends on u_{ia}, u_{ib}, and u_{ic} simultaneously. That is, if $\mathcal{R}_{t-1} = [a \succ b \succ c]$, and the actor receives a piece of information that adds utility to value b, it could be the case that $\mathcal{R}_t = [b \succ a \succ c]$. The order of the three elements depends on the utility that is attached to each. One element of the set cannot move without another. In this way, rankings capture the comparative and competitive element of value systems that Rokeach, Schwartz, and others suggested was an integral part (see

Rokeach 1973; Schwartz 1996, for example).

3.4 Hypotheses

There are several hypotheses that can be drawn out of these models. First, to establish whether the actual utility of each value or the associated error is driving value choices, I will measure the degree to which value systems are transitive. Drawing on earlier research (e.g. Rokeach 1973; Jacoby 2006), I expect to find that value choices are largely transitive and that the I terms –not the e terms– are driving value choices. This can be shown by rearranging the terms in equation 3.9 (as shown in Jacoby 2008, 4).

$$\begin{aligned} \texttt{Choice}(a) \quad & \texttt{if} \quad v_{ia} - v_{ib} > e_{ib} - e_{ia} \\ & \texttt{and} \\ \texttt{Choice}(b) \quad & \texttt{if} \quad v_{ia} - v_{ib} < e_{ib} - e_{ia} \quad . \end{aligned} \tag{3.9}$$

If the I terms are well-established and the actor can easily distinguish between values, then the I terms should drive value choices, and the actor should make the same value choice over several iterations, thus indicating transitivity. If, on the other hand, the I terms are not well-established or they are not easily distinguishable, then the random fluctuations in perceived utilities (e.g. the e terms) should drive the process. And, if the e terms are distributed normal with mean zero, they should cause inconsistent value choices across iterations, thus indicating intransitivity.

Second, if value choices are transitive –if the I terms are well-established and easily distinguishable– small changes in context should not affect value choices of those in the ranking group. The small piece of information should not affect the utility of the primed value such that $\mathcal{R}_t$ is different from $\mathcal{R}_{t-1}$.

Third, even if value choices are transitive, small changes in context may alter value

ratings, and this affect may be greater than that observed in value rankings. A small change in context may act as a small shock to the actor's value system, and it should not affect the true importance of the relevant value so much so that it causes the rating of the value to increase (but, it may affect contextual salience, which could affect the dependent variable). This so, importance ratings are subject to measurement error. Rearranging terms in equation set 3.3,

$$\begin{aligned} R = 1 \texttt{ if } I_{ia} - \tau_1 &> \epsilon_1 - e_{ia} \\ R = 2 \texttt{ if } \tau_1 - I_{ia} &\geq e_{ia} - \epsilon_1 \\ &\texttt{and} \\ I_{ia} - \tau_2 &> \epsilon_2 - e_{ia} \\ &\vdots \\ R = J \texttt{ if } \tau_{j-1} - I_{ia} &\geq e_{ia} - \epsilon_{J-1} \end{aligned} \tag{3.10}$$

one can see that there are several additional sources of error that can effect the importance ratings. Among the problems with importance ratings is that an actor does not have a well-established values for the cutoff points (τ terms). Thus, the ϵ terms are likely to be rather large, and the actor is likely to perceive the utility for the value under consideration as near at least two τ's, so the associated ϵ's could play a large role in how u_{ia}, for example, maps onto the survey instrument. In addition, since importance ratings are a "one shot" procedure, the errors cannot cancel out over iterations. So, even if an actor has a clear I_{ia}, the actor may not be able to clearly distinguish between $\tau_1, \tau_2, \ldots, \tau_{J-1}$, thus exposing the final outcome to random fluctuations in the various ϵ terms. In sum, even if the first and second hypotheses are true, there could be significant priming effects in importance ratings. And, if this is the case, it is fair to conclude that measurement choice *does* affect observed value system stability.

3.5 Research Design & Data

I test the above hypotheses with a unique new survey experiment that focuses on the stability of rank-ordered value preferences versus importance ratings through systematically varied informational environments.[2] The experiment takes into account five values (freedom, equality, economic security, law& order, and moral traditionalism), all important to American political culture. Freedom and equality are central components of classical liberalism and integral to American political culture (Devine 1972; McClosky and Zaller 1984), economic security and law and order address challenges to American life and have been recognized as key elements in industrial and post-industrial societies, (Davis 2007; Hochschild 1995; Inglehart and Abramson 1994; Rossiter 1962), and most of the issues associated with the "culture war," such as family structure, gay rights, and abortion, center on moral traditionalism (Brewer 2003; Hunter 1991; Schwartz 2005).

Respondents in the experiment were randomly assigned to one of two measurement groups: the "rating" group or the "ranking" group. Respondents in each group were then randomly assigned to one of three subgroups: the control group, the "equality" group, or the "economic security" group. Respondents in the equality subgroups and economic security subgroups were exposed to a short prime designed to bring the respective value to "the top of their heads." The wording for the equality prime is as follows: "Some people believe that we need to do a lot more to make sure everyone has an equal opportunity to get ahead in life." The wording for the economic security prime is as follows: "Some people believe we should do as much as we can to provide economic security to create jobs, improve incomes, and decrease home foreclosures." Upon reading the prime, respondents in these subgroups were asked about the degree to which recent political campaigns emphasized the primed value. After reading the prime, respondents in treatment groups

[2]Data collected by Time-sharing Experiments for the Social Sciences, NSF Grant 0818839, Jeremy Freese and Penny Visser, Principal Investigators.

are assigned a distraction task, to indicate their interest in politics using a 4-point scale.

After completing the distraction task, respondents in the rating group were asked to rate the importance of each of the five values on a 1 to 5 scale. Value choices for those in the ranking group were elicited using the method of triads. Over a series of ten questions, respondents are shown all possible combinations of three values (e.g. a triad), and asked to choose the most and least important value from each set of three. In doing so, respondents are actually making three separate value choices in each triad (a vs. b, a vs. c, and b vs. c). And, over all of the triads, respondents choose between the same pair of values three times, which acts as a check against measurement error. So, rather than the process in equation 3.8 determining value choice, a more complex process, shown in equation set 3.11 drives value choice over m iterations (also as in Jacoby 2008, 3):

$$\begin{aligned} \texttt{Choice}(a) \quad & \texttt{if} \quad mu_a + \sum_{m=1}^{m} e_a > mu_b + \sum_{m=1}^{m} e_b \\ & \texttt{and} \\ \texttt{Choice}(b) \quad & \texttt{if} \quad mu_a + \sum_{m=1}^{m} e_a < mu_b + \sum_{m=1}^{m} e_b \quad . \end{aligned} \tag{3.11}$$

Here, if the e's are distributed normal with mean zero, they should cancel out over iterations and the I's drive value choice, and the effects of measurement error are minimized.

The total sample size of the survey is 1250, and each subgroup has over 200 respondents, which provides sufficient statistical power to compare measurement strategies with respect to value system stability.

3.6 Methods

I test for transitivity in value choices using the same basic methods employed by Jacoby (2006, 2008). I define a respondent's pairwise preferences regarding two values to be clear if either value a succeeds value b in the preference ordering, or if value b succeeds

value a. Further, I define a respondent's preferences regarding a set of three values to be transitive if, for example, value a succeeds value b, value b succeeds value c, and value a succeeds value c (e.g. $a \succ b$, $b \succ c$, and $a \succ c$). In other words, a respondent's preferences regarding a given triad are coded as transitive if there is a clear rank-ordering. I then examine transitivity using descriptive statistics.

I analyze the data from the survey experiment in several different ways. The quantities of interest, the priming effects, can be explained generally, as in Holland (1986), as

$$T = E(Y_t) - E(Y_c) \tag{3.12}$$

where $E(Y_t)$ is the expected value of the dependent variable in the treatment group, $E(Y_c)$ is the expected value of the dependent variable in the control group, and T is the treatment effect (e.g. the priming effect). Specifically to this experiment, I examine four priming effects (for the economic security prime in both measurement groups, and for the equality prime in both measurement groups). I test whether the priming effects are statistically different from zero using simple two-sample difference-in-means (e.g. two-sample t-tests).

I also estimate the priming effects using two types of logit models and OLS regressions. To estimate the priming effects in the rating measurement group, I use an ordered logit model and an OLS regression. The importance ratings, I argue, are the manifestation of the true importance of the value, y^*, mapped onto an ordinal scale through $J-1$ cut points ($J-1$ because there are J possible responses) (as in equation 3.10 above). The model relating various predictor variables (including the prime), $\mathbf{x}$, to y^*, is

$$Y_i^* = \alpha + \mathbf{x}'\beta + \epsilon_i \quad , \tag{3.13}$$

and, as the $J-1$ cut points partition y^*, and as it is assumed that ϵ_i is distributed

logistic, then the probability that $Y \leq y_j|\mathbf{x}$ (e.g. that Y falls in a category equal to or below y_j) is

$$Pr(Y \leq y_j|\mathbf{x}) = \frac{exp(\tau_j - \mathbf{x}'\beta)}{1 + exp(\tau_j - \mathbf{x}\beta)} \quad . \tag{3.14}$$

The parameters in equation 3.14 can be fit using a linear model for the log-odds ratio using the logit link, as in equation 3.15 (Jones and Westerland 2006)

$$log\left[\frac{Pr(Y \leq y_j|\mathbf{x})}{Pr(Y > y_j|\mathbf{x})}\right] = \tau_j - \mathbf{x}'\beta, \quad j = 1, 2, \ldots, j-1 \quad . \tag{3.15}$$

And, one can interpret the β's in terms of how Y "moves" as elements in $\mathbf{x}$ change (Jones and Westerland 2006, 4). Another feature of the model concerns the estimates of the $J-1$ cut points. Knowing the placements of the cut points, the confidence intervals, and the covariance between them, it is possible to determine whether all J categories are meaningful, or whether categories overlap.

To estimate the ranking measurement group, I use a rank-ordered logit model (also called an exploded logit model, as in Chapman and Staelin 1982) and OLS regressions. The rank-ordered logit model, based on the conditional logit model allows one to estimate and test for differences among respondents' preferences for the ranked items and to test differences in preferences across subpopulations (Allison and Christakis 1994). In a constant utility model, the probability a respondent ranks a set of items (e.g. $a, b, c, \ldots$) is

$$Pr(a, b, c \ldots) = Pr(a|C) \times Pr(b|C - \{a\}) \times Pr(c|C - \{a, b\}) \ldots \tag{3.16}$$

where $Pr(a|C)$ is the probability a respondent chooses option a from the set $C = \{a, b, c, \ldots\}$, $Pr(b|C - \{a\})$ is the probability the respondent then chooses option b from the set C, with a removed, and so on (Chapman and Staelin 1982). In the stochastic utility model, where there is a random error component that affects the utility for a given item in the set (as in equation 3.1 above), the probability that a respondent ranks a set

of items in a particular fashion is given by

$$Pr(U_{i1} \geq U_{i2} \ldots, \geq U_{iJ}) = \prod_{j^*=1}^{J_i} Pr(U_{ij^*} \geq U_{iJ}, \quad \texttt{for } j = j^*, \ldots, J_i) \quad , \qquad (3.17)$$

where the left side of the equation is the given rank-order (e.g. alternative 1 is preferred to alternative 2, alternative 2 is preferred to alternative 3, all the way to alternative $J-1$ being preferred to alternative J) , and the right side defines the various events (e.g. $(U_{i1} \geq U_{ij} : j = 1, 2, \ldots, J_i), (U_{i2} \geq U_{ij} : j = 2, 3, \ldots, J_i), \ldots, (U_{ij-1} \geq U_{iJ})$) to be statistically independent (Chapman and Staelin 1982).

Just as the ordered logit model is similar to successive applications of the traditional logit model, the rank-ordered logit model is similar to successive applications of the conditional logit model (Glasgow 1997). The parameter estimates can be interpreted as how changes in $\mathbf{x}$ affect the probability a respondent chooses, for example, item a over item b (e.g. the "baseline" item). The model also allows for comparisons between groups in the sample.

I use OLS regression to model both individual value rankings and ratings for one main reason. While the dependent variables in this chapter are perhaps most effectively modeled with maximum likelihood estimation techniques, the results of these various models do not lend easily to comparison. Though OLS models of these data may produce out-of-bounds predictions, and though OLS may miss some intricacies that non-linear models can account for, the results from the OLS regressions are comparable. OLS estimates are perhaps the best way to quickly and easily compare estimates of priming effects across experimental measurement groups.

3.7 Results

Figure 3.1 shows the mean responses, with standard deviations, for both measurement groups on all five values. The most obvious difference in responses across measurement groups is the lack of differentiation among ratings. The between group variance of value rankings is much greater, suggesting that the comparative and competitive nature of values is brought forward by this particular question format.

Figure 3.1 also gives a good look into the aggregate level value preferences of the American public. Freedom is, by far, the most preferred value of the five, followed by law & order, then economic security, with equality and moral traditionalism at the bottom of the preference hierarchy. These results are similar to prior studies on value rankings (e.g. Jacoby 2006, 2008) in that freedom/liberty and economic security are valued quite highly among the public, and equality is toward the "less important" end of the spectrum. The major change across datasets concerns law & order/social order and moral traditionalism/morality. These differences will be more thoroughly examined in the next chapter.

The distributions of respondents' value ratings are shown in figure 3.2. As expected, the graphs show a high degree of "end-piling" (e.g. rating all values very highly). The modal response for all five values is "very important," and 30.5 percent of all those in the rating group (191 of 626) rated all five values that category (e.g. the highest possible category). Literature suggesting that value ratings suffer from a lack of meaningful variance (e.g. Krosnick and Alwin 1988) seems be supported by these data. Figure 3.3 shows the distributions of respondents' value rankings.[3] Here, the distributions of responses are spread more evenly across all the possible values. Like figure 3.1, figure 3.3 suggests that forcing respondents to distinguish and choose between values creates a measure with

[3]Note that value rankings are coded such that 5 indicates the most important value, 4 the second most important value, and so on. A value coded 1 indicates it is the least important value in an individual's hierarchy.

more variance to analyze. Whether or not these distinctions are meaningful, however, cannot be determined by figure 3.3. To determine this, it is necessary to examine the degree of transitivity in individual level value choices.

3.7.1 Transitivity in Value Rankings

A respondent shows preference for one value over another if she chooses one value over another at least twice in three iterations. A respondent's choice between two values is consistent if the she chooses one value over the other in all three iterations. A respondent does not show preference if she chooses, for example, value a over value b in the first iteration, then value b over value a in the second iteration, and does not make a choice in the third iteration. The key, however, is not whether choices are clear or consistent. Rather, the key is the degree to which choices are transitive. That is, if value a succeeds value b, and value b succeeds value c, value a must then succeed value c for preference among these three values to be transitive. If preferences are largely transitive, utility, not error, drives choice. If, on the other hand, preferences are not transitive, it is possible to conclude that error drives choice. Table 3.1 shows the percentage of respondents who exhibited transitivity and consistency in each of the ten pairwise value choices.

With over 90 percent of respondents exhibiting clear preferences of each of the ten pairs of values, and with over 60 percent making consistent choices on each of the ten pairs of values, it seems safe to conclude that much of the public has clear preferences with respect to values. Stronger evidence, however, lies in examining the degree to which these preferences are transitive. I define a set of preferences to be transitive if, given a set of three values, $a \succ b$, $b \succ c$, and $a \succ c$. That is, a set of three value preferences is transitive if there is a clear first, second, and third ranked value. Table 3.2 shows the percentage of the sample that exhibited transitive preferences on each of the ten triads.

The results in table 3.2 paint a clear picture of of the clarity in respondents' value

choices, and results support the first hypothesis stated above. With near 90 percent of respondents expressing transitive value preferences on each of the ten triads, it does not appear that value choices are at all random. In fact, it is evident that respondents have a picture of each value's relative importance. While it may be the case that there is some measurement error in each survey question used here (judging by the rates of consistency on pairs of values as shown in table 3.1), it does seem to be the case that this error cancels out over several iterations enabling respondents to make clear, consistent, transitive value choices.

3.7.2 Differences Between Experimental Groups

To reiterate, there are two main manipulations in the experiment: measurement and changes in informational context (e.g. primes). And, there are two central questions. First, does a small change in context affect value system ordering? And second, does measurement affect observed value system stability? Respondents were first assigned to one of two measurement groups, then to an experimental subgroup (i.e. control, equality prime, economic security prime).

Tables 3.3 and 3.4 show the differences in the mean ratings/rankings of the primed values between the treatment and control groups. The differences between the treatment and control groups on the mean ratings and rankings for equality are displayed in table 3.3. First, and somewhat surprisingly, the treatment group rated equality lower (that is, less important) than the control group. In the rating group, this is likely because many of the respondents' "default" rating for all values is "very important" (e.g. the highest rating), and with no room to move up, the added token of information caused respondents to rate the value lower than they normally would. Second, as expected, the difference in means for the rating group is statistically significant while the difference in means for the ranking group is not.

Table 3.4 shows the difference in means between the different groups' ratings and rankings of economic security. The results are similar to those shown in table 3.3. The first main difference is in the direction of the priming effect for economic security in the ranking group. In all other cases, the primed group rated/ranking the particular value lower (e.g. less importantly) than the control group. Here, however, the primed group ranks the value somewhat higher (though not significantly higher) than the control group. The second main difference, of course, is the lack of statistical significance of these priming effects.

At first glance, these results support the second and third hypotheses. Though the absolute values of the priming affects are similar across measurement groups, only that in the ratings group is statistically significant. According to these results, it does appear to be the case that measurement choice affects observed value system stability.

3.7.3 Results of Ordered and Rank-Ordered Logit Models

The results of the models of respondents' ratings of equality and economic security are reported in table 3.5. The dependent variables are coded on a scale from 1 to 5 where 1 indicates the given value is "very unimportant" and 5 indicates the given value is "very important" to the respondents' everyday lives. The explanatory variables of interest are the primes. For the model of the importance rating for equality, respondents that received the relevant prime are coded 1, and all others are coded 0. For the model of the importance rating for economic security, respondents that received the relevant prime are coded 1, and all other are coded 0. Other independent variables in the models include age (coded such that 1 indicates the respondent is between 18 and 24, 2 indicates the respondent is between 25 and 34, and 7 indicates that the respondent is over 75 years of age), gender (coded such that 0 indicates male and 1 indicates female), and party identification (coded such that 1 indicates the respondent is a strong Republican and

7 indicates the respondent is a strong Democrat).[4] Also in the model are a dummy indicating whether a person is a racial minority, education (coded in four categories such that 1 indicates the the lowest amount of formal education and 4 indicates the most), income (coded such that 1 indicates the lowest income and 19 indicates the most), and ideology (coded on a scale where 1 indicates the respondent is extremely liberal and 7 indicates the respondent is extremely conservative).

Looking first at the coefficients on the control variables, age, female, and party identification have significant positive impacts on the ratings of both values. The models suggest that, on average, older respondents, female respondents, and Democrats rate both equality and economic security higher than others. The effect of the prime on equality rating is significant and negative, suggesting that respondents in this treatment group rated equality, on average, lower than others. The effect of the economic security prime is not statistically different from zero. Each threshold (τ) is statistically distinguishable from all adjacent thresholds, but it is the case that thresholds separating categories denoting lower importance are closer together than those separating categories denoting higher importance. Finally, the parallel regression assumption holds in the model of ratings on equality. The parallel regression assumption does not hold ($\chi^2 = 21.10$ on 12 degrees of freedom, $p = .05$), but results from a generalized ordered logit show that the priming effect never reaches statistical significance across any of the four binary logit models. While some explanatory variables' effects on value ratings do vary over the scale of the dependent variable, the effects of the prime do not. Across all values of the dependent variable, the impact of the prime is near zero.[5]

[4]Party is included in the model to control for a strong correlation with value ratings. It is not clear, however, if party ID is a causes or is an effect of value preferences (see Goren 2005; Goren, Federico and Kittilson 2009). Because party ID is almost completely orthogonal to the respondents' assignments to experimental groups, the inclusion/exclusion of party does not effect the estimated priming effect.

[5]The parallel regression assumption was checked with the Brant test.

Table 3.6 shows the changes in the predicted probabilities for ratings of equality between the control and treatment groups. The most striking differences between experimental groups concerns the probability that a respondent deems equality "very important." A respondent in the control group is about 11 percent more likely to say equality is "very important." This so, a respondent in the treatment group is about 6 percent more likely to call equality "somewhat important" and about 4 percent more likely to call equality "moderately important." These results suggest not that the small change in informational context caused the average respondent to consider equality far lower than normal. Rather, it appears that the prime caused respondents to drop equality down from "very important" to "somewhat important," and, in some cases, to "moderately important." In any case, it does appear that the equality treatment caused an aggregate change in respondents' ratings of equality that is separate from age, gender, party, or any other possible confounding factor.

Turning to the estimation of the priming effects for the ranking group, the results of the OLS regression models appear in table 3.7. Looking first at the effects of the control variables on the ranking of equality, both age and party identification have significant effects. On average, older respondents rank equality lower in their value hierarchy than younger respondents. And, with respect to party, Democrats tend to rank equality higher than independents and Republicans. Ideology also has a significant negative effect, indicating that liberals tend to rank equality higher than conservatives. The effect on the main explanatory variables of interest, the prime, is statistically significant, which indicates that those exposed to the equality prime tend to rank equality lower (about 25 percent of a rank lower) than those not exposed to the prime.

Examining the model of respondents' ranking of economic security, the only statistically significant effect among control variables comes on party identification and education. Here, Democrats, on average, tend to rank economic security higher in their value

hierarchies than independents and Republicans. And, more educated respondents tend to rank economic security lower than less educated respondents. The effect of the main explanatory variables of interest, the prime, are not statistically distinguishable from zero.

Also of note in these results is model fit. The model of equality ranking fits the data much better ($R^2 = 0.21$) than the model of economic security rank ($R^2 = 0.06$). The R^2 statistics on the models of value rating are both very low (0.05 and 0.04, respectively). The additional variance in the rankings measures, at least for the value of equality, is captured by the independent variables in the model. And, perhaps the model of equality rank fits the data better than the model of economic security rank because equality is, in some sense, a "tipping point" for the major political parties in the United States and identification on the left/right continuum (see, for example Feldman 1988).

The results of the rank-ordered logit models (shown in tables 3.8 and 3.9) give a look "inside" respondents' rank-ordered preferences. Focusing first on table 3.8, where equality is the baseline value, and turning attention to the effects of the equality prime, it appears that only two values (in addition to equality) are affected by the prime. The prime does not affect the positioning of freedom and law & order, on average (the top two values in the aggregate). The prime does, however, affect the positioning of economic security and moral traditionalism. In each case, when exposed to the prime, respondents were more likely to choose economic security and moral traditionalism over equality.

Turning attention to table 3.9 and the effects of the economic security prime, it appears that the treatment affects only the probability that one chooses freedom over economic security (the other coefficients on economic security in the table border traditional levels of significance, but do not pass them). Interestingly, this prime positively affects economic security: people in this treatment group tended to rank economic security more highly than others, especially with respect to freedom.

3.8 Conclusion & Discussion

Examining the distributions of the value ratings and rankings, examining the differences between the experimental groups, and examining the differences between the ordered logit models and the rank-ordered logit models, side-by-side, reveals important information behind the differences between value ratings and value rankings. The first main question in this chapter concerns the distributions of value ratings versus value rankings. And, just as previous research demonstrated, the amount of end-piling in the ratings data is much greater than in the rankings data (Krosnick and Alwin 1988). Because the ranking format forces people to differentiate between values, the picture of value systems as painted by the rankings data is much clearer than that produced by the ratings data.

The second main question in this chapter concerns the degree to which respondents' value choices, as made across the ten triads, are transitive. Transitive preferences indicate that respondents make meaningful value choices, rather than choose at random. Further, transitive preferences indicate that value systems (e.g. not just value choices) are meaningful psychological structures that can be seen in empirical data. As previous research demonstrated (e.g. Jacoby 2006), respondents' value choices are highly transitive, and it appears that most respondents have very clear, meaningful value systems.

Establishing transitivity plays a large role in determining whether or not value systems exist: it does not help to determine whether or not they are stable. The first tests of stability in this chapter have to do with the experimental primes, and determining whether the experimental groups rated/ranked equality and economic security differently than the control groups. The results show, with relative clarity, that the equality prime in the rating group caused a significant number of respondents to rethink they importance they attach to equality in their everyday life. The economic security prime may have had less of an effect because people have a clearer view of the value since the financial crisis

and economic downturn began to appear in the news consistently. The priming effect for equality did not carry across measurement groups, suggesting that when a particular value is anchored in a value system by other values (e.g. not held in place by categories of a survey question as is the case in the rating group) response is more stable.

The results of the second tests of stability (e.g. the ordered logit models, the rank-ordered logit model, and the OLS models) tell a slightly different story. Most notably, the OLS models of equality rating/ranking suggest equality may, in fact, be an unstable value. In being prompted to think about the importance of equality in everyday life, people attribute less importance to it. Also important is that these results hold across measurement groups. All this suggests that changes in accessibility *do* affect the relative importance people attach to equality when compared to other values.

Economic security seems to be a *more* stable value, relative to equality. The effects of the economic security prime are, for the most part, statistically indistinguishable from zero. In short, it appears that the small change in context does not affect accessibility to the extent that it affects the relative ordering of individuals' value systems.

The look inside respondents' rank-ordered preferences, provided by the rank-ordered logit model, offers valuable information concerning the trade-offs respondents make when prompted to think about a particular value (e.g. the comparative and competitive aspect of values and value systems). It is interesting to note that the equality prime only affected the positioning of equality relative to economic security and moral traditionalism. Not *all* values in the set are affected: only those that occupy the lower positions in the aggregate value hierarchy. The ordered-logit model tells a different story about economic security. Economic security, on average, goes unaffected by the prime (as shown by the OLS model in table 3.7. Where there is a significant effect, however, is in the trade-off with freedom: the other three values in the set are unaffected. These results, taken together, suggest first and foremost that changes in accessibility affect value choices. Second, the results

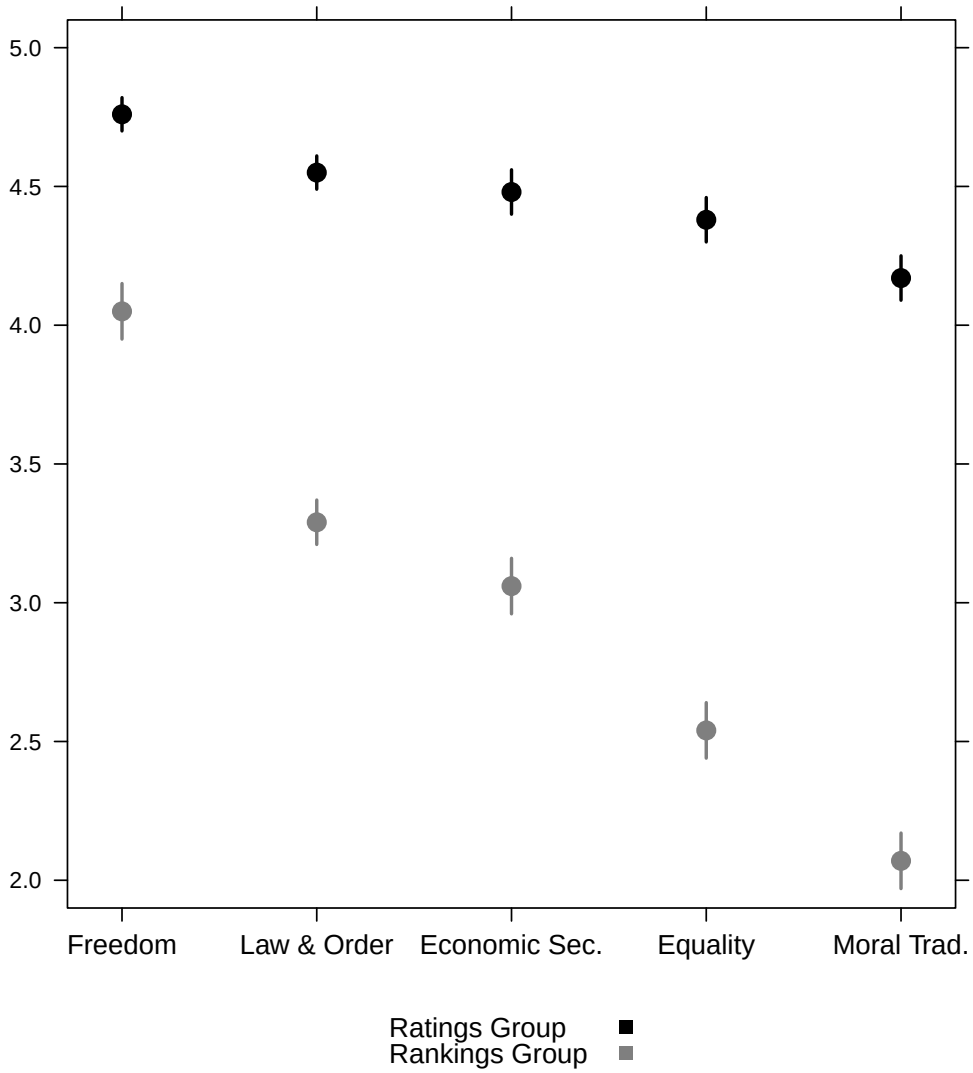
are not quite as "black and white" as value system ordering is or is not stable. Rather, it seems as though certain values exhibit more stability than others. Possibly, values at the top of individuals' hierarchies are more stable than those near the bottom.

These results speak to several important pieces of scholarship that address values in political behavior. Goren, Federico and Kittilson (2009) and Goren (2005), for example, suggest value systems to be less stable than other important political attitudes (e.g. party affiliation). In the same vein, Maio et al. (1996) and Maio and Olson (1998) suggest that value ratings change when people are asked to think hard about their values. And, while these pieces of research make important contributions to our understanding of values and behavior, the results presented in this chapter should push future research to think more about value system measurement, trade-offs, and information that can be gleaned from rankings and ratings. The previously mentioned research that measures values and value system dynamics using importance ratings do not tell a complete story. First, to the extent that values are comparative and competitive –that choice depends on the relative order of the relevant values– relative ordering matters, and ratings cannot capture this important aspect of values. Second, a look inside rank-ordered value preferences provides important information in determining the extent to which value systems are static or dynamic. More specifically, when value system ordering is measured with rankings, information regarding which values are *more* stable and which are *less* stable becomes available.

To begin this chapter, I posed two questions: Does situational context affect value system ordering? And, does measurement technique affect empirical results? The answers, respectively, are *sort of* and *yes*. Changes in informational context do affect value system ordering, but it is not the case that all values in the set are affected. Rather, some values (e.g. economic security) are more stable than others (e.g. equality). With respect to measurement, trade-offs seem clear. It may not be the case that rankings are stable and

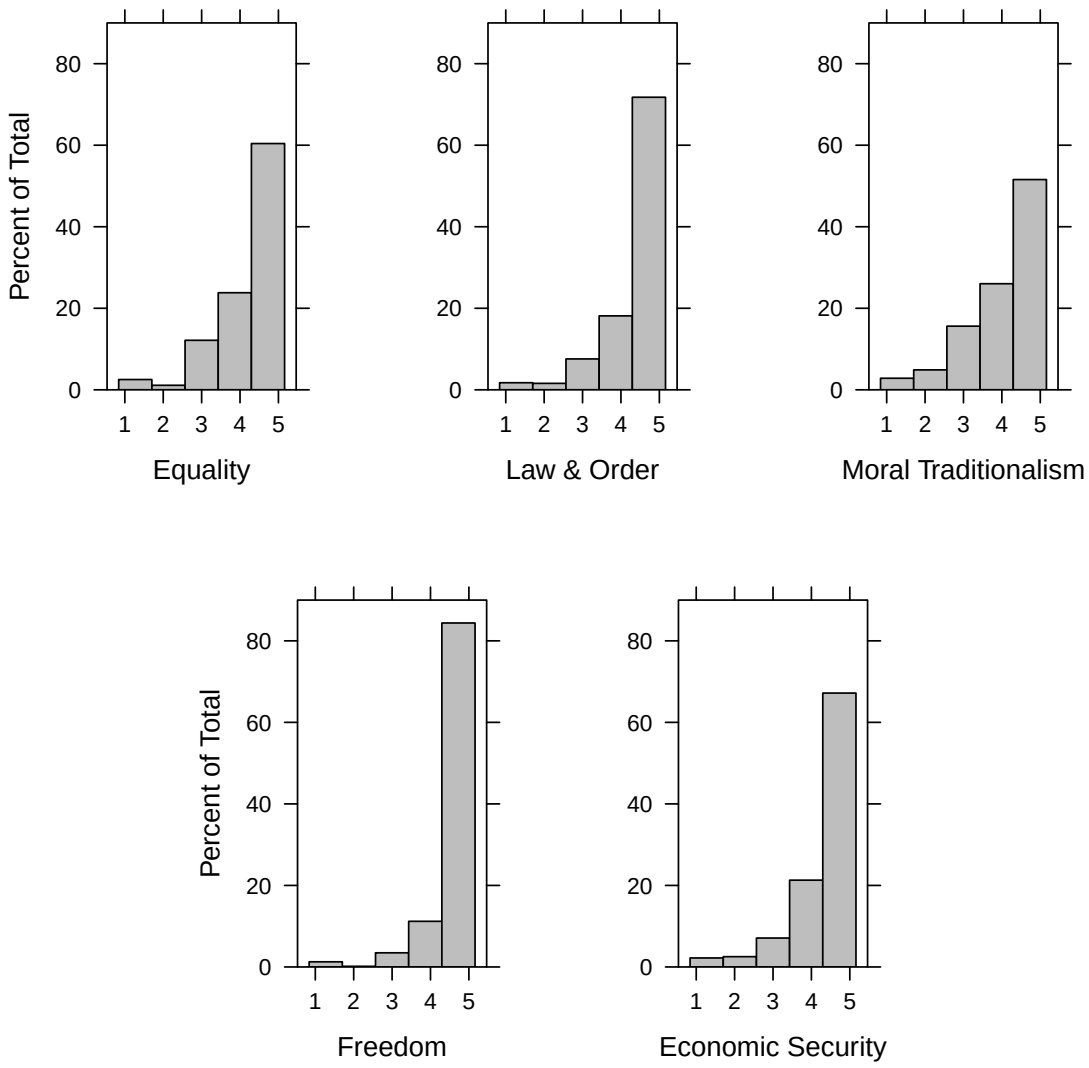
ratings are unstable, as was hypothesized. Rather, rankings provide a look inside ordered preferences where ratings do not. And, this look inside individuals' ordered preferences provides important information on how people think about values, which values people seem to "move," and "between-value" dynamics.

Figure 3.1: Mean Ratings and Rankings



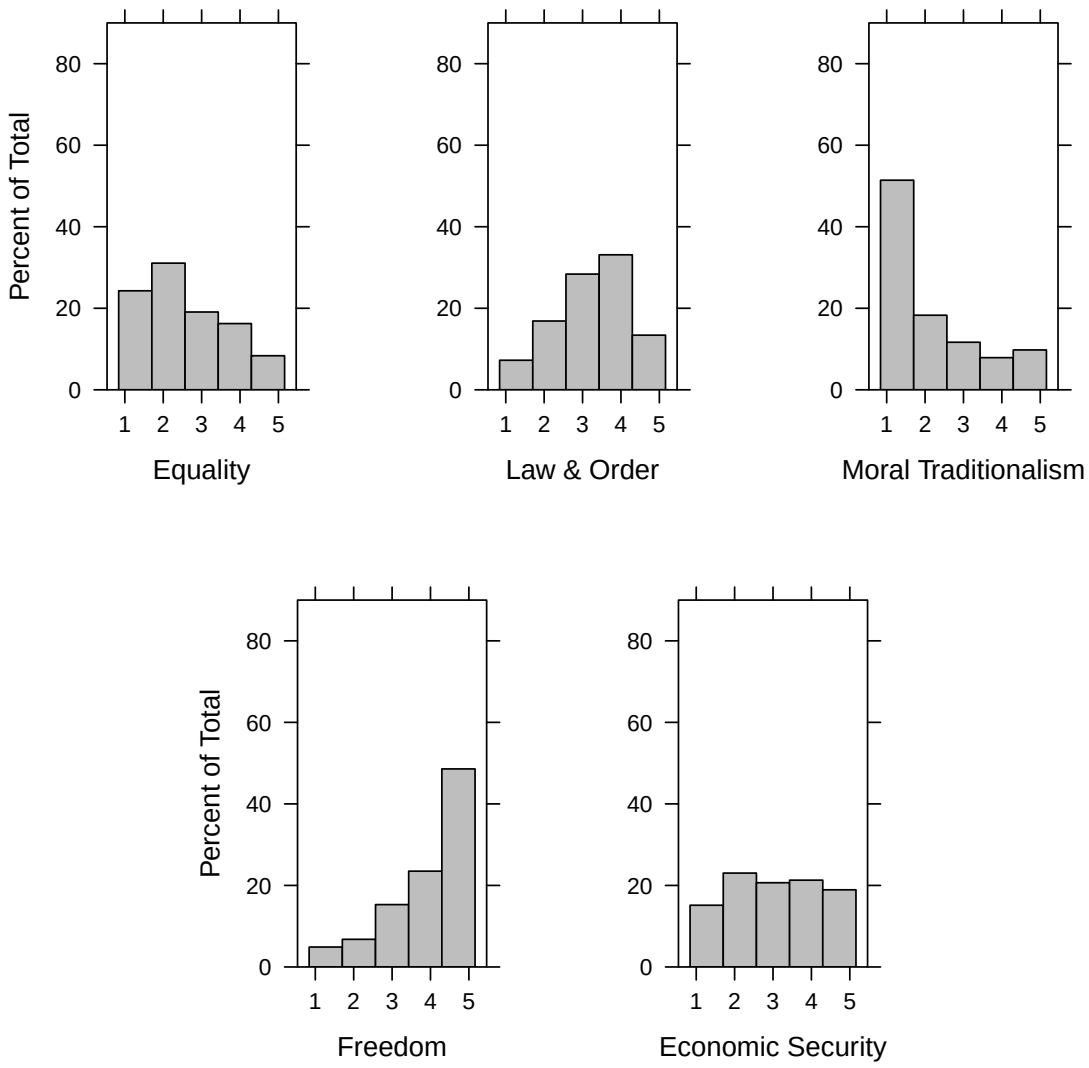
*Bars represent two standard errors.

Figure 3.2: Distributions of Ratings



*Most important values coded as 5, least important coded as 1.

Figure 3.3: Distributions of Rankings



*Most important values coded as 5, least important coded as 1.

Table 3.1: Percent With Clear Preferences and Consistent, by Value Pair

	% Clear Choice	% Consistent
Freedom, Equality	94.9	69.1
Freedom, Economic Security	97.1	67.2
Freedom, Law & Order	96.7	65.1
Freedom, Moral Traditionalism	95.9	79.8
Equality, Economic Security	95.9	63.5
Equality, Law & Order	96.5	62.4
Equality, Moral Traditionalism	95.1	63.5
Economic Security, Law & Order	95.4	60.5
Economic Security, Moral Traditionalism	97.1	70.5
Law & Order, Moral Traditionalism	96.5	71.2

9.6 % of respondents were consistent on all 10 pairwise choices.
50 % of respondents were consistent on at least 8 pairwise choices.

Table 3.2: Percent Transitive, by Triad

	% Transitive
Freedom, Equality, Economic Security	90.6
Economic Security, Moral Traditionalism, Law & Order	91.2
Freedom, Moral Traditionalism, Equality	88.9
Equality, Law & Order, Freedom	89.8
Economic Security, Law & Order, Freedom	89.8
Equality, Moral Traditionalism, Law & Order	89.8
Freedom, Economic Security, Moral Traditionalism	91.6
Law & Order, Equality, Economic Security	90.1
Moral Traditionalism, Economic Security, Equality	89.7
Freedom, Moral Traditionalism, Law & Order	92.5

74.8% of respondents exhibited transitive preferences on all ten triads.
n = 628

Table 3.3: Difference in Mean Rating/Ranking of Equality

	Rating Group	Ranking Group
Control	4.43 (n = 217)	2.59 (n = 213)
Treatment	4.26 (n = 212)	2.41 (n = 216)
Difference	0.17*	0.18

*Statistically significant at .05 level for a two-tailed difference-in-means test.

Table 3.4: Difference in Mean Rating/Ranking of Economic Security

	Rating Group	Ranking Group
Control	4.57 (n = 217)	1.90 (n = 213)
Treatment	4.49 (n = 206)	2.11 (n = 199)
Difference	0.08	-0.21

*Statistically significant at .05 level for a two-tailed difference-in-means test.

Table 3.5: Ordered Logit and OLS Models of Ratings of Equality and Econ. Security

	Equality		Econ. Security	
	Ord. Logit	OLS	Ord. Logit	OLS
Prime	-0.49**	-0.19*	-0.02	0.00
	(.17)	(.08)	(.18)	(.08)
Age	0.1*	0.04	0.13**	0.03
	(.05)	(.02)	(.05)	(.02)
Nonwhite	0.21	-0.00	-0.04	-0.10
	(.21)	(.09)	(.22)	(.08)
Female	0.38*	0.18*	0.32*	0.12
	(.16)	(.07)	(.17)	(.07)
Educ.	0.10	0.04	0.03	-0.01
	(.10)	(.04)	(.10)	(.04)
Party	0.15**	0.06**	0.10	0.05*
	(.05)	(.02)	(.05)	(.02)
Ideol.	0.06	0.03	0.09	0.05
	(.07)	(.03)	(.08)	(.03)
Income	-0.02	-0.00	0.01	0.01
	(.02)	(.01)	(.02)	(.01)
τ_1	-2.38	–	-2.30	–
	(.49)		(.51)	
τ_2	-2.00	–	-1.51	–
	(.47)		(.47)	
τ_3	-0.35	–	-0.50	–
	(.44)		(.45)	
τ_4	0.96	–	0.82	–
	(.44)		(.45)	
LR χ sq.	45.89***	–	21.38**	
R sq.	–	0.05	–	0.04
n	633	633	635	635

* $p < .05$, ** $p < .01$

Table 3.6: Changes in Predicted Probabilities by Treatment Group for Equality Rating

	Control	Treatment	Change (95% C.I.)
$Pr(Y = \text{Very Important})$	0.74	0.63	0.11 (0.04, 0.18)
$Pr(Y = \text{Somewhat Imp.})$	0.18	0.24	-0.06 (-0.10, -0.02)
$Pr(Y = \text{Moderately Imp.})$	0.07	0.11	-0.04 (-0.07, -0.01)
$Pr(Y = \text{Somewhat Unimp.})$	0.01	0.01	0.00 (-0.01, 0.00)
$Pr(Y = \text{Very Unimportant})$	0.01	0.02	-0.01 (-0.02, 0.00)

Cell entries in the first column indicate the probability that $Y = y$ for respondents in the control group with all other independent variables held at their medians (55–64 year old female that considers herself a political independent but leans toward the Democratic Party). Cell entries in the second column indicate the probability that $Y = y$ for respondents exposed to the equality prime with all other independent variables held at their medians. Confidence intervals for the change in the predicted probabilities were calculated using the Delta method.

Table 3.7: OLS Models for Value Rankings

	Equality	Economic Security
Prime	-0.23*	0.12
	(.09)	(.11)
Age	-0.07*	-0.03
	(.03)	(.03)
Nonwhite	0.17	0.01
	(.11)	(.12)
Female	-0.13	-0.01
	(.09)	(.10)
Educ.	0.10*	-0.11*
	(.05)	(.06)
Party	0.11**	0.11**
	(.03)	(.03)
Ideol.	0.22**	0.02
	(.04)	(.05)
Income	0.00	-0.02
	(.01)	(.01)
R sq.	0.21	0.06
n	626	626

* $p < .05$, ** $p < .01$

Table 3.8: Rank-Ordered Logit Model (Equality as Reference Category)

Freedom				*Law & Order*	
Eq. Prime	0.15	(.18)	Eq. Prime	0.17	(.16)
Econ. Sec. Prime	-0.10	(.18)	Econ. Sec. Prime	-0.03	(.17)
Age	0.22**	(.04)	Age	0.20**	(.04)
Nonwhite	-0.06	(.17)	Nonwhite	0.00	(.17)
Female	-0.01	(.14)	Female	0.24	(.14)
Educ.	-0.02	(.08)	Educ.	0.02	(.07)
Ideol.	-0.03	(.06)	Ideol.	-0.09	(.06)
Party	-0.06	(.05)	Party	-0.15**	(.04)
Econ. Security			*Moral Trad.*		
Eq. Prime	0.44**	(.17)	Eq. Prime	0.44*	(.18)
Econ. Sec. Prime	0.27	(.17)	Econ. Sec. Prime	0.08	(.18)
Age	0.11**	(.04)	Age	0.16**	(.04)
Nonwhite	-0.00	(.17)	Nonwhite	0.09	(.18)
Female	0.16	(.14)	Female	0.32*	(.15)
Educ.	-0.11	(.07)	Educ.	-0.00	(.08)
Ideol.	-0.04	(.06)	Ideol.	-0.30**	(.06)
Party	-0.01	(.05)	Party	-0.17**	(.05)
LR		779.71**			
n		626			

Equality is the reference category.
Cell entries are logit coefficients.
$^{**}p < .01, ^{*}p < .05$

Table 3.9: Rank-Ordered Logit Model (Economic Security as Reference Category)

Freedom			*Law & Order*		
Eq. Prime	-0.29	(.18)	Eq. Prime	-0.27	(.17)
Econ. Sec. Prime	-0.38*	(.18)	Econ. Sec. Prime	-0.30	(.17)
Age	0.11**	(.04)	Age	0.10**	(.04)
Nonwhite	-0.06	(.17)	Nonwhite	0.00	(.16)
Female	-0.17	(.15)	Female	0.08	(.14)
Educ.	0.09	(.08)	Educ.	0.13	(.07)
Ideol.	0.01	(.06)	Ideol.	0.05	(.06)
Party	-0.06	(.05)	Party	-0.15**	(.05)
Equality			*Moral Trad.*		
Eq. Prime	-0.44**	(.17)	Eq. Prime	-0.00	(.18)
Econ. Sec. Prime	-0.27	(.17)	Econ. Sec. Prime	-0.20	(.19)
Age	-0.11**	(.04)	Age	0.06	(.04)
Nonwhite	0.00	(.17)	Nonwhite	0.10	(.18)
Female	-0.16	(.14)	Female	0.16	(.15)
Educ.	0.11	(.07)	Educ.	0.10	(.08)
Ideol.	0.04	(.06)	Ideol.	-0.26**	(.07)
Party	0.01	(.05)	Party	-0.16**	(.05)
LR		779.71**			
n		626			

Economic Security is the reference category.
Cell entries are logit coefficients.
$^{**}p < .01, ^{*}p < .05$

Chapter 4

The Temporal Stability of Values

The central question in this chapter, like the previous chapter, concerns whether values can structure attitudes. However, in the previous chapter, the focus was on the individual. Here, in this chapter, I focus on value system ordering at the aggregate level. Where a look at value system stability at the individual level provides insight on the degree to which people can distinguish between values and whether or not value choice is driven by importance or error, a look at value system stability in the aggregate provides insight on societal priorities. The same basic theory applies: values should not change "at random" over time. If they do, values may not be the "fundamental building blocks" of behavior and attitudes that traditional psychological theory purports them to be.

In this chapter, I use a matching design with values data from three different time points (1994, 2003, and 2005) to examine the extent to which time, and events that occur over time, affect value system stability in the aggregate. Briefly, I find that there is significant value change (an increase in the importance of social order) between 1994 and 2003, likely due to the events of 9/11. I also find significant value change (a decrease in the importance of social order) between 2003 and 2005. I conclude that this change is *not* due to changes in the utility people attach to social order. Rather, it is due to changes in the accessibility of social order.

4.1 Research on the Temporal Stability of Value Systems

While research on the situational stability of value systems is abundant, research on temporal stability is quite sparse. In fact, only a small number of studies take individual level stability into account. Among these studies is Rokeach's seminal work on the nature of values (1973). In short, Rokeach found correlations among rank-ordered values to be quite high (between .7 and .8, in most cases), but wide variation between correlations of individual items. For example, the test-retest correlations for "responsible" and "a sense of accomplishment" were .45 and .51, respectively, while the test-retest correlations for "equality" and "salvation" were much higher, .71 and .88 (Feldman 2003; Rokeach 1973). By and large, this evidence suggests that value systems are stable. Individual values, though they vary in degree, are largely stable as well.

Among the few studies to assess the temporal stability of values with a nationally representative sample is McCann's (1997) study that uses panel data from 1990–1992 and multiple-item scales to measure support for certain values. In short, McCann found a relatively low correlation over panels for support for equality of opportunity ($r = .41$), but a relatively high correlation for moral traditionalism ($r = .81$)[1] In addition to the test–retest correlations, McCann examined the extent to which support for various presidential candidates affected value preferences. He found that those respondents that supported Bill Clinton tended to increase their support for equality of opportunity and decrease their support for moral traditionalism. Respondents that supported George Bush shifted their value preferences in the opposite direction. Conclusions to be drawn from this study are mixed, and while support for a presidential candidate may suggest values to be endogenous, results regarding temporal stability are, at best, less than convincing.

[1]It should be noted that Sheng (1995) takes measurement error into account and adds two additional items to McCann's "support for equality of opportunity" scale. His results show increased stability. Support for equal opportunity and moral traditionalism correlate at .81 and 1.00, respectively.

Perhaps the most recent study on the temporal stability of values is Goren's 2005 piece in which he assesses the dynamic relationship between partisan identification and four core values in American politics: equal opportunity, limited government, traditional family values, and moral tolerance. Using ANES panel data from 1992, 1994, and 1996, Goren found the effects of partisanship on values to be significant, but no effects going from values to party. The conclusions reached in this study suggest that critical assumptions made by traditional values theory –namely, that values are *relatively* stable– are untrue.

Though influential, the above studies are not without flaws. The most common critique to the Rokeach Values Survey is its length. Error is expected in ranking and re-ranking 18 items, regardless of their significance to everyday life. This error, likely due to respondent fatigue as much as it is due to the instability of values, influences substantive conclusions regarding value stability. Value measurement, in both McCann (1997) and Goren (2005), is indirect. Multiple-item measures that approximate the degree to which respondents value equality, for example, is quite different than asking respondents to choose between two important values (e.g. freedom and equality). In addition, the theoretical argument addressing why partisan identity and support for a particular presidential candidate, but not issue attitudes, affects value orientation is unclear. Absent stronger theory or data that corroborate these findings, it is not clear the degree to which these results are generalizable.

Inglehart's work, though it concerns values and value change just as the above-mentioned studies do, broadens the scope of inquiry and makes societies the focus of the research (e.g. Abramson and Inglehart 1995; Inglehart 1971, 1977; Inglehart and Abramson 1994). In short, Inglehart argues that values are a result of economic advancement and security, and that a look at value priorities, in the aggregate, sheds light on what societies view as important and what is disposable. Advanced societies, those that Inglehart describes as post-materialistic, hold such values as self-expression and en-

vironmentalism, for example, in high priority while industrial societies hold economic and domestic security in high priority. By and large, value change occurs slowly as one generation replaces the other. And, values are an important part in the description and explanation of any society.

In this chapter, I examine value preferences and change in the aggregate, and I attempt to answer questions on the complex relationships between values, attitudes, and psychological composition. I work to not only determine whether or not values are stable over time, but also to determine the mechanisms that might cause value instability. I do so in hope of bridging the gap between traditional psychological theory on values and new research on value system dynamics.

4.2 Research Design, Data, & Methods

As stated above, true panel data on value hierarchies is scarce, thus, I focus on value system stability in the aggregate (like Inglehart 1977, for example). In place of panel data, I employ a matching design in which I take data from three different time points (1994, 2003, and 2005) and measure the effects of time (and, of course, the events that happen over time) on value choices. I also use a rank-ordered logit model to examine value "trade-offs" over time.[2]

The 1994 data is from the Multi-Investigator Study (MIS) (Sniderman, Brady and Tetlock 1994). The MIS was a national random-digit telephone survey in which the survey population was defined as English-speaking adults 18 years of age or older, residing in households with telephones, within the 48 contiguous states ($n = 1464$). The survey included both the standard battery of questions often found on US public opinion surveys (e.g. party identification, ideological stances, issues and policies, demographics, etc.) and experimental manipulations unique to this data collection effort. And, among the unique

[2]Please see previous chapter for an explanation of rank-ordered logit.

items is a battery of questions that asked respondents to make paired comparison choices among four values: liberty, equality, economic security, and social order (Jacoby 2006).[3] In creating a rank-ordering suitable for analysis, I combined responses from the six choice questions to form a four-item set of ordered preferences. Items in the set are coded such that higher numbers indicate the relevant value is of high importance while lower numbers indicate low importance.

The 2003 data is from a TESS[4] study that builds an experimental design into a broad survey regarding American political attitudes ($n = 9313$). Data collection was internet-based, and the data collection agency (Knowledge Networks) recruited respondents via telephone (both numbers that were linked to mailing addresses and those that were not). In collecting the data, oversampling took place in the Los Angeles and Chicago areas, and there is an oversample of minority households as well. The "values" item simply listed six values (liberty, equality, economic security, social order, morality, and patriotism) and asked respondents to choose the most important. The chosen item was then deleted from the list, and the respondent was asked to choose the most important item remaining. This process was repeated five times until each respondent specified a six-item rank-ordered preference list. I make use of four values (liberty, equality, economic security, and social order –the same four values included in the MIS) and construct a four-item preference ordering from the original six-item list.

The 2005 data is also from a TESS[5] study that combines and experimental design with traditional survey questions often asked in public opinion surveys concerning political attitudes ($n = 649$). Again, data-collection was internet-based, and recruitment was done using telephone numbers (some that were attached to mailing addresses, and some

[3]The 1994 MIS data and codebook can be found online at `http://sda.berkeley.edu/archive.htm`.

[4]Data collected by Time-sharing Experiments for the Social Sciences, Arthur Lupia and Diana Mutz, Principal Investigators.

[5]Data collected by Time-sharing Experiments for the Social Sciences, Arthur Lupia and Diana Mutz, Principal Investigators.

that were not). Here, value preferences were constructed using the method of triads (five values were used: liberty, equality, economic security, social order, and morality). Using the original five-item preference list, I constructed a four-item preference list (using liberty, equality, economic security, and social order).

All three datasets, together, provide a unique opportunity to study the dynamics of aggregate value preferences over time. And, though each survey used different measures to capture individual level value system ordering, the relevant values were defined in such a way that results are comparable across time points. As previously stated, the most important value in an individual's belief system is coded as 4, the second most important is coded as 3, and so on. If values are tied for the first (and second) positions in the hierarchy, each value is coded as 3.5.

The "treatment" variable in this analysis is time, and the quantity of interest is the effect of time (and events that occur over time) on the relative order of each of the four values in the set. Control variables include party, ideology, age, sex, race, income, education, and age.

4.2.1 A Note on Matching

Throughout the course of any given analysis of quantitative data, a researcher will specify a model and obtain results, then respecify the model and obtain another set of results, and repeat the process several times. This so, it is rare that the results of *all* of these various model specifications are reported in the final draft of the paper. Thus, it is possible to say that the reported results are model dependent (Ho et al. 2007). Matching methods aim to reduce the degree to which causal estimates are model dependent by controlling for some or all of the confounding influence of control variables in a manner that is free of parametric assumptions (Blackwell et al. 2009; Ho et al. 2007). In short, the goal of any matching algorithm is to "prune observations from the data so that the

remaining data have better *balance* between the treated and control groups..." (Blackwell et al. 2009, 526). Data that is perfectly balanced (e.g. when the empirical distributions of the control variables are equivalent across the treatment and control groups) requires only a difference in means test to estimate causal effects (Blackwell et al. 2009). Further parametric adjustments on perfectly balanced data are unnecessary in estimating the effects of the treatment on the dependent variable (Ho et al. 2007, 200).

Most matching algorithms proceed by finding, for each treated unit, at least one control unit that has similar values on all relevant covariates. Unmatched units (the units that cause imbalance), are pruned from the dataset and are not used in analysis. There are two broad classes of matching methods: exact matching and inexact matching. Exact matching pairs observation that have the same values on all relevant covariates that differ by treatment group. And, while an exact matching solution is desirable (see below), it is often the case that these solutions produce too few matched pairs (Blackwell et al. 2009). Inexact matching methods define often "similarity" Mahalanobis distance (a dissimilarity measure based on correlation structure between sets of values) (Cochran and Rubin 1973; Rubin 1979, 1980), the propensity score (the probability that a unit is in the treatment group, conditional on the covariates) (Rosenbaum and Rubin 1983) or some combination of the two (Rosenbaum and Rubin 1985). The number of control units that are to be matched is often chosen ex ante, and balance is checked ex post. If there are too few matches, or if the balance is not at an acceptable level, the researcher must reduce the number of control units that are to be matched and proceed with the process again (Iacus, King and Porro 2011). The most common problem with this class of methods is that a researcher may often have to repeat this process several times before finding both a large enough number of matches and an acceptable level of balance (Blackwell et al. 2009).

Preprocessed datasets that achieve perfect balance (i.e. the treatment is orthogonal

to all other covariates) do not require the researcher to further control for confounding covariates. Here, a simple bivariate regression of the dependent variable on the treatment provides a causal estimate. And, though this is a very desirable property, matching on continuous variables (or variables that have several ordered categories), often produces a small number of matched pairs (Blackwell et al. 2009). A relatively new "flavor" of matching, *Coarsened Exact Matching*, (CEM) provides a solution to this problem by allowing the researcher to create meaningful categories for continuous or ordered variables with several categories (e.g. break a 7-point education scale into 4 categories or break a 19-point income scale into fewer meaningful categories), match on the coarsened data, then analyze the uncoarsened data.

CEM proceeds in three steps: (1) coarsen the original variables in $\mathbf{X}$ as much as the research is willing to, creating $C(\mathbf{X})$; (2) apply exact matching to $C(\mathbf{X})$, which involves sorting the observations into strata ($s \in \mathcal{S}$), each with unique values of $C(\mathbf{X})$; (3) discard strata with only control units, discard strata with one treatment units (or use with extrapolated values of the control units), and estimate the quantity of interest (Iacus, King and Porro 2011, 16).

4.3 Hypotheses

I derive hypotheses to be tested in this chapter using the model of value rankings presented in the previous chapter. Recall, the process by which individual i calculates the utility (or importance) of value a is determined by equation 4.1.

$$. \; u_{ia} = I_{ia} + e_{ia} \tag{4.1}$$

The systematic component, I_{ia} is broken down into a true importance (t_{ia}) and contextual salience (c_{ia}). In the previous chapter, contextual salience varied by individual. In this chapter, because it is captured by the year in which the survey was taken, it will be

subscripted by a year and value (e.g. c_{2003a} or c_{2005a}). So, equation 4.1 becomes 4.2.

$$u_{ia} = \underbrace{t_{ia} + c_{year,a}}_{I_{ia}} + e_{ia} \tag{4.2}$$

Also recall that the relative ordering of an individual's value system is determined, in essence, by a series of pairwise choices. Using values a and b for illustrative purposes, the process by which one chooses value a over value b, or vice versa, is shown in equation set 4.3.

$$\begin{aligned} \texttt{Choice}(a) \quad & \texttt{if} \quad I_{ia} + e_{ia} > I_{ib} + e_{ib} \\ & \texttt{and} \\ \texttt{Choice}(b) \quad & \texttt{if} \quad I_{ia} + e_{ia} < I_{ib} + e_{ib} \quad . \end{aligned} \tag{4.3}$$

Rearranging the terms, as seen in equation 4.4, it becomes apparent that value choices should be consistent if there is a relatively large difference between, for example, I_{ia} and I_{ib}, and if e_{ia} and e_{ib} are relatively small, then, under normal circumstances, the true utility of the values should drive choice and choices should be stable.

$$\begin{aligned} \texttt{Choice}(a) \quad & \texttt{if} \quad I_{ia} - I_{ib} > e_{ib} - e_{ia} \\ & \texttt{and} \\ \texttt{Choice}(b) \quad & \texttt{if} \quad I_{ia} - I_{ib} < e_{ib} - e_{ia} \quad . \end{aligned} \tag{4.4}$$

If, however, circumstances were abnormal –if a major event occurred that either changed the true utilities of values or made one value particularly accessible, data may show values to be unstable over time. Formally, breaking down I_{ia} into t_{ia} and c_{ia}, it becomes apparent that, if I_{ia} and I_{ib} are stable, and if $E(\epsilon_{ia}) = E(\epsilon_{ib}) = 0$, that contextual

salience can drive choice (see equation 4.5).

$$\begin{aligned} &\texttt{Choice}(a) \quad \texttt{if} \quad E(t_{ia} - t_{ib}) > E(c_{year,b} - c_{year,a}) \\ &\qquad\qquad \texttt{and} \\ &\texttt{Choice}(b) \quad \texttt{if} \quad E(t_{ia} - t_{ib}) < E(c_{year,b} - c_{year,a}) \quad . \end{aligned} \tag{4.5}$$

If the event caused a major change in the true importance of individual values (in the I terms), then the change in the relative ordering of value structures should be permanent (or, at least very long lasting). If, on the other hand, changes in accessibility caused changes in the relative ordering of values, then the change should only be temporary.

The values data from multiple time points and a major event (9/11) occurring just before data collection in 2003 makes for a easily definable natural experiment. 9/11, the most deadly attack ever on American soil, reminded many people about the importance of security and social order. Empirically, this should result in a major shift up for social order in individuals' value systems between 1994 and 2003. Between 2003 and 2005, social order may stay high on value hierarchies. If so, this suggests a true change in value systems. If, on the other hand, social order falls back to where it was in 1994, the change may be due to increased, then decreased accessibility.

4.4 Results

A brief look at some descriptive statistics shows that the mean rankings of each of the four values change, at least slightly, by year.[6] Figure 4.1 and table 4.1 display graphically, and in tabular form, how the mean rankings for each value change by year. First, and perhaps most strikingly, it is quite obvious that these values, for the most part, are not stable (at least in the aggregate). Liberty is *relatively* stable, increasing only slightly in

[6]Note that rankings are coded such that 4 indicates the most important value in a hierarchy, and 1 indicates the least important value in a hierarchy.

importance every year, but the other three values show little stability. As expected, social order jumps in importance between 1994 and 2003, but it declines again between 2003 and 2005. And, because economic security and equality show the opposite pattern of social order, it appears that these two values suffer in terms of importance at the expense of social order. These descriptive statistics, just the bivariate relationships, seem to suggest that the events of 9/11 only affect the degree to which social order was accessible in peoples' minds. It does not seem to be the case that 9/11 caused long term value change.

4.4.1 Matched and Unmatched Data

The linear regressions on the matched and unmatched datasets (results shown in shown in tables 4.2 and 4.3) show much the same pattern. The coefficients on year in table 4.2 suggest that all values move a bit over years, but some more than others. Liberty, for example, moves up in value hierarchies, on average, between 1994 and 2003, but only by about 20 percent of a rank. It remains the second most important value in the aggregate (behind economic security in 1994 and social order in 2003). The coefficients on year on the other three values seem quite a bit more impactful. In fact, it appears to be the case that many "traded" social order, in 2003, for economic security or equality. Economic security and equality move down approximately half a rank, on average, while social order moves up nearly 75 percent of a rank. Controlling for various covariates, it is clear that events between 1994 and 2003 (likely 9/11) caused the relative ordering of values in the mass public to shift.

Value systems seem a bit more stable from 2003 to 2005 than that from 1994 to 2003 (results are reported in table 4.3). The passage of time moved liberty very little, and according to the matched data, it did not move at all. Equality is also relatively stable here, moving, on average, 20 percent of a rank up the hierarchy. Economic security and social order, during this passage of time, seem to trade positions. Economic security, on

average, moves 60 percent of a rank up the hierarchy, and social order moves almost an entire rank (80 percent) down the hierarchy.

Judging by the results presented in tables 4.2 and 4.3, it is clear that values are affected by events over time. To shed light on whether the change is due to changes in the actual utilities of values or whether accessibility is driving the change, it is necessary to assess the extent to which values "snap back" to 1994 relative ordering after 9/11. As previously stated, a change in the utilities of values should result in permanent change (e.g. no decay). A change in accessibility should decay over time. Table 4.4 displays the results from OLS regressions run in which 1994 is the "control" condition and 2005 is the "treatment" condition. A significant coefficient on the "treatment" variable might suggest a change in utility, and a non-significant coefficient might signify a change in accessibility only. Looking first at the results from the unmatched data, the coefficients on the 2005 variable show only small change between intercepts in 1994 and 2005. The biggest mover, according to these data, is liberty, which, over all three time points, is the most stable of the four values. The second biggest mover, social order, moved a 25 percent down a rank during the eleven-year time period. Over the first nine-year time period, however, social order moved up 75 percent of a rank, and over the two-year period from 2003 to 2005, social order moved down about 80 percent of a rank. The two remaining values, equality and economic security, have significant differences between their 1994 mean and 2005 mean, but, in each case, the difference is less than 20 percent of a rank.

Turning to the results from the matched data, it appears as though the change in values' mean rank due to time is minimal. In three of four cases, the coefficient on year is not significant. The single coefficient on 2005 that is significant is in the model of social order. Social order is easily the most volatile value of the four analyzed, and it seems as though the effect of 9/11 on value system ordering, and especially on the mean ranking of social order, lasts beyond 2005.

4.4.2 Rank-Ordered Logit

The results of the rank-ordered logit model, shown in table 4.5, display the log odds of choosing a particular value over the reference value. The variables of interest, here, indicate the year of the survey. In 1994, controlling for all other variables, respondents, on average, chose liberty and economic security over social order, and social order over equality. The coefficients on the 2003 variable tell a very different story. All coefficients on the 2003 variable are negative, indicating that respondents are less likely to choose the given value over the reference value. The coefficients on 2003, on liberty and economic security, though significant, are relatively small in magnitude. The coefficient on 2003 on equality, however, is quite large. It seems as though many respondents "traded" social order for equality. The coefficients on the 2005 variable tell a different story again. Here, equality stays in place, but respondents tend to choose liberty and economic security (especially economic security) over social order. In fact, it seems as though many respondents "trade" social order for economic security.

4.5 Conclusion & Discussion

The focus of this chapter was estimating the effect of the passage of time, and events that occur over time, on value system ordering. Psychological theory has assumed, for quite some time, that values are *relatively* stable over time, but this assumption has never been thoroughly tested. The theory of value system stability that was presented in this chapter makes an important distinction between a change in relative ordering based on changes in utility, and a change in relative ordering based on accessibility. In short, historic events, like the onset of a major war, an economic depression, or an attack like 9/11, are expected to alter the importance people attach to certain values. So, the question is twofold: First, does the passage of time, and events that occur over time, affect value system ordering? And second, if changes do occur, can they be attributed

to changes in the utility people attach to values, or is the change due to increases and decreases in accessibility?

The "year" coefficients in tables 4.2 and 4.3 (i.e. 2003 in table 4.2 and 2005 in table 4.3) show the differences in the intercepts between 1994 and 2003, and 2003 and 2005, respectively. The most notable results, over both tables, is on social order. Social order, after 9/11, became far more important in value hierarchies than it was previously, and it did so at the expense of equality and economic security. However, after only two years, the importance of social order dropped, and economic security gained. These results suggest, possibly, that people did not necessarily put increased importance on social order after 9/11. Rather, it became very accessible and stayed on peoples' minds. But, while social order decreased in importance shortly after 9/11 (e.g. between 2003 and 2005), only economic security –not equality– regained its importance.

The analysis of matched data tells basically the same story as that of the unmatched data, with one important exception. In table 4.4, the coefficient on the year variable (i.e. the 2005 variable) is not significant in three of four values. The only value that has a different intercept in 2005 than it does in 1994, according to the matched data, is social order, which actually decreases in importance. Otherwise, all values have similar mean rankings, suggesting that many of the changes over time are due to changes in accessibility, not in the actual utility attached to values.

The results of the rank-ordered logit show not what is happening to each value individually. Rather, it shows "between-value" dynamics. The coefficients on the 1994 variable, in table 4.5, suggest that, holding everything else constant, respondents were more likely to choose economic security over social order. The other two coefficients on 1994 are not statistically significant. The major change between 1994 and 2003, captured by the coefficients on the 2003 variable, is the significant increase in the probability people choose social order over all other values. It seems apparent that 9/11 had a major effect on

the relative ordering of most peoples' value systems. The change that occurred between 2003 and 2005 concerned three values in particular: social order, liberty, and economic security. These results suggest that the passage of time made social order less accessible in peoples' minds, and that liberty and economic security nearly reclaimed their pre-9/11 positions in the relative ordering of values.

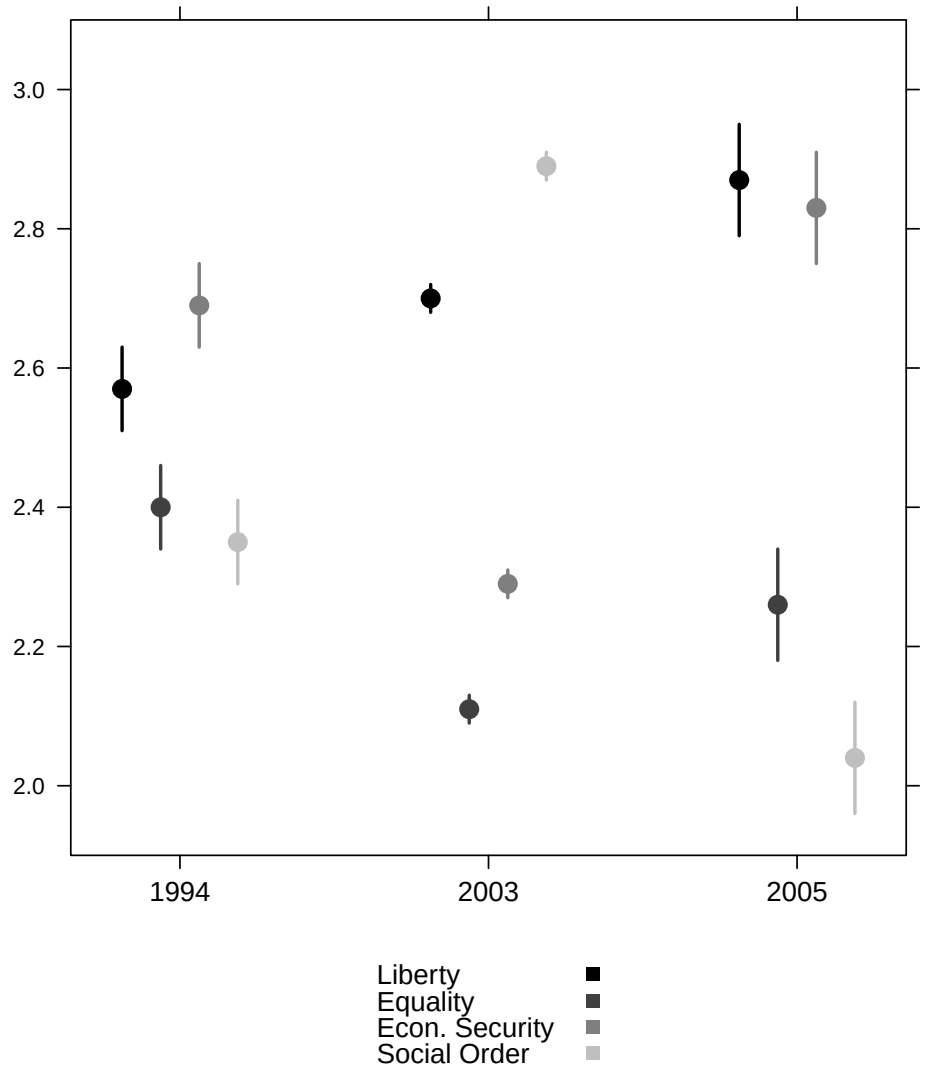
The results presented here, on one hand, corroborate with what some previous research has found: values, over time, are not completely stable (Goren 2005; Goren, Federico and Kittilson 2009; McCann 1997). On the other, this study pushes these previous results a big farther in suggesting events have only a temporary effect on value system ordering. And, this allows for two conclusions, one fairly concrete, and one less so. First, value system ordering is affected by events –values are not completely stable over time, especially in the wake of major events. Second, these changes in value system ordering are seemingly due to changes in specific value accessibility rather than changes in the utility that individuals attach to specific values. Further, it seems as though this contextual salience effect decays over time.

With these results in mind, it is useful to turn attention back to whether or not values can provide a general evaluative framework from which people can evaluate objects in the world. The general instability of values, as shown in this and the previous chapter, do not conform to traditional psychological theory. This so, it is inaccurate to say that values are, for example, "truisms" (Maio and Olson 1998). That is, not all values are held with the same high esteem. Further, values, when they do "move," do so predictably. Lastly, some values (e.g. freedom/liberty) are more stable than others (e.g. equality, law & order/social order).

What does this mean for values as they relate to behavior and choice? Two things are apparent. First, some values, because they are unstable, cannot organize attitudes and guide behavior. It may not even be the case that all values relevant to a certain decision

guide behavior. Second, it may not be the case that all relevant values are needed to guide behavior. It may simply be the case that individuals rely solely on a small number of values to guide choice. The results here narrow the focus of values research. It may not be worth examining the stability and impact of all values in behavior. To focus on a smaller number of values that individuals hold in high regard may be enough. Further research that asks which values are relevant to certain individuals, or certain groups, is warranted.

Figure 4.1: Mean Rankings by Year



*Bars represent two standard errors.

Table 4.1: Mean Rankings by Year

	1994	2003	2005
Liberty	2.57	2.70	2.87
	(1.12)	(1.00)	(1.06)
Equality	2.40	2.11	2.26
	(0.96)	(0.99)	(1.00)
Economic Sec.	2.69	2.29	2.83
	(1.02)	(0.87)	(1.02)
Social Order	2.35	2.89	2.04
	(1.06)	(0.94)	(1.07)
n	1464	9313	649

Note: All differences statistically significant at .05 level.
Standard deviations in parentheses.

Table 4.2: OLS Results on Matched and Unmatched Data, 1994 & 2003

	Liberty		Equality		Economic Security		Social Order	
	Unmatched	Matched	Unmatched	Matched	Unmatched	Matched	Unmatched	Matched
Age	0.01	0.06**	-0.05***	-0.02	-0.03***	-0.06***	0.07***	0.02
	(.01)	(.03)	(.01)	(.02)	(.01)	(.02)	(.01)	(.02)
Nonwhite	-0.44***	-0.79***	0.30***	-0.04	0.18***	0.63***	-0.04	0.20
	(.03)	(.25)	(.03)	(.21)	(.03)	(.22)	(.03)	(.22)
Female	-0.15***	-0.19***	0.03	0.04	0.09***	0.11*	0.03	0.05
	(.03)	(.07)	(.02)	(.06)	(.02)	(.06)	(.02)	(.07)
Educ.	0.09***	0.13**	0.00	-0.05	-0.13***	-0.08*	0.03**	0.00
	(.01)	(.06)	(.01)	(.05)	(.01)	(.05)	(.01)	(.05)
Party	-0.06***	-0.08**	0.08***	0.06**	0.02***	0.01	-0.05***	0.01
	(.01)	(.03)	(.01)	(.03)	(.01)	(.03)	(.01)	(.03)
Ideol.	-0.00	0.06	0.11***	0.11***	-0.03***	-0.04	-0.08***	-0.13***
	(.01)	(.04)	(.01)	(.04)	(.01)	(.04)	(.01)	(.04)
Income	0.04***	-0.03	-0.06***	-0.07**	-0.01	0.01	0.03***	0.09***
	(.01)	(.03)	(.01)	(.03)	(.01)	(.03)	(.01)	(.03)
2003	0.18***	0.23***	-0.38***	-0.52***	-0.40***	-0.43***	0.60***	0.72***
	(.04)	(.07)	(.04)	(.06)	(.03)	(.06)	(.04)	(.06)
Constant	2.63***	2.41***	1.90***	2.24***	3.08***	3.02***	2.39***	2.33***
	(.08)	(.21)	(.07)	(.18)	(.07)	(.19)	(.07)	(.19)
R sq.	0.07	–	0.14	–	0.05	–	0.09	–
n	7100	–	7100	–	7100	–	7100	–
Matched Units	–	1480	–	1480	–	1480	–	1480

Multivariate Imbalance Measure ($\mathcal{L}_1$) on unmatched/matched data: 0.904/0.00.
Percentage of local common support on unmatched/matched data: 7.6%/100%.
CEM matched 558 of 1464 "1994" units and 922 of 9313 "2003" units.
Standard errors in parentheses.

Table 4.3: OLS Results on Matched and Unmatched Data, 2003 & 2005

	Liberty		Equality		Economic Security		Social Order	
	Unmatched	Matched	Unmatched	Matched	Unmatched	Matched	Unmatched	Matched
Age	-0.01	-0.02	-0.06***	-0.02	-0.02***	-0.03**	0.09***	0.07***
	(.01)	(.02)	(.01)	(.02)	(.01)	(.01)	(.01)	(.02)
Nonwhite	-0.49***	-0.44***	0.40***	0.34***	0.19***	0.12*	-0.09***	-0.02
	(.03)	(.07)	(.03)	(.07)	(.03)	(.06)	(.03)	(.07)
Female	-0.15***	-0.14***	0.05**	0.07	0.07***	0.10**	0.02	-0.03
	(.03)	(.05)	(.02)	(.05)	(.02)	(.04)	(.02)	(.05)
Educ.	0.10***	0.10***	0.00	0.04*	-0.13***	-0.22***	0.03**	0.07***
	(.01)	(.03)	(.01)	(.03)	(.01)	(.02)	(.01)	(.03)
Party	–	–	–	–	–	–	–	–
Ideol.	-0.04***	-0.06***	0.17***	0.16***	-0.01*	-0.01	-0.12***	-0.10***
	(.01)	(.02)	(.01)	(.02)	(.01)	(.02)	(.01)	(.02)
Income	0.05***	0.01	-0.06***	-0.04**	-0.01*	0.01	0.03***	0.02
	(.01)	(.02)	(.01)	(.02)	(.01)	(.02)	(.01)	(.02)
2005	0.11**	-0.04	0.11**	0.20***	0.60***	0.64***	-0.82***	-0.79***
	(.05)	(.07)	(.05)	(.06)	(.05)	(.06)	(.05)	(.06)
Constant	2.74***	3.02***	1.62**	1.35***	2.71***	2.87***	2.93***	2.76***
	(.07)	(.14)	(.07)	(.14)	(.06)	(.13)	(.07)	(.14)
R sq.	0.06	–	0.11	–	0.05	–	0.10	–
n	6733	–	6733	–	6733	–	6733	–
Matched Units	–	3355	–	3355	–	3355	–	3355

Multivariate Imbalance Measure ($\mathcal{L}_1$) on unmatched/matched data: 0.716/0.00.
Percentage of local common support on unmatched/matched data: 15.6%/100%.
CEM matched 2824 of 9313 “2003 units and 531 of 649 “2005 units.
Standard errors in parentheses.

Table 4.4: OLS Results on Matched and Unmatched Data, 1994 & 2005

	Liberty		Equality		Economic Security		Social Order	
	Unmatched	Matched	Unmatched	Matched	Unmatched	Matched	Unmatched	Matched
Age	0.07***	0.13***	-0.01	0.00	-0.01	-0.09*	-0.05***	-0.04
	(.02)	(.05)	(.02)	(.05)	(.02)	(.05)	(.02)	(.05)
Nonwhite	-0.45***	-0.28	0.32***	0.59***	0.24***	-0.30	-0.11	-0.01
	(.08)	(.22)	(.07)	(.22)	(.07)	(.23)	(.08)	(.24)
Female	-0.21***	-0.29**	0.11**	0.03	0.18***	0.17	-0.08	0.09
	(.06)	(.14)	(.05)	(.13)	(.06)	(.14)	(.06)	(.14)
Educ.	0.03	0.18*	0.02	-0.03	-0.13***	-0.26***	0.07**	0.10
	(.03)	(.10)	(.03)	(.09)	(.03)	(.10)	(.03)	(.10)
Party	–	–	–	–	–	–	–	–
Ideol.	-0.04**	0.07*	0.04***	-0.04	-0.00	-0.11***	-0.00	0.07
	(.02)	(.04)	(.01)	(.04)	(.01)	(.04)	(.02)	(.05)
Income	0.04**	0.00	-0.06***	-0.04	-0.01	0.06	0.03	-0.03
	(.02)	(.06)	(.02)	(.06)	(.02)	(.06)	(.02)	(.07)
2005	0.25***	0.21	-0.18***	-0.02	0.17***	0.16	-0.24***	-0.36**
	(.06)	(.14)	(.06)	(.13)	(.06)	(.14)	(.06)	(.15)
Constant	2.48***	1.58***	2.22***	2.50***	2.97***	3.91***	2.33***	2.02***
	(.15)	(.48)	(.14)	(.46)	(.14)	(.49)	(.15)	(.51)
R sq.	0.06	–	0.04	–	0.04	–	0.04	–
n	1358	–	1358	–	1358	–	1358	–
Matched Units	–	560	–	560	–	560	–	560

Multivariate Imbalance Measure ($\mathcal{L}_1$) on unmatched/matched data: 0.809/0.00.
Percentage of local common support on unmatched/matched data: 12.4%/100%.
CEM matched 354 of 1464 "1994" units and 206 of 649 "2005" units.
Standard errors in parentheses.

Table 4.5: Rank-Ordered Logit Results (Social Order is Reference Category)

Liberty		
Age	-0.08**	(.01)
Nonwhite	-0.40**	(.06)
Female	-0.17**	(.04)
Educ.	0.06*	(.02)
Ideol.	0.08**	(.01)
Income	0.01	(.02)
1994	0.17	(.12)
2003	-0.24*	(.11)
2005	0.80**	(.14)
Equality		
Age	-0.13**	(.01)
Nonwhite	0.51**	(.06)
Female	0.10*	(.04)
Educ.	-0.05*	(.02)
Ideol.	0.30**	(.02)
Income	-0.11**	(.02)
1994	-0.22	(.12)
2003	-1.36**	(.12)
2005	-0.27	(.15)
Economic Security		
Age	-0.11**	(.01)
Nonwhite	0.33**	(.05)
Female	0.12**	(.04)
Educ.	-0.18**	(.02)
Ideol.	0.12**	(.01)
Income	-0.06**	(.02)
1994	0.74**	(.12)
2003	-0.26*	(.11)
2005	1.21**	(.14)
LR χ sq.	4097.66**	
n	7623	

Social order is the reference category.
Cell entries are logit coefficients.
$^{**}p < .01,^{*}\, p < .05$

Chapter 5

Values, Attitudes, and Behavior

Traditional psychological theory suggests that attitudes and behavior are, in large part, the results of individuals projecting their values onto real world situations. Research finds links between values and many important attitudes and behaviors, including ideology (Braithwaite 1982, 1994, 1997; Rokeach 1973; Schwartz 1994), career choice (Hofstede 2001; Rokeach 1973), management policies and style (Egri and Ralston 2004; Kumar and Kant 2007; Lenartowicz and Johnson 2003), product preference (Kahle 1996; Murphey et al. 2006), teaching style (Bossman 1991), and volunteer work (Omoto and Snyder 1995), to name a few. Newer research finds this relationship to be conditional on education and sophistication (Bardi and Schwartz 2003; Maio and Olsen 2000; Zaller 1991, 1992), but the relationship is there nonetheless. In this chapter, I take a closer look at the relationship between values and political attitudes, and I examine the extent to which value system measurement affects empirical results.

5.1 Past Literature

Values are thought to have a pervasive influence on attitudes and behavior, and countless pieces of literature find evidence in favor of this claim (see, for example Rokeach 1973). These studies, variable with respect to methodological sophistication, find relationships between values and attitudes (Ajzen and Fishbein 1977; Maio and Olsen 2000), prejudice (Biernat et al. 1996), volunteerism (Omoto and Snyder 1995), cooperative behavior

(Schwartz 1996), and various political attitudes (Borg 1995; Kinder and Sanders 1996; Miller and Shanks 1996, for example).

Focusing on research in political science, scholarship finds links between values and various policy attitudes (Feldman 1988; Peffley and Hurwitz 1985; Pollock, Lilie and Vittes 1993), prejudice and tolerance (Biernat et al. 1996; Kinder and Sanders 1996), political participation (Borg 1995; Gundelach 1995), and evaluations of candidates and parties (Feldman 1988; Knutsen 1995; Miller and Shanks 1996). Most research, though, focuses on only one or two values at a time. For example, research finds a strong relationship between how individuals value equality and social welfare attitudes (Feldman and Steenbergen 2001; Kluegel and Smith 1986), racial attitudes (Kinder and Sanders 1996; Sears, Henry and Kosterman 2000), and candidate evaluations (Miller and Shanks 1996).

While many studies find direct relationships between values, attitudes, and behaviors, a number of studies find the relationship more complicated. Ajzen and Fishbein (1977), for example, argue that values are directly related to attitudes, and attitudes are only one factor among many that influence behavior. Scholarship argues that values are less directly implicated in behavior for several reasons (Schwartz 1996). Among these reasons are that values may compete with relevant norms in making decisions regarding appropriate behavior (Bardi and Schwartz 2003), situational forces can overwhelm values with respect to action (Maio et al. 2001), and the "right" values may not be activated in the decision making process (Bardi and Schwartz 2003). Additional scholarship argues further, that only certain types of attitudes –"value expressive" attitudes, as opposed to utilitarian attitudes– are related to values (Maio and Olsen 1994). Even under perfect circumstances –when norms are not conflicting with values, when the right values are activated, and when the "right" values are value expressive– values may not correlate strongly with behavior: individuals must be politically sophisticated enough to relate politically relevant values to attitudes Zaller (1991, 1992).

This chapter takes previous literature into account in measuring the influence of values on various attitudes and behaviors. Using a series of ordered logit models, I measure the effects of value system ordering on attitudes regarding the economy, foreign policy, national security, and race relations. Together, these attitudes provide a composite measure of issue-related support for the president. Then, moving the analysis from attitudes to behaviors, I use a nested logit model to test the effects of value system ordering on the choice to turnout during the 2008 presidential election and vote choice.

5.2 How Values Affect Attitudes

Though countless pieces of scholarship document the relationship between values and attitudes, the theory remains underdeveloped (Feldman 2003). Integrating past research into a comprehensive theory, Schwartz (2004) suggests that values affect attitudes (and behavior) through a four-step sequential process (Hitlin and Piliavin 2004): (1) values are activated (Verplanken and Holland 2002); (2) the activated values lead to the privileging of some actions over others (Feather 1992); (3) values then influence interpretation, attention, and perception in situations; (4) and values then influence the planning of action.

In other words, not every situation requires one to call all values into consideration. Any given situation may "activate" only a select number of values, and further, not every individual will make the connection between the situational circumstances and relevant values. Individuals that are more capable of making the connections are more likely to complete the four-step process of linking values to behavior. Upon values being activated and the individual in question making the connection, the individual then makes value choices. Values at the top of the individual's hierarchy influence how the individual sees and analyzes each part of the situation, and based on this perception and analysis, the individual plans behavior. In these plans, values compete with other factors (e.g. norms,

cost-benefit analysis, culture, etc.) in making a final decision on the appropriate behavior and action.

5.3 Data

I again use the 2010 TESS data[1], which combines a survey experiment with more traditional questions often seen in surveys of American public opinion that concern political preferences ($n = 1264$). In addition to the experimental items (discussed in the third chapter), the dataset includes measures of issue-based presidential approval on the economy, race relation, foreign policy, and national security. Data was also collected on turnout and vote choice.

Measures of issue-based presidential approval are binary and coded such that 1 indicates a positive response and 0 indicates a negative response.[2] I combine these four variables into a ratings scale that measures an overall sense of presidential approval. Each item improves the performance of the scale, and its overall reliability is high (Cronbach's $\alpha = 0.85$).

The dependent variables for the second analysis are also binary. The decision to turn out to vote is coded such that 1 indicates the respondent did vote and 0 if the respondent did not vote. Vote choice in the 2008 presidential election is coded such that 1 indicates a vote for Barack Obama and 0 indicates a vote for John McCain.

Independent variables considered in these analyses include age, race, gender, education, income, political party identification, and ideology.

[1]Data collected by Time-sharing Experiments for the Social Sciences, NSF Grant 0818839, Jeremy Freese and Penny Visser, Principal Investigators.

[2]The question of wording for each of these variables is: "Do you approve or disapprove of the way Barack Obama is handling each of these issues?" Issues are then listed for the respondent to indicate approval or disapproval.

5.4 Methods

To analyze the four-item scale of issue-related support for Barack Obama, I use a set of ordered logit models (see equations 3.14 and 3.15 in chapter 3 for details). I do not contain my analyses to one model specification, however. Because recent empirical work suggests the causal path between values, party, and attitudes to be quite complicated, and because I am unable to account for possible two-way causality between partisanship and values, I run two sets of models. In the first, I account for both partisanship and ideology. In the second, I treat both partisanship and ideology as intervening variables –that values cause party identification and ideology, and party identification and ideology then affect support for the president.

The dependent variables on the behavioral models are structured such that the decision for whom to vote is nested within the decision to vote in the first place. While it is possible to treat the choice to abstain from the election as a third choice (in a non-sequential, non-nested manner), the relevant covariates are different across each process. This so, I model both the decision to turn out to vote (the "selection" process) and the decision for whom to vote with a multivariate probit model that accounts for the selection process.

5.4.1 A Note on Multivariate Probit with Selection

I argue that the choice to vote is governed by the process described in equation 5.1

$$z_i^* = \mathbf{w}'\gamma_{\mathbf{i}} + u_i \tag{5.1}$$

where one votes if $z_i^* > 0$ and does not vote if otherwise. Vote choice is governed by the process described in equation 5.2

$$y_i^* = \mathbf{x_i'}\beta + \epsilon_i \tag{5.2}$$

where one votes for a particular candidate if $y_i^* > 0$ given $z_i^* > 0$ and the other candidate if $y_i^* \leq 0$ given $z_i^* > 0$. If, in the above models, the correlation between u_i and ϵ_i is greater than zero, then the assumption that $E[\epsilon|X] = 0$ is is violated, and estimates in equation 5.2 become inconsistent and biased (Greene 2003). In all, ignoring equation 5.1 amounts to leaving out a "shift" in equation 5.2, which, in essence, is omitted variable bias. Taking the "shift" into account, the outcome equation becomes

$$y_i^* = \mathbf{x_i'}\beta + \beta_\lambda \lambda_i + v_i \tag{5.3}$$

where β_λ is $\rho\sigma_\epsilon$. The multivariate probit model, which is used in this chapter, produces unbiased, consistent estimates, and it can be used to determine whether the two processes are, in fact, independent.

5.4.2 Measurement

I again make use of the split sample, half the sample having value system ordering measured via importance ratings and half with rankings. Keeping in mind the results presented in chapter 3 –the distributions of ratings being very different than the distribution of rankings– for each different model specification, I obtain estimates with both the ratings and rankings subgroups. I then compare the fits of the models using likelihood ratio tests for nested models and the Schwarz Criterion (also called the Bayesian Information Criterion, or BIC). The likelihood ratio test simply compares the fits of the models using each models log-likelihood. The BIC is different from the LR test in that

the BIC penalizes for the addition of parameters to the model. Generally, lower BIC scores indicate better model fit (e.g. the model with the *more negative* BIC fits the data better). Difference greater than ten points can be considered very strong evidence for superior model fit, differences between six and ten points can be considered strong evidence, differences between two and six points can be considered moderate evidence, and difference of less than two points indicate weak evidence (Kass and Raftery 1995; Raftery 1995, 1999).

5.5 Formal Hypotheses

Most tests of theories are relatively straightforward. First, theory suggests that values play a larger role in attitudes than in action. If so, the data should show values to have a more pervasive influence in issue-related support for President Obama than in the choices to vote and for whom to vote. Second, theory suggests that only "activated" values should play a role in attitudes and behavior. If this is true, it should not be the case that all five values show significant relationships with the dependent variables. But, the data should also show that the inclusion of values into the models proves a useful addition. Last, theory suggests that people more able to link values, attitudes, and behavior are more likely to use their values in forming attitudes and making choices (Zaller 1991, 1992). This theory can be captured in a series of multiplicative interaction terms between education and value ranking/rating. If correct, values should have a greater effect in more highly educated respondents.

5.6 Results Pertaining to Policy-Based Approval for the President

A look at bivariate relationships between value rankings/ratings and policy attitudes (see tables 5.1 and 5.2) shows that the positioning of equality and moral traditionalism seem to have the strongest relationships with each policy attitude. Generally, higher

rankings/ratings of equality correspond to more approval for President Obama's policies, and higher rankings/ratings of moral traditionalism correspond to more disapproval.

These results lead to several interesting thoughts and questions. First, it is curious that the a particular value's relationship with each policy attitude is almost constant. Questions on different policies do not seem to "activate" different values. Rather, all policy attitudes seem to be driven by the same two values. Second, it is not freedom and equality that drive policy attitudes, as some literature suggests (e.g. Feldman 1988). Nor is it freedom and law & order (Davis 2007). Instead, the two values are equality and moral traditionalism. This is somewhat unexpected. But, before drawing conclusions, it is necessary to go beyond simple bivariate relationships.

Results of the full models, with interactions terms, are displayed in tables 5.3 and 5.4. Of interest in these models are the coefficients on the interaction terms and the results of the likelihood ratio tests that measure the improved fit of the full models against the restricted models. Looking first at the ratings group (table 5.3), none of the coefficients on the interaction terms are significant. The likelihood ratio test on nested models suggests that the addition of the three variables does not improve model fit ($\chi^2 = 1.67$, $p = .64$), and the BIC scores suggest the restricted model fits the data much better than the unrestricted model. The results on the models of the rankings group (table 5.4 tell a bit of a different story. The coefficient on the interaction term composed of equality rank and education is positive and significant, suggesting that the rank of equality affects presidential approval more in respondents with more formal education. The likelihood ratio test on the nested models suggests some mild improvement in the fit of the full model ($\chi^2 = 6.95, p = .07$). The BIC scores, however, indicate that the restricted model fits the data better.

Trimmed models of policy-based presidential approval are presented in table 5.5. The models, though slightly different across measurement groups, tell the same basic story.

First, values matter. Considering first the model of the rating group, all three values have significant explanatory power. Increased importance in freedom and moral traditionalism correspond with decreased support for the president, and increased importance in equality corresponds with increased support for the president. In the model of the ranking group, increased importance of freedom and moral traditionalism correspond with decreased support of the president (though the coefficient on freedom is not significant). And, though the coefficient on equality is not significant in itself, the coefficient on the interaction term is. This (partially) supports Zaller's findings regarding the conditional nature of the relationship of value system ordering on attitudes.[3] Turning to the fit statistics of each model, it is quite apparent that the models of the rankings group fit the data better than the models of the ratings group. Finally, turning attention to the coefficients on the control variables, education has a significant impact on issue-based support. In the restricted models, the coefficients suggest that more educated respondents tend to hold more support for the president than less educated respondents. In the full models, the same pattern holds among members of the ratings group (though the coefficient is not statistically significant). The coefficient on education, in the model of the rankings group, is not statistically significant, though the coefficient on the interaction term is. Party identification and ideology have very strong effects on policy-based approval, but it is not altogether clear that party and ideology are not intervening variables that are actually caused by value system ordering. The results presented in table 5.6 take this possibility into account. These models are estimated with only values and demographic variables on the right-hand side, and the estimates represent an "upper bound" of the effect of values on issue-based presidential support. The results are consistent with those presented in table 5.5, but the effects are more pronounced.

[3]Models with and without values were run on for the rankings group. The BIC score on the restricted model (e.g. values variables omitted) was -2349.07. The BIC score on the full model was -2336.39. The LR test on nested models gave a χ^2 of 12.99 (4 degrees of freedom) and a p-value of 0.01.

Tables 5.7 through 5.12 show changes in predicted probabilities in levels of support for the president based on changes in the ratings/rankings of freedom, equality, and moral traditionalism. The story told by the changes in the ratings group (tables 5.7 and 5.8) is obvious: values matter. Looking first at the predictions from the full model (table 5.7), someone holding a "liberal" set of values (e.g. high on equality, low on freedom and moral traditionalism) is much more likely to have an approval score of 3 or 4 than someone with a "conservative" value set (e.g. low on equality, high on freedom and moral traditionalism). In fact, the model predicts that someone with liberal values is almost three times more likely to approve of how President Obama handled at least three out of four issues (65% to 27%). Someone with conservative values, on the other hand, is more than twice as likely to register an approval score of 0 or 1 than someone with liberal values. Differences are much more pronounced in predictions from the restricted model (table 5.8). Here, one with liberal values is almost six times more likely to register an approval score of 3 or 4 than someone with conservative values, and the difference is as stark on the other end of the scale.

The rankings data tells the same basic story as the ratings data, but with some additional complexity. Recall that the set of multiplicative interaction terms added explanatory power to models of issue-based support for the president when members of the rankings group were under consideration. This so, these models take into account the interaction between education and equality (the single statistically significant interaction term in these models, as displayed in tables 5.4, 5.5, and 5.6. Turning attention to the differences in predicted probabilities in table 5.9, it appears as though values make no difference in attitudes, but this model holds education at its minimum (i.e. less than high school). The model in table 5.10 holds education at its maximum (i.e. college graduate), and the degree to which value differences affect issue-based presidential approval becomes clear. Respondents with liberal values, on average, are more than twice as likely

as respondents with conservative values to highly approve of how the president dealt with the four relevant issues, and respondents with conservative values are about three times as likely as those with liberal values to strongly disapprove of the way the president has handled the relevant issues. The differences in the predicted probabilities reported in tables 5.11 and 5.12 show the same basic pattern as those in the previous two tables. The results here, however, are a bit more extreme given they are "upper bound" estimates (party and ideology are not included in the models).

To sum up, the models presented in this section tell a very basic story about values and political attitudes: values matter. Generally, those that hold freedom and moral traditionalism highly and consider equality of only limited importance express limited issue-based approval for the president. Those that value equality highly, on the other hand, tend to express higher issue-based support for the president. And, while data from each measurement tells the same basic story, the data from the rankings group is a bit more complicated. Specifically, the degree to which values affect approval is conditioned on education (especially the effect of equality). On average, those with more formal education are more influenced by their values than those with less education. Finally, models in which values are measured with rankings tend to fit the data considerably better than models in which values are measured with ratings. Rankings, it seems, more effectively capture value systems and can more accurately describe how they affect attitudes.

5.7 Results Pertaining to Turnout and Vote Choice

Starting with bivariate correlations of values, turnout, and vote choice (see tables 5.13 and 5.14), it is apparent that values do not affect the choice to turnout. With respect to vote choice, values seem much more important. Higher ratings/rankings of equality correspond to voting for Obama, and higher rankings of moral traditionalism correspond

to voting for McCain. Before drawing conclusions, however, it is necessary to take all other control variables into account

Estimates from the multivariate probit models with selection are shown in table 5.15. Looking first at the turnout equation (the top half of the table), it seems as though only economic security matters with respect to turnout, and this only holds for the ratings group. This result is curious, however, because the sign of the coefficient is negative: the results suggest that people are more likely to turn out if they care less about economic security. The control variables tell a more interesting, and more predictable story here. According to the results, older respondents, female respondents, well-educated respondents, and respondents that have strong partisan and ideological attachments are more likely to turn out.

Turning to the vote choice equation (the lower half of the table), the results suggest that values play a more important role here, but only in the ratings group. Moral traditionalism is the only value that holds any explanatory power, but it pales in comparison to the explanatory power of party and ideology. In the rankings group, only party and ideology have explanatory power. The model performs as well with equality and moral traditionalism omitted. Finally, the estimate of ρ, in both models, suggests that turnout and vote choice are statistically independent processes that can be modeled with separate binary choice models.

These models are reported in tables 5.16 and 5.17. The models of turnout tell much the same story: values are not an important part in the process, and the usual suspects (e.g. age, education, ideological strength, and strength with which one is attached to a party) are important predictors of participation. Female and economic security (in the opposite direction than expected) are also important predictors of participation in the ratings model. The models of vote choice, in the ratings model, suggest that equality and moral traditionalism are important in the explanation of vote choice (a high rating

of equality corresponds to a higher probability of voting for Obama while a high rating of moral traditionalism corresponds to a lower probability of voting for Obama), but only in the ratings group. The control variables, in both models, hold quite a bit of explanatory power. Older respondents and those with more formal education, on average, tend to vote for Obama. And, as expected, those that identify with the Democratic Party, and those that identify as liberal, tend to vote for Obama as well.

An examination of the fit statistics for the probit model with selection and the independent logit models suggest, in contrast with the models of issue-based presidential approval, that the models in which values are measured with ratings perform better than those in which values are measured with rankings. In the probit model with selection (table 5.15), values add no explanatory power in the rankings model, and the trend continues through both independent logit models. The values variables, in the ratings models, tell a different story. Here, values do pull some weight. Economic security, though is a negative effect, does affect the choice to turnout, and both equality and moral traditionalism affect vote choice.

5.8 Conclusion and Discussion

In this chapter, I tested three hypotheses on the relationships between values, attitudes, and behavior: (1) values are directly related to attitudes and distally related to behavior (Ajzen and Fishbein 1977; Hitlin and Piliavin 2004; Schwartz 1996); (2) only "activated" values influence attitudes and action (Bardi and Schwartz 2003); and (3) the relationship between values, attitudes, and behavior is conditional on cognitive sophistication (Zaller 1991, 1992). In addition, I tested whether or not different measurement techniques affect model fit.

Previous research finds support suggesting values strongly influence attitudes, but only indirectly affect behavior (Ajzen and Fishbein 1977; Schwartz 1996). The results of

the analyses in this chapter corroborate previous findings. Equality, freedom, and moral traditionalism affect issue-based support for the president, and they do so quite predictably. With demographics, party identification, and ideology held constant, changes in the three relevant values have profound effects on the probability of strong or weak support for Obama. The analyses of turnout and vote choice also corroborate the findings of previous research. Values had only a minimal effect on the choice to vote (and, the results are counterintuitive), and values had a limited effect on vote choice. Controlling for political identification variables and some demographics, moral traditionalism and equality have an independent effect on vote choice (but only in the ratings group). Looking over both analyses (the models of issue-based support, turnout, and vote choice), the effects of values are clearer and, perhaps, a bit stronger in the models of approval. Values, had virtually no effect on the choice to turn out, and limited influence on vote choice. Values seem to be more closely related to attitudes than they are to behavior, at least in a political context.

At first glance, the theory regarding "activated" values' effect on attitudes (Bardi and Schwartz 2003) does not seem to be supported by these analyses. The bivariate correlations in tables 5.1 and 5.2 show that two values, equality and moral traditionalism, correspond with all four policy-attitudes analyzed in this paper. Further, there are policies that are designed to "activate" certain values (e.g. economic policy and economic security, race relations and equality, terrorism and law & order), but it does not appear to be the case that any of these survey items activated values other than equality and moral traditionalism (and freedom, given the results of the various ordered logit models). Upon further inspection, however, it may be the case that these survey items were not actually measuring policy-attitudes. Rather, they are measuring policy-based support for President Obama. The fact that the four-item scale has such high reliability (Cronbach's $\alpha = 0.85$) suggests that each of these items taps into how individuals evaluate the

president. If it is the case that each of the four policy-attitude items actually measure different policy attitudes, then the these analyses show no support for the theory advance in Bardi and Schwartz (2003). On the other hand, if these items all tap into an overall evaluation of the president (and this seems more likely), then it may not be accurate to call this a direct test of the theory.

Zaller's theory regarding the link between values and attitudes, conditioned on sophistication, receives mixed support in these analyses. On one hand, the models in tables 5.3 and 5.4 suggest that the interaction terms do not improve model fit enough to justify their inclusion (especially in the rating group). On the other hand, the inclusion of the interaction between equality and education, in models of the ranking group, change substantive conclusions regarding the effect of the relative position of equality in individuals' value systems on policy-based approval of the president. When the interaction term is omitted from the model, results suggest that equality has no significant effect on the dependent variable. When included, however, results suggest that respondents with higher levels of educational attainment use equality in forming attitudes regarding presidential approval. It should also be noted that measurement, here, matters. Value system ordering, as measured by rankings, does interact with educational attainment. Values, as measured by ratings, do not interact with educational attainment.

Finally, measurement technique affects model fit. Though the models of presidential support (tables 5.5 and 5.6) told the same substantive stories (e.g. values matter in attitudes on policy-based approval), model fit is consistently better when value system ordering is measured with rankings. Models of behavior, on the other hand, tell a different story. Here, models in which values are measured with ratings perform better. One possible explanation is sampling error, but this is not definite. This discrepancy deserves a closer look.

The results presented in this chapter suggest, at the very least, that several values

matter in the formation of important attitudes and behaviors. This is not to say that all values affect evaluations and behavior all of the time –simply that values are an important part of explanations of attitudes and some behaviors. Also, values may not affect each individually equally throughout a given population. It is important for researchers to consider the possibility that not all individuals can effectively connect their own values to objects being evaluated. Effects of values on attitudes and behavior may be stronger in individuals that are more able to make this important connection. Finally, the choice of measurement technique is also very important –to the extent that different measurement techniques produce different substantive conclusions. Future research on values must consider the trade-offs that come with the choice to use on technique over the other.

Table 5.1: Correlations Between Value Rankings and Policy Attitudes

	Economy	Race Rel.	Foreign Pol.	Terrorism	4-Item Scale
Freedom	-.05	-.05	-.03	-.04	-.05
Equality	.30	.25	.29	.25	.32
Econ. Security	.09	.13	.12	.11	.13
Law & Order	-.07	-.07	-.14	-.07	-.10
Moral Trad.	-.26	-.26	-.25	-.25	-.30

Value rankings are coded such that higher numbers indicate greater importance. Attitudes variables are binary, coded such that 1 indicates approval and 0 indicates disapproval.

Table 5.2: Correlations Between Value Ratings and Policy Attitudes

	Economy	Race Rel.	Foreign Pol.	Terrorism	4-Item Scale
Freedom	-.05	-.06	-.05	-.04	-.06
Equality	.12	.13	.17	.10	.16
Econ. Security	.08	.03	.10	.07	.09
Law & Order	-.06	-.02	-.06	-.06	-.06
Moral Trad.	-.17	-.12	-.16	-.14	-.18

Value ratings are coded such that higher numbers indicate greater importance. Attitudes variables are binary, coded such that 1 indicates approval and 0 indicates disapproval.

Table 5.3: Full Ordered Logit Model, Y = Issue Scale Ratings Group

	Full Model	Restricted Model
Freedom	-0.48	-0.3**
	(.34)	(.14)
Equality	0.58*	0.27***
	(.31)	(.10)
Moral Trad.	-0.12	-0.16*
	(.28)	(.09)
Free. × Educ.	0.06	–
	(.13)	
Eq. × Educ.	-0.11	–
	(.10)	
Moral Trad. × Educ.	-0.02	–
	(.09)	
Log ℓ	-812.58	-813.41
BIC	-2241.64	-2259.25
n	616	616

* $p < .1$, ** $p < .05$, *** $p < .01$
LR Test of full model against restricted model yields a χ^2 of 1.67 ($p = .64$).
Note: Control variables (race, education, party, and ideology) and cut points omitted from table.

Table 5.4: Full Ordered Logit Model, Y = Issue Scale Rankings Group

	Full Model	Restricted Model
Freedom	-0.05	-0.11
	(.23)	(.08)
Equality	-0.45**	0.06
	(.22)	(.08)
Moral Trad.	-0.30	-0.14**
	(.22)	(.07)
Free. × Educ.	-0.02	–
	(.08)	
Eq. × Educ.	0.18**	–
	(.08)	
Moral Trad. × Educ.	0.06	–
	(.07)	
Log ℓ	-756.30	-759.77
BIC	-2324.61	-2336.91
n	612	612

* $p < .1$, ** $p < .05$, *** $p < .01$
LR Test of full model against restricted model yields a χ^2 of 6.95 ($p = .07$).
Note: Control variables (race, education, party, and ideology) and cut points omitted from table.

Table 5.5: Ordered Logit Model, Y = Issue Scale
Full Comparisons

	Ratings	Rankings	Ratings	Rankings
Freedom	-0.30**	-0.10	-0.33**	-0.11
	(.14)	(.08)	(.14)	(.08)
Equality	0.27***	0.06	0.56**	-0.40*
	(.10)	(.08)	(.26)	(.21)
Moral Trad.	-0.16*	-0.14**	-0.18**	-0.14*
	(.09)	(.07)	(.09)	(.07)
Eq. × Educ.	–	–	-0.10	0.17**
			(.08)	(.07)
Non-white	0.34*	0.24	0.36*	0.29
	(.19)	(.19)	(.19)	(.19)
Educ.	0.18**	0.33***	0.61	-0.10
	(.08)	(.08)	(.37)	(.19)
Party ID	0.41***	0.43***	0.41***	0.43***
	(.05)	(.05)	(.05)	(.05)
Ideology	0.28***	0.41***	0.28***	0.40***
	(.07)	(.07)	(.07)	(.07)
τ_1	1.00	2.50	2.02	1.31
τ_2	1.82	3.44	2.85	2.27
τ_3	2.48	4.04	3.50	2.86
τ_4	3.37	4.96	4.40	3.80
Log ℓ	-813.41	-759.77	-812.71	-756.82
BIC	-2259.25	-2336.91	-2254.22	-2336.39
n	616	612	616	612

* $p < .1$, ** $p < .05$, *** $p < .01$

Table 5.6: Ordered Logit Model, Y = Issue Scale
Party & Ideology Omitted

	Ratings	Rankings	Ratings	Rankings
Freedom	-0.30**	-0.17**	-0.33**	-0.17**
	(.14)	(.07)	(.14)	(.07)
Equality	0.57***	0.31***	0.85***	-0.27
	(.09)	(.07)	(.25)	(.19)
Moral Trad.	-0.44***	-0.38***	-0.46***	-0.37***
	(.08)	(.07)	(.09)	(.07)
Eq. × Educ.	–	–	-0.10	0.21***
			(.08)	(.07)
Non-white	0.83***	0.61***	0.85***	0.66***
	(.18)	(.18)	(.18)	(.18)
Educ.	0.14*	0.28***	0.56	-0.26
	(.07)	(.08)	(.35)	(.18)
τ_1	-1.37	-0.78	-0.38	-2.23
τ_2	-0.69	-0.03	0.30	-1.48
τ_3	-0.16	0.41	0.83	-1.04
τ_4	0.57	1.11	1.56	-0.32
Log ℓ	-893.92	-862.03	893.15	-856.78
BIC	-2111.08	-2152.65	-2106.18	-2156.71
n	616	613	616	613

* $p < .1$, ** $p < .05$, *** $p < .01$

Table 5.7: Predicted Probabilities from Full Model, Ratings Group

	Liberal Values	Conservative Values	Difference	95% C.I.
$Pr(\text{Approval} = 4)$	0.43	0.13	0.30	[0.12, 0.48]
$Pr(\text{Approval} = 3)$	0.22	0.14	0.08	[0.04, 0.12]
$Pr(\text{Approval} = 2)$	0.13	0.15	-0.02	[-0.04, 0.02]
$Pr(\text{Approval} = 1)$	0.11	0.20	-0.09	[-0.14, -0.04]
$Pr(\text{Approval} = 0)$	0.11	0.38	-0.27	[-0.43, -0.11]

Cell entries in the first column indicate the probability that $Y = y$ for a respondents with liberal value preferences (equality set at 5, freedom and moral traditionalism set two standard deviations below their means). Gender and education are set at their modal categories (male and high school diploma). Ideology and partisanship are set at their midpoints (neutral and independent). Cell entries in the second column indicate the probability that $Y = y$ for respondents with conservative value preferences (equality set two standard deviations below its mean, freedom and moral traditionalism set at 5). Other independent variables are held constant. Confidence intervals for the change in predicted probabilities calculated using the Delta method.

Table 5.8: Pred. Probs. with Ideol. & Party Omitted, Ratings Group

	Value Set 1	Value Set 2	Difference	95% C.I.
$Pr(\text{Approval} = 4)$	0.65	0.07	0.58	[0.42, 0.72]
$Pr(\text{Approval} = 3)$	0.15	0.07	0.08	[0.04, 0.11]
$Pr(\text{Approval} = 2)$	0.07	0.08	-0.01	[-0.03, 0.03]
$Pr(\text{Approval} = 1)$	0.06	0.14	-0.08	[-0.11, -0.04]
$Pr(\text{Approval} = 0)$	0.07	0.65	-0.58	[-0.70, -0.44]

Cell entries in the first column indicate the probability that $Y = y$ for a respondents with liberal value preferences (equality set at 5, freedom and moral traditionalism set two standard deviations below their means). Gender and education are set at their modal categories (male and high school diploma). Ideology and partisanship are omitted from the model. Cell entries in the second column indicate the probability that $Y = y$ for respondents with conservative value preferences (equality set two standard deviations below its mean, freedom and moral traditionalism set at 5). Other independent variables are held constant. Confidence intervals for the change in predicted probabilities calculated using the Delta method.

Table 5.9: Pred. Probs. from Full Model, Rankings Group (Educ. = 1)

	Value Set 1	Value Set 2	Difference	95% C.I.
$Pr(\text{Approval} = 4)$	0.12	0.12	0.00	[-0.14, 0.13]
$Pr(\text{Approval} = 3)$	0.13	0.14	-0.01	[-0.12, 0.11]
$Pr(\text{Approval} = 2)$	0.13	0.13	0.00	[-0.06, 0.06]
$Pr(\text{Approval} = 1)$	0.23	0.23	0.00	[-0.00, 0.00]
$Pr(\text{Approval} = 0)$	0.39	0.38	0.01	[-0.29, 0.32]

Cell entries in the first column indicate the probability that $Y = y$ for a respondents with liberal value preferences (equality set at 5, freedom and moral traditionalism set two standard deviations below their means). Gender is set at its modal value (male), and education is set at its minimum (less than high school). Ideology and partisanship are set at their midpoints (neutral and independent). Cell entries in the second column indicate the probability that $Y = y$ for respondents with conservative value preferences (equality set two standard deviations below its mean, freedom and moral traditionalism set at 5). Other independent variables are held constant. Confidence intervals for the change in predicted probabilities calculated using the Delta method.

Table 5.10: Pred. Probs. from Full Model, Rankings Group (Educ. = 4)

	Value Set 1	Value Set 2	Difference	95% C.I.
$Pr(\text{Approval} = 4)$	0.55	0.15	0.40	[0.19, 0.62]
$Pr(\text{Approval} = 3)$	0.21	0.16	0.05	[0.00, 0.10]
$Pr(\text{Approval} = 2)$	0.09	0.14	-0.05	[-0.08, -0.01]
$Pr(\text{Approval} = 1)$	0.09	0.23	-0.14	[-0.21, -0.08]
$Pr(\text{Approval} = 0)$	0.06	0.33	-0.26	[-0.41, -0.11]

Cell entries in the first column indicate the probability that $Y = y$ for a respondents with liberal value preferences (equality set at 5, freedom and moral traditionalism set two standard deviations below their means). Gender is set at its modal value (male), and education is set at its maximum (college degree). Ideology and partisanship are set at their midpoints (neutral and independent). Cell entries in the second column indicate the probability that $Y = y$ for respondents with conservative value preferences (equality set two standard deviations below its mean, freedom and moral traditionalism set at 5). Other independent variables are held constant. Confidence intervals for the change in predicted probabilities calculated using the Delta method.

Table 5.11: Pred. Probs. with Party and Ideol. Omitted, Rankings Group (Educ.= 1)

	Value Set 1	Value Set 2	Difference	95% C.I.
$Pr(\text{Approval} = 4)$	0.29	0.07	0.22	[0.03, 0.40]
$Pr(\text{Approval} = 3)$	0.16	0.06	0.10	[0.04, 0.16]
$Pr(\text{Approval} = 2)$	0.11	0.06	0.05	[0.02, 0.08]
$Pr(\text{Approval} = 1)$	0.17	0.14	0.03	[-0.02, 0.07]
$Pr(\text{Approval} = 0)$	0.27	0.66	-0.39	[-0.64, -0.14]

Cell entries in the first column indicate the probability that $Y = y$ for a respondents with liberal value preferences (equality set at 5, freedom and moral traditionalism set two standard deviations below their means). Gender is set at its modal value (male), and education is set at its minimum (less than high school). Ideology and partisanship are omitted from the model. Cell entries in the second column indicate the probability that $Y = y$ for respondents with conservative value preferences (equality set two standard deviations below its mean, freedom and moral traditionalism set at 5). Other independent variables are held constant. Confidence intervals for the change in predicted probabilities calculated using the Delta method.

Table 5.12: Pred. Probs. with Party and Ideol. Omitted, Rankings Group (Educ. = 4)

	Value Set 1	Value Set 2	Difference	95% C.I.
$Pr(\text{Approval} = 4)$	0.82	0.06	0.76	[0.64, 0.87]
$Pr(\text{Approval} = 3)$	0.09	0.06	0.03	[-0.01, 0.06]
$Pr(\text{Approval} = 2)$	0.03	0.05	-0.02	[-0.04, -0.00]
$Pr(\text{Approval} = 1)$	0.03	0.13	-0.10	[-0.13, -0.06]
$Pr(\text{Approval} = 0)$	0.03	0.69	-0.66	[-0.78, -0.54]

Cell entries in the first column indicate the probability that $Y = y$ for a respondents with liberal value preferences (equality set at 5, freedom and moral traditionalism set two standard deviations below their means). Gender is set at its modal value (male), and education is set at its maximum (college degree). Ideology and partisanship are omitted from the model. Cell entries in the second column indicate the probability that $Y = y$ for respondents with conservative value preferences (equality set two standard deviations below its mean, freedom and moral traditionalism set at 5). Other independent variables are held constant. Confidence intervals for the change in predicted probabilities calculated using the Delta method.

Table 5.13: Correlations Between Value Ratings and Turnout & Vote Choice

	Turnout	Obama Vote	McCain Vote
Freedom	0.01	-0.06	0.05
Equality	-0.02	0.15	-0.19
Econ. Security	-0.07	0.09	-0.15
Law & Order	0.08	-0.00	0.06
Moral Trad.	0.01	-0.21	0.22

Value rankings are coded such that higher numbers indicate greater importance.
Turnout is a dummy variable coded 1 if the respondent voted, 0 if not.
Vote choice variables are dummy variables coded 1 if the respondent voted for the candidate, and 0 otherwise.

Table 5.14: Correlations Between Value Rankings and Turnout & Vote Choice

	Turnout	Vote Obama	Vote McCain
Freedom	0.02	-0.03	0.04
Equality	-0.02	0.31	-0.34
Econ. Security	-0.08	0.10	-0.16
Law & Order	0.04	-0.12	0.16
Moral Trad.	0.05	-0.24	0.29

Value rankings are coded such that higher numbers indicate greater importance.
Turnout is a dummy variable coded 1 if the respondent voted, 0 if not.
Vote choice variables are dummy variables coded 1 if the respondent voted for the candidate, and 0 otherwise.

Table 5.15: Probit Selection Model of Vote Choice and Turnout

	Ratings		Rankings	
Turnout				
Econ. Security	-0.26**	(.11)	-0.06	(.05)
Female	0.42***	(.16)	-0.01	(.13)
Educ.	0.59***	(.08)	0.17**	(.07)
Age	0.24***	(.05)	0.15***	(.04)
Party (folded)	0.24**	(.09)	0.22***	(.08)
Ideol. (folded)	0.16*	(.08)	0.16**	(.07)
Constant	-0.86	(.60)	-0.49	(.35)
Vote Choice				
Equality	0.09	(.10)	0.10	(.07)
Moral Trad.	-0.24***	(.09)	0.01	(.06)
Party	0.50***	(.05)	0.41***	(.05)
Ideol.	0.27***	(.07)	0.16**	(.07)
Constant	-2.29***	(.50)	-3.38***	(.37)
ρ	0.12	(.39)	0.44	(.30)
Log ℓ	-316.54		-392.16	
Turnout n	543		560	
Vote Choice n	473		462	

* $p < .1$, ** $p < .05$, *** $p < .01$

Dependent variable for turnout model is a dummy variable coded 1 if the respondent voted and 0 otherwise.

Dependent variable for vote choice model is coded 1 if respondent voted for Obama and 0 if otherwise.

LR Test of a model without values vs. full model in ratings group yields a χ^2 of 12.77 ($p = .01$).

LR Test of a model without values vs. full model in rankings group yields a χ^2 of 3.40 ($p = .33$).

Table 5.16: Logit Models of Turnout

	Ratings		Rankings	
Econ. Security	-0.51**	(.21)	-0.12	(.09)
Female	0.69**	(.30)	-0.05	(.23)
Educ.	1.14***	(.17)	0.33***	(.12)
Age	0.43***	(.10)	0.27***	(.07)
Party (folded)	0.41**	(.17)	0.43***	(.14)
Ideol. (folded)	0.35*	(.17)	0.27**	(.13)
Constant	-1.56	(1.09)	-1.03	(.61)
Log ℓ	-159.61		-236.89	
BIC	-3092.48		-3025.57	
n	548		560	

* $p < .1$, ** $p < .05$, *** $p < .01$

Table 5.17: Logit Models of Vote Choice

	Ratings		Rankings	
Equality	0.25*	(.14)	0.11	(.09)
Moral Trad.	-0.34***	(.12)	-0.06	(.09)
Party	0.70***	(.07)	0.62***	(.07)
Ideol.	0.23***	(.09)	0.34***	(.09)
Age	0.24***	(.07)	0.19***	(.07)
Educ.	0.66***	(.11)	0.39***	(.11)
Constant	-6.95***	(.83)	-6.63***	(.70)
Log ℓ	-284.37		-286.37	
BIC	-3469.25		-3413.21	
n	633		626	

* $p < .1$, ** $p < .05$, *** $p < .01$

Chapter 6

Conclusions

This dissertation focuses on three central questions: (1) Are value systems stable through various informational contexts? (2) How do values relate to political attitudes and behaviors? And (3), does choice of measurement technique affect empirical results? In this chapter, I summarize the results presented in the previous three chapters, I discuss implications and where these results fit in the existing body of literature, and I discuss avenues for future research.

6.1 Chapter 3: Transitivity, Stability, and Measurement

The third chapter tests two related hypotheses regarding transitivity in value choices and the stability of value preferences through systematically varied contexts. Transitivity is a test of value structure –checking whether value choices exhibit structure, or whether they are random. Recall that I defined a respondent to have transitive value choices with respect to a particular triad of values if, for example, value a is chosen over value b, value b is chosen over value c, and value a is chosen over value c. The results on transitivity, presented in table 3.2, show that approximately 90 percent of respondents exhibit transitive preferences on each triad, and nearly 75 percent of respondents exhibited transitive preferences on all ten triads. In short, this is strong evidence that members of the public have clear preferences between values and that random fluctuations in error did *not* drive responses; rather, systematic components seem to drive choice.

The positive results on transitivity make primes in the survey experiment meaningful. Given that systematic components drive value choice, the experiment sheds light on whether the small changes in context (e.g. the primes) can manipulate these systematic components in a meaningful way. And, the results presented in the difference-in-means tests, the ordered logit models, and the rank-ordered logit models suggest no concrete answer. Rather, it seems as though equality is susceptible to changes in context and economic security is not. The reason for the mixed results, at this point, is unknown. It may be that a large number of Americans are ambivalent about equality (Feldman 1988; Feldman and Zaller 1992), that people do not have a clear idea of the personal importance they attach to equality, or that the systematic components of equality, economic security, and moral traditionalism (e.g. the values that seemed to "move" when respondents were treated with the equality prime) are all about equal, not easily distinguishable, and thus, unstable. In turn, economic security may appear particularly stable because of the current economic conditions in the United States. The economic recession has been among the leading stories in the national news for several years. This so, people have been able to process ample information about economic security, they know where economic security stands as a priority, and thus, they have a clear picture of the personal importance of economic security relative to other values.

My answer to the question "do values transcend specific situations?," based on the results presented in the third chapter, is "*some do, some don't.*" What does this mean to values as they relate to attitudes? Recall, traditional theory requires values to transcend specific situations if they are to provide a general framework for evaluation (Rokeach 1973; Schwartz 1996), and new research suggests that various factors cause instability in value systems (see Goren, Federico and Kittilson 2009; Maio and Olson 1998; Seligman and Katz 1996; Tetlock, Peterson and Lerner 1996, for example). The results presented in chapter three suggest that the truth about value system dynamics lies somewhere

between these two camps. On the one hand, it is clear that small changes in context affect the relative ordering of certain values. On the other, certain values are unaffected by changes in context. The degree to which these dynamics feed into the debate on how values affect attitudes depends on the importance of "movable" values. And, the results presented in the fifth chapter suggest that one unstable value, equality, is quite important in attitudes, but two (apparently) stable values are important as well: freedom and moral traditionalism.

Given that only a limited number of values had any effect on attitudes, that equality is one of these "important" values, and that equality seems susceptible to small changes in context, the question becomes "why is equality unstable?" Does it have to do with education? Is measurement error the cause? Perhaps some people think about equality in one light while others think of it in a different light? Or, perhaps equality, as people think about it, is a combination of several values? Future research might consider whether equality is in fact a "base" value, or whether it has a more complex composition.

Turning attention to measurement, the main question concerned whether the choice of ratings or rankings affect observed value system stability, and the results say "*no*." Equality, regardless of whether the measurement technique was ratings or rankings, appeared unstable while economic security appeared stable. So, while ratings and rankings produce drastically different results in terms of value systems and relative ordering (see figures 3.1, 3.2, and 3.3), the different measurement strategies produce similar results with respect to observed stability.

6.2 Chapter 4: The Effects of Contextual Salience Over Time

The central question in the fourth chapter focused again on the stability of values. Here, however, focus was on aggregate level values over time rather than individuals participating in an experiment. I compared the rank-ordered preferences of four values

(liberty, equality, economic security, and social order) across three different time points (1994, 2003, and 2005). Briefly, the theory under consideration (e.g. traditional psychological theory) stated that, even at the societal level, values should be *relatively* stable. Movement between values may occur after major events, but values should not move at random.

The results (descriptive statistics presented in figure 4.1 and table 4.1, OLS regressions presented in tables 4.2, 4.3, and 4.4, and rank-ordered logit presented in table 4.5) show relatively strong support for the theory. Respondents in all three datasets rank liberty highly and equality toward the bottom of the hierarchy. Social order is the biggest "mover" between 1994 and 2003, likely due to the events of 9/11, and both equality and economic security move down in rankings (though economic security much more than equality). And, economic security and social order again "trade" places between 2003 and 2005 (though it is important to note that equality moves too). The takeaway point here is that contextual salience matters (denoted c in the models and represented in the regressions by the "year" variables). But, the effects of contextual salience diminish over time.

These results support traditional psychological theory of values, to a certain extent. The results of this chapter, like the results presented in the third chapter, show that values are not entirely static. That said, it does seem to be the case that when the relative ordering of values changes, it does so predictably. The implications are not completely clear, but there are several possibilities. First, these results may support value pluralism theory (Tetlock 1986; Tetlock, Peterson and Lerner 1996), but rather than having different value structures for different social situations, people may have different value structures when confronted with different problems (e.g. they may have certain value preferences for "normal" circumstances, a different set of preferences when security and social order is in question, and yet another for when economic security is in

question). That is, peoples' value systems may, in some sense, be reactionary. A second possibility is that values may only guide behavior under "normal" conditions, and different frameworks may take over under "abnormal" conditions. In any case, it does seem that values are *relatively* stable, but that contextual salience and the state of a nation (or, perhaps more accurately, the psychological state of people in a nation) adds a layer of complexity to how values structure attitudes.

Perhaps the most obvious weakness in this chapter is the limited number of data points. Additional data points would so much to increase the confidence of the conclusions made here. Additional data would make each value's trends clearer. It would also shed light on the lasting effects of contextual salience and value system dynamics in the aggregate.

6.3 Chapter 5: Values, Attitudes, the Vote, and Measurement

The fifth chapter focused on the relationships between values, attitudes, and behaviors. There were three main hypotheses in the chapter: (1) values have a direct effect on attitudes; (2) values have a limited effect on behavior; and (3) the relationship between values and attitudes (and behavior) is conditional on education. I also examined the effects of measurement on model fit.

The first major finding (seen in tables 5.1 and 5.2 has to do with the lack of variation in "activated values" on different issues. By and large, only two values, equality and moral traditionalism, correlate with each of the four issues in the survey (the economy, race relations, foreign policy, terrorism). Surprisingly, neither economic security nor law & order held strong correlations with the state of the economy, foreign policy, or terrorism. The four items scaled well (Cronbach's $\alpha = 0.85$) and formed a good measure of issue-based support for president Obama.

Tests of the first hypothesis can best be seen in the models presented in tables 5.5

and 5.6. In short, the results shown represent the estimated lower and upper bounds, respectively, of the effects of values on issue-related support for the president. In the ratings models, freedom, equality, and moral traditionalism all have significant effects on the dependent variable in both the full and restricted models. In the rankings models, moral traditionalism and equality (conditionally), affect the dependent variable in the full model, and all three values have significant effects in the restricted model. All this is fairly strong evidence that values, even when the independent effects of party and ideology are held constant, influence attitudes.

The clearest tests of the second hypothesis are shown in tables 5.16 and 5.17. It does not seem as though values have any effect on the choice to turnout (the one significant coefficient on a value is in the unexpected direction, suggesting those that are *more* concerned with economic security are *less* likely to vote). Values and vote choice have a far more predictable relationship, but only when measured by ratings. According to the ratings model, the same two values that best predicted issue-based presidential support (equality and moral traditionalism) also predict vote choice. The curious result, here, is the rankings model: values have *no* effect on vote choice. The contrast between measurement techniques is stark and deserves a closer look.

Tests of the third hypothesis can be found in the third and fourth columns of tables 5.5 and 5.6. Interestingly, there is a disparity between measurement groups again. The multiplicative interaction term *does not* help the fit of the ratings model. They do, however, improve the fit of the rankings models a bit (according to the likelihood ratio test). More importantly, the interaction term makes the results intelligible. With no education, high rankings of equality correspond to low approval for president Obama. With increasing education, high rankings of equality correspond to high approval for Obama. These results not only provide support for the third hypothesis, but they make a compelling argument that this particular interaction term is integral to understanding

values and attitudes.

The examination of fit statistics across models estimated with ratings and rankings data told an interesting but unclear story. On the one hand, models of the rankings group fit the data much better than the ratings group with respect to issue-based approval. On the other, models of the ratings group fit the better data when it came to behavior (especially vote choice). Again, the reason for this discrepancy is unclear and deserves a closer look.

A potential weakness of one of the analyses in this chapter has to do with question wording. Questions concerning issue attitudes were, in part, referenda on Obama's performance on important issues facing the nation. This so, all four items measured the same basic concept (i.e. issue-based approval for the president). Future research may consider an alternative question wording in which the president goes unmentioned. These types of questions may "activate" different values.

6.4 Synthesis

On the whole, the analyses in this dissertation make several important contributions to value measurement and our understanding of value system dynamics. With respect to measurement, results show two things: first, rankings *do* bring out the "comparative and competitive" aspect of values, and this is born out in the data (see figures 3.1, 3.2, and 3.3); second, despite differences in distributions of dependent variables, observed value system stability is *not* dependent upon measurement technique. The discrepancies between scholarship that upholds traditional psychological theory on values and that which argues traditional theory must be reformed, apparently, run deeper than choice of measurement technique.

With respect to value system dynamics, the story is a bit more complicated. Recall, traditional theory assumes (and requires) values and value system ordering to be

"transsituational" (Schwartz 1996), but new research finds that finds value systems to be dynamic (e.g. Goren 2005; Goren, Federico and Kittilson 2009; Seligman and Katz 1996; Tetlock 1986), calls the importance of values into question. And, among the major goals of this dissertation was to bridge this gap and advance values research beyond this apparent impasse. The results presented throughout the pages of this dissertation do not clearly favor one camp or the other. Rather, it appears as though certain values are more susceptible to changes in context than others. Equality, in particular, seems especially susceptible to small changes in context.

On its face, this result is strong evidence against the assumption in traditional psychological theory on values. But, to make the claim that values cannot provide a general framework from which people evaluate objects in the world seems premature. Given that only the equality prime had a significant effect on value choices (remember, the economic security prime had no effect), and given that the equality prime only affected the relative ordering of two (perhaps three) values, it may be the case that equality is an exception and that "stable" values form a framework for evaluation. Or, it may be the case that the (in)stability of equality is conditional on something other than education. Respondents with differing ideological or partisan identification may be more or less receptive to the equality prime than others. Or, as said before, it may be the case that equality is not a base value: perhaps equality is a combination of several base values, and perhaps these values are stable. One thing is clear, the assumption on the "transsituational" nature of values is not completely true. To determine the degree to which it is true or false requires more research.

The study in the fourth chapter also spoke to the gap between traditional psychological theory on values and new research regarding the assumption of values' "transsituational" nature. Like the results presented in chapter three, the results presented in chapter four also point to a gray area between traditional theory and new research. On one hand,

values should remain *relatively* stable over time if they are to guide attitudes and choice. On the other, people should, in some sense, react to major contextual changes around them. And, the results presented here confirm this. Values are, in some sense, reactionary to major changes in context. The spike in the importance of social order after 9/11 and the subsequent decline in economic security and equality –then the "switch" back to "normal" value ordering in 2005– makes sense. Social order *should* move to the top of value hierarchies after a major attack on U.S. soil. And, as the threat declines, as the contextual salience decays, individuals should again resume their "normal" value system orderings. These results, seem to corroborate well with many of Inglehart's studies on value change in Europe. The main difference is that, in Europe, value change occurs slowly over time with economic well-being. The value change observed in these datasets presented here occurs quickly, but, the situational context changed quickly as well. According to these results –that values may change, but they do so predictably– values are stable enough to provide a framework for evaluation.

Turning attention from "*can* values structure attitudes?" to "*do* values structure attitudes?" and chapter five, one set of results bolsters current ideas on the relationship between values, attitudes, and behavior: values have a significant effect on attitudes, but only a limited effect on behavior. The measurement aspect of chapter five points to no clear conclusion regarding whether rankings or ratings are preferable. The main difference between the two methods is the observed conditional relationship between values and attitudes (conditional on education) that was seen in the rankings group. Beyond this result, because fit statistics of rankings models were better in models of attitudes and worse in models of behavior, it is unclear which measurement technique is "better."

All in all, this dissertation set out to bridge the gap between traditional psychological values theory and new research, and perhaps it has, but not in a black and white manner. It is likely that values *can* structure attitudes, but not as traditional theory suggests they

do. Not *all* values are stable, nor are they all important in attitude formation and decision making. The question is, are values that *are* important in attitude formation and choice stable? And, the research presented in this dissertation points toward equality. The results in this dissertation suggest equality is an important value in attitude formation, but also that it is susceptible to changes in context. Unless equality is somehow an exception (that it is not a "base" value, or that the models presented in the various chapters are misspecified) then the conclusion must be that values do not provide the most general framework possible for evaluation. However, further research on the nature of equality is needed before reaching this conclusion.

6.5 Avenues for Future Research

In large part, the conclusions reached in this dissertation will be bolstered with further research on whether or not equality is some kind of exception. Future studies might consider a more expansive battery of primes (perhaps have six experimental groups: a control group and a treatment for each individual value under consideration). If several values are susceptible to priming effects, this is further evidence that values do not provide a general framework for evaluation. If, on the other hand, only equality is susceptible to priming effects, it may be an exception.

Additional research on the nature of equality might also prove beneficial to our understanding of values. In particular, a study might consider testing hypotheses concerning the composition of "equality." Is equality itself a "base" value? Or does the term "equality" cover various, perhaps only tangentially related concepts like racial equality, economic equality, and equality of opportunity? If, for example, racial equality, economic equality, and equality of opportunity are all separate values, survey instruments might be more valuable in asking about specific types of equality rather than "equality" in a general sense.

Future research might also consider testing whether additional information in value-laden primes (e.g. a partisan or an ideological cue) affects the rankings or ratings of "stable" values. This type of study might also consider manipulating measurement technique, as presented in this dissertation. Results from a study like this would help settle an ongoing debate regarding the "primacy" of values. In short, if the additional information "moves" values, the that information, essentially, causes value placement and thus, is more general a framework for evaluation.

Finally, future research on preference (e.g. value preference, policy preference, candidate preference, etc.) might consider rankings rather than either binary choice or the usual "approve/disapprove" scale. Rankings, again, force people to choose between two potentially desirable options that cannot both occupy "most preferred" territory. This type of measure may prove useful in shedding light on issues in racial policy and voting behavior in additional to value preference.

Bibliography

Bibliography

Abramson, Paul R. and Ronald Inglehart. 1987. "Generational Replacement and the Future of Post-Materialist Values." *Journal of Politics* 49(1):231–241.

Abramson, Paul R. and Ronald Inglehart. 1995. *Value Change in a Global Perspective*. Ann Arbor, MI: University of Michigan Press.

Ajzen, Icek and Martin Fishbein. 1977. "Attitude-Behavior Relations: A Theoretical Analysis and Review of Empirical Research." *Psychological Bulletin* 84(5):888–918.

Allison, Paul D. and Nicholas A. Christakis. 1994. "Logit Models for Sets of Ranked Items." *Sociological Methodology* 24:199–228.

Alvarez, R. Michael and John Brehm. 1995. "American Ambivalence Towards Abortion Policies: Development of a Heteroskedastic Probit Model of Competing Values." *American Journal of Political Science* 39(4):1055–1082.

Alvarez, R. Michael and John Brehm. 1997. "Are Americans Ambivalent Towards Racial Policies?" *American Journal of Political Science* 41(2):345–374.

Alvarez, R. Michael and John Brehm. 1998. "Speaking in Two Voices: American Equivocation About the Internal Revenue Service." *American Journal of Political Science* 42(2):418–452.

Alwin, Duane F. and Jon A. Krosnick. 1985. "The Measurement of Values in Surveys: A Comparison of Ratings and Rankings." *The Public Opinion Quarterly* 49(4):535–552.

Ball-Rokeach, Sandra J., Milton Rokeach and Joel W. Grube. 1984. *The Great American Values Test: Influencing Behavior and Belief Through Television*. New York: Free Press.

Bardi, Anat and Shalom H. Schwartz. 2003. "Values and Behavior: Strength and Structure of Relations." *Personality and Social Psychology Bulletin* 29(10):1207–1220.

Bernard, Mark M., Gregory R. Maio and James M. Olson. 2003. "Effects of Introspection About Reasons for Values: Extending Research on Values-as-Truisms." *Social Cognition* 21(1):1–25.

Biernat, Monica, Theresa K. Vescio, Shelley A. Theno and Christian S. Crandall. 1996. Values and Prejudice: Toward Understanding the Impact of American Values on Outgroup Attitudes. In *The Psychology of Values: The Ontario Symposium, Volume 8*, ed. Clive Seligman, James M. Olson and Mark P. Zanna. Mahwah, NJ: Lawrence Erlbaum Associates pp. 153–189.

Blackwell, Matthew, Stefano Iacus, Gary King and Giuseppe Porro. 2009. "cem: Coarsened Exact Matching in Stata." *The Stata Journal* 9(4):524–546.

Borg, Ingwer and Patrick Groenen. 2005. *Modern Multidimensional Scaling: Theory and Applications, 2nd Edition*. New York: Springer.

Borg, Sami. 1995. Electoral Participation. In *The Impact of Values*, ed. Jan W. Van Deth and Elinor Scarbrough. New York: Oxford University Press pp. 441–460.

Bossman, David M. 1991. "Cross-Cultural Values for a Pluralistic Core Curriculum." *The Journal of Higher Education* 62(6):661–681.

Braithwaite, Valerie. 1982. "The Sturcture of Social Values: Validation of Rokeach's Two-value Model." *British Journal of Social Psychology* 21:201–211.

Braithwaite, Valerie. 1994. "Beyond Rokeach's Equality-Freedom Model: Two-Dimensional Values in a One-Dimensional World." *Journal of Social Issues* 50(4):67–94.

Braithwaite, Valerie. 1997. "Harmony and Security Value Orientations in Political Evaluation." *Personality and Social Psychology Bulletin* 23(4):401–414.

Braithwaite, Valerie A. and H. G. Law. 1985. "Structure of Human Values: Testing the Adequacy of the Rokeach Values Survey." *Journal of Personality and Social Psychology* 49(1):250–263.

Braithwaite, Valerie, Toni Makkai and Yvonne Pittelko. 1996. "Inglehart's Materialism-Postmaterialism Concept: Clarifying the Dimensionality Debate Through Rokeach's Model of Social Values." *Journal of Applied Social Psychology* 26(17):1536–1555.

Brewer, Paul R. 2003. "The Shifting Foundations of Public Opinion about Gay Rights." *Journal of Politics* 65(4):1208–1220.

Campbell, Angus, Philip E. Converse, Warren E. Miller and Donald E. Stokes. 1960. *The American Voter*. New York: Wiley.

Chapman, Randall G. and Richard Staelin. 1982. "Exploiting Rank Ordered Choice Set Data within the Stochastic Utility Model." *Journal of Marketing Research* 19(3):288–301.

Cochran, William G. and Donald B. Rubin. 1973. "Controlling Bias in Observational Studies: A Review." *SankhyÄĄ: The Indian Journal of Statistics, Series A* 35(4):pp. 417–446.

Conover, Pamela and Stanley Feldman. 1981. "The Origins and Meaning of Liberal-Conservative Self-Identification." *American Journal of Political Science* 29(4):617–645.

Converse, Philip E. 1964. The Nature of Belief Systems in Mass Publics. In *Ideology and Discontent*, ed. David E. Apter. New York: Free Press of Glencoe.

Davidov, Eldad, Peter Schmidt and Shalom H. Schwartz. 2008. "Bringing Values Back In: The Adequacy of the European Social Survey to Measure Values in 20 Countries." *Public Opinion Quarterly* 72(3):420–445.

Davis, Darren W. 2007. *Negative Liberty: Public Opinion and the Terrorist Attacks on America*. New York: Sage.

Davis, Darren W. and Christian Davenport. 1999. "Assessing the Validity of the Post-materialism Index." *American Political Science Review* 93(3):649–664.

Devine, Donald J. 1972. *The Political Culture of the United States*. Boston: Little & Brown.

Dow, Jay K. and James W. Endersby. 2004. "Multinomial Probit and Multinomial Logit: A Comparison of Choice Models for Voting Research." *Electoral Studies* 23(1):107–122.

Downs, Anthony. 1957. *An Economic Theory of Democracy*. New York: Harper & Bros.

Duch, Raymond M. and Michaell A. Taylor. 1993. "Postmaterialism and the Economic Condition." *American Journal of Political Science* 37(3):747–779.

Egri, Carolyn P. and David A. Ralston. 2004. "Generation Cohorts and Personal Values: A Comparison of China and the United States." *Organization Science* 15(2):210–220.

Epstein, Seymour. 1989. Values from the Perspective of Cognitive-experiential Self-theory. In *Social and Moral Values: Individual and Societal Perspectives*, ed. Nancy Eisenberg, Janusz Reykowski and Ervin Staub. Hillsdale, NJ: Erlbaum.

Erickson, Rebecca J. 1995. "The Importance of Authenticity for Self and Society." *Symbolic Interaction* 18(2):pp. 121–144.

Falmagne, Jean-Claude, Michel Regenwetter and Bernard Grofman. 1997. A Stochastic Model for the Evolution of Preferences. In *Choice, Decision, and Measurement: Essays in Honor of R. Duncan Luce*, ed. A. A. J. Marley. Mahwah, NJ: Erlbaum pp. 111–129.

Feather, Norman T. 1992. "Values, Valences, Expectations, and Actions." *Journal of Social Issues* 48:109–124.

Feldman, Stanley. 1988. "Structure and Consistency in Public Opinion: The Role of Core Beliefs and Values." *American Journal of Political Science* 32(2):416–440.

Feldman, Stanley. 2003. Values, Ideology, and the Structure of Political Attitudes. In *Oxford Handbook of Political Psychology*, ed. David O. Sears, Leonie Huddy and Robert Jervis. New York: Oxford University Press.

Feldman, Stanley and John Zaller. 1992. "The Political Culture of Ambivalence: Ideological Responses to the Welfare State." *American Journal of Political Science* 36(1):268–307.

Feldman, Stanley and Marco R. Steenbergen. 2001. "The Humanitarian Foundation of Public Support for Social Welfare." *American Journal of Political Science* 45(3):658–677.

Glasgow, Garrett. 1997. "Heterogeniety, Salience, and Decision Rules for Candidate Preference." Working Paper.

Goren, Paul. 2005. "Party Identification and Core Political Values." *American Journal of Political Science* 49(4):881–896.

Goren, Paul, Christopher M. Federico and Miki Caul Kittilson. 2009. "Source Cues, Partisan Identities, and Political Value Expression." *American Journal of Political Science* 53(4):805–820.

Grant, Tobin J. and Thomas J. Rudolph. 2003. "Value Conflict, Group Affect, and the Issue of Campaign Finance." *American Journal of Political Science* 47(3):453–469.

Greene, William H. 2003. *Econometric Analysis, Fifth Edition*. Delhi, India: Pearson.

Gundelach, Peter. 1995. Grass-roots Activity. In *The Impact of Values*, ed. Jan W. Van Deth and Elinor Scarbrough. New York: Oxford University Press pp. 412–439.

Heiss, Florian. 2002. "Structural Choice Analysis with Nested Logit Models." *The Stata Journal* 2(3):227–252.

Hitlin, Steven. 2003. "Values as the Core of Personal Identity: Drawing Links between Two Theories of Self." *Social Psychology Quarterly* 66(2):pp. 118–137.

Hitlin, Steven and Jane Allyn Piliavin. 2004. "Values: Reviving a Dormant Concept." *Annual Review of Sociology* 30:359–393.

Ho, Daniel E., Kosuke Imai, Gary King and Elizabeth A. Stewart. 2007. "Matching as Nonparametric Preprocessing for Reducing Model Dependence in Parametric Causal Inference." *Political Analysis* 15(3):199–236.

Hochschild, Jennifer L. 1995. *Facing Up to the American Dream: Race, Class, and the Soul of the Nation*. Princeton, NJ: Princeton University Press.

Hofstede, Geert. 2001. *Culture's Consequences: Comparing Values, Behaviors, Institutions, and Organizations Across Nations*. Thousand Oaks, CA: Sage.

Holland, Paul W. 1986. "Statistics and Causal Inference." *Journal of the American Statistical Association* 81(396):945–960.

Huitt, Ralph K. 1954. "The Congressional Committee: A Case Study." *American Political Science Review* 48(2):340–365.

Hunter, James Davison. 1991. *Culture Wars: The Struggle to Define America.* New York: Basic Books.

Iacus, Stefano M., Gary King and Giuseppe Porro. 2011. "Mltivariate Matching Methods that are Monotonic Balance Bounding." *Journal of the American Statistical Association* 106(2):345–361.

Inglehart, Ronald. 1971. "The Silent Revolution in Europe: Intergenerational Change in Post-Industrial Societies." *The American Political Science Review* 65(4):991–1017.

Inglehart, Ronald. 1977. *The Silent Revolution: Changing Values and Political Styles Among Western Publics.* Princeton, NJ: Princeton University Press.

Inglehart, Ronald and Paul R. Abramson. 1994. "Economic Security and Value Change." *The American Political Science Review* 88(2):pp. 336–354.

Inglehart, Ronald and Scott C. Flanagan. 1987. "Value Change in Industrial Societies." *The American Political Science Review* 81(4):1289–1319.

Jackson, David J. and Duane F. Alwin. 1980. "The Factor Analysis of Ipsative Measures." *Sociological Methods and Research* 9(2):218–238.

Jacoby, William G. 1988. "The Sources of Liberal-Conservative Thinking: Education and Conceptualization." *Political Behavior* 10(4):316–332.

Jacoby, William G. 1990. "Variability in Issue Alternatives and American Public Opinion." *Journal of Politics* 52(2):579–606.

Jacoby, William G. 1991. "Ideological Identification and Issue Attitudes." *American Journal of Political Science* 35(1):178–205.

Jacoby, William G. 1994. "Public Attitudes Toward Government Spending." *American Journal of Political Science* 38(2):336–361.

Jacoby, William G. 2006. "Value Choices and American Public Opinion." *American Journal of Political Science* 50(3):706–723.

Jacoby, William G. 2008. "Testing for Hierarchical Structure and Priming Effects Among Individual Value Choices." Presented at the Annual Meetings of the Midwest Political Science Assocation.

Jones, Bradford S. and Chad Westerland. 2006. "Order Matters (?): Alternatives to Conventional Practices for Ordinal Categorical Response Variables." Presented at the Annual Meetings of the Midwest Political Science Association.

Kahle, Lynn R. 1996. Social Values and Consumer Behavior: Research from the List of Values. In *The Psychology of Values: The Ontario Symposium, Volume 8*, ed. Clive Seligman, James M. Olson and Mark P. Zanna. Mahwah, NJ: Lawrence Erlbaum Associates pp. 131–151.

Kass, Robert E. and Adrian E. Raftery. 1995. "Bayes Factors." *Journal of the American Statistical Association* 90(430):pp. 773–795.

Kinder, Donald R. and Lynn M. Sanders. 1996. *Divided by Color: Racial Politics and Democratic Ideals*. Chicago: University of Chicago Press.

Kluegel, James R. and Eliot R. Smith. 1986. *Beliefs About Inequality: Americans' Views of What Is and What Ought To Be*. Hawthorne, NY: de Gruyter.

Knoppen, Desiree and Willem Saris. 2008. "Do we have to combine Values in the Schwartz' Human Values Scale? A Comment on the Davidov Studies." *Survey Research Methods* 3(2):91–103.

Knutsen, Oddbjorn. 1995. Party Choice. In *The Impact of Values*, ed. Jan W. Van Deth and Elinor Scarbrough. New York: Oxford University Press pp. 460–491.

Kohn, Melvin L. 1977. *Class and Conformity: A Study in Values, 2nd Edition*. Chicago: University of Chicago Press.

Konty, Mark A. and Charlotte Chorn Dunham. 1997. "Differences in Value and Attitude Change Over the Life Course." *Sociological Spectrum* 17(2):177–197.

Krosnick, Jon A. and Duane F. Alwin. 1988. "A Test of the Form-Resistant Correlation Hypothesis: Ratings, Rankings, and the Measurement of Values." *Public Opinion Quarterly* 52(4):526–538.

Kumar, Sushil and Shashi Kant. 2007. "Exploded Logit Modeling of Stakeholders' Preferences for Multiple Forest Values." *Forest Policy and Economics* 9:516–526.

Lenartowicz, Tomasz and James Patrick Johnson. 2003. "A Cross-National Assessment of the Values of Latin America Managers: Contrasting Hues or Shades of Gray?" *Journal of International Business Studies* 34(3):266–281.

Levitin, Teresa E. and Warren E. Miller. 1979. "Ideological Interpretations of Presidential Elections." *American Political Science Review* 73(3):751–771.

Lewis-Beck, Michael S., William G. Jacoby, Helmut Norpoth and Herbert F. Weisberg. 2008. *The American Voter Revisited*. Ann Arbor, MI: The University of Michigan Press.

Luce, R. Duncan. 1959. *Individual Choice Behavior*. New York: Wiley.

Luce, R. Duncan and Patrick Suppes. 1965. Preference, Utility, and Subjective Probability. In *Handbook of Mathematical Psychology III*, ed. R. Duncan Luce, Robert R. Bush and Eugene Galanter. New York: Wiley pp. 249–410.

Macrae, Duncan Jr. 1952. "The Relation Between Roll Call Votes and Constituencies in the Massachusetts House of Representatives." *American Political Science Review* 46(4):1046–1055.

Maio, Gregory R. and James M. Olsen. 1994. "Value-Attitude-Behavior Relations: The Moderating Role of Attitude Functions." 33(3):301–312.

Maio, Gregory R. and James M. Olsen. 2000. What is a "Value-Expressive" Attitude? In *Why We Evaluate Functions of Attitudes*, ed. Gregory R. Maio and James M. Olsen. Mahwah, NJ: Lawrence Erlbaum Associates pp. 249–269.

Maio, Gregory R., James M. Olsen, Lindsay Allen and Mark M. Bernard. 2001. "Addressing Discrepancies between Values and Behavior: The Motivating Effect of Reasons." *Journal of Experimental Social Psychology* 37(2):104–117.

Maio, Gregory R. and James M. Olson. 1998. "Values as Truisms: Evidence and Implications." *Journal of Personality and Social Psychology* 74(2):294–311.

Maio, Gregory R., Neal J. Roese, Clive Seligman and Albert Katz. 1996. "Rankings, Ratings, and the Measurement of Values: Evidence for the Superior Validity of Ratings." *Basic and Applied Social Psychology* 18(2):171–181.

McCann, James A. 1997. "Electoral Choices and Core Value Change: The 1992 Presidential Campaign." *American Journal of Political Science* 41(2):564–583.

McClosky, Herbert and John Zaller. 1984. *The American Ethos: Public Attitudes toward Capitalism and Democracy*. Cambridge, MA: Harvard University Press.

Miethe, Terance D. 1985. "The Validity and Reliability of Value Measurements." *The Journal of Psychology* 115(5):441–453.

Miller, Warren E. and J. Merrill Shanks. 1996. *The New American Voter*. Cambridge, MA: Harvard University Press.

Murphey, Edward F., Jr., Mark D. Woodhull, Bert Post, Carolyn Murphy-Post, William Teeple and Kent Anderson. 2006. "9/11 Impact on Teenage Values." *Journal of Business Ethics* 69(4):399–421.

Nelson, Thomas E., Rosalee A. Clawson and Zoe M. Oxley. 1997. "Media Framing of a Civil Liberties Conflict and Its Effect on Tolerance." *The American Political Science Review* 91(3):567–583.

Omoto, Allen M. and Mark Snyder. 1995. "Sustained Helping without Obligation: Motivation, Longevity of Service, and Perceived Attitude Change Among AIDS Volunteers." *Journal of Personality and Social Psychology* 68(4):671–686.

Peffley, Mark A. and Jon Hurwitz. 1985. "A Hierarchical Model of Attitude Constraint." *American Journal of Political Science* 29(4):871–890.

Pollock, Philip H., III, Stuart A. Lilie and M. Elliot Vittes. 1993. "Hard Issues, Core Values and Vertical Constraint: The Case of Nuclear Power." *Bristish Journal of Political Science* 23(1):29–50.

Poole, Keith T. and Howard Rosenthal. 1991. "Patterns of Congressional Voting." *American Journal of Political Science* 35:228–278.

Raftery, Adrian E. 1995. "Bayesian Model Selection in Social Research." *Sociological Methodology* 25:pp. 111–163.

Raftery, Adrian E. 1999. "Bayes Factors and BIC: Comment on 'A Critique of the Bayesian Information Criterion for Model Selection'." *Sociological Methods and Research* 27(3):411–427.

Roccas, Sonia, Lilach Sangiv, Shalom H. Schwartz and Ariel Knafo. 2002. "The Big Five Personality Factors and Personal Values." *Personality and Social Psychology Bulletin* 28(6):789–801.

Rokeach, Milton. 1968. *Beliefs, Attitudes, and Values: A Theory of Organization and Change*. San Francisco: Jossey–Bass.

Rokeach, Milton. 1973. *The Nature of Human Values*. New York: Free Press.

Rosenbaum, Paul R. and Donald B. Rubin. 1983. "The Central Role of the Propensity Score in Observational Studies for Causal Effects." *Biometrika* 70(1):pp. 41–55.

Rosenbaum, Paul R. and Donald B. Rubin. 1985. "Constructing a Control Group Using Multivariate Matched Sampling Methods That Incorporate the Propensity Score." *The American Statistician* 39(1):pp. 33–38.

Rossiter, Clinton. 1962. *Conservatism in America: The Thankless Persuasion*. New York: Vintage Books.

Rubin, Donald B. 1979. "Using Multivariate Matched Sampling and Regression Adjustment to Control Bias in Observational Studies." *Journal of the American Statistical Association* 74(366):pp. 318–328.

Rubin, Donald B. 1980. "Bias Reduction Using Mahalanobis-Metric Matching." *Biometrics* 36(2):pp. 293–298.

Schwartz, Shalom H. 1992. Universals in the Content and Structure of Values. In *Advances in Experimental Social Psychology*, ed. Mark P. Zanna. New York: Academic Press.

Schwartz, Shalom H. 1994. "Are There Universal Aspects in the Structure and Content of Human Values?" *Journal of Social Issues* 50(4):19–46.

Schwartz, Shalom H. 1996. Value Priorities and Behavior: Applying a Theory of Integrated Value Systems. In *The Psychology of Values: The Ontario Symposium, Volume 8*, ed. Clive Seligman, James M. Olson and Mark P. Zanna. Mahwah, NJ: Lawrence Erlbaum Associates.

Schwartz, Shalom H. 2001. "A Proposal for Measuring Value Orientations Across Nations." in ESS Questionnaire Development Report, available at http://www.europeansocialsurvey.org.

Schwartz, Shalom H. 2004. Mapping and Interpreting Cultural Differences Around the World. In *Comparing Cultures: Dimensions of Culture in a Comparative Perspective*, ed. Henk Vinken, Joseph Soeters and Peter Ester. Leiden, Netherlands: Brill.

Schwartz, Shalom H. 2005. "Basic Human Values: An Overview." available at http://151.97.110.134/Allegati/convegno%207-8-10-05/Schwartzpaper.pdf.

Schwartz, Shalom H. 2007. Value Orientations: Measurement, Antecedents, and Consequences Across Nations. In *Measuring Attitudes Cross-Nationally: Lessons from the European Social Survey*, ed. Roger Jowell, Caroline Roberts, Rory Fitzgerald and Gillian Eva. Los Angeles: Sage.

Schwartz, Shalom H. and Anat Bardi. 2001. "Value Hierarchies Across Cultures: Taking a Similarities Perspective." *Journal of Cross-Cultural Psychology* 32(3):268–290.

Schwartz, Shalom H. and Wolfgang Bilsky. 1987. "Toward a Universal Psychological Structure of Human Values." *Journal of Personality and Social Psychology* 53(3):550–562.

Sears, David O., P.J. Henry and Rick Kosterman. 2000. Egalitarian Values and Contemporary Racial Politics. In *Racialized Politics: The Debate About Racism in America*, ed. David O. Sears, Jim Sidanius and Lawrence Bobo. Chicago: University of Chicago Press pp. 75–116.

Seligman, Clive and Albert N. Katz. 1996. The Dynamics of Value Systems. In *The Psychology of Values: The Ontario Symposium, Volume 8*, ed. Clive Seligman, James M. Olson and Mark P. Zanna. Mahwah, NJ: Lawrence Erlbaum Associates.

Sheng, Shing-Yuan. 1995. "NES Measurement of Values and Predispositions, 1984–1992." National Election Studies, Technical Report No. 50.

Skrondal, Anders and Sophia Rabe-Hesketh. 2003. "Multilevel Logistic Regression for Polytomous Data and Rankings." *Psychometrika* 68(2):268–287.

Sniderman, Paul M., Henry E. Brady and Philip E. Tetlock. 1994. "The Multiple Investigator, Common Vehicle." *Public Opinions: Newsletter of the APSA Organized Section on Elections, Public Opinion, and Voting Behavior* 1(1):10–11.

Tetlock, Philip E. 1986. "A Value Pluralism Model of Political Reasoning." *Journal of Personality and Social Psychology* 50(4):819–827.

Tetlock, Philip E. 2000. Coping with Trade-offs: Psychological Constraints and Political Implications. In *Elements of Reason: Cognition, Choice, and the Bounds of Rationality*, ed. Arthur Lupia, Matthew D. McCubbins and Samuel L. Popkin. Berkeley, CA: University of California Press.

Tetlock, Philip E., Randall S. Peterson and Jennifer S. Lerner. 1996. Revising the Value Pluralism Model: Incorporating Social Content and Context Postulates. In *The Psychology of Values: The Ontario Symposium, Volume 8*, ed. Clive Seligman, James M. Olson and Mark P. Zanna. Mahwah, NJ: Lawrence Erlbaum Associates.

Verplanken, Bas and Rob W. Holland. 2002. "Motivated Decision Making: Effects of Activation and Self-Centrality of Values on Choices and Behavior." *Journal of Personality and Social Psychology* 82(3):434–447.

Zaller, John. 1991. "Information, Values, and Opinion." *American Political Science Review* 85(4):1215–1237.

Zaller, John. 1992. *The Nature and Origins of Mass Opinion.* New York: Cambridge University Press.