DYNAMICS OF MULTICANDIDATE ELECTIONS:

MENU-DEPENDENT PREFERENCES

by

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For “are” the Matriarchs:
Ida Albert
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Chapter 1: Introduction

> Ralph Nader's presidential bid is a self-indulgent crusade that could gull some voters into thinking that there were no policy choices between Al Gore and George Bush.
> - Editorial. *The New York Times*. October 26, 2000, p. A30.

Are concerns that minor party candidates confuse or distract voters valid? To answer this question, one must investigate how the presence of more than two options affects the decision making process. Might some alternatives systematically prove more appealing in a crowd of three or more options rather than in a binary choice?

Classic "rational" economic choice theory assumes that decision-making should not be sensitive to the set of alternatives. The subjective value, or utility, for an item depends on the item's intrinsic attributes. The order of preferences for two options, x and y, depends on the qualities of x and y and should not depend on whether z is available or not. In politics, a voter's utility for candidates or parties seeking office stems from the candidates or parties' issue stances and other characteristics relative to the voter's own beliefs. Anthony Downs' (1957) spatial theory of voting assumes voters select the candidate or party closest to their ideal point. Voters have complete and transitive preferences. Therefore, choices are assumed to be invariant and unaffected by question order, method of evaluation or size of the choice set. Rational decision-makers are thought to be easily able to calculate exchange rates between items or attributes, executing necessary trade-offs in order to identify the best option. Relative preferences over the set of alternatives are unaffected by the set of options because other options are irrelevant to the assessment of the distance between each alternative and the voters'

ideal and should not factor in the exchange rate calculations. Accordingly, a voter's decision between Presidential candidates Republican George W. Bush and Democrat Al Gore should not be influenced by the presence of Green Party nominee Ralph Nader or any other third-party candidate.

If preferences were sensitive to the set of alternatives, these preferences would violate axioms of regularity and independence of irrelevant alternatives. R. Duncan Luce's (1959) axiom of independence of irrelevant alternatives assumes that the relative odds of one of the candidates already in the race being chosen should be independent of the presence or absence of the unselected alternatives. Regularity assumes that if people are choosing between two items, the probability of choosing those two items should decrease or remain the same when additional items are added to the choice set. New alternatives should either draw support equally from the existing alternatives or disproportionately from similar alternatives (the "substitution effect"). I test the proposition that the opposite might occur and a new alternative might make the similar alternative more likely to be chosen by the decision-maker.

Luce's axiom of independence of irrelevant alternatives should not be confused with Arrow's (1963) postulate often given the same name (see also Vickrey 1960). Arrow's condition of irrelevance of independent alternatives refers to violations of ordinal choices or rankings of options. Arrow's postulate suggests that additional alternatives should not change the *social* choice; the social ranking of any two alternatives should depend only on how the voters order these two alternatives. If x is preferred to y when

the choice set exclusively consists of x and y, then x should be preferred to y even after z is added to the choice set. Arrow's theorem concerns the appropriateness of social decision procedures. In this thesis, I am concerned with individual preferences and voting decisions. I am interested in how the presence of a third-party candidate influences an individual's preferences over the candidates rather than how the candidacy changes the outcome of the vote.

By looking at individual preferences, I test the assumption of rational choice theorists that someone who intends to vote for George W. Bush for President in 2000 will not change their vote to Al Gore after Ralph Nader or Patrick J. Buchanan (the Reform Party's nominee) join the race. This might be surprising to pollsters who found that Nader's candidacy hurt Al Gore by winning votes that would otherwise have been cast for Gore. However, these polls cannot tell us whether other voters voted for Gore instead of Bush because of Nader's influence on their decision. I will show that it is plausible to expect voters' preferences to be context dependent, so a third-party candidate can affect voters' deliberation. This context- or menu- dependence is the result of a comparative process of all the candidates during which many decision-makes tend to construct their preferences and/or struggle to make trade-offs between attributes.

Even though scholars assume context independence and a substitution effect (Tullock 1967; Riker and Ordeshook 1968), consider the following three examples:

1. In 1948, President Harry Truman's main challenger was Republican Thomas Dewey, but he also campaigned against Progressive Henry Wallace and

Dixiecrat Strom Thurmond. These additional candidates attracted voters that otherwise would have voted for the Democrat. Truman prevailed, of course, after famously winning the votes of a majority of those voters who were undecided until shortly before election day.

2. Carlton Fisk and Gary Carter both enjoyed distinguished careers as all-star catchers in the major leagues between 1975 and 1995. To be elected to the Baseball Hall of Fame, retired players must be named on 75% of the ballots cast by members of the Baseball Writers' Association of America. After his first year on the ballot (when there is additional prestige attached to election), the votes Carter received across three consecutive years varied despite nearly the same electorate and the same rules of voting. Carter received 168 votes in 1999 (33.8%) when four first-time candidates were elected, but not Fisk. In 2000, Fisk and one other player were elected, and Carter received 248 votes (49.7%). In 2001, with Fisk no longer on the ballot, the vote for Carter surged to 334 votes (64.9%, sources include Associated Press and USA Today news stories).

3. In 1996, members of Taiwan's Democratic Progressive Party (DPP) became frustrated with perceived wavering by party leaders on the core issue of Taiwanese independence. So, they formed the Taiwan Independence Party (TAIP), intending to capture the votes of the most ardent pro-independence Taiwanese. The other Taiwanese parties advocate some form of unification with China, including the dominant Kuomintang (KMT). Despite losing key activists

and votes (especially in the legislative Yuan) to the upstart TAIP, the DPP initially improved its electoral fortunes in local and national plurality votes. In November 1997, DPP candidates won 43.47% of the vote (up from 41.2% of in 1993) in the county magistrate elections. This small increase helped DPP candidates double the number of victories achieved in the previous election four years earlier. In December 1998, the incumbent DPP mayor of Taipei, Chen Shui-bian increased his share of the vote over 1994 despite losing narrowly. In March 2000, the Chen was elected Taiwan's first non-Kuomintang President (Sources include http://www.taiwandc.org and Professor Emerson Niou).

Recent scholarship suggests that what happened to President Truman, Gary Carter and the DPP were not isolated historical quirks, but actually a systematic phenomenon. A body of scholarship in behavioral decision science that has focused primarily on private consumer decisions over private goods suggests that many decisions are menu-dependent. Scholars (Burton and Zinkhan 1987; Bhargava, Kim, and Srivastava 2000; Heath and Chatterjee 1995; Huber, Payne, and Puto 1982; Mishra, Umesh, and Stem 1993; Ratneshwar, Shocker, and Stewart 1987) have demonstrated the presence of an attraction effect that causes products to benefit from comparisons with competing brands. The effect is especially pronounced if the decision-maker is satisficing or trying to minimize effort (Simon 1955).(Dhar, Nowlis, and Sherman 2000) Comparisons help the decision-maker resolve or avoid difficult trade-offs associated with the purchasing decision (Luce, Bettman, and Payne 2001; Beattie and Barlas 2001), by making it easier to justify the purchasing decision (Huber, Payne and Puto 1982, Pettibone and Wedell

2000), or by making the product appear to be a compromise choice between other desirable alternatives (Simonson 1989, Simonson and Tversky 1993).

Even though this research focuses on private decisions, several accounts of the 1948 campaign suggest that what transpired is consistent with theories of a compromise effect. Irwin Ross (1968) and Samuel Lubell (1952) thought that Thurmond and Wallace made Truman more appealing to voters deciding between Dewey and the incumbent, especially to many blacks and Catholics. Both authors credit Truman with appearing liberal on civil rights relative to Thurmond, tough on Communism relative to Wallace, and a principled moderate who would not radically disrupt the status quo in contrast to the dramatic policy changes espoused by his opponents.[1] As a result, Truman won despite rational choice assumptions that the candidacies of Thurmond and Wallace would hurt his reelection hopes.

I seek to demonstrate that what happened to Truman was not an isolated historical quirk, but actually a systematic phenomenon that applies to politics. Other anecdotal evidence indicates that extreme alternatives can assist a moderate candidate. Most recently, last year in The Netherlands, the social conservative Christian Democrats dramatically increased their vote share relative to their traditional opponents in the center and the left despite the strong showing of the anti-immigrant Pim Fortuyn List.

The goal of this investigation is to compare how voters evaluate candidates in two- and multi- (three or more-) candidate races. My central hypothesis is that the number and

[1] I am grateful to Christopher Schulten for pointing out and explaining this case. For detailed review of case, see Ross (1968, Ch. 11).

type of candidates in an election campaign systematically influence how voters evaluate candidates. Following recent work in the psychology and economics of decision-making, I argue that people's attitudes are dependent on the menu of choices they are faced with (menu-dependent preferences, also called context-dependent preferences, or state-dependent preferences). When there are two candidates campaigning for an office, perceptions of each candidate and feelings for or against each candidate are arrived at through a process of binary comparison (Fiorina 1981; Key 1966). If perceptions and preferences depend on the menu of alternatives, perceptions and preferences should change when there are more alternatives to compare.

Several factors dependent on the menu of alternatives contribute to these violations in ways that can make the moderate candidate more appealing. Varying the set of options highlights different attributes, affecting perceptions of certain qualities (Riskey, Parducci, and Beauchamp 1979) affecting what is seen as salient differences (Lowenthal 1996; Rosenstone, Behr, and Lazarus 1996) and judgments of similarity (Tversky, Slovic, and Sattath 1988; Tversky 1977). The desirability of certain attributes becomes easier to evaluate in comparative settings (Hsee 1996; Hsee and Leclerc 1998) and particular attributes loom larger in comparative evaluations (Bhargava, Kim, and Srivastava 2000; Tversky and Thaler 1990). Feelings towards an option can vary depending on what alternatives surround it, especially if the decision-maker is relying on qualitative or lexicographic arguments to find the best alternative (Tversky, Slovic, and Sattath 1988; Payne, Bettman, and Johnson 1993; Lau and Redlawsk 2001). The presence of certain options may make certain decisions easier to justify (Simonson

1989) or reduce the level of anxiety associated with the choice (Pettibone and Wedell 2000). Mitigating these contextual effects should be common and available cues such as the candidate's party affiliation and the race of the candidate.

At times, consumers must construct their preferences over the qualities of a good because they are not experienced purchasers of those goods or because the values associated with those goods change frequently. When this is the case, consumers depend on the choice process to help them construct their preferences so they can complete the choice task (Bettman 1986; Hogarth 1987; Payne 1982; Fischoff, Slovic, and Lichtenstein 1978; Slovic 1995). In mature democracies, most adults are experienced voters, but the candidates, the issues, and their concern for those issues change over time. Thus, we might expect voters to also construct their preferences, especially "swing" voters who tend to not be very engaged in politics and can be easily influenced over the course of the campaign (Converse 1962; Zaller 1992).

Despite the profusion of research demonstrating menu-dependent choice behavior, only a few scholars have examined menu-dependent preferences when the choices are collective or over public goods (Rotter and Rotter 1966; Lowenthal 1996; Callander and Wilson 2001).[2] Understanding the dynamics of multi-candidate elections will help scholars understand the differences in choice and campaign strategy in two-party

[2] Choices are categorized with regard to how many people are making the decision and how many people are affected by the decision. When one person makes a decision that only affects him or herself, such as which stereo to buy, then that choice is a private decision over a private or non-coercive good. When one person makes a decision that affects many people, then the decision is private, but coercive. When many people make a decision that affect only one person, then the choice is collective but coercive. An example of this is jury decisions, which have been studied by behavioral decision theorists. Decisions that influence many people and are made by many people include all elections.

systems and the multiparty systems prevalent elsewhere around the world. Consequently, the results of this study will influence recent discussion about facilitating minor party access to the ballot, such as laws that allow fusion ballots (Disch 2002).

In this thesis, I present the results from a series of experiments on decision-making and electoral choice. This experimental design is important because in the real world, scholars cannot vary the number of candidates running in a campaign.[3] In Chapter 2, I define menu-dependent preferences, discuss the possible causes of choice behavior consistent with these causes, and differentiate menu-dependent preferences from non-separable preferences. In Chapter 3, I investigate how perceptions of the issue positions of the candidates are influenced by providing different anchors, either in the form of other political figures or additional candidates. I present evidence from two experiments that help me understand the consequences of varying the anchor on the placements of the candidates on a series of issue-scales. Two experiments and British survey data allow me to examine what happens to voter perceptions of the candidates when the choice set changes. In Chapter 4, I present results from an experiment into how the choice set influences those who find the decision to be difficult in systematic ways and ways that the choice set affects the relative weight of the choice dimensions. In Chapter 5, I use answers to questions about policy questions to understand better how enlarging the choice set can increase the amount of information given to the decision-maker and

[3] In the United States, it is common for minor party Presidential candidates to fail to gain ballot access in every state. However, even if the candidate is not on the ballot, voters tend to be aware that the candidate is in the race from the national media coverage (or conversely, be unaware of some of the candidates even if they appear on the ballot). Abroad, there are parties that are only active in particular regions in countries like Canada, Australia and Britain. However, voters in other regions are generally aware of their presence (see Miller et al. 1990).

affect the difficulty of the choice. The results of these studies will help scholars better understand how voters make decisions, and, by extension how politicians can strategize to win their support. In the conclusion, I evaluate the implications of these findings for institutions that restrict the number of candidates running for office in the United States.

From Two Candidate to Multi-Candidate Elections

When there are more than two options, commentators like the New York Times' editors quoted at the start of this introduction, are concerned that voters will become distracted and confused. Binary choices in elections can be simple for individuals, and therefore political scientists tend to be more confident in their abilities to make an informed choice. For example, an impression of the state of the country since the last election can be used to make an informed choice for or against the incumbent President (Fiorina 1981). Bowler and Donovan (2000) found that voters can be expected to evaluate ballot propositions competently, selecting propositions judged to be an improvement over the status quo.

Binary choices also have fewer complications from a social choice perspective. No winner (or winning policy) can take office (or become law) without the consent of a majority of the population. Scholars dating back to James Madison embraced the idea of a unified government opposed by a strong opposition.[4] Letting a simple majority determine the outcome of a choice between two possibilities is consistent with the

[4] Committee on Political Parties of the American Political Science Association. *Toward a More Responsible Two-Party System* (New York: Rinehart, 1950).

democratic purposes of voting. Simple majority decisions between two options do not differentiate among voters and the process is neutral to candidates (Riker 1988).

According to Riker (1988), the problem with binary choices is that they rarely occur. Instead, they must be artificially generated through methods that can violate ideas of fairness. Legislatures employ a committee system and modify bills through a succession of amendments. In mass elections, sore loser laws prevent candidates who lose party primary battles from entering the general election as independents or as standard bearers of other parties. American presidential candidates with fewer than 15% of the popular support in the polls are not invited to presidential debates broadcast on national television. These restrictions are supported by the parties in government to protect their ability to win elections and agenda control over the legislative body. Despite these barriers to participation, third parties continue to contest elections and have won congressional seats and gubernatorial elections in recent years. Most third party candidacies lose, yet historically some of these candidates impact the outcome of an election through the introduction of a new, salient political issue (Rosenstone, Behr, and Lazarus 1996; Lowenthal 1996).

Scholars of comparative politics have been very interested in recent years in how the number and size of political parties affects voting behavior and party strategies (Kitschelt 1993). Much of this research has focused on how the political context of a system mediates the relationship between the economy and the support for the government (Lewis-Beck 1988; Paldam 1991; Powell and Whitten 1993; Anderson

2000). This relationship is very unstable across countries and within countries over time. The variety of parties in the system (i.e. the number of parties, their size and/or the fractionalization of the party system) plays an important role in the assignment of credit or blame to the incumbent party. The set of alternatives to the incumbent party affects whether there is an alternative governing coalition, a depository of protest votes, or no way for a voter to register her displeasure. Anderson (2000) found that increasing the number of alternatives to the government increased support for the governing parties (or party) and reduced the rate of defection from them. He speculates that voters in these fragmented systems may have stronger partisan attachments but this contradicts other work on partisanship (see Tillie 1995). Powell and Whitten (1993) argue that clarity of responsibility decreases with additional parties, and consistent with the literature on behavioral decision theory, voters prefer simple to complicated sets of choices. Beyond these findings, we know very little about how enlarging the choice set influences the voter, especially when the additional candidates inhabit the fringe and should be irrelevant to most Americans choosing between the major party candidates.

Irrelevant Alternatives?

The assumption that enlarging the choice set is irrelevant to the voter's choice is included in most rational choice models of voter choice. The spatial proximity model of voting depicts a voter's choice as taking place within a space defined by each possible position taken on every relevant issue. The dimensions of the space are defined by the number of issues. Political scholars assume that the decision-process is started by the voter locating his or her ideal point within this space. When there is more than one

relevant issue, each dimension is weighted, with the most important issues receiving larger weights. Each candidate's stance on each issue is valued relative to the voter's ideal point. The value of the attribute is multiplied by the weight of that dimension and added to the product of the other dimensional attributes to arrive at the utility for the voter. Rational choice theory assumes that by performing this calculation, voters can form opinions of all the candidates (completeness) and rank order all of the candidates, making judgments as to which ones they prefer and which they are indifferent between (transitivity). Votes are cast for the candidate with the highest utility.

When assuming completeness and transitivity, one assumes that the decision-maker has already formed an opinion about the candidates, preferring one to the other or is indifferent between all the candidates running for election. Because preferences are assumed to be complete, voting models assume context independence so opinions of the candidates currently in a race should not change simply because a new candidate has entered (Sen 1997; Hinich and Munger 1994; Denzau and Parks 1979). If the new candidate is the preferred choice of some of the voters, Luce's (1959) axiom of independence of irrelevant alternatives assumes the odds of choosing one of the candidates already running should be reduced proportionately.

McFadden (1974) explains that the problem with this axiom is that there cannot be differential substitutions and complements among the alternatives. According to Luce's assumptions, a liberal candidate like Nader would win votes proportionately from both Gore and Bush. As a result, the assumption does not characterize observed behavior

very well. McFadden's work on transportation demand resolved the problem of differential substitution by imposing a nested design on the choice process. In the nested design, similar alternatives are grouped together. First the decision-maker selects a group of related alternatives. After a grouping is selected, the decision-maker chooses an alternative from within the group. Additional alternatives similar to those within the group do not make it more likely for the group to be selected. Because these new alternatives are grouped with related alternatives, individuals choosing within a different group, or from alternatives outside of that group, are unaffected by introduction of these related alternatives. These additional alternatives are simply irrelevant to those choosing among alternatives outside of the group. To illustrate, in the French Presidential Election of 2001, there were [at least] four Communist candidates (Arlette Laguiller of Lutte Ouvrière, Olivier Besancenot of Ligue Communiste Révolutionnaire, Daniel Gluckstein of Parti des Travailleurs, and Robert Hue of Parti Communiste Français). McFadden's nested or conditional model assumes that voters first consider voting for a Communist, a Socialist, a Gaullist, etc. After choosing to vote for a Communist, they would then pick one of the four Communists. Non-Communist candidates benefit from additional Communist candidates only because the Communists split the vote of the Communist voters, not because they are valued higher as a result of the large choice set.

McFadden demonstrates that by assuming a nested structure, his model can explain aggregate decisions over such items as freeway routes, labor force participation, college enrollment, housing location, rural-urban migration, and modes of urban work and

shopping trips. Luce's assumption is most accurately applied when the alternatives are distinct and independent. The two models cannot be applied to the complete universe of choice problems. Neither the strong conditions of independence laid out by Luce nor the conditions of a nested choice applied by McFadden will apply to every choice situation or every decision-maker making the same choice. A mixture of the two models may be observed. Faced with the same choice, some decision-makers may operate in a manner consistent with the nested model, but others might treat each option as independent. Some Gaullists will be unaffected by the many Communists, but others may change their preferences.

Consequences of Menu-Dependent Preferences

Testing which choice model best applies and whether there have been any violations of the choice axioms is difficult because many observed choices will be exactly the same. For example, consider someone who is deciding to buy an apple or an orange at the supermarket and selects an apple. After she considers purchasing a banana instead, we cannot tell if her preferences are conditional on the menu of alternatives if she chooses the banana or the apple. Proof that her preferences are menu-dependent would occur only if she *appears* to be choosing randomly or inconsistently by picking the orange after considering the banana. However, the choice may not be random or inconsistent. The banana may remind the fruit customer of the value of potassium (found in oranges and bananas), or draw more attention to the cost or the quality of the items.

The same is true for voting. Shortly after the formation of the Republican Party in the 1850's, a Northern Whig might vote Republican because the Republicans are closer to

his view on slavery or because he thinks that the Republicans are better positioned than the Whigs to unseat the Democratic President. Both choices are consistent with a nested model or a model that assumes independence of irrelevant alternatives. Only if the voter changes his vote to Democrat because the Republicans are in the race can there an apparent violation of regularity. Only if many such violations are observed should one question whether microeconomic models fail to accurately depict the voter's decision-making process.

Researchers into consumer behavior have been demonstrating regularities when irrelevant alternatives ("decoys") like the banana are added to the choice set (Huber, Payne, and Puto 1982; Tversky and Simonson 1993). Special decoys increase the probability that the "target" alternative will be chosen even though they are chosen by few decision-makers. Scholars categorize decoys as dominated or non-dominated. Dominated decoys have one or more features that are worse (or less desirable) than those of a target and no feature that is better (see Figure 1). When a decoy is dominated by only one target, the decoy is asymmetrically dominated by the target and tends to make the target more desirable relative to the other alternatives in the choice set. Some non-dominated decoys similarly increase (but to a lesser extent) the desirability of the target (Pettibone and Wedell 2000). These decoys include those that make the target appear as a compromise, those very similar to the target, or inferior options that are not actually dominated but whose combination of features rarely appear as desirable as the target. Instead of immediately dismissing the irrelevant decoys, Quiggin (1982) and Weber (1994) argue that subjects pay attention to best and worst possible outcomes in

the choice set. As a result, voters may be attentive to information provided by even the most disliked fringe candidates. These effects are very robust and have been observed across a range of choice domains (see Bhargava, Kim, and Srivastava 2000).

These decoys create contrast effects that affect the way consumers perceive their options, develop preferences and make choices.[5] For example, Simonson (1989) asked subjects to choose a favorite from four televisions that varied by price ($126-503) and picture quality rating (65-100). He presented two or three sets to each respondent. When the $299 set with an 80 rating appeared as the compromise, the percentage of participants that selected the set increased from 23% to 48%. When the $350 television with an 85 rating appeared as the compromise, its "market share" rose from 43% to 51%. The effect of the decoy is smallest when people have well-articulated preferences for one of the options (Simonson and Tversky 1992; 1993). Since many American citizens similarly appear to have ill-defined and non-ideological beliefs about politics, we can expect that menu-dependent preferences will be common in mass politics.

Causes of Menu-Dependent Preferences

There are two categories of explanations for the violations of regularity that occur when these decoys are introduced. One posits that the change in the menu of alternatives has an epistemic (or informational) effect. The second suggests that elements in the choice set influence the decision-maker emotionally or through other mechanisms not directly

[5] Some scholars distinguish between contrast effects that emphasize differences between stimuli and assimilation, (or "similarity") effects that emphasize similarities between stimuli (see Highhouse 1996; Murphy et al. 1985). Here I use contrast effects in a general sense that implies that assimilation and similarity effects are low level contrast effects.

related to a change in salient information. These causes can act in tandem with each other (Pettibone and Wedell 2000).

Epistemic (Informational) Effects

Information effects are caused by the decision-maker's attentiveness to each of the alternatives in the choice set before making a decision. More and different options provide information that makes attributes appear more or less desirable or makes certain dimensions more salient. Scholars propose two different explanations consistent with value maximization models of choice (categories derived from Wedell 1991; Wedell 1991; and Pettibone and Wedell 2000). Both of these explanations, because they rely on a change in the level of information accessible by the decision-maker, are also consistent with models of constructed preferences (Payne, Bettman, and Johnson 1993).

Value Shift explanations assert that the attractiveness of the dimensional values of the options changes. There are two theories explaining why:

- **Range Frequency.** The range frequency is a combination of two principles of judgment, the range and the frequency principles. According to the range principle, judgments are made relative to the endpoints of the range (Volkmann 1951). The decoy may extend the perceived range on one dimension, so one option no longer appears at an extreme endpoint. The frequency principle assumes that each segment of the scale is assigned to the same number of stimuli. As a result, judgments are easily influenced by the skewing of the distribution, increasing the judged contrast of unusual stimuli. The two

principles are combined in roughly equal weights in a variety of contexts to account for sensitivity to both endpoints and the relative frequencies or spacing of the stimuli (Parducci 1995). The overall attractiveness of that option increases because it is no longer the worst alternative along that dimension, because it no longer appears far from the ordinary or extreme, or because it does appear close to the mean.

- **Loss Aversion.** Extremes highlight sacrifice relative to a reference point. People are hesitant to sacrifice any value or utility along one dimension even in exchange for gains along another dimension (Tversky and Kahneman 1991; Simonson and Tversky 1992; Herne 1998; Highhouse 1996; Highhouse and Johnson 1996).

In contrast to changing the attractiveness of the dimensional values, **weight change** models claim that the importance or relative weighting of the dimensions changes. When the decoy has a notably low (or high) value on one of the dimensions, this dimension will become more important to the decision-making process. Hsee and Leclerc (1998) found that dimensional attributes that were difficult to evaluate in isolation, but easy to evaluate in comparison, caused that dimension to weigh more heavily in decisions when the comparisons were provided (see also Lowenthal 1996). Pettibone and Wedell (2000) report that there is relatively little evidence in the literature to support the weight-change model as an explanation for violations of regularity.

Non-Informational or Emotional Influences

Another set of forces appear to be strongest when the decision-maker must adapt or construct beliefs and preferences during the choice process (Slovic 1995; Payne, Bettman, and Johnson 1992). When this is true, choices tend to be context- and comparison- sensitive (Payne 1982; Tversky, Slovic, and Sattath 1988; Dhar, Nowlis, and Sherman 1999) because decision-makers frequently restructure the decision problem to reduce conflict and indecision.[6] Conflict is particularly common when the decision-maker must make some trade-off between attributes of the items in the choice set (Heath and Chatterjee 1995; Beattie and Barlas 2001). Many decision-makers will adjust their decision-making pattern to avoid this conflict (Payne, Bettman, and Johnson 1993; Bettman et al. 1993; Luce, Bettman, and Payne 1997). Zaller and Feldman (1992) found that on political surveys, most Americans feel conflicted between opposing considerations and values.

Tversky, Sattath and Slovic (1988) describe a lexicographic decision-making process that allows the decision maker to reduce mental effort and helps the decision-maker identify a compelling argument for choice. First, the decision-maker observes whether there exists one option that dominates the others. If none, the decision-maker may reorder the attributes to produce a dominant alternative (Montgomery 1983). If none still appears dominant, the decision maker searches for one with a decisive advantage that outweighs the advantages of the other options. If no option has a decisive

[6] Abelson and Levi (Abelson and Levi 1985) described decision making under preference uncertainty as involving discomfort, conflict and even pain.

advantage, the decision-maker tends to rely on the most important attribute (Nowlis, Kahn, and Dhar 2002).

Tversky, Sattath and Slovic (1988) found that their subjects most often chose the option superior on the most important attribute. However, Wedell and Pettibone (1996) proposed an "emergent-value" model that argues that decision-makers use information about the configuration of elements in the choice set to provide additional reasons for making a decision. These reasons include the ability to justify the choice to others ("justifiability") identified by Simonson (1989), and evaluation anxiety related to the selection due to potential criticism of the decision.[7]

These factors are particularly important when the decision-makers are uncertain about their own preferences, indifferent or grabbling with a difficult choice that includes complicated "trade-offs." The more complex the decision, the larger the information costs, and the more likely decision-makers will employ a shortcut to make the decision or the decision-making process easier (Simon 1955). Judgments such as feeling thermometers should generate less anxiety. The number of options being considered, the desirability of those objects, and/or the attributes of the objects in the choice set can influence the difficulty of the decision (Beattie and Barlas 2001; Heath and Chatterjee 1995). If the objects are complicated, include many features, or if they have attributes that are hard to understand, anxiety or the level of subjective threat associated with making the decision tends to increase (Luce, Bettman, and Payne 1999). If there is a

[7] The presence of a dominated alternative increases justifiability and decreases evaluation anxiety (Huber, Payne, and Puto 1982; Montgomery 1983; Luce 1998), while Simonson (1989) found that a compromise decoy decreased anxiety but not justifiability.

path of action that continues habitual behavior, anxiety tends to decline (Marcus, Neuman, and MacKuen 2000). The act of choosing could induce higher levels of anxiety if the outcome of the choice will affect others or will be evaluated by others (Tetlock 1985). Other shortcuts might be taken to reduce ambivalence between two options when making a political decision (Alvarez and Brehm 2002). These strategies should be particularly common in political choices when the decision cannot be avoided (Dhar and Simonson 2003).

The more difficult the decision, the likelihood of the decision-task causing the decision-maker to become anxious about whether they are making the correct decision increases. A similar, yet arguably different construct is justifiability, the use of a compelling argument for the decision in anticipation of the decision coming under criticism by peers (Simonson 1989; Shafir, Simonson, and Tversky 1993; Shafir and Tversky 1992; Pettibone and Wedell 2000). Slovic (1975) argued that people seek a choice mechanism that is easy to explain and justify. When decoys are added to the set, the target becomes more desirable because it either reduces the anxiety associated with the decision or it is easy to justify.

These two causal mechanisms are not mutually exclusive. Pettibone and Wedell (2000) tested a "dual process" model that hypothesized that emergent value and value shift constructs drove menu dependent judgments and choice. They found that the extent to which subjects employed each model depended on what type of decoy was included in the choice set. For instance, the value-shift model did not play a role in determining the

impact of the compromise effect. This finding suggests that the farther the decoy is positioned away from being dominated, the less likely the value shift model can be used to explain decoy effects.

Applications to Campaign and Elections

At the aggregate level, these findings are important for marketers to understand how enlarging the product line or introducing new competitors will affect market share. If marketers assume preferences are monotonic and ordered, adding an extreme option should reduce support for the most similar alternative more than the other options (the "substitution effect," "ranking condition," "similarity effect," or "betweeness inequality," see Tversky and Simonson 1993). The interesting conclusion of the literature on menu-dependent preferences is that an extreme option might trigger an attraction effect, making the target more desirable to many consumers and increase its market share.

If these effects boost market share of consumer products then these mechanisms could also influence the vote. Earlier, I discussed the 1948 Presidential Election and the conclusion of Irwin Ross (1968) and Samuel Lubell (1952) that the Thurmond and Wallace candidacies made Truman more appealing to voters deciding between him and Dewey. Anderson's (2000) finding that the number of alternative parties increased support for the incumbent is consistent with Truman's election. So, perhaps there are times when candidates should encourage opponents on their flank when they battle their traditional opponents? According to this logic, the rise of the Green Party in Germany might have helped the SDP appear more moderate, especially after Gerhard Schroeder

became the party's leader.[8] If true, consultants should recommend that socialist parties in France or Italy encourage communist candidacies so they do not appear extreme, impractical or fanatical.

A centrist or compromise candidate, whose positions minimize the required tradeoffs between the other candidates in the race or represents the smallest change from the status quo, may prove to be more popular than others similarly distanced from the respondent's ideal ("extremeness aversion," Simonson and Tversky 1992).[9] Voters may simply be averse to any option that is seen as extreme or dramatically inferior on one dimension. The voter may be aware of another candidate not in the choice set (a phantom decoy), such as a primary opponent or a retiring incumbent, whose absence influences the voter's choice (Lowenthal 1996).

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[8] Most observers describe the SDP movement to the center after Schroeder became leader of the party instead of Oskar Lafontaine. The Green Party encouraged many left-wing activists to switch parties, enabling the moderate left to take control of the party apparatus. This study focuses on the perceptions of the voters, asking whether the presence of the Greens made the move towards the center more convincing in the minds of the voters. The British Labor Party in the late-1980's and early- 1990's had a hard time convincing voters that they had moved towards the center without the presence of a strong Green Party.

[9] Extremeness aversion may be the result of a cultural inclination towards moderation in government, but extremeness aversion may require us to assume a normal distribution of opinion in a polity. For consumers, extremeness aversion is theoretically linked to loss aversion. When considering a cheap and an expensive product, the cheap products' inferior quality and lack of special features will loom large in the consumer's mind. The expensive products steep price may also be a concern relative to the cheap alternative. An intermediate product minimizes the loss of quality or features of the cheap products, but also minimizes the sticker price shock of the expensive product. Extremeness aversion in collective choices is different. The moderate or centrist candidates may be more desirable when preferences in the polity are distributed normally because they are seen as having a better chance of winning. On many measures, such as liberal-conservative ideology and related issue-preference questions, many Americans tell investigators that they hold moderate views. Fewer choose to be identified at the extreme ends of the scales. This is not true in every country, since in some places the space between two strong positions is virtually empty (Northern Ireland, with its divisions between Catholics and Protestants is the most frequently cited example). There may be an element of a system/anti-system divide mitigating the extremeness aversion for those people who place themselves to the far right or left of the center of a scale. So, the relevance of extremeness aversion may be time and place dependent. Thanks to Neil Carlson for highlighting this point.

Recent scholarship suggests that it would be reasonable to see these effects in politics. Marcus, Neuman and MacKuen (2000) explored the relationship between emotions, cognitive evaluations and political behavior. They propose a model of behavior, called affective intelligence, which posits that there are two independent forces, anxiety and enthusiasm, driving much political decision-making. Anxiety will undermine the tendency to rely on long-standing political habits (p. 63). They trace this anxiety to the introduction of new information, which could be the result of an additional candidate or the issues raised by that candidate.

Theoretic Extensions to Behavioral Decision Making

Asking whether it is plausible to expect an attraction or compromise effect in political choices introduces four complications not found in the literature on menu-dependent preferences. One, individual preferences tend to be over the space of possible policy outcomes like peace and prosperity (Rokeach 1973), but the choice set is restricted to a set of specific candidates. If a consumer has preferences over stereos and the relevant features of those stereos, the consumer chooses between stereos with some combination of those features. Choices over gambles or lotteries introduce risk into the equation, and decision-makers can choose to accept those risks. But even if voters prefer peace and prosperity, they can only cast votes for candidates espousing policies claiming to achieve the desired outcomes. Consequently, there is uncertainty about the outcome of the election and the performance of the candidates as office-holders.

Second (but stemming from the first), the attributes of options being considered are not exogenous to the choice. Strategic actors actively seek to manipulate how the voters

(the choosers) perceive and evaluate the options being considered. Riker (1988, p. 211) argued that "features of the environment" affects the selection of both "creatures and issues." Successful politicians instinctively know which issues to politicize and which to de-emphasize (Page 1976; Carmines and Stimson 1989). The number of options under consideration alters the candidate's strategy, especially attack strategies that tarnishes the image of the attacking candidate relative to a candidate remaining above the fray (for examples, see Toner 1992; Abramson et al. 2001).

Third, a consequence of the endogeneity of candidate strategies is variation in the weight and the number of dimensions relevant to the choice. In the consumer experiments, the number of issue-dimensions is carefully controlled. In the earlier example I recounted, Simonson (1989) only provided information about the camera's price and quality. Many polities in the industrialized world experience political cleavages along two dimensions, one covering differences of opinion on economic issues, and the other covering the range of opinion on social issues. When a new party forms, these cleavages may not remain static. In the Figure 2, I illustrate the policy space formed by these two dimensions, left-right economic issues on the horizontal axis and liberal-conservative social issues on the vertical axis. Many Democrats, believing in government intervention in the market and liberal social issues, would be found on the top-left. The "religious right" that opposes liberal social policies like marriage rights for homosexuals and supports tax cuts are found in the bottom-right corner.

I illustrate the theoretical effect of a new candidate or party on the number of salient dimensions in Figure 2 with the Green Party, a party that became active in many Western countries over the past twenty-five years. This party helped introduce a new dimension that I label "G" for "green" or environmental issues. If a Green candidate like Ralph Nader injects this issue into the campaign, then voters will evaluate the candidates over three dimensions, not just two. As a result, the candidate closest to the voter in two-dimensional space may no longer be the closest candidate to the voter's ideal point.

Fourth, knowing what (or who) other people like is not relevant to private decisions, but it is relevant to collective choices over more than two options and decisions that may be evaluated by others. In multi-candidate elections, a voter must consider the distribution of preferences across the polity after evaluating the different parties or candidates. If the voters' favorite candidate attracts few supporters, the voter must decide whether he should vote for a losing cause. The multi-candidate calculus of voting models voting as a function of the benefits the voter receives from the candidate's policies if elected to office and the probability of the vote making a difference in the campaign (Riker and Ordeshook 1968; McKelvey and Ordeshook 1972). Votes cast for candidates close to the voter's ideal policy points will be "wasted" if the candidate has little chance of winning. Candidates who are perceived as being in a close race with another candidate are the most likely to attract votes from supporters of other candidates. Most instances of defection from the preferred candidate (measured by feeling thermometers or proximity from an ideal point) can be explained by strategic considerations, as voters

back more viable candidates (Abramson et al. 1992; Blais and Nadeau 1996; Cox 1997). This behavior is consistent with Tversky's (1972) "elimination by aspects" (EBA) model that argues that decision-makers process information in a dimension-wise fashion. Alternatives that fall below a threshold value are immediately eliminated so the voter can focus on viable candidates. So, candidates must project their viability in addition to their policy positions.

The importance of viability makes collective, political decisions an interesting application of the behavioral decision theory literature on menu-dependent choices. Concerns about viability, the likelihood of being the social choice, makes other people's preferences important in social decisions. Viability is not an important influence in judgments, private decisions, or even binary choices. If viability is an attribute dimension, than the transformation of the choice from a two-candidate race to a multi-candidate race changes the weight of the dimensions. While not surprising to political scientists, this would be contrary to recent findings of little support for dimensional weight arguments in behavioral decision theory (Pettibone and Wedell 2000).

The biggest challenge posed by viability to the study of menu-dependent preferences is that strategic considerations (and other issue dimensions) can overwhelm the attraction or compromise effect. Voters may support the moderate candidate because that candidate has the best chance at defeating the least liked candidate. Viability can provide the justification of the choice. Fortunately, expectations of the outcome of the election can be directly observed and controlled for.

Another advantage of candidate choice that compensates for the complication of viability is that the decision-maker's ideal point can be measured independently of the observed choice. Unless there is a substantial survey before a purchase, for most private decisions, the consumer's ideal must be inferred from the observed behavior or assumed ex-ante. Because strategic considerations and voter preferences over salient policy dimensions can be measured in a questionnaire, we have a greater opportunity to observe both the epistemic and the emotional effects. The second and third complications, changes in strategy and the number of salient dimensions, will be controlled for in the candidate experiments.

Models of Behavior

The data I collect will be used in models similar to traditional models calculating utility and determining choices. First we estimate a model measuring the attractiveness of each alternative a_j in choice set $S_d = \{a_1, a_2, a_j, \ldots a_n\}$ as a function of the attractiveness of its values on each relevant dimension of evaluation.

$$U_{S_d,c}(a_j) = \sum_m W^m_{S_d,c} V^m_{S_d,c}(a_j)$$

Where W^m is the weight of the dimension m and V is the value of alternative a_j on the dimension m (see Pettibone and Wedell 2000). Changing the menu of choices from S_d to $S_{d'}$ can change the weight of dimension m or the value of the attributes of a_j on dimension m. Changing the weight of the dimension is the same as a change in salience if each dimension can be understood as representing an issue. A change in the weight of a dimension indicates that the issue is more (or less) important to the voter's decision. For example, in 1960, when John F. Kennedy was able to make his Catholicism a non-

issue, the weight of the religion dimension on the choice of many voters was reduced to zero or nearly zero. Kennedy's Catholicism was not more desirable, it was just irrelevant to the voter's decision.

When a candidate's position on an issue becomes more (or less) desirable, the effect is different because the value of the attributes of a_j changes. An attribute change can occur independently or in conjunction with a change in dimensional weight. Changing the act of choosing c from a private, consumer choice to a collective, political decision can have an effect on both the weight of dimension m and the value of the attributes of a_j on that dimension. In private decisions or collective choices with only two alternatives, the weight of the viability dimension should be negligible or even zero because it is not important which option is the most popular. With more than two options in a collective choice, or when the decision-maker may be held accountable for his private decision, viability becomes more important, reflected by increasing the size of the weight, W, of the viability dimension. Concurrently, the popularity of the candidate (an attribute) may be seen as more desirable.

The utility for each voter for a candidate can be calculated by adapting the above equation so that each alternative a_j is a candidate. Note that when adapting the model to politics that the voter's utility is not derived directly from a policy stance but rather from expected policy outputs by the government (after the election) affecting the voter. So, dimensions include salient issues and non-policy utility functions like the candidate competence and leadership. The choice over these options is the alternative a_j within set

S_d that maximizes the decision-maker's utility given the act of choosing and the menu of preferences:

$$\max_{a_j \in Sd} \{U_{Sd,c}(a_j)\}$$

These equations allow for the possibility that the choice process is not neutral with respect to the decision and allows independence of irrelevant alternatives to be violated with the size of the choice set changes.[10] These models are consistent with Sen's (1997) arguments that preferences may be sensitive to the choice process. This is possible because political preferences tend to be over comprehensive outcomes that take into account the intrinsic value of the act of choosing. Sen (1997) argued that theories of value maximization could be revised to consider the actual act of choosing to account for variance in the decision-maker's identity, the menu of options and how the act relates to social norms that constrain social actions.

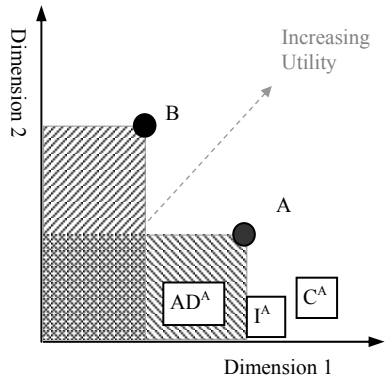
Implications

Social scientists have long sought to generalize in realistic ways the more restrictive assumptions in rational choice theory. In this thesis, I apply a set of rationality assumptions more generalizable than the standard set of assumptions to voting behavior. I demonstrate the presence of menu-dependent preferences, and examine the political implications of their occurrence. If menu dependency appears to be common, a question I explore in the next section, the political consequences are substantial, as is the impact on scholars' theories of elections.

[10] For a more detailed explication of a model depicting menu dependent preferences see Bhargava, et al. (2000).

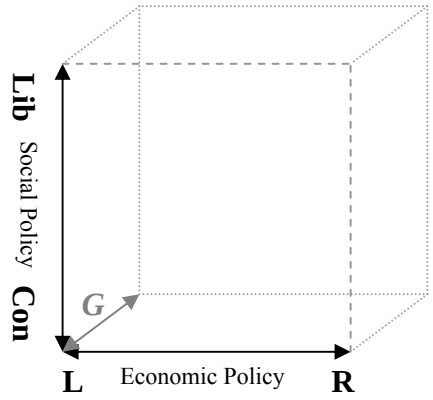
Understanding how preferences change due to different menus of options will help scholars explain differences in behavior across systems. The findings from this research will be of interest to scholars who seek to understand how institutions affect behavior, and especially those who are actively engaged in helping polities devise efficient and equitable electoral institutions. By understanding menu-dependent preferences, scholars will be able to better understand the institutional consequences of systems that encourage two-party competition versus those that allow multiple parties.

Finally, finding a compromise effect will have consequences for our understanding of optimal candidate strategies. The theory developed here suggests that, contrary to other models, candidates can benefit from opponents who appear more similar to them than to their opponents. Rather than ignoring such candidates as threats, some candidates may be best advised to use their presence to their advantage. Striving to reduce evaluative anxiety of the voters and contrasting moderation with dramatic changes from the status quo should help candidates' attract supporters more than scholars previously understood.



The shaded areas depict the areas that each alternative ("A" and "B") dominates. Boxes show the location of three decoys that make target alternative "A" appear more desirable than "B." The asymmetrically dominated decoy (AD^A) falls within the shaded area, the inferior decoy (I^A) is located just outside the shaded area, the compromise decoy (C^A) makes the target (A) appear as the compromise between B and C^A.

Figure 1.1 Location of Decoys Around Target ("A") in Two-Dimensions



New dimension “G” added by Green candidate.

Figure 1.2 Policy Space in 3-Dimensions

Chapter 2: The Prevalence of Menu-Dependence

> *Goldilocks, while walking through the forest, came across the den of the three bears. Hungry, she first tried Papa Bear's porridge, but it was too hot. She then sampled Mama Bear's porridge, but it was too cold. Finally she tried Baby Bear's porridge and it was just right.*

How did Goldilocks know that Baby Bear's porridge was just right? Was her estimation of what was "just right" ascertained by first discovering options that were too hot and too cold? Or, did Goldilocks have a prior understanding of what was just right and upon tasting the porridge confirmed that the temperature exactly conformed to this ideal? In more technical terms, did Goldilocks construct a set of preferences over porridge or did she simply reveal her preferences in the course of her search for breakfast?

I use this story to illustrate menu-dependence. If Goldilocks' choice was menu dependent, than her decision that Baby Bear's porridge was just right came about only after testing two extreme (and undesirable) bowls of porridge. Shafir, Simonson and Tversky (1993) found that decision-makers are more likely to opt for an available option when they have a convincing reason for its selection, and I would argue that the parents' bowls helped provide Goldilocks with that reason. In this chapter, I will refer to this story to define and clarify menu-dependent preferences and the causes of such preferences. I will pay special attention to the information provided by the enlarged menu, which I will test at length in Chapters 3 and 5. For some political scientists, my description of menu-dependent preferences may sound like non-separable preferences. Further complicating matters, some menu-dependent behavior described by scholars such as Amartya Sen can more easily be described as non-separable preferences.

Through the analysis of three examples, I unravel the two concepts, finding that menu-dependence is earlier in the causal chain in many decisions, causing non-separability between independent dimensions. I end with a discussion of the prevalence of menu-dependent preferences in politics. I conclude that menu-dependent preferences are broad phenomena worthy of the attention of political scientists.

Definition and Illustration of Menu-Dependent Preferences

Menu-dependent preferences occur when preferences for elements of the choice set depend on elements in the choice set. A is preferred to B given a menu of A and B, or more technically, P (A > B | S) when S = {A, B}. Chu and Niou (2003) call this state-dependent preferences because some exogenous force, such as nature or, in our story, Mother Goose, has determined S independent of the decision-maker. If preferences are menu-dependent, when S is replaced by the menu or state T, when T includes all of S plus another option, C, A is not necessarily preferred to B. B may even be preferred to A, in which case we can describe the preferences as, P (B>A | T) when T = {A, B, C}. For Goldilocks', Mother Goose presented her with a menu of Mama Bear's porridge, Papa Bear and Baby Bear. Given this menu, she liked Baby Bear the best. If her preferences were menu-dependent, a larger family of bears may have resulted in a choice of porridge from the original set other than Baby Bear's.

Traditional choice theories assume that C has no impact on your preferences over A and B. This is a reasonable assumption since C should be irrelevant to the comparison of A and B. However, there are circumstances when C (or the absence of C) highlights some characteristic of A and/or B, clarifies the tastes of the decision-maker, or facilitates the

decision making process. These circumstances are most likely when the decision-maker is uncertain or does not have complete information about the options (Sen 1997), the range of the attribute (Parducci 1995), the decision is made while the ranking of the options are still incomplete (Sen 1997), the attributes are difficult to compare or trade-off (Beattie and Barlas 2001), or people simply fail to have a global preference function (Tversky and Simonson 1993). As a result, people use context, including the menu, to identify the most attractive option. This context provides information used in the choice process or exerts an emotional or similar non-informational effect on the decision-maker facilitating the choice.

Unlike other heuristics that simplify the choice task, attending to irrelevant aspects of the menu (such as "C") could complicate the task. Reversals seem to be most common when the decision-makers are *not* employing an additive decision-making strategy where every dimensional attribute of the objects is carefully considered and weighted. Instead, the decision-makers might be using lexicographic strategies that simplify the decision-process by enabling the decision-maker to arrive at a choice without being attentive to all the dimensions and attributes. If this is the case, and the decision-maker is attentive to elements introduced or highlighted by the additional items on the menu, then the criteria of the choice will change, often causing a preference reversal. The story of Goldilocks helps illustrate these circumstances and the causes of menu-dependence:

Causes of Menu-Dependent Preferences

Whether or not her choice was menu-dependent can be verified through consideration of a cruel twist of fairy tale fate. If Goldilocks tried Baby Bear's porridge first, would

she still sample Mama or Papa Bear's bowls? If Goldilocks behaved consistently with rational theories of choice she would not sample the parents' dishes if Baby Bear's dish was her ideal, since we know from the story that the bowl was "just right." There would be no need to accrue additional costs of searching when the option providing maximum benefits had already been identified. Similarly, some critics suggest Mother Goose exaggerated Goldilocks' fondness for Baby Bear's porridge in order to drop Juvenile Bear and Adolescent Bear from the script in a last-minute budget cut. Had there been two other bowls of porridge, would Goldilocks have sampled those two even after discovering that Baby Bear's bowl was between two undesirable extremes?

Decisions where not everyone enjoys a clear set of tastes are common in group and political settings. People serving on committees participate in discussion and deliberation before making a decision. Alternatives are proposed and ideas are floated because the members of the committee do not presume that they know what should be done before coming to the meeting or are not sure which options will map onto their preferences for an attractive outcome. Instead, they expect that the various proposals will help them identify which option is best, or if no option appears ideal, signal when the cost of continuing the search or discussion exceeds the expected return.

If Goldilocks does *not* continue her search, then there can be two explanations for her behavior: (1) Possessing a full and complete prior understanding of her ideal bowl of porridge before entering the Bears' den, Goldilocks sits down to enjoy breakfast. (2) Goldilocks "satisfices" (Simon 1983) by choosing an acceptably good bowl of porridge

since she is hungry and wants to eat as soon as possible. In economic-speak, the marginal cost of continuing to search for the perfect porridge exceeds the marginal benefit of realizing the perfect porridge.

If the first explanation is true, Goldilocks' tastes cannot be described as menu-dependent. She knows what she likes and as soon as she finds it, she eats. But if the second explanation is true or Goldilocks continues to taste other bowls of porridge than we might find menu-dependent preferences useful to explain her behavior.

If it is appropriate to describe Goldilocks' choice as dependent on the menu, then tasting the other porridges provided crucial information. These tastes did not just provide information about the temperature, the samples allowed Goldilocks to evaluate the bowl relative to her ideal. The spoonful(s) provided information about the possible range of option attributes, Goldilocks' own tastes, or a reminder that an attribute dimension should be important to the choice (see Table 2.1). While the information did not apparently clue in Goldilocks that a family of bears would soon return, the dishes provided useful information for Goldilocks' decision.

Goldilocks likely already possessed some information about her tastes for porridge. Some information is chronically accessible to decision-makers, but other information is only temporarily accessible as a result of stimuli encountered during the choice process. If this other information is not accessed, then only a subset of the potentially relevant information will be used. Specific stimuli will enable some of this temporary information to be accessed. For example, I expect that the first dish demarcated the

limits of a zone or threshold beyond which options are unacceptable. The other dish demarcated a similar zone on the other side of temperature range. So, when Baby Bear's porridge fell in the middle of the range, Goldilocks felt it was just right (see Shafir, Simonson and Tversky 1993). Without the presence of the other options, such a conclusion would not have been immediately reached, if it would ever be reached. Using Goldilocks, I illustrate how additional menu items trigger information that can cause preference reversals:

Cause 1: Highlights Characteristics

The menu of options may be important because different menus may highlight different dimension or attributes (Luce and Raiffa 1957; Tversky, Slovic, and Sattath 1988; Lowenthal 1996; Chapman and Johnson 2002). Without the benefit of a comparative evaluation, people find certain characteristics to be very hard to evaluate as either advantages or shortcomings (Hsee and Leclerc 1998). The process of comparison is dependent on the other objects being evaluated, as different objects may cause other characteristics to become more salient. Tversky, Sattath and Slovic (1988) hypothesized that the most prominent attribute weighs heavily in the decision-makers minds when making choices. So, if the menu of options affects the saliency of the attributes, then the menu will change the weight given to each dimension of the choice. Alternatives may be primes (or activations) for similar information, as the temperatures of Mama and Papa Bears' bowls of porridge primed Goldilocks to primarily consider temperature rather than flavor or consistency (Tversky 1977). Alternatively, the prime may highlight dramatic contrasts in attribute values. In some experiments, disadvantages relative to

other options have a greater impact on the decision-maker than relative advantages (Tversky and Simonson 1993).

This process may change the weight given to certain characteristics already being considered or may introduce considerations that would not otherwise been considered at all. Certain characteristics may be intrinsic to the menu, such as the options' placement relative to the minimum and maximum values (range value), or the occurrence of similar options (frequency value, Wedell 1991; Ratneshwar, Shocker, and Stewart 1987). As a result, the option may appear to be a moderate compromise (Simonson 1989) or may be seen as unusual or unique. For example, Baby Bear's porridge was the more moderate temperature and the palatable temperature of the bowl was attractive compared to the more common incidence of unpalatable bowls (see Parducci 1995). The frequency of undesirable options may encourage Goldilocks to behave as described by Simon (1955) and "satisfice" since these frequent undesirable outcomes may signal the low expected return of continuing the search. An excessively large menu may also discourage continued searching.

Cause 2: Clarifies Tastes

Goldilocks may not know precisely the temperature of porridge that she likes best when she begins her search, and may rely on the set of alternatives to provide guidance for her tastes. Trying a cold bowl after a hot bowl of porridge and a warm bowl of porridge may lead to the choice of the warm bowl since the cold bowl reminded Goldilocks that the temperature of the warm bowl is closer to her ideal. Choice theorists describe this process as one where preferences are constructed rather than merely revealed during the

elicitation process (Payne, Bettman, and Johnson 1992). In this scenario, she might not know anything about what she likes, or may only have a vague anterior idea confirmed after the search. This is a common political situation. Justice Potter Stewart famously declared that he knew obscenity (unprotected by the First Amendment to the Constitution) when he saw it, but struggled to articulate a clear standard of obscenity prior to observing it. Lane (1962) found that common Americans struggle to describe ideal points in multiple dimensions. Hsee and Leclerc (1998) reminded researchers that many object attributes are hard to evaluate independently. The ease of "evaluability" is dependent on how much knowledge the decision maker has about that attribute and its context. Experts with prior experience will usually know the attribute's effective range, its neutral reference point and its value distribution, but other decision makers may not be able to evaluate the attribute without a comparative context. So, Goldilocks may know she is averse to porridge too hot or too cold, but would have a hard time identifying what temperatures are preferred within a certain range.

Cause 3: Facilitates the Decision and Helps Make Difficult Trade-Offs

Voters are confronted with policy dilemmas that force difficult decisions on them. For example, is it best to provide the poor with sustenance and good housing, or better to provide incentives for them to acquire training and rejoin the workforce? Voters know their values and likely know their ideal point, but have difficulty choosing among options that are short of ideal (many citizens would like the government to do both). The number of undesirable options complicates the choice (Chatterjee and Heath 1996), making it more likely that Goldilocks will adapt her decision-making process to avoid

or minimize the negative emotion associated with making a difficult choice (Luce, Payne and Bettman 1999, 2001).

Goldilocks also knows what she likes, but has a hard time choosing between porridges that are distant from her ideal. Choosing between distant porridges and less than ideal policies are challenging because of satiation[1] and because of the difficulty of making attribute trade-offs. Satiation is a factor because more of any attribute is not necessarily desirable. Something may be too hot (or too cold) much the same way that spending more money on defense in not necessarily desired by a voter even if hot porridge and a strong defense is attractive. One bowl of porridge is colder; one is hotter, so comparing preferences for the two are difficult (Tversky and Simonson 1993).

Trade-offs make the choice difficult because people find it difficult to determine the appropriate exchange rate for certain goods. In Goldilocks' case, we can calculate whether a too-hot or too-cold bowl now is more desirable than a "just right" bowl later (although its easier to assume that the cost of investigating each of the bear's porridges is virtually zero). On policy questions, we frequently ask similar questions: Is too much spending on defense better than too little spending on defense? Is foregoing a dollar of spending for education, or paying an extra tax dollar worth the extra dollar spent on defense? The exchange rate between a good already in the possession of the decision-maker and a new good is often higher than if the situation was reversed and the new good was in the decision-maker's possession (Loomes and Sugden 1982). Experimental

[1] If the attributes were unsatiated, then comparing relative distances from an ideal is easier and the decision-maker merely needs to maximize subject to a budget constraint.

subjects will minimize the anticipated regret as a result of the choice (Bell 1982), or avoid making the necessary trade-offs (Hogarth 1987; Luce, Bettman, and Payne 1999; Luce, Bettman, and Payne 2001).

When elements of the choice set are similarly distant from Goldilocks' ideal, the choice becomes very difficult (especially if the attribute is satiated and preferences are single-peaked). Behavioral decision theorists have documented the difficulty experimental subjects have when discriminating between objects are similarly valuable (in technical terms, when the utilities of the objects are similar. This difficulty is common when the two objects can easily be substituted for each other or when the items are difficult to compare (Beattie and Barlas 2001). Tversky (1972) provides an example (repeated in Beattie and Barlas 2001) of someone choosing between two desirable, but difficult to compare options, a trip to Paris or Rome. Assume that this person is indifferent (or nearly indifferent) between these holiday destinations. So, P = R (alternatively, P I R or P ≅ R). If this person is offered a new option (P') of the trip to Paris plus one dollar, the person would clearly prefer the new option to the trip to Paris without the dollar. However, if the decision maker is still indifferent between P' and R, transitivity is violated because P' = R and P = R, but P' > P. Making these difficult decisions can be both emotionally and cognitively taxing (Hogarth 1987).

When decisions are difficult, additional menu items may aid our heroine, choosing between too-hot and too-cold, tourists choosing between Paris and Rome, or voters choosing between policy options. These additional menu items may enable the decision-

maker to justify or explain the decision (Simonson 1989), alleviate the anxiety associated with the decision, or prime them to consider some other dimension that lies beyond their tastes for (in Goldilocks' case), quality, freshness and temperature of porridge. A small number of additional menu items may make it easier for the decision-maker to choose when otherwise indifferent.[2] This is the primary case of menu-dependency previously investigated by behavioral decision researchers (Huber and Puto 1983; Wedell 1991; Tversky and Simonson 1993; Pettibone and Wedell 2000). For example, the introduction of a menu item dominated by one (but not the other) alternative increases the attractiveness of that alternative. This introduction makes the choice of the dominating alternative easier to justify or reduces the anxiety associated with choosing that option. The context of the choice may enable the decision-maker to choose something that, in other contexts, would lie beyond the zone of acceptability (for example, porridge too hot or too cold for Goldilocks). Even when the decision-maker is not actually indifferent or alienated, the actual decision may differ with the process or rules used to arrive at the choice even though the underlying preference structure did not change (see Sen 1997).

Complete vs. Incomplete Information

The scenarios I describe above illustrate how menu-dependent preferences can occur when there are full and complete information about tastes and the available alternatives or when there is incomplete information. When there is complete information, Goldilocks knows what she likes about porridge and has the opportunity to compare the

[2] However, too many options, even too many good options may deter choice (Shafir, Simonson and Tversky 1993).

porridge options to her tastes. She knows she is hungry and she knows she must make a choice promptly. Complete information includes cases where the choice is dependent on the process (excluding those where the choice must take place before the search is complete) and cases where the trade-off is difficult (such as when a choice must be made when the decision-maker is indifferent between the options). Incomplete information includes cases where Goldilocks does not know about the quality of the porridge, her own tastes or how to resolve conflict arising from tradeoffs necessary to make a decision. There may be uncertainty, as Goldilocks may need to make a choice while knowing the exact temperature of Mama, Papa and Baby Bear's porridge, but not Juvenile or Adolescent Bear's porridge.

Even though menu-dependent choices occur in both circumstances of complete and incomplete information, this is an important distinction. Spatial theorists assume that the rankings of the alternatives are derived from the distance away from an ideal point in a continuous, n-dimensional Euclidean space. This ideal represents the optimal combination of attributes on all of the n-dimensions. When there is complete information, then it is reasonable to expect that the axiom of completeness to be satisfied. The completeness axiom assumes a preference ordering in which all of the elements of the choice set can be compared (the decision-maker can make a judgment about any binary relationship), and the ordering is transitive (Debreu 1959). In other words, the decision-maker can say whether he or she prefers any possible alternative to another alternative or is indifferent between the two, and can then apply that judgment consistently to other binary comparisons. Spatially, this allows scholars to assume that all of the other points

in the space can be compared to the ideal and each other by computing the weighted Euclidean distance from the ideal to each point. Closer points are more desirable than more distant points, while those points that are equidistant from the ideal anywhere in the space have the same utility. Consequently, the decision-maker is indifferent between these points and an indifference curve can be drawn connecting these points.

Incomplete information about some of the points in the n-dimensional space would force us to relax our assumptions about completeness. Some points would be incomparable to other points and/or to the ideal point. Sen (1997) argues that menu dependent preferences are most likely in circumstances of incomplete information.[3] Coincidentally, many political decisions are made in the same realm of incomplete information (Dahl 1961; Ferejohn and Kuklinski 1990; Jones 1994). Sen (1997) argues that the occurrence of menu-dependency can be explained by relaxing the completeness axiom. When this axiom is relaxed, preferences may not be known or fixed. Indifference curves may be incomplete, allowing for the behavior observed by the European tourist choosing between Paris and Rome. Even after relaxing this axiom, sincere decision-makers should still be choosing an alternative that is ranked at least as high as any other alternatives in her preference ordering.

Are Menu-Dependent Preferences Different than Non-Separable Preferences?

A problem with Sen's assessment is that some of the same decisions can be described as a function of non-separable preferences rather than by referring to menu-dependent preferences. Non-separable preferences occur when the value of an attribute is

[3] However, Tversky (1996) argued that when the presence of the additional option provides more information, context independence is not violated.

conditional on the value of a second attribute. For example, someone may support more funding for the arts if there is also an overall increase in education funding. However, if there is no increase in education funding, that same person will not support more arts funding.

Some scholars (see Hinich and Munger 1997; Lacy 1994) think non-separable preferences are prevalent in politics. While studies of non-separable preferences are hardly extensive, an examination of their occurrence would not be novel. So, in this section, I illuminate the differences to ensure that my own investigation does not cover ground already tread. To unravel the two concepts, I will explain non-separable preferences in detail, describe how either can be used to explain the same choice-behavior, and depict the similarities in the formal and graphical descriptions of the two concepts before delineating the boundaries between the two concepts. I show that while there is significant overlap, menu-dependency and non-separability are distinct. There are some preferences that are not menu-dependent but are non-separable. In other circumstances, menu-dependence would appear to be an important factor leading to non-separable preferences. There are also many instances where the two provide valid, alternative explanations for the same behavior. There are also some decisions where it would be more appropriate to explain the behavior using non-separable preferences.

What are non-separable preferences?

Non-separable preferences describe situations where decision-makers desire a certain attribute value on one dimension given a value (or an expected value) on the other dimension(s). Preferences over values on the two dimensions are linked, hence the

name non-separable preferences. When scholars model non-separable preferences using utility functions, the functions are not twice continuously differentiable.[4] A jointly determined or covarying weight is attached to more than one of the relevant dimensions (in n-dimensional Euclidean space). There are two kinds of non-separable preferences; (a) preferences for the object attributes are non-separable from the context or the way in which the choice is presented; and (b) preferences for the attributes are linked in the utility function itself.

Non-separable preferences are assumed to be fixed but the preferred choice is conditional on the value (or expected value) of the attribute on one or more dimensions (see Hinich and Munger 1997; Lacy 1994; Lacy 2001). Scholars generally assume that there is complete information when describing non-separable preferences. The decision-maker might desire a high value on one attribute only if the second attribute is already known to be high (or low). As a result, sequence matters, but the same behavior will occur if the second attribute is expected to be high or low. Consequently, the decision-maker may choose options farther from his or her ideal point as measured by the weighted Euclidean distance than another option.

Consider this example: Imagine a two-dimensional space, ten spaces long (y) by ten spaces wide (x). Your ideal point in this space is (4,6). If someone tells you that the value of y is set at 8, and your preferences are separable, then you would [still] desire

[4] To be twice continuously differentiable, the second derivative must equal zero for all values. So, non-separable preferences can be defined as: $u(\vec{x}) = \frac{\partial^2 u}{2x_i 2x_j} \neq 0$

the value of x to be as close to 4 as possible. If your preferences are non-separable, then you might want a higher value of x because y is so high (called "positive complementarity"). You might prefer (6,8) to (4,8) even though (4,8) would seem to be closer to your universal ideal. In politics, this abstract example might describe the preferences of someone who is told that the government must spend more in defense to fight the war on terror. That person may then tell the pollster that they favor a tax increase that she would oppose if there were no increases in defense spending. These examples do not appear to illustrate menu-dependent preferences because, in non-simultaneous decisions, non-separable preferences for elements of the choice set depend on elements not in the choice set (such as the level of defense spending in the example above). In contrast, menu-dependent preferences for elements of the choice set depend on [other] elements in the choice set (see Lacy 1994). Recall that menu-dependent preferences are dependent on the presence or absence of items in the choice set. Taking away elements in the choice set is analogous to adding elements to the choice set, as both vary the menu (see empirical evidence in Highhouse 1996). Choosing a level of defense spending and then choosing a level of taxation instead of a simultaneous choice is equivalent to removing menu elements.[5]

We could further differentiate the two descriptions since menu-dependent preferences are conditional on the set of available options, while non-separable preferences are

[5] The choice set could be made up of four options, {more defense and increase taxes, more defense and decrease taxes, less defense and increase taxes, less defense and decrease taxes}. In this example, the first decision is over {more defense, less defense}, the second decision is then {increase taxes, decrease taxes}. The second choice can be rewritten in terms of the four-option menu as (if more defense is chosen): {more defense and increase taxes, more defense and decrease taxes}.

conditional on the value(s) of the options such as the level of defense spending. Unfortunately, availability can be written as having the value of one or zero if unavailable. The following examples demonstrate other cases where one might have trouble differentiating menu-dependency and non-separability.

Non-Separability or Menu-Dependence? Three Examples.

Returning to our dining theme, I provide illustrations that offer different explanations for the same choice. The set of options that one might choose to have for dinner range infinitely from macaroni and cheese to fried octopus. The choice of chefs or restaurants necessarily constrains the set of available options, but assume that one has a global preference function that includes most common dishes. Still, even when both salmon and chicken are available, one may choose salmon at a seafood restaurant and chicken at an Italian restaurant. The menu-dependence explanation rests literally on the different menus of the restaurants. Given a set of options that includes pasta and pizza, one chooses chicken. In the absence of pasta and pizza (and the presence of flounder and swordfish), the observed choice is salmon. However, this choice demonstrates (what could be) non-separable preferences because given a value on one dimension (the chef or restaurant), I prefer a particular value on a second dimension (the dish, chicken or salmon). There is an interaction between the two dimensions. Perhaps inferring the chef's strengths from the restaurant's specialties, one makes a different choice given uncertainty about the quality of the dishes.

Kreps (1990) provides a similar example of a person indifferent between a fine French restaurant and an exquisite Japanese restaurant. If a mediocre French restaurant is

included in the choice set, this additional restaurant may remind the decision-maker that her last experience at a French restaurant was unpleasant.[6] In both stories, there was uncertainty about the outcomes of the choices, stemming from incomplete information about the outcomes of each choice. This is similar to most voting decisions, where the preference for a candidate must map onto a set of preferences over the outcomes that will occur if that candidate takes office.

Amartya Sen (1997) tells a different story to demonstrate menu-dependent preferences that differ from the above scenarios since the decision is made under conditions of certainty and complete information. Sen calls this example, "don't take the last apple." A decision-maker who likes apples is confronted with a dilemma. The choice set has only one apple. If she takes the last apple, she will appear inconsiderate, so she is averse to taking the last apple. However, if there were more than one apple, she would not hesitate to claim her favorite fruit. This is clearly menu-dependence: when the choice set is small and contains only one apple (and say, two pears), she does not desire the apple. Enlarge the choice set and she will choose an apple. Alternatively, one could say that the apple-lover has non-separable preferences for appearing considerate and for an apple. Ideally, she would like to eat an apple and appear considerate. If she cannot appear considerate, she chooses another fruit. Is this an example of menu-dependence, non-separability or both? I would argue both, although it would appear that the menu-dependence has made a dimension (appear considerate) salient whose values are not separable from the values on the fruit dimension. Kreps' story has a similar causal

[6] This effect is described by Tversky and Kahneman (1974) as the availability heuristic.

mechanism: the additional menu-item provides some information that was irrelevant or not salient in the smaller choice set.

Another example of both menu-dependence and non-separability is suggested by Gary Carter's candidacy for the Baseball Hall of Fame in the introduction. Carter's vote totals increased when contemporary Carlton Fisk no longer appeared on the ballot, an apparent example of menu-dependent preferences. Alternatively, one can plausibly argue that voters thought if Fisk had been elected, than Carter, with similar career statistics, also deserved to win.

Unraveling Menu-Dependency and Non-Separability

To the best of my knowledge, scholars have not explored the connection between menu-dependent preferences and non-separable preferences.[7] I found that while the definitions are distinct, formally the two conceptions are hard to disentangle. Tversky and Simonson (1993) understand non-separability as an interaction term, but not Wedell and Pettibone (2000). Tversky and Simonson (1993) model menu-dependence as an interaction term introduced to a traditional choice function.[8] In their conception, a weight generated by the contrast between the available options or an earlier decision-task interacts with the value of the attributes on each salient dimension. The background contrast effects they describe are indistinguishable from Lacy's (1994, 1996)

[7] I thank Professor Michael Munger for originally posing the question to me about the difference between non-separability and menu-dependence. Lacy clearly states that "nonseparable preferences imply… that a person's preference on one dimension depends on the choices available (p. 21)," but does not extensively discuss this case.

[8] Sen (1997) models menu-dependence as a dimensional weight, while Wedell and Pettibone (2000) add the new, weighted dimension to the existing preference structure. Wedell and Pettibone's (2000) model conforms to the additively or strongly separable utility function described by Lacy (1994, p. 17).

description of non-separable preferences in survey responses. The interaction term Tversky and Simonson introduce could be a covarying weight attached to the salient dimensions that would prevent the utility function from being twice continuously differentiable. The graphic descriptions each work provides also match, as I will show below, but the two works contain no reference of the other's work.[9]

Graphical Explanation

Using Figure 2.1, I can demonstrate graphically how menu-dependence and non-separability can be used to explain the same choice behavior. Much of the work on menu-dependent preferences has been undertaken to explain why certain consumer products are likely choices in the presence of certain options. Consider two options, "A" and "B," that the consumer is indifferent about. Since the consumer is indifferent between them, they lie on the same indifference curve. Introducing a third option, "C" has been found to be a more popular choice than either A or B (Simonson 1989). Below I draw indifference curves that show that C, a compromise in two dimensions between A and B lies on a higher indifference curve, explaining the attraction of that option when the decision-maker desires both dimensions together. These indifference curves are typical of the shape of indifference curves when utility over the two dimensions is non-separable. The desired level of one attribute is contingent on the level on the other dimension. The ideal is located in the top-right corner, where both the x and the y dimension are maximized. These "curves" connect to the bottom-left (in this case, off the chart, which is theoretically possible/plausible and convenient since the computer I am using will not let

[9] Lacy (1994) does cite Tversky's work with Daniel Kahneman on framing effects (1979), but clearly differentiates this work from what he describes as "framing by alternatives" (p. 34).

me draw an ellipse). If these curves could be accurately depicted as full ellipses, I could show that options "A" and "B" lie on the same indifference contour, so the decision-maker is indifferent between the two but prefers C to either one of them.

A dashed line shows how the equi-preference contour is typically drawn by behavioral decision theorists when describing this problem (see Pettibone and Wedell 2000, Simonson and Tversky 1993). If I describe the underlying utility using this line, the decision-maker is indifferent between all three options. Consequently, the choice is dependent on the structure of the problem, rather than dependent on the underlying preferences (see Jones 1994). This is consistent with the descriptions of menu changes that facilitate the choice task (see above). This conception is advantageous since it allows scholars to explain different choice behavior without assuming the underlying preferences are very different between subjects in the experiment pool (Stigler and Becker 1977). However, despite the silence of the behavioral decision theorists on this matter, these indifference curves also imply non-separable preferences because the axes of the indifference contours are not parallel to the axes of the space (see Lacy 1994).

Another advantage that the dashed line running from top-left to bottom-right has over the positive complementarity contours is that an asymmetrically dominated decoy, D can be clearly shown to be on a lower preference contour. D must not be equal to B because if the decision-maker really desires to maximize values on one or both dimensions (unsatiation), B's attributes are superior to D on both dimensions. The contours can be drawn to show D=A, but then if B>D, B would be the choice in both

the two-option menu set and the three-option set since B>A by transitivity.[10] This allows the utility function to be tested by experimentally comparing the choices in two- and three- option sets.

However, if one relaxes completeness as Sen suggests, then we can describe D=A if and only if B is not present. Formally, I can write this as: (B>D)=A or B>A|D. One can test this supposition experimentally by introducing a treatment in which a decoy asymmetrically dominated by A is introduced. If the introduction of this decoy has a similar effect on the likelihood of choosing A as D has on the choice of B, then the experimental results can only be explained by a conditional utility function. These findings would be consistent with the notion that preferences are constructed in the absence of a global utility function (that would fulfill completeness).

Is utility conditional on the set of options?

Since indifference curves or underlying utility functions can only be observed from choice behavior there is no way of knowing what is the best way of drawing the indifference curves or describing the underlying utility function. But if preferences over A and B can be influenced by the presence (absence) of other options in circumstances where the menu clarifies tastes, then one cannot rule out the possibility that these options could affect the size and shape of the indifference curves in the absence of a global utility function. If the utility curves can change as the result of an additional menu item, then the possible descriptions of the underlying utility function are virtually

[10] This does not explain Tversky's (1972) example of the tourist indifferent between both Paris and Rome and Paris + $1 and Rome, but not Paris and Paris + $1.

limitless. This is especially the case if one relaxes the completeness axiom, allowing for local maxima along the lines of Sen's research or Sugden (1985).

However, in circumstances where menu-dependent preferences stem from an epistemic (informational) value given to each menu option we need not refer to a description of the underlying utility with so little explanatory power. In these circumstances, the additional menu items attract our attention and prime or anchor a certain set of decision-making criteria that might not have been available previously or completely irrelevant. The indifference contours change from lines to planes or other multidimensional shapes without transforming the underlying preferences. This new (newly relevant) dimension could be the viability of a candidate in a collective choice, the desire to appear considerate in "don't take the last apple," or aversion to extreme options.

Without referring to menus, Jones (1994) argues that most political decisions are the consequence of changes in attention without changes in preferences. Instead of a preference change, priorities change as a result of exogenous events or institutional circumstances. Jones focuses mainly on different frames (when the same decision is presented differently, rather than a change in the decision problem, see Sen 1993), but the causal mechanism appears to be the same.[11] Different menus, like frames, often focus our attention on certain dimensions or attributes than others.

A changed menu can completely transform the original alternatives through the provision of additional information and/or by affecting the difficulty or emotional strain

[11] See also Tversky and Simonson 1993, who consider menu-dependency and "background effects" as part of the same phenomena, "context-dependent preferences."

of the decision-making process. Consider Sen's (1997) example of "don't take the last apple." The apple-that-is-not-the-last-apple is actually a different alternative to the apple that is the last option even if it is the same apple. When it is the last apple, it is connected to potential future negative externalities. As a result, the last apple makes the decision-maker's desire to appear considerate a very salient concern. Averse to appearing inconsiderate, even if the decision-maker likes apples, she chooses something else. Extensions of the apple game can easily be understood as experiencing menu-dependent information effects. Consumers may avoid the last item on a shelf because they think its old. A handful of items, though, may give the appearance of scarcity, making the purchase more desirable.

The same process is explained by the behavioral decision theorists in different terms that highlight the negative emotional consequences rather than the information about the future negative externality and the new choice dimension. Following in the tradition of Simon's (1955) pioneering work on choice theory, these scholars recognize that people independently value easy decisions (in principle and in practice). The configuration of options in the menu can make the decision easy (-ier) or hard (-er). Choosing the last apple would not be easy because it would be associated with potential regret and the threat of emotional conflict. Similarly, dominating alternatives are easy to choose because they are associated with lower levels of evaluative anxiety (Huber, Payne, and Puto 1982; Pettibone and Wedell 2000) or are easy to justify (Simonson 1989). Remove the dominated alternative and the dominating alternative no longer enjoys an association with a lower level of anxiety. The easier to justify option is

transformed by the change in the menu because the option that helps justify its decision is no longer present.

If choice difficulty is understood as a dimension of the utility maximization process, independent of the policy dimension (because easy decisions are independently valued by the decision-maker), it is not separable from the policy values, specific attribute pairings, or the presence of an alternative that could diminish the choice difficulty. For example, if a political candidate espoused a plan that scared away jobs and business, hurt the environment and made traffic worse, the voter's decision would be really easy. Alternatively, trading traffic woes for economic growth may be a harder trade-off than higher taxes for better schools (Luce, Payne and Bettman 1999).

The voter in these examples and the player in Sen's apple game demonstrate non-separable preferences; the preference for an apple is not separable from the preference for appearing considerate nor is the preference for an easy decision is not separable from the ideal policies. Change the set of options so that the apple is no longer the last one and the preference for appearing considerate is no longer relevant and one would not be able to infer (non-) separability. Remove the dominated decoy from the choice set and there is no easy to justify option, so finding an easy to justify option is no longer a practical concern of the decision maker. The non-separability is generated from information and or emotional concerns provided by the set of options. Since non-separability follows a menu change and is induced by a menu-dependent effect, I

understand menu-dependence as earlier in the causal chain and worth studying independently or in conjunction with non-separable preferences.

A similar causal process can occur with single, unidimensional choice problems. Non-separability is not applicable (Lacy 1994, p. 14), but menu-dependence may occur if the options in the menu clarify tastes or change perceptions (see Riskey, Parducci, and Beauchamp 1979; Simonson and Tversky 1992). A change in the menu can also transform the unidimensional considerations to multidimensional considerations (see Riker 1986). Preferences over values on these new dimensions may not be separable from preferences on the original dimension. They would not factor into the decision, though, if the change in the menu had not transformed the number of relevant dimensions.

Conclusion: Menu-Dependence is a Broader Phenomena

Table 2.2 illustrates many of the choice scenarios I covered in this discussion. Excluding instances where the decision is influenced by elements not in the choice set (even though they might have similar effects), the main circumstances where non-separability is a useful description of preferences but not menu-dependent preferences are those circumstances when the decision-maker enjoys a stable, global utility function that satisfies completeness. In these situations, the decision-maker knows what she wants and she can readily evaluate elements of the choice set relative to that ideal. There is no information provided by the available alternatives that can change any preferences, nothing can clarify tastes or refocus the decision-maker's attention (see Tversky 1996). However, if there are difficult trade-offs to be made, such as when the

decision-maker is indifferent, then menu-dependent preferences become useful. Relax assumptions about the completeness of the decision-maker's preferences, the amount of information available, allow for transient attention or introduce uncertainty and menu-dependent preferences become a possibility.

I conclude that menu-dependence preferences are a broader phenomenon than non-separable preferences. This does not imply that menu-dependent preferences are more common than non-separable preferences; only that menu-dependence is important for scholars to understand because menu-dependent preferences might occur in a broader set of circumstances. However, when both descriptions offer possible explanations for the same behavior, I cannot offer a general rule as to which description should be followed. Each choice situation may have to be addressed idiosyncratically. However, I want to emphasize that in many instances where both menu-dependence and non-separability describe choice behavior, a change in the menu has shifted attention or added a new dimension, causing non-separability to be a relevant concern for scholars. The arrow of causality points only in one direction.

Politics and Groups

The circumstances I described above are common to politics. Citizens have values and beliefs. Political actors give them objects to choose in an election or on an opinion poll. Institutions help determine how many objects they are choosing from. Citizens must try to map their values onto the political world as best they can. In this environment, there is incomplete information.

In elections, there is always some incomplete information stemming from uncertainty about what a candidate will do once she is elected to office. There may often be times when the ideal course of action is not conceptualized initially, or the choice must be made before the decision-maker can complete her rankings of all the options. The choice options may be complicated and the information necessary for a fully informed choice may be costly to acquire. However, the dynamics of the collective decision-making process may mitigate against these circumstances and the likelihood that menu-dependent preferences will play a significant role in the decision.

Engagement in group deliberation increases familiarity with the issue (Bateson 1966) and some measures of political sophistication (Gastil and Dillard 1999). Consequently, it becomes more likely that the citizen's preferences satisfy completeness and they are more certain about their tastes (see Fishkin 1995). Rutledge (1993) found that discussion allowed the decision-maker to adjust their judgments from an anchor or prime. Druckman and Nelson (2003) found that voters who deliberate with fellow citizens are less likely to be influenced by elite frames on some issues. Conversation shaped and stabilized public opinion on several issues surrounding a local election after people began to carefully consider the issues during, or as a consequence, of a citizen forum. Price and Na (2000) speculate that these deliberations may have led to an increased likelihood that the participants may have employed compensatory decision strategies. If the menu has an epistemic effect, then that effect would be similar to that of an anchor or frame, so group deliberation should also mitigate its effects.

However, this increase in information that occurs during group deliberation may also aggravate a salient subset of issues (Brown 1965). As a result, more weight is paid to those issues. If these are the issues raised by an additional candidate, they will exacerbate the effect of this additional consideration, but if not, the effect of the change in the menu will be minimal.

Moscovici and Zavalloni (1969) found that interaction causes bonding to a choice (see also Cialdini 2001). This tended to lead to increase polarization, frustrating possible attraction effects. However, Levinger and Schneider (1969) found that individuals present their positions as compromises between their ideal and their impression of the group tendency. This would suggest that group decisions would be more likely to favor compromise alternatives.

Scholars of group decision-making paid much attention to how groups influence risk aversion (see Rutledge 1993 for review). This research tends to find that, for a variety of reasons, groups tend to be more likely to accept risk. This could stem from the increased familiarity with the choice elements as a result of deliberation (Bateson 1966), persuasive leadership by risk accepting group members (Burnstein 1969; Kelly and Thibaut 1969), collective (diffuse) responsibility (Wallach, Kogan, and Bern 1974) or social comparisons to other group members (Brown 1965). These forces could outweigh the tendency to support alternatives that represent compromises and the personal risk aversion that deterred extreme consumer choices. The process of group deliberation could decrease the anxiety associated with the choice process or the responsibility of the decision making it less likely for a menu change to be very important. There may be little

need to justify a decision if the decision was collective and one's choice was reinforced by the same choice of people like you (Brown 1965). It is interesting to investigate whether these forces are strong enough to make evidence of menu-dependent preferences unlikely despite the prevalence of situations in politics that would suggest that they should occur.

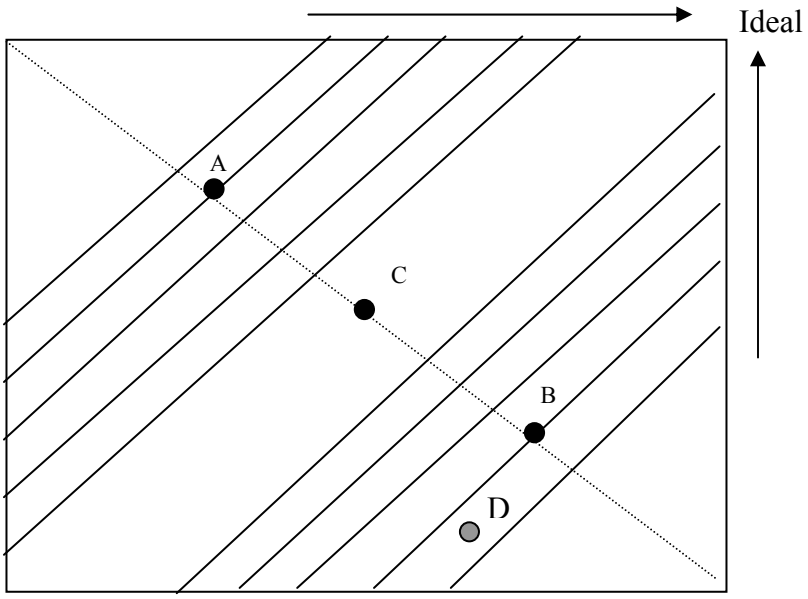


Figure 2.1 Graphical Explanation: Menu-Dependence and Non-Separability

Table 2.1 Causes of Menu-Dependent Preferences

Circumstance	**Causal Mechanism**
Highlights Characteristics	Informational
Clarifies Tastes	Informational
Facilitates Decision	Informational/ Non-informational

Table 2.2 Summary: Non-separable (NSP) or Menu Dependent (MDP) Preferences?

P = Preference description is possible explanatory concept.
I = Description is inappropriate explanatory concept
2 = Description has secondary explanatory value.

Choice Problem	NSP	MDP
Global (complete & stable) utility function.	P	I
Attention or dimensional flux (stable preferences, complete information).	P	P
Incomplete information, stable preferences.	**2**	P
Incompleteness.	I	P
Uncertainty.	P	P
Conditional (unstable or undefined) preferences.	I	P
Preferences depend on elements *not* in the choice set. (1)	P	I
Unidimensional, single decision.	6	P (2)
Indifference (but choice necessary).	6	P
Difficult trade-offs or similar impediments (but choice necessary).	6	P

(1) Preferences conditional on elements not in the choice set are also commonly explained by framing or as a result of background effects similar to menu-dependent contrast effects (Simonson and Tversky 1992).

(2) In a single dimension, menu items can, theoretically, affect perceptions along that dimension, or may transform problem into one requiring multi-dimensional considerations, fitting the category of attentional or dimensional flux.

Chapter 3: Perceptions

Introduction: Importance and Implications

In multi-candidate elections, perceptions of the candidate's placement and viability can be critical to success. Candidates will portray themselves as liberal, moderate or conservative, compassionate or trustworthy, erudite or articulate, loyal or independent, passionate or analytical. At the same time, they will try to portray their opponents as not trustworthy, too extreme, panderers, overly ambiguous, insensitive or worse. While the candidates define themselves, they are themselves being defined by the opposition and by third party observers and the media. As a result, context matters a great deal, especially the constellation of parties and candidates against which the candidates are running, defining themselves in comparison to, and in turn, being depicted by it. A Republican running in Massachusetts may appear quite conservative compared to Sen. Edward Kennedy or U.S. Rep. Barney Frank, but the same positions may appear liberal in Mississippi compared to Sen. Trent Lott. Just like blonde, all-American Marilyn Munster looked odd to the rest of her sitcom family, the Conservative party on the right in Britain might appear quite liberal to an American.

Perceptual context effects have been found in a wide range of domains and applications, affecting both human and animal judgments (and actions) of happiness, discomfort, size, sweetness and more. These effects are pervasive in judgments of happiness (see Parducci 1995). The rational calculus of voting models voting as a function of the utility the voter expects to accrue as a result of a candidate winning, the probability of the

candidate winning and an expressive term. The set of candidates in a race could influence both the utility associated with, and the probability of the candidate winning.

Even the slightest gradations in how a voter perceives a candidate could impact on whether a voter believes one candidate is closer to his or her ideal than the other. If campaigns are waged over the median voter or others who are nearly indifferent between candidates, the slightest shift in perception can be the difference between victory and defeat. In this chapter, I focus on how the set of candidates influences perceptions of the utility associated with the possible election of each candidate. Changes in perception illustrate the information effect caused by menu-dependent preferences that I described in the previous chapters. Additional candidates provide new information or make available different information that shades how the voter perceives the position of the candidates relative to his or her own tastes.

I present evidence from two experiments examining anchoring effects through a change in survey design that explicitly asks the respondent to consider their placement of the incumbent when placing the candidates seeking to replace the incumbent on issue scales commonly used in political surveys. One experiment uses Mayor Rudolph Giuliani to anchor perceptions of the candidates to replace him as mayor of New York City. A second experiment uses Senator Jesse Helms to anchor perceptions of the candidates to succeed him as senator from North Carolina. I then present results from two experiments using profiles of fictitious candidates to demonstrate how candidate choice sets change how people view the positions of the candidates in that choice set and their

proximity to those positions. I conclude by introducing evidence from surveys in Britain where respondents in Scotland, exhibited anchoring effects when placing the Labour on the same scale as the Scottish National Party.

The Causal Mechanism: Anchoring and Adjustment Effects

It is not easy for some respondents to use issue scales to describe their own positions on politics, let alone the positions staked out by the candidates. This is not just a measurement problem; election campaigns do not regularly clarify for the voters where the candidates stand on issues (Alvarez 1997). The limited attention most voters give the campaign, and their propensity to take shortcuts when processing campaign information or arriving at their vote choice (Lau and Redlawsk 1997; Lupia 1994) cause substantial heterogeneity in how voters perceive candidates and campaigns (Popkin 1994; Sigelman and Kugler 2003).

Even attentive voters cannot be blamed for being uncertain about where candidates stand in the "echo chamber" (Key 1966) created by misleading or ambiguous candidate communications. When one or more candidates are being ambiguous (Key 1964; Shepsle 1972; Hinich and Munger 1994), perceptions matter even more as the voters must judge where the candidates' true positions are amidst the confusing rhetoric or the absence of a clear policy statement (Page 1976; Shepsle 1972).

The analyses in this chapter stem from the proposition that as the number of candidates taking positions and defining their opposition increases, perceptions of those candidates can be expected to change. The presence of an additional candidate in a race may

change perceptions of one or more candidates through intentional actions and communications with the voting public or simply through the process of comparison done by the voter. Much of the work in political science on perceptions of candidates, though, evaluates how voters candidates in isolation (Terkildsen 1993; Rosenberg et al. 1986), rather than by comparison with other candidates or political figures. By demonstrating that perceptions of candidates stem from a comparative process, this chapter illustrates how institutions, by controlling the number of candidates, actually shape opinions towards those candidates. The causal mechanism behind the change in positions is a bias behavioral decision scholars call "anchoring and adjustment."

An anchor provides a baseline for judgment. Anchoring and adjustment effects occur when people generate estimates from this initial value and adjust to arrive at a final value. However, these adjustments are typically insufficient (Slovic and Lichtenstein 1971; Tversky and Kahneman 1974). Anchors include the offering price at a *souq* in the Middle East prior to negotiation and the initial integers in estimations of long mathematical equations. Chapman and Johnson (1999) found that the anchoring effect was particularly pronounced when the anchor activated or highlighted common features in the target.

In this investigation, I am particularly interested in anchors that influence perceptions by extending what is perceived to be the range of possible stimuli or by increasing the frequency with which similar stimuli appear. Knowledge of the range of possible attributes, or a new understanding of how common some attributes can make a student's

grade feel unfair, a purchase price might appear reasonable, a drink sweeter and more desirable (Wedell, Parducci, and Roman 1989; Riskey, Parducci, and Beauchamp 1979). A value shift occurs as the same attributes lose or gain in attractiveness.

Hypotheses: Perceptions

The first set of hypotheses is generated from an expectation that well-known public officials *not* in the race may also influence perceptions. These officials may be familiar to the respondent, but information about them may not be readily accessible unless it is primed because the officials are not part of the set of candidates being considered. Other studies have found anchoring effects on candidates in the race from candidates who dropped out of the race (Lowenthal 1996; Rotter and Rotter 1966). Holders of other elected offices, such as the President or Governor, and the incumbent officeholder not running for re-election may also be sources of perceptual anchoring. For instance, then Vice President George Bush positioned himself relative to incumbent President Ronald Reagan and the Democratic candidate, Michael Dukakis in 1988 by advocating a "kinder, gentler conservatism." This image placed Bush between his conservative predecessor and the liberal Dukakis. Dick Morris famously advised President Bill Clinton after the election in November 1994 to "triangulate" using the liberal Democratic Congressional caucus and the conservative Republican leadership led by Newt Gingrich to appear more moderate and desirable to voters.

Based on these anecdotes and an extensive literature on anchoring from behavioral decision theory, I expect that by providing a common anchor for voter perceptions,

candidates will be more likely to be placed on the scale, mean placements will change but become more consistent across the sample of voters.

***Hypothesis I*:** When primed to consider well-known incumbents who are not running for re-election, perceptions of the candidates will be anchored on perceptions of the incumbent.

Typically, opinion scales are anchored by the respondent's self-placement. If well-known incumbents anchor the issue scale, there is a common baseline of evaluation. All respondents will receive similar information from the anchor. Unlike self-placement, which is as heterogeneous, idiosyncratic and diverse as the study sample itself, a well-known incumbent will be perceived by many voters at exactly the same point. If there are anchoring effects, people will anchor on the same item. This common anchor will enable an evaluation of all other placements from this single point. All candidate perceptions can be understood (and measured) from this common reference point. This information could be about the nodes on the scale, make information about candidate similarities and differences more accessible, or make available conceptions of a type of politician. This information may be more tangible than abstract conceptual labels employed in the labeling process, and certainly more information than the nodes without labels used in the American National Election Study or the British General Election Panel study discussed in this chapter. Compared to when self-placement anchors the scale, I expect that respondents will be more likely to be able to use the scale to describe the location of the candidate.

***Hypothesis 1A*:** When the scale is anchored by the incumbent, survey respondents will be more likely to place the candidate(s) on the scale.

I test Hypothesis 1A by comparing the frequency of placements in the treatment where subjects saw a candidate anchor and the control where the subjects' own self-placement anchored the scale.

If the respondent is unsure of their own ideal or how to use the scale to express this ideal, the information provided by their self-placement is limited. Anchoring on self-placement may induce respondents to place the candidate that he or she supports (or the candidate from the party that he or she supports) proximate to their position on the scale without fully understanding the scale. As a result, they have little guidance in placing candidates dissimilar to their tastes or an understanding of the magnitude of each step of the scale. In contrast, by anchoring on the incumbent the same information that facilitated the placements of the candidates should help guide the placement of the candidates on the scale. If the incumbent anchor highlights similarities between the candidate and his record, then the candidate should appear closer to the anchor (Chapman and Johnson 2002). If the anchor highlights differences, then the respondent should avoid using the same point on the scale to describe the candidate and the anchor. As a result, I expect to observe a different average placement of the candidate across the issue scales in the treatment with the anchor as compared to the control condition. In New York, several candidates campaigned to continue Mayor Giuliani's legacy (Bloomberg, Vallone), while others (before the bombing of the World Trade Center)

explicitly waged a campaign highlighting their differences with Mr. Giuliani (Ferrer, Green). In North Carolina, Republicans unified around Elizabeth Dole, a moderate Republican to replace conservative Senator Jesse Helms, so all of the candidates should shift away from the placement of Senator Helms when he anchors the scale.

***Hypothesis 1B*:** The mean placement of the candidate on the issue scales will be different when the incumbent anchors the scale, causing similar candidates to appear closer to the incumbent and dissimilar candidates to appear distant.

I test Hypothesis 1B by comparing the mean placement of the candidates in the treatment using the incumbent anchor to the mean placement of the candidate in the control. I can also compare relative distances from the perceptions of the anchor and the candidate. As long as the respondent can describe the candidates as similar (or different) to the incumbent, they should be able to place that candidate close (or far) to the incumbent on the scale, no matter where on the scale they place the incumbent.

Because all the respondents are adjusting from a common baseline, not only should the mean perceptions change, but those perceptions should become more consistent across the sample. Multi-dimensional electoral choices suffer from a high level of subjective perceptions and uncertainty, especially compared to consumer goods with price tags, a complete list of product features and a warranty. Much literature has been devoted to how poorly voters remember specific information about candidates (Hastie and Park 1986; Lodge, McGraw, and Stroh 1989). Instead, scholars represent voter perceptions as a probability distribution around a central tendency, with flatter distributions for (the

many) uncertain voters (Achen 1975; Bartels 1986; Alvarez and Franklin 1994; Enelow and Hinich 1984; Franklin 1991). As a result of this uncertainty, voter perceptions can be expected to be easily influenced by additional information (Alvarez and Brehm 2002), including the information provided by an anchor. I expect voters to process information from the incumbent to reduce the uncertainty surrounding the placement of the candidates.

People who are attentive to politics should already place the candidate in about the same place on the scale. So, the anchor should limit the aggregate range of the respondents' answers. This should result either in an increase in the "peakedness" of the distribution curve, as more observations fall into a narrow section of the range and shorten the tails of the distribution. For anchors or candidates far from the center, this effect should increase the skew of the distribution of perceptions.

Hypothesis 1C*:* The distributions of the candidate(s) will be more consistent across respondents when the incumbent anchors the candidate on the same incumbent perception.

I test Hypothesis 1C by observing the distribution of perceptions of the candidates in the treatment and the control. Comparing kurtosis and skew measurements of the perceptions between the treatments will indicate how consistent the responses are in the treatment relative to the control.

Adding additional candidates can have similar effects on the placement process. Each additional candidate that the respondent places with some degree of certainty gives

information about a point on the scale, facilitating placements of other candidates on the scale based on psychometric evaluations of proximity from each other. According to the range frequency effect (see Parducci 1995), additional candidates on the right or left should influence perceptions by extending the respondent's understanding of the range of possible positions on the scale or whether a candidate is unusually extreme. For example, if there are two liberal candidates in the choice set, it will be easier for the candidate to classify one as moderately liberal and the other closer to the end-point of the scale. Of course, additional candidates may also be so unknown that they introduce uncertainty in the process of placing candidates on the scale. However, when the candidates' profile is provided, this uncertainty is reduced because the profile provides the information about the range of possible options. Comparing these profiles and contrasting differences between similar candidates will guide the respondents' placement on the scale (Chapman and Johnson 1999). Differences between an extreme candidate and a similar candidate in the choice set should make similar candidates appear more moderate. I expect that the introduction of an extreme option, by providing information about the range of possible positions, will shade the subjects' perceptions of the moderate candidate even if that candidate attracts few votes. Without the extreme option anchoring one end of the scale, the moderate candidate will appear more extreme even if his profile is unchanged.

***Hypothesis II*:** Perceptions of candidates will be anchored on the addition of a similar, but more extreme, candidate to the choice set, causing the candidate to appear more moderate.

I test this hypothesis using both experimental and extant survey data. Two experiments use profiles of fictitious candidates "running for local office" to see whether changing the choice set changes the perceptions of the certain candidates. By manipulating the choice set, adding or subtracting extreme candidates from the choice set, I can observe differences in the average placement of the candidates from one treatment to the next. Survey data from the British General Election Panel Study allows me to test this hypothesis with data from real parties and actual elections because some respondents were asked about the Scottish National Party, and placed the party to the left of the Labour Party. I constructed a model of voter perceptions to see if placements of the Scottish National Party towards the left end-point of the scale lead to more moderate views of the Labour Party.

Study Rationale: Perceptions and Theories of Voting

The dominant model of rational vote choice in political science is the spatial model of voting, but other conceptions of the vote are just as concerned with voter perceptions. According to spatial theories of voting, voters choose candidates who share similar beliefs and policy preferences because these candidates, if elected, will be expected to enact policies that the voter approves of (and/or will benefit from, see Enelow and Hinich 1984). Spatial theories of voting calculate the utility function for candidate A for citizen *i* as the simple Euclidean distance between the citizen's ideal point (x_i) and the campaign stance or expected policy outcome of A (x_A):[1] $U(x_\alpha) = -[x_i - x_A]^2$

[1] The notations used to illustrate the spatial and the directional model follow Hinich and Munger (1997). See also Lewis and King (1999).

Perceptions directly matter in this equation in the understanding of x_A, the stance of the candidate. Perceptions matter when voters compare the distance from their ideal to the stances or platform of the competing candidates in order to ascertain who is closest. If these candidates are not nicely arrayed along a single dimension, this judgment should be fairly simple. If the candidates are competing within multi-dimensional space, perceptions of proximity may not be obvious since trade-offs might need to be made between attributes on multiple dimensions. Generally, scholars assume that voter preferences are fixed in the short run, so campaign models tend to focus on the struggle over to define x_A close to the median voter whose vote will decide the election.

Some scholars emphasize the voter's comparison of her ideal point to the party or candidate's platform (e.g. Hinich and Munger 1994), but other scholars in the Downsian tradition emphasize the voter's expectations of what the candidate will do in office. In this conception, knowledge of the candidate or party stances must be mixed with perceptions of the candidate's "true colors," ambitions, or truthfulness, and the political realities of the environment that will prevent the candidate from realizing all of his or her promises (Kedar 2003; Gschwend 2001; Lacy and Paolino 1998; Mebane 2000).

Other scholars describe the vote as an expressive exercise, where the most important thing to a voter is that they express their support or solidarity with a particular candidate or causes that are associated with that candidate (Schuessler 2000). For example, Ferejohn and Fiorina (1974) argue that voters using a minimax regret decision rule always vote sincerely for their favorite candidates. In this conception of voting,

manipulating perceptions of candidate proximity to one's own ideal point will principally influence the mobilization of potential supporters.

Proponents of the directional theory of voting challenge proximity theory, but care just as much about voter perceptions. Directional theory was born out of an attempt to explain an empirical phenomenon that voters in several countries actually tend to support candidates more, not less, extreme than they are (see Rabinowitz and Macdonald 1989). According to directional theory, voters' favorite candidates are intense, staunch proponents of the voter's side of the debate as long as these candidates views still fall within a region of acceptability. These candidates typically advocate an extreme departure from a neutral point (or the status quo), which demarcates the voter's "side" of the debate from the opposition.

The voter's utility function is quite different than the spatial model. The same citizen, *i*, with the same ideal point, x_i, evaluates candidate A (with a platform of x_A) on policy dimension *j* relative to the neutral or status quo point (SQ).

$$U(x_\alpha) = (x_{Aj} - SQ_j) * (x_{ij} - SQ_j)$$

If A is on the opposite side of the status quo, the equation is negative and the citizen will not support A. If A is on the same side of the status quo, utility will be positive. The farther the citizen's ideal point is from the status quo of policy *j*, the more intense the citizen's preference for this issue. A large distance between the candidate's position on that issue and the status quo is interpreted as a passionate commitment to changing

that status quo. So, the voter's highest utility will be for a candidate espousing a dramatic departure from the status quo on the issue(s) on which the candidate cares most intensely.

So, perceptions of the candidates matters across three key steps: 1) the determination that the candidate is on the same side as the voter and the equation is positive; 2) the candidate's passion and commitment to a change in the status quo, understood as the advocacy of a dramatic (but reasonable) departure from the status quo, and 3) the location of that candidate's views within the threshold creating the boundary for the region of acceptability. Perceptions further matter in defining the region of acceptability suggests that it too may be defined by subjective perceptions of the political space.

Other conceptions of campaigns, especially for President, stress voter are attentiveness to trait characteristics of leaders. In the contemporary era, dominated by the mass media, it is unusual for the voter to have any personal contact with the candidate or anyone else associated with the campaign. As a result, trait judgments are dependent on messages sent out by the candidate in comparison to descriptions in the independent media and by his or her opponent through mediated channels or direct advertising. For example, President George Bush's penchant for photo opportunities while enjoying the privileges of wealth, such as a vacation home in Maine, helped Bill Clinton send a credible message that he cared about the economic pain of the common American in 1992. Meanwhile, the presence of Ross Perot may have helped Clinton appear less inexperienced, more intellectual, and more reliable.

Measures of Perceptions

There are several methods of building scales measuring ideal points and perceptions. On most academic political surveys, like the American National Election Study, it is common to find policy questions that ask the respondent to use a Likert scale to locate her own ideal point and/or the candidates and parties. For example, one question on the American National Election Study asks:

> Some people think the government should provide fewer services, even in areas such as health and education in order to reduce spending. Other people feel it is important for the government to provide many more services even if it means an increase in spending.

The respondent is then presented with a line with seven points labeled 1–7, and the ends labeled, "government should provide many fewer services; reduce spending a lot," and "government should provide many more services; increase spending a lot." The respondent is then asked, "where would you place yourself on this scale, or haven't you thought much about this?" If they place themselves on the scale, in 1994, the respondents were asked, "where would you place Bill Clinton on this scale?" Requests to place two other names and then the two political parties followed.

The order of questions almost always starts with self-placement. This means that the self-placement is insulated from projection effects or any anchors as a result of the respondent being asked to place a candidate he or she supports or opposes on the scale first. Respondents who place the candidates on the scale first may be found to exhibit a "commitment and consistency" bias (Cialdini 2001) as the respondents place

themselves close to the candidate they support rather than supporting the candidate closest to their ideal points.[2]

One problem with measuring party and candidate perceptions is that in mature democracies with long-standing party systems, the citizen's political socialization includes impressions and judgments of the parties. Each new election campaign builds off of prior campaigns. Prior judgments of Republican candidates (for that office and for other offices) can influence how the voter perceives the current Republican candidate, often enabling the voters to guess candidate positions on key issues while knowing few additional pieces of information about the candidate (including the candidate's name). (Alvarez and Gronke 1996; Popkin 1994). As a result, an election study or exit poll may find exaggerated levels of proximity as Democrats place Democratic candidates close to their ideal points and Republicans far away. It is not surprising that placements of the presidential candidates from each party are quite consistent over a long time series since these issue scales were first asked in the 1960's.

Another possible problem is the difficulty some respondents have at using the scales. This difficulty may stem from a lack of knowledge about the candidates, little comprehension of the issues, or a lack of understanding of how each mode of the scale relates to actual positions. With only the extreme points labeled, there is no clear direction as to how to use, say point number 2 and point number 3, both to the left of the midpoint (but conservative positions on the example above). Two people's ideal

[2] The arrow of causality may be reversed if the respondents anticipate the candidate- and party-perception questions or place the candidate they support closer to their ideal point without exactly knowing the candidate's stance.

may be virtually identical, but a lack of understanding of the scales would lead one to choose "2", and the other to choose, "3" (see Achen 1975). Too often, at least compared to other methods of locating preferences, respondents choose the median placement (Aldrich et al. 1982).

I designed an experiment to be administered to college students whose lack of long-standing voting records make it more likely that they not have extensive prior judgments of the candidates or parties to see whether priming the respondent to think about the incumbent affects the students' perceptions of the candidates in the race. For this experiment it was important to find a well-known incumbent who was not running for re-election. I hoped that even if many of the college students are not very engaged in politics, they would have enough knowledge of the well-known incumbent to place the incumbent on a scale measuring his or her views on an issue or on a general ideological right-left scale. Ideally, this incumbent's popularity would make it easy for many people to place him or her on the issue scale. Despite being well-known, because the incumbent was not running for re-election, information about him may not be available before the students can go to the polls to vote for a successor. So, asking them to place the incumbent on the scale first could prime the students to consider information they might not normally use when placing the candidates on those scales. This information could be about qualities that the voter may desire the office-holder to have, prominent successes and failures by the incumbent, or tasks that the officeholder must fulfill. For respondents unfamiliar with politics, mention of the incumbent could trigger reminders

of the pithy descriptions of the incumbent, such as party affiliation or ideological bent that may be useful guides for evaluating candidates for replacement.

Experiment 1: New York City Mayoral Election

Study Description

On a primary election originally scheduled for September 11, 2001, six candidates ran for Mayor of New York City in a bid to succeed incumbent Rudolph Giuliani. The candidates included four Democrats, all holders of another elected office, and two Republicans, one a former Democratic congressman, Herman Badillo. The other Republican was Michael Bloomberg, a millionaire businessman supported by Giuliani, who won the election after it was rescheduled in the wake of the terrorist attacks.

The experiment consisted of two versions of a questionnaire: the control version, consistent with the ordering of the questions on the American National Election Studies, asked respondents to place themselves on an issue scale, and then each of the candidates. The alternative version asked the respondents to place incumbent Mayor Giuliani on the scale, and then the candidates.

Procedures

The issue scales I used to measure perceptions were located at the beginning of the survey, after asking the students whether they were residents of the city. There were three different issue scales (presented in this order): crime, increase services/decrease spending and ideology. The crime scale included five categories, ranging from "major changes in the way the police fight crime to make sure all people are treated fairly by

the police," to "major changes in the way the police fight crime to make sure the police have enough power to catch all criminals."

The services/spending question mimicked the National Election Studies question, and asked respondents to place the candidates on a seven point scale ranging from, "increase services and spending a lot," to "decrease services and spending a lot." The services/spending scale question wording was adjusted in the treatment so that respondents were explicitly asked, "compared to Mayor Giuliani, how would you describe these politicians?" Unlike the American National Election Studies questions, all of the scale nodes were labeled in an attempt to lessen the degree to which people randomly guessed their placement. This was expected to make this test of the hypothesis more difficult, but more accurate. I expected that there would be less uncertainty about the range of the scale, and as a result, it would be harder for the anchor to shift opinions. At the same time, whatever shift occurred would be attributable to the change in the anchor rather than exogenous uncertainty over how to use the scale.

A question asking respondents about what they thought was going to be the candidates' highest priority in office was placed in between the services/spending scale and ideology. In the treatment, self-placement was measured following all of the candidate placements. In the control, Giuliani's position was measured on services/spending and ideology immediately after each of the scales. I then asked a series of socio-demographic questions including gender, race, religion and political knowledge.

On the Thursday and Friday before the election (September 6 and 7), I personally invited college students at two City University of New York campuses, Queens (in Queens) and Baruch (in Manhattan), to complete my questionnaire. Most of the students at these campuses are city residents (see Appendix). 65 subjects were recruited from the cafeteria and social areas on campus. Two-thirds of the respondents were males. 57% of the subjects are white, 12% of the subjects were black, one-third was Catholic and 20% were Jewish. 60% identified themselves as Democrats. 48 of the 65 subjects, nearly three-quarters of the sample, could name the governor of New York, George Pataki. Only 6 (9%) could name the Chief Justice of the U.S. Supreme Court, suggesting that not very many were politically knowledgeable. Subjects were given a small packet of cookies (such as Oreos and Chips Ahoy) for participating in the study.

Results: New York City Mayor

Giuliani did not prove to be a very good anchor. On ideology, most respondents who were asked to place Giuliani first, placed him to the right, as a conservative, but just over a quarter of the sample thought Giuliani was an extreme liberal (see Figure 1). Figures 2 and 3 illustrate the bimodal distribution of perceptions of Giuliani on crime and services/spending. 35% of the subjects in the first treatment thought Giuliani favored *increasing* services and spending "a little," 20% thought he favored increasing spending "a lot." Almost everyone else in that treatment thought Giuliani favored *decreasing* services and spending "a lot" or "a little." Likewise, 53% [surprisingly] thought Giuliani made minor or major changes in the way the police fight crime to make sure all people are treated fairly by the police. 41% thought that Giuliani made

major changes in the way the police fight crime to make sure the police have enough power to catch all criminals.

A comparison of how subjects perceived Giuliani across the two treatments was complicated by the propensity of subjects in the control to say they did not know where to place Giuliani on the scales. Only about one-quarter of the respondents placed Giuliani on services/spending, and only 56% placed Giuliani on the ideology scale. In contrast, over 90% of the subjects in the treatment, when their perceptions of Giuliani was asked first, were able to place Giuliani on crime and services/spending and 85% could place him on ideology. Subjects in the treatment condition were more likely to place him at *either* extreme on ideology. Clearly, the assumption that the well-known incumbent would be a common anchor on the scales for many respondents was false. It is not clear whether this was because Giuliani's positions were not well-known or because of Giuliani himself, who despite being a Republican, took some liberal economic positions and, on occasion, opposed the national Republicans on occasion. It is likely that while Giuliani was well-known (especially his personal life), his maverick style may have made him a very difficult politician to pin down.

Without the common anchor, there were not many clear effects on the placement of the candidates after priming the subjects to think of Giuliani first. There were no statistically significant differences between the mean placements of each of the six candidates on three different scales. Only one, the placement of Peter Vallone on services/spending was even close: in the treatment, Vallone's mean placement on the 7-

pt scale was 3.9. In the control, Vallone's mean placement was a 3.27 (see Table 1). With a t-value of 1.56, the two-tailed test was insignificant (P>|t| = 0.13), but the one-tailed test was significant (p>t = 0.07). Hypothesis 1B was resoundingly rejected in favor of the null.

Table 3.1 displays the range and skew of the placements and the standard deviation around the mean. According to Hypothesis 1C, the distribution should be tighter, reflected by a smaller range and standard deviation. If the placements are not near the center, the absolute value of the skew should be higher. There was little indication that the anchor tightened the distribution of the perceptions. Only one candidate, little known Hernan Badillo, was placed on the ideology scale in a shorter range in the treatment than the control. The other candidates were placed on a longer range in the control. With a range of four out of seven, this was hardly a tight distribution. On the services/spending scale, two candidates Hevesi and Vallone have a tighter, more skewed distribution in the anchor. 60% of the respondents in the treatment agree that Vallone should be placed at 4. 44% of these respondents agree that Hevesi should be placed at the same point. The kurtosis of Vallone's placement was 5.28 compared to 2.38 in the control. For Hevesi, the distribution's kurtosis in the treatment was 3.75. On the same scale, though, fellow Democrat Mark Green's distribution had a shorter range, was more skewed and more leptokurtic in the control. On the five-point crime scale, only perceptions of Fernando Ferrer appears to be more skewed and more leptokurtic, but in the control, not in the treatment, even though 51.9% of the respondents placed Ferrer at the left end-point of the scale in the treatment.

However, there was evidence in favor of Hypothesis 1A: Respondents were far more likely to place the candidate on the issue scale in the treatment as compared to the control (see Table 3.2). The likelihood of placing Green on the crime scale increased by over 20 percentage points compared to the control. The frequency of placing Ferrer, Hevesi and Badillo went up by nearly the same amount; by about 18 percentage points. On the services/spending scale, Bloomberg and Green were placed by over 70% of the respondents. Only 40% of the respondents in the control placed Bloomberg; only 53% placed Green. Half of the respondents in the control group placed Ferrer on the services/spending scale, but 69% of the respondents in the treatment located Ferrer. The likelihood of placing two relatively unknown Democrats, Hevesi and Vallone, went up about 8 percentage points.

Results were similar on the ideology scale, even though it was the third of the three scales on the questionnaire. Badillo was only placed on the ideological scale by 46% of the respondents in the treatment, but that was much higher than what was observed in the control condition. Only one-third of the respondents in the control condition successfully placed Badillo on the scale. Compared to the control, the likelihood of placing Ferrer and Green on the ideological scale went up by over 20 percentage points, to 68 and 74% respectively. Vallone was placed by 65 percent of the respondents in the treatment, compared to 46% in the control condition. 54% of the respondents placed Hevesi on the scale, compared to 43% in the control condition.

Analysis: New York City Mayor Experiment

While there was evidence in favor of Hypothesis 1A, the results did not support Hypothesis 1B. The entire experiment was predicated on a false assumption about a consensus over the placement of the incumbent Mayor Giuliani. As a result, the anchoring effects were not as clear as expected. Further complicating the analysis, few respondents appeared to be very knowledgeable about politics. So, while students were used because they would not have many preconceptions about the two parties, perhaps it would have been better if more subjects had a stronger prior set of knowledge about politics. The low knowledge base indicates that the respondents may have been guessing at the answers, so the anchor appears to have made the respondents more willing to guess. If this is the case, another causal mechanism may explain why people who are not asked their own positions are more likely to guess the location of the candidates on key, salient issues.

The New York City experiment could not be repeated. Originally, I planned a return trip to New York, where I could have repeated the experiment using only the two (or three candidates) who would be in the general election, with the higher level of information associated with the later stage in the campaign. However, the events of September 11, 2001, not only changed the dynamics of the campaign, and the level of attention given to the campaign, but also caused the election to be rescheduled. Fortunately, another election, in another state presented a good, if not better, opportunity to test my hypotheses about perceptions using an incumbent anchor.

Experiment 2: North Carolina Senate

In 2002, longtime incumbent Republican Senator Jesse Helms of North Carolina announced that he would not seek reelection. Senator Helms served as North Carolina's Senator for thirty years, and was so well known that he rarely, if ever personally campaigned for office even though he faced high-profile opponents. Instead, he argued that the people of North Carolina knew where he stood (especially when he ran against an African-American Democrat). I decided to repeat the New York experiment using the extreme Helms instead of the moderate Giuliani. Such an extreme anchor would be better than Giuliani because not only was Helms arguably as pure an ideologue as anyone in the Senate and wouldn't be handicapped by his own maverick nature (as Giuliani was), but such extreme values are more regularly used in anchoring and adjustment research. I expected Helms' placement to be to the right of most respondents, facilitating a contrast between the anchoring effect induced by Helms and the anchoring effect from the respondent's self-placement.

Due to a redistricting court battle, the primary election was fortuitously postponed until the fall, shortly before the election day. So, just like in New York City, all of the candidates would be campaigning and placing advertisements in the post-Labor Day period when many voters begin to follow the election. Other primaries, for Congressional candidates, were also postponed.

Like in New York, a strong but crowded field of candidates jostled for the Democratic nomination. These candidates included former Speaker of the North Carolina House of Representatives, Dan Blue, President Clinton's former Chief of Staff, Erskine Bowles,

North Carolina Secretary of State (an elected office in North Carolina), Elaine Marshall, and former Durham City Councilperson Cynthia Brown. Elizabeth Dole, wife of former Senator Bob Dole and a former cabinet secretary in the Reagan and Bush administrations, was a front-runner for the Republican nomination, but faced conservative opposition from attorney Jim Snyder. Just like the experiment in New York, the candidates were presented in alphabetical order without party affiliation. Consequently, neither of the two best-funded and most well-known candidates, Erskine Bowles or Elizabeth Dole, was listed first.

Respondents who were recruited from classes at Wake Forest University and the University of North Carolina, and on campus at North Carolina State University and North Carolina Central University. Three of the four universities are state universities with a large percentage of in-state students. The fourth university, located in North Carolina, draws students regionally, so many students are from North Carolina. North Carolina Central University is a historically African-American institution. North Carolina State specializes in technical and scientific fields of study. All of the respondents completed the questionnaires within two weeks of the primary election. Most completed the questionnaire, like the subjects in New York, within a week of the primary. I gave subjects a small packet of store-bought cookies in exchange for participating. Those who were recruited from classrooms were not given any course credit and were assured that participation was voluntary.

I only asked the respondents to place the candidates on a seven-point ideology scale. Each point on the scale was labeled, from "Very Liberal" on the left to "Very Conservative" on the right. The midpoint was labeled, "Moderate, Middle of the Road." To the right of the scale, respondents could select a box, marked "Not Sure / Don't Know." Respondents were randomly placed in the control condition, where they were first asked to place themselves on the ideology scale, or in the single treatment condition, where they were asked to place "Senator Jesse Helms" on the scale. Senator Helms was the only individual identified with a title. All of the candidates were identified by their name only. I did not provide the candidates political party affiliation.

Since I assumed that respondents would identify Senator Helms as a far-right conservative, I expected Elizabeth Dole, the leading Republican contender to be more likely to be seen as a moderate conservative as a test of Hypothesis 1B. During the campaign, Dole worked hard to ensure support from Conservatives, especially Christians. Her campaign organization asked people to become prayer partners and she campaigned as a small-town girl who joined the fight against big government in Washington. Yet, she also appealed as a moderate to suburban voters, and proposed various policies to win the support of voters in areas who had suffered from free trade.

Results: North Carolina Senate Experiment

My assumption about the ability of my college student subjects to agree on a (conservative) placement of Jesse Helms was not supported as closely as I expected (see Figure 3.4). Nearly 40% of the sample placed Helms on the seventh point on the far-right as I expected. Another 33% of the sample correctly identified Helms as a

conservative. Surprisingly, the remainder of the sample placed Helms on the liberal end of the scale, including nearly 8 percent who thought Helms was on the far-left. Like the New York study, this lack of consistency adversely affected the ability of Helms to serve as a clear anchor for the candidate perceptions.

The mean placement of Elizabeth Dole on the scale was hardly influenced by the change in anchors. The difference in average placement of Dole between the two treatments was less than a tenth of a point. There was also no change in the standard deviation of the answers, as respondents did not seem to come any closer to a consensus over where Dole stood as a result of the Helms anchor (the range of answers was nearly the same). Even if I exclude those who placed Helms to the left of the scale's midpoint, on the assumption that these respondents were just randomly guessing or did not understand the scale, the mean placement of Dole is unchanged across the treatments.

A comparison of Figures 3.5 and 3.6 illustrates that the lack of significant differences in the average placement was deceptive. While the percentage of subjects who placed Dole at six was unchanged across the two treatments, the percentage of the subjects who placed Dole at five doubled when Helms was the anchor. The median placement of Dole, though, when Helms anchored the scale was a five (on the seven point scale), as compared to a six in the control. However, the Wilcoxon rank-sum test was not significant, so one cannot conclude that the population medians are different across the treatments. If I throw out the responses of those who placed Helms to the left of the scale's midpoint, the number of respondents who place Dole at five when Helms is the

anchor is still twice as high as the number in the control condition (compare Figures 3.7 and 3.8).

Consistent with Hypothesis 1C, Dole's placement appears to have been more consistent when Helms was the anchor. Perceptions of Dole were more skewed in the treatment, as compared to the control. The kurtosis of the distribution of the responses in the treatment was 4.92, 2.6 points higher than the kurtosis of the distribution in the control, suggesting that the distribution was steeper (see Table 3.3 or Figures 3.5 and 3.6).

The eventual Democratic nominee, Erskine Bowles, was the only candidate whose average placement on the ideology scale was significantly different when Helms anchored the scale. The distribution of Bowles' placements on the ideology scale was also steeper in the presence of the anchor (see Table 3.3). When Senator Helms provided the anchor, the average perception of Bowles was 3.03 and the median placement was a three, just to the left of the midpoint on the seven-point scale. Without Senator Helms providing the anchor, the average placement of Bowles was a 3.67 and the median placement was a four, the midpoint.[3] The one-tailed test of the difference of means with unequal variance was significant at $P < 0.05$ ($T = -1.84$, $P < T = 0.036$). This is surprising, because anchoring and adjustment effects usually cause the subject to insufficiently adjust for the anchor. Instead of appearing more liberal, Bowles looks more conservative.

[3] The Wilcoxon rank-sum test was not significant (Prob > |z| = 0.0875), but when I excluded those respondents who thought Helms was a liberal, the difference of medians was enough to reject the Wilcoxon test's hypothesis of equal population medians.

Unlike the New York City experiment, changing the anchor had no visible effect on the subjects' ability to locate the candidates on the placement scales. Not a single one of the response rates to the candidates varied significantly (as measured by Pearson's X^2) from the treatment to the control (see Table 3.5). There was no evidence collected in support of Hypothesis 1A.

Analysis: North Carolina Senate Experiment

The shift in perceptions of Elizabeth Dole illustrated in Figures 3.5 and 3.6, is a small change. The shift is only one point or two near the conservative end of the scale. When Helms preceded Dole, the distance between the two candidates, was, on average, 1.42 points. In the control, when Helms succeeded Dole on the scales, the distance shrunk by about three-tenths of a point. Even if only a point to one-and-a-half points, the anchoring effect would be substantively significant only if the anchor caused Dole to appear closer to the subject's own ideal. I looked at the absolute difference between the locations of Dole on the ideology scale from the subject's self-placement on the same scale to see whether Dole appeared closer to the subject when Helms anchored the scale. On average, the subjects placed Dole closer to them when Helms anchored the scale (see Table 3.4). The average absolute distance between the subject's self-placement and the subject's placement of Dole in the control was 2.78. The average distance between subject's self-placement and the subject's placement of Dole when Helms anchored the scale was 2.05. The one-tailed test of the difference of means was significant at $P < 0.01$ ($T = -2.44$, $P < T = 0.008$). When I exclude those who place Helms on the left of the scale (21 out of 100 cases), the average distance between the

subject's self-placement and the subject's perception of Dole decreased from 2.81 in the control to 2.33 in the treatment. This difference is significant at the less rigorous standard of $P < 0.1$ ($T = -1.40$, $P < T = 0.082$). If voters are selecting on the basis of proximity, then the presence of the Helms' anchor could increase the probability that voters will choose that candidate.

Even though the average placement of Erskine Bowles was affected by the anchor, the average distance between the candidate and Senator Helms was not (see Table 3.4). However, the effect of the anchor on Bowles made Bowles look, on average, more liberal than the respondent. When Helms anchored the battery of perception questions, the average distance from Bowles' placement to the subjects' self-placements was -0.53. When the self-placement question was asked first, the difference was 0.82. The one-tailed test of the difference of means was significant at $P < 0.01$ ($T = -2.49$, $P < T = 0.008$). The average distance increased even more when I analyzed only those respondents who placed Helms at the midpoint or on the Conservative side of the scale.

I tested the effect of the anchor on Dole with the controls I included in the questionnaire by running an ordered logit using the distance between the subject's placement of Dole and the subject's self-placement as the dependent variable. The effect of the treatment conditions was measured with a dummy variable, coded one when Helms was used as an anchor, zero when it was not. As an independent variable, I included the subject's party identification, measured on a five-point scale using two survey items. Party identification can influence perceptions because liberals tend to have an easier time

distinguishing between liberals, but not conservatives, and vice versa (Converse and Dupuex 1962). More importantly, party identification would control for projection effects caused by supporters of Dole placing her closer to their ideal points. Those with high levels of political knowledge tend to understand the scales better and use them more consistently. Political knowledge was measured additively by three items that asked the subject to recall the name of the state governor, the other Senator from North Carolina and the Chief Justice of the Supreme Court of the United States. I also included control dummies for whites, women and state residents.

When controlling for these variables, the model predicted that the effect of the anchor would decrease the absolute distance between the subjects' placement of Dole and the subjects' self-placement (see Table 6). The ordered logit coefficient of -0.88 was signed in the correct direction, and was statistically significant at $P > |Z|$ of 0.05. When comparing the full model to the constrained model without the dummy for the treatment, I obtained a likelihood ratio X^2 of 5.35 and a significance level of 0.021. These results confirm that the anchoring effect is significant but the size of the coefficients compared to the distance between the cut-points suggests that the effect is not very large. The smallest distance between two cut points, the distance of three points on the scale away from Dole, is 0.903. Since the absolute value of the coefficient is smaller than 0.0903, the anchor is not expected to change the absolute distance

between Dole and the subject more than a single point when controlling for party identification, political knowledge and demographic characteristics.[4]

Both party identification and political knowledge had large, independent, effects on the distance between perceptions of Dole and the subjects' self-placement. Two steps on the party identification scale, the difference between Democrats and neutral independents, or these independents and Republicans, shortened the distance between perceptions of Dole and the subjects' self-placement by 1.38, enough to decrease the distance from three points to one point, or from four points to two points. High levels of political knowledge worked in the opposite direction. If the subject could name all three public officials instead of none, the distance between their own ideal and their placement of Dole increased by 1.59, enough to increase the distance two points, anywhere from no difference to four points distant.

The shift in perceptions of Erskine Bowles is not so easily modeled because the shift was in the opposite direction. One possible explanation of the shift in the placement of Bowles is that respondents who placed Bowles were more conservative in the treatment. Not very many subjects were able to place Bowles on the scale. Only half of the respondents who placed Senator Helms on the scale could place Erskine Bowles on the same scale. Of those who could place Bowles on the scale, those who placed Helms

[4] Since the absolute distance between the subject's perception of Dole and the subject's self-placement results in a seven-point scale, it is possible to fit an OLS regression to the model. The results do not vary much from the ordered logit. For those more familiar with interpreting regression results, the coefficient for the treatment dummy was -0.62, confirming that the anchor does not affect the distance between perceptions of Dole and the subjects' ideal by more than a point on the scale when controlling for the other variables. The variance explained of the regression, the R-squared, was a robust 0.37.

first on the scale were, on average more conservative. The average self-placement among those in the treatment was nearly a point on the scale more conservative than the average self-placement of those in the control, 3.56 and 2.67 respectively. The one-tailed test of the difference of means was significant at $P < 0.05$ ($T = -1.9$, $P < T = 0.031$). The difference narrowed when I excluded those who placed Helms on the liberal side of the scale, making the distance barely statistically insignificant.

This could be the bad luck of the random assignment or could be caused by the subjects anchoring their own responses to Helms and adjusting insufficiently for the anchor. The small number of perceptions made further analysis difficult. I repeated the same analyses as I report above with Elizabeth Dole, using the absolute distance of the candidate placement from the subjects' self-placement, but the results were not significant. Unless the anchor of Helms simultaneously moved the respondent to the right and Bowles to the left, this change in perceptions of Erskine Bowles was likely to be an artifact of the small sample and a handful of cases in the treatment that placed Bowles slightly to their left that were not present in the control.

Discussion: NY and NC Experiments

I found little evidence of anchoring and adjustment effects when respondents are first asked to place the (well-known) incumbent on the scale. Hypothesis 1A is only supported by the New York experiment. Hypothesis 1B was not strongly supported by either experiment, but the placement of Elizabeth Dole was apparently influenced by the anchor even though it did not affect the average perception of her candidacy. The North Carolina Senate experiment rules out the possibility that the failure of the New

York experiment was solely the result of the disagreement and confusion over where to place Mayor Giuliani. However, the lack of consensus in the sample over where to place Senator Helms suggests that both experiments were hampered by an anchor that was not as strong or as clear as I originally expected. Future experiments might find it more useful to provide a profile of the incumbent or some other political figure before testing an anchoring effect. If voters are processing candidates on-line, and not keeping them in memory, then the profile would reduce the guessing on the anchor. This method would eliminate the problems of the heterogeneity of these experiments and possibly provide a better, or stronger, test of anchoring effects in candidate perceptions.

Perceptions may simply not be as malleable as expected. Alternatively, these findings may reflect the irrelevance of the incumbent on those expectations. The nature of the student sample, given college student attentiveness to political campaigns may have left me with subjects who were actually too inattentive, and guessed at candidate placements even when they could name political figures. A larger, more representative sample of the voting age population may have provided a stronger test of the hypotheses. Unfortunately, experiments that use real candidates and real campaigns are constrained by the scheduling of the campaign, rendering replication of these experiments nearly impossible.[5] However, future research could test the use of other well-known political figures as anchors on candidate perceptions. My experience with Giuliani and Helms, though, suggests that there are few political figures whose stances are sufficiently "well-known."

[5] Rotter and Rotter (1966) actually replicated their experiment of decision-making in the 1964 election after the election, with mixed results.

Local Office Candidate Experiments

In the spring of 2002, I ran two experiments where I presented subjects with profiles of candidates "considering whether they will run for local office." Based on real candidate platforms, I provided short profiles of the candidates modeled after the voter's guides distributed by the League of Women Voters or found in the newspaper shortly before election day. Each set of profiles was accompanied by an introduction explaining that, for privacy reasons, some personal information has been omitted from their descriptions. The introduction described the candidates as married, middle-age men with at least one child in school. Without identifying the school, I told the respondents that the candidates graduated from a large state university in North Carolina and have all been managers or owners of a local company and enjoy some common hobbies. I did not identify the candidates as members of any political party.

Each candidate profile consisted of unique answers to two questions: "What makes you best qualified," and "top priority." Both of these categories appear in the non-partisan voter's guides that appear in local newspapers in North Carolina. The answers to the qualification question varied, but were written to be vague and unremarkable. In pilot testing of these experiments, I found that leaving this information out left subjects thinking that they did not have enough information to make a decision. At the same time, I found that the pilot subjects ascribed little weight to the qualifications description because they found did not find the descriptions to matter in any remarkable way.

The "School Experiment" was designed for any voting age American to answer. Each candidate's priority specifically mentioned school finance issues. This policy area was chosen because school finance issues are ubiquitous across the country and tend to be an issue that many are concerned about. Most respondents were recruited in the "Triangle," in North Carolina. Many subjects were recruited from visitors to Duke University's campus, especially over alumni weekend and in the stands before college baseball games started. Other respondents were recruited "on the street" in Durham while the principal investigator was recruiting subjects for the second experiment, using a growth issue specific to the Triangle, when consent was obtained from an out-of-town visitor. Despite the local recruitment, subjects came from 27 states and the District of Columbia. More than half came from south of the Mason-Dixon line. Every attempt was made during subject recruitment to obtain consent from non-students. Non-students were assumed to be much more engaged in local issues such as school financing options. When recruiting subjects on campus, undergraduate students were dissuaded from participating in the study.

Perceptions were measured using a question based on the National Election Study scales. The question wording read: "Some people think government should provide fewer services, even in areas such as education in order to reduce spending. Other people feel it is important for the government to provide many more services even if it means an increase in spending. On the scale below, where would you place each candidate?" The scale contained seven points. The left-most point was labeled, "Government should provide much fewer services; reduce spending a lot." The extreme

point on the right side was labeled, "Government should provide much more services; increase spending a lot." In between, matching the National Election Study "standard," the points were not labeled. To the right of the scale, there was a column labeled, "Don't Know / Not Sure." This was the tenth question in the questionnaire. The item following the vote choice, why that choice was made, whether the choice was difficult or uncertain, and which candidate(s) the respondent also considered voting for.

Stimuli Description

The experiment was divided into six different treatments. Subjects were randomly assigned to each treatment. There were a total of four different candidate profiles. For two control treatments, I presented two candidate profiles to the subject. In the other treatments, subjects saw profiles of three candidates. The candidates did not change, the profiles were exactly the same, and the survey instrument was the same. This way, we can test Hypothesis II by observing if perceptions change along with changes in the choice set.

One candidate appeared in both control sets and all but one treatment. This candidate was targeted because he said education was his top concern, supported more funding for education, but advocated increasing impact fees on new developments so current homeowners would not need to pay more taxes. This candidate was targeted because it was expected that this limited-tax increase position would appear more conservative in the presence of candidates advocating more extensive tax increases, but liberal in the presence of more conservative candidates (candidates who oppose any tax increase or

call for tax cuts). As a result, this experiment was designed to be a test of Hypothesis II. This candidate was always presented on the left side of the profiles.

A second candidate appeared in one control set and three of the treatments. This candidate said his priority was improving education, but he did not support increasing taxes. This candidate also appeared in comparison to candidates on the right and on the left. Therefore, this candidate could also provide tests of anchoring and adjustment effects from the presence of extreme candidates. This candidate's profile always appeared in the middle of the three candidates in the choice set.

I presented two other candidates as decoys. One advocated more taxes for better schools, the other one advocated tax breaks. The candidate advocated tax breaks appeared in one of the control conditions, opposing the "impact fees" advocate. The one advocating more taxes appeared only in 3-candidate choice conditions. Neither of these decoys proved to be very popular choices when I asked the subjects whom they might vote for.

Results

Perceptions of the two candidates shifted depending on whether an extreme candidate anchored the scale or not. When the candidate advocating new taxes on the left was introduced, the average perception of the "impact fees" candidate shifted to the right, towards the center. When the candidate advocating a tax cut was in the choice set, the perceptions of the "no new taxes" candidate shifted to the left, towards the center (see Figure 3.9).

The "impact fees" candidate's mean placement ranged from 4.36 to 5.33. In the two candidates condition, the average placement was 4.95 and 5.08. When the "no new taxes" candidate and the tax cut candidate in the choice, but no candidate to the left of the "impact fees," the average placement of the "impact fees" candidate on the services/spending scale was further to the left, 5.33. The average placement of the "new taxes" candidate was no less than two-tenths farther to the left, 5.51. When the candidate advocating new taxes was included in the choice set, the "impact fees" the average placement was 4.4, nearly a full point closer to the center. The one-tailed test of the difference of mean perceptions of the "impact fees" candidates between the two conditions with the "new taxes" candidate and the three others conditions (including the two controls) was significant at $P < 0.01$ ($T = -3.3$, $P > 0.001$, assuming unequal variance). The Kruskal-Wallis test of the equality of population medians confirmed significant differences in the distribution of perceptions of the impact fees candidate by experiment condition ($P = 0.02$).[6]

The average placement of the candidate that promised that he would not raise taxes was 2.85 in one two-candidate control condition. Remarkably, the average placement of the candidate that intended to cut taxes was at exactly the same point in the other control condition, opposite "impact fees." When both were in the same choice set, the candidate that pledged to *cut* taxes, remained at almost exactly the same point. In these treatments,

[6] A oneway analysis of variance found similar results ($F=3.72$, $P>F=0.006$), but the results failed Bartlett's Chi-squared test for equal variance (Chi-square=9.9, P>Chi-square=0.04), implying that the ANOVA equal variance assumption is implausible, so we cannot trust the F test results (see Hamilton 2003). I employed the Kruskal-Wallis test, as recommended by Hamilton when the variance assumption is implausible.

the “cut taxes” candidate was placed, on average, at 2.8. While these respondents saw the “cut taxes” the same as the respondents in the other condition, they saw the “no new taxes” candidate much differently. Perceptions of the “no new taxes” candidate shifted to 3.5. In contrast, respondents who saw the “new taxes,” the “impact fees” and the “no new taxes” candidates, placed “no new taxes” on average, as more conservative than the respondents in the control conditions. The oneway analysis of variance of the mean perceptions of the “no new taxes” candidate was statistically significant ($F = 5.40$, $P = 0.006$, Bartlett’s $X^2 = 2.3$).

Implications: Education Candidates and the Median Voter

Since elections in plurality elections in single-member districts are decided by the median voter, it is important to evaluate how these shifts in perception affect the median voter. In all but one treatment, the median voter placed him or herself at four, the midpoint of the scale. The candidate, whom the subject population perceived to be, on average, closest to the median voter across the experiment, was the candidate pledging no new taxes, at 3.2. In the fifth treatment, when “new taxes,” “impact fees” and “cut taxes,” made up the choice set, the median voter placed him or herself at five. The party closest, at 4.9, was the candidate proposing to raise impact fees. The same candidate was closest to the median voter in both control conditions. Nevertheless, the candidate proposing additional impact fees was the overwhelming favorite of the respondents, winning a majority of the “votes” in every choice set he appeared in (see Table 3.7).

The “impact fees” candidate, rather than the candidate pledging no new taxes, was also perceived as closer to the median when the choice set included the candidate advocating

a tax increase and the candidates pledging no new taxes. However, when the candidate promising to cut taxes replaced the candidate pledging to increase taxes in the choice set, the resulting shift in perceptions left "no new taxes" closest to the median voter (see Condition No. 4 in Figure 3.9). Even though "no new taxes" was closest to the median across the entire experiment, the only other treatment where it was closest to the median was when the choice set excluded the candidate planning to increase impact fees.

When the median voter placed him or herself at five on the seven-point services/spending scale, the candidate advocating new taxes to fund education was the closest to his or her position, not the impact fees candidate. In this treatment, the "impact fees" candidate was seen, on average, at 4.43, statistically significantly different than the average placement of 4.98 across the other treatments (one-tailed, $T=0.026$, $P > 0.026$, assuming unequal variance). The shift in perceptions was only a half-point on the seven-point scale, but it prevented a candidate that would otherwise have been seen as perfectly aligned with the median voter from being the closest.

Many voters placed themselves at a different point then the candidates they supported. A majority of the "impact fees" candidate's supporters did not place themselves at the same point as the candidate on the scale. 43.5% placed themselves at the same point on the scale. Almost the same percentage of those who voted for the candidate calling for new taxes placed themselves at the same point on the scale as their candidate (see Table 3.8). A higher percentage of the supporters of the candidates promising to keep taxes

the same and cut taxes placed themselves at the same point on the scale (58.9% and 56.5%, respectively).

The voting patterns did not closely conform to a spatial model. The "impact fees" candidate won a plurality of the voters at every point on the seven-point services/spending scale except the fewer services/spending endpoint. The "no new taxes" candidate fared poorly in the vote relative to where he stood in proximity to the median voter and relative to the respondents' expectations of his [strong] viability. When I asked respondents who else they would consider voting for, 40% mentioned the impact fees candidate.

One possible explanation is that voters acted strategically, eschewing a candidate that might have been closer to their own beliefs for one, presumably the impact fees candidate, and had a better chance of winning. No information about the "horse race" was provided, but I asked the respondents who they thought would win or be in a close race. 63% of the voters for the impact fees candidates thought that impact fees was going to win, or was in a close race with another candidate. 42% of those who voted for the other candidates expected impact fees to win or be in a close race (excluding voters in the treatment without the impact fees candidate).[7] As a result, strategic considerations may have played a role in the "impact fees" candidate's success, but they are not sufficient to explain what the spatial model cannot. The lack of strong support for

[7] See descriptive appendix for demographics and attitudinal overview of the sample. The discrepancy between expectations of support and actual levels of support could be the product of the non-random sample.

candidates advocating new taxes or cutting taxes suggests that the directional model of voting fares no better in this experiment.

I suspect the popularity of the impact fees candidate was, at least in part, attributable to some noise, some factor that I did not anticipate or control for when I designed the profiles. Several of the answers to the open ended question of why did you support this candidate mentioned that this candidate seemed authoritative or a creative thinker with a novel idea. He was, literally, a man with a plan. In contrast, the "no new taxes" candidate might have appeared vague, ambiguous and unspecific. As a result, the "impact fees" candidate appears to have won support across a range of policy beliefs, including many near the median voter who were actually closer to the "no new taxes" candidate. Alternatively, the proposal of impact fees was explicitly described as one in which many taxpayers would not have to pay more taxes, but they would still be able to enjoy schools with higher revenue. Under such a frame, many self-interested subjects may have supported impact fees even if they were generally opposed to new taxes, or just taxes they would personally have to pay.

Growth Experiment

To better understand the impact of a change in perceptions, I implemented a similar experiment that used candidates talking about growth issues in the spring of 2002. I discuss this experiment in depth in the following chapter. The results of this experiment more closely matched the issue proximity model. Using this model I can illustrate the magnitude of a small shift in perceptions induced by other candidates in the choice set.

For the growth experiment, I recruited 309 residents of the "Triangle," a multi-county metropolitan area in North Carolina, including the cities of Chapel Hill, Durham and Raleigh, to participate in this study from late April to early July, 2002.[8] The format of the experiment and the stimuli was identical to the school experiment, except that in the candidate profiles, the candidates spoke about growth issues, not education, as their highest priority.

Subjects were randomly placed into four treatments. In the control, they saw two profiles of two candidates, one stressing economic expansion ("A"), the other advocating some controls on growth to alleviate congestion and protect the environment ("B"). In the second, I added a candidate espousing "smart growth," a compromise position. In the third, I added a more extreme candidate wishing to limit growth. In the fourth treatment, the third candidate's priority was crime.

After the respondents cast their vote for one of the candidates, I asked the respondents to place each candidate on a five-point scale measuring what they think the candidates will do if elected (there was also an option for "don't know"). The question asked:

> We hear a lot of talk these days about how business and residential growth in our community has affected problems like pollution, traffic congestion and too little open space. Some people think that the local government should do more to encourage business and residential growth in the area even if it means more traffic congestion and less open space. Other people feel that it is important for local government to protect the environment and reduce traffic congestion even if it means that fewer businesses will locate in the area and fewer new developments will be constructed. Circle the number in the column that best describes what you think each candidate will do if elected. If you are not sure or don't know for one candidate, circle 'DK'.

[8] Further details of the sample and the stimuli are discussed in the following chapter.

Each point on the scale was labeled. The label at one end of the scale read, "Strongly supports business and residential growth even if it means more traffic congestion and less open space." The other end was identified as, "Strongly supports efforts to reduce traffic congestion and preserve open spaces even if it means less business and residential growth." The midpoint was labeled, "Neither supports nor opposes business and residential growth." The labels for the intermediate points were the same as the extreme points, without the adverb modifying support.

The target candidate was "Candidate B," the candidate advocating some controls on growth. The position of this candidate and of his opponent advocating growth did not change from one treatment to the next. I expect, however, that perceptions of this candidate will change depending on the third candidate in the choice set. When the extreme candidate was in the choice set, I expect respondents will anchor on this extreme candidate and Candidate B will appear more moderate. In the school experiment, the presence of a moderate candidate made the "impact fees" candidate appear more extreme. So, I expect that Candidate B will appear more extreme when the moderate third candidate appeared in the choice set. The lack of comparable information provided by the off-dimensional candidate talking about crime should not affect perceptions of the other candidates. Since there is no additional candidate added on the opposite, pro-growth extreme of the scale, I do not expect perceptions of Candidate A to change.

Results: A Shift in Perceptions

Figure3.10 presents the average placement of the candidates in each of the experimental conditions. The average placement of the target candidate, Candidate B, is depicted with a dark circle. In the control (at the top of the figure), the average placement of the candidate was 1.96. When the extreme candidate was added to the choice set, an anchoring effect was observed. The average placement of Candidate B shifted to 2.56. When the moderate candidate was added to the choice set, the average placement of Candidate B (2.02) was similar to the average perception of Candidate B by subjects who saw the crime candidate (1.93) and average perception of those in the control condition (1.96). The placement of Candidate A, the opposite extreme, was between 4.4 and 4.51 in three treatments. The differences in perceptions of Candidate A across the experimental treatments were not statistically different than zero.

The one-way analysis of variance of the difference in the average placement of Candidate B suggested that the shift across the treatments was statistically significant ($F = 4.68$, $P < F = 0.004$), but the analysis failed Bartlett's test of equal variances ($X^2 = 7.840$, $P > X^2 = 0.05$), so the results are not reliable. The Kruskal-Wallis test of the equality of population medians confirmed the shift in perceptions was significant (X^2 with ties = 19.5, $P = 0.002$). The Scheffe multiple comparison test of the difference of each pair of means indicated that the only pairs of differences that were statistically distinguishable from zero was the comparisons of the perception of Candidate B with the extreme candidate, C". The one-tailed test of the difference of the mean placement of Candidate B confirmed that the average level of difficulty in the treatment with the

extreme candidate was significantly more pro-growth than at $P < 0.01$ ($T = -3.5372$, $P < T = 0.001$).

As a result of the shift, Candidate B appeared to be closer to subjects that placed themselves between the two candidates when the extreme candidate was in the choice set. Only 15% of the subjects who placed themselves at the midpoint or "four" on the five point scale perceived themselves as closer to Candidate B than Candidate A in the Control. When the extreme candidate was added to the choice set, 39.3% of these subjects thought that B was closer.

Estimating the Vote with the Change in Perceptions

The mean difference in perception was slightly more than a half-point on the scale (more pro-growth) when the extreme candidate was included in the choice set. What would have been the effect in the control condition if Candidate B appeared to be a half-point more pro-growth? In separate equations, I modeled the vote of the subjects in the two-candidate control and the treatment with the crime candidate.

In Table 3.9, I present results of a logit analysis with a dichotomous dependent variable, coded one when the respondent votes for Candidate B. Partisan predispositions, varying levels of political efficacy and question ordering all have been found to influence how voters perceive candidates and their campaigns (Sigelman and Kugler 2003). In this model, I included the subjects' party identification, an index of the subjects' political interest and how informed they are about politics, an objective measure of political knowledge, two demographic dummy variables for women and African-Americans,

income, strategic considerations, and the difficulty of the choice.[9] As expected, the farther away the respondents' own self-placement is from the mean placement of the candidates, the less likely that the respondents will cast votes for Candidate B. All else being equal, for each point difference between respondents in the control and Candidate B, the odds of voting for Candidate B are reduced by 72%. In the treatment with the crime candidate, the odds of voting for Candidate B are reduced by 63% for each point separating B and the respondent on the growth scale. In the control, the variable is significant at $P < 0.01$, in the treatment it is significant at $P < 0.05$. The model as a whole did a good job explaining the vote. In the control, the model correctly classified 89.6% of the votes. In the treatment, the model correctly explained 75.4% of the vote.

Using Clarify[10], I estimated the change in the likelihood of voting for B when the respondents' distance got a half-point closer to the mean placement of B as a result of the shift towards the growth side of the scale, holding all other variables constant. This way, I can estimate the effect on the vote of the shift in perceptions if the extreme candidate had entered the control condition or the fourth treatment and caused a change in perception. To estimate the effect on the shift in perceptions on the likelihood of

[9] See the following chapter for an explanation of how the variables in this model were constructed. In the following chapter, I present the results of the same model, except that, instead of the difference between the mean placement of B and the subjects' self-placement, I simply use the subjects' self-placement. The logit results are identical to the model using only the subjects' self-placement on the growth scale since the mean placement is a constant. In the following chapter, I discuss the model in greater detail while focusing on choice difficulty.

[10] Clarify, Software for Interpreting and Presenting Statistical Results. A Stata macro by Michael Tomz, Jason Wittenberg, and Gary King; version: 2.0, 6/1/2001 (http://gking.harvard.edu/clarify). Clarify expands the dataset to 1000 observations for these estimations. As a result, other estimation programs may generate different results.

voting for Candidate B, I held the expected difficulty of the choice and the expected closeness of the race at zero. All other variables were held at the mean.

In the control condition, when the distance away from the mean placement of B was two points towards the growth end of the scale, Clarify estimated that the probability of voting for B was only 46% (see Table 3.10). As a result, the logit model would predict that such a respondent would not vote for B. Diminishing the distance by a half-point, increases the probability of voting for B by 13.6 percentage points. This change has a significant impact because it changes the predicted vote from A to B because the probability of voting for B is now greater than 50%. Anyone closer to the average placement is already predicted to vote for Candidate B, but the shift makes the likelihood of voting for B even higher.

If the respondent is a Republican, and is two points away from B, there is only a 19% likelihood of voting for B. Lowering the distance only marginally increases the likelihood of voting for B. But when Republicans are a point away from the mean placement of B, they have a 38.6% chance of voting for B (with all other variables except the two described above held constant at the mean). Decreasing the distance away from the mean placement of B by a half-point increases the likelihood of voting for B by nearly 13 percentage points. This is a significant change, since the difference changes the likelihood from less than 50% to greater than 50%. The shift in perception is enough to change the Republicans' predicted vote from A to B.

In the fourth treatment, respondents saw the crime candidate in addition to Candidates A and B. When choice difficulty and strategic considerations are held at zero, and all other variables were held constant, Clarify estimates that the probability of voting for B when the respondent was one point more pro-growth than the average placement of B in the treatment was 33.8% (see Table 3.10). A half-point closer to Candidate B would have raised the probability of voting for B to 44.5%. If, instead of being a half-point distant from the mean, the subject placed themselves at the same point as Candidate B, the likelihood of voting was 56%, making it more likely that the subject would vote for B instead of one of the other candidates.

In both treatments, if the respondent placed him or herself at the same point as the mean placement of B, shifting B a half-point up the growth scale (and away from the respondent) did not lower the likelihood of voting in either treatment. The control contained only one opponent, so those respondents who place themselves near the extremes have no recourse but to support the nearest candidate (Downs 1957). The fourth treatment included a candidate who spoke about crime, so voters who cared about growth similarly had little recourse but to support the candidate closest to their views.

Implications: Growth Experiment

Like the high prices that start a negotiation in the Middle East *souq*, an extreme candidate can anchor perceptions of the other candidates. I observed an anchoring effect on perceptions of Candidate B as the result of the introduction of a more extreme candidate into the choice set. These results are consistent with the findings from the

School Experiment and the same causal forces were observed when Senator Helms anchored the answers for Elizabeth Dole. When the candidate whose priority was crime was added to the choice set, there was no information provided relevant to the growth scale and the appropriate placement of the candidates on that scale. As a result, there was no information effect and the perceptions of the candidates did not change along with the expansion of the choice set. Unlike the School Experiment, but similar to the New York Mayoral Experiment, there was no meaningful shift in perceptions when a moderate or compromise candidate was added to the choice set.

The information provided by the extreme candidate resulted in a small, but meaningful shift in how the subjects perceived the candidate. The half-point shift in average perception was not very large, but it was large enough to change how some subjects would vote. When I estimated the probability of voting for Candidate B instead of Candidate A, the half-point shift "tipped" the predicted vote in favor of B for Republicans and other pro-growth subjects. Without the change in perception, all other factors being equal these respondents would have voted for Candidate A in the control (or A or the crime candidate in the last treatment). These effects were seen among important swing voters, more pro-growth than Candidate B, but not as pro-growth as Candidate A. If, in real life, candidates are following a Downsian strategy of convergence, these are the voters who would decide the outcome of the election. These findings indicate that using another candidate as an anchor could be an important tool for candidates seeking to converge.

Anchoring Effects: Perceptions of Labour in Scotland, England and Wales

Finding data from actual elections that support my hypotheses in this chapter is difficult because comparing elections across time introduces variation in the strategy and messaging, even for the same candidate or party from one election to the next. An advantage of these experiments is that, unlike multi-candidate elections in practice, the candidate strategy and messaging was unaffected by the increase in the choice set. Comparing voters within an election, those who could not place a party on the extreme flank and those who could, did not reveal any evidence of an anchoring effect. Those respondents who could not place an extreme party on the scale appeared to have little information about where to place the other candidates on the scales.

In 1992-1997, the British General Election Panel Study,[11] asked respondents to place the main political parties on a series of 11-point scales. In 1992, there were eight political issues. In the other years, there were six, one on European integration and the others on economic policy. In England and Wales, respondents placed three parties, the Labour Party, the Conservatives and the Liberal Democrats. In Scotland, an oversample of the respondents was asked about the same three parties plus the regional Scottish National Party (SNP). The SNP does not campaign in England, but is a very strong party in Scotland, contesting elections for representation in Westminster, the Scottish Parliament and the European Parliament. In 1992, the SNP won three seats in the House of Commons and in 1997, the SNP won six seats. This is the best case to test out

[11] Heath, A., R. Jowell, and J.K. Curtice. British General Election Panel Survey, 1992-1997. ICPSR version. London, England: Social and Community Planning Research [producer], 1998. Colchester, England: ESRC Data Archive/Ann Arbor, MI: Inter-university Consortium for Political and Social Research [distributors], 1999.

changes in perception because most of the British parliamentary campaigns are national and based on national issues. So, I assume that the parties are not projecting a vastly different image in Scotland compared to England and Wales, except on issues specific to Scotland, such as devolution.

There was no question on Scottish devolution, upon which the SNP bases much of its campaign. On economic issues, the SNP tends to be on the left, opposing some privatization programs and advocating tax powers (if not actually taxes) for the Scottish Parliament, but ambiguously favoring incentives for business growth in Scotland. On all of the economic issues, the mean placement of the SNP was between three and five, to the left of the midpoint. Since the SNP is to the left, I expect that an anchoring effect caused by the SNP will target Labour, the main party of the left. Consistent with Hypothesis II and the results of the candidate experiments, I hypothesize that placing the SNP on the far left of the scale will result in Labour appearing more moderate.

There was no unanimous consensus around where to place the SNP on the issue scales. Instead, respondents used the entire scale to place the SNP. So, the important independent variable was a dummy I created for when the SNP was at the far left or the point adjacent to the left end-point. This dummy is coded zero for Scottish respondents who do not place the SNP to the left and for all respondents in England and Wales. To demonstrate the presence of an anchoring effect, the dependent variable is the placement of Labour on raising taxes and spending more money, or cutting taxes and spending less. I used this variable as a demonstration because, of the questions, it is

most comparable to the services/spending question commonly used on surveys in the United States and utilized to measure the perceptions of the candidates in the school experiment and in New York City. It is also a well-understood and timeless issue. The questions about the placements of the parties were asked sequentially following the respondent's self-placement. The Conservative Party was asked first, then Labour, then the Lib-Dems, then the SNP. This scale was not the first one, so the respondent had placed Labour and the SNP on other economic scales prior to the scale I present here.

In the model, I also included the placement of Britain's national third party, the Lib-Dems to see whether placement of the Lib-Dems affected the placement of Labour. I also included a dummy for Conservative Party identification since respondents with dissimilar views may not differentiate between parties on the other end of the scale the same as people who are closer (see Converse and Dupuex 1962). As controls, I included a measure of the respondents level of education, their objective level of political knowledge (measured by a battery of ten questions on the survey), and the respondents' self-placement on the scale.[12]

The question was included on the survey in five different waves, in 1992, 1994, 1995, 1996, and 1997. Since this period coincides with Tony Blair's ascendancy to the Labour Party leadership, the centrist direction he took the party in was reflected by a jump in the average placement of Labour on this scale from 1992 to 1994, from 2.8 to 3.4 and higher. The difference between England and Scotland in the party's perception was

[12] The respondent placed him or herself on each issue scale before placing each party on the scale. This variable helps control for projection effects, especially for those respondents, unsure of how to use the scale, place themselves and the parties in the center.

small. Labour appeared 0.08 to 0.18 more moderate in Scotland in 1992 through 1996. The difference was significantly different than zero, twice, in 1992 and 1995. In 1992, the average placement of Labour in Scotland was 2.96 (458 respondents), in England and Wales, the average placement was 2.78. The two-tailed difference of means test indicates that this difference was not significant (T= -1.41, P > T = 0.16, the one-tailed was significant at P < 0.1). In 1995, the average placement of Labour in Scotland was 3.73 (468 respondents). Outside of Scotland the average placement was 3.55 (1347 respondents). The one-tailed difference of means test indicates that the difference in means was significant at P < 0.1 (T =-1.55, P > T = 0.06).

In 1997, Labour actually appeared more to the left, on average, in Scotland as compared to England and Wales. In Scotland, the average placement was 3.33. In England and Wales, the average placement was 3.57. The two-tailed difference of means test confirmed that this difference was significantly different than zero (T = 2.34, P > T = 0.02). We can compare each of the waves to see whether the SNP will anchor perceptions of Labour even when, on average, Scots saw Labour as more to the left.

Results: Perceptions of Labour

Contrary to my expectations, in all five years, if the SNP was placed on the left end of the taxes/spending scale, Labour was also placed closer to the scale's left end. In Table 3.11, regression results from each of the five waves are presented. Since this is a regression, each full coefficient point is the same as one point of movement up or down the scale. If the coefficient is negative, Labour's position is predicted to be more on the left. If the coefficient is positive, Labour's position is predicted to be closer to the center

or the right. Placing SNP on the left moved Labour down the scale by between 0.43 (in 1997) and 0.77 (in 1992). In contrast, the higher on the scale the Liberal-Democrats were located, the higher Labour was on the scale. For every point up the scale the Liberal-Democrats were placed at, the model predicted Labour's placement to be 0.35 to 0.52 higher. Similarly, the higher up the scale the respondent placed him or herself, the higher up Labour was placed. For each point the respondent placed him or herself at higher up the scale, Labour the model predicted that Labour would be 0.08 to 0.21 points higher up the scale. So, someone who placed him or herself at the far right of the scale would be predicted to place Labour a half-point or a point up the scale compared to a respondent placed at the midpoint of the scale.

In 1992, 1994 and 1995, each point on the ten-point political knowledge scale moved Labour by about a tenth towards the extreme. So, someone who scored the highest on the knowledge scale, all else being equal, would have placed Labour a point closer to the extreme than someone with the lowest level of political knowledge. In 1996 this variable did not have an effect significantly different than zero on the perceptions of Labour. In 1997, the higher levels of political knowledge placed Labour 0.1 more moderate (or conservative) on the scale. The education variable had a coefficient close to zero in all but one wave, and was insignificant in three out of five waves, so levels of education had very little impact on the placement of Labour. The only exception was in 1997, when higher levels of education led to the placement of Labour 0.16 more moderate. All else being equal, the model predicts that identifying with the

Conservative Party would move Labour between 0.16 and 0.41 closer to the extreme left.

The scale the British researchers used to measure perceptions was longer than the scales I used. For the growth experiment I used a five-point scale. I used a seven-point scale in the school experiment. If I assume that the scales are understood to be the same length, then a one-point change on the British taxes and spending scale is roughly equivalent to a half-point change on the growth scale. Since the effect of the anchor was predicted to move Labour less than a point, the effect of the anchor on perceptions to is slightly smaller than in the experiments, as Candidate B in the growth experiment moved a little more than a half-point towards the middle of the scale.

Finding that the anchor had a completely opposite effect on the perceptions of Labour then the effects of extreme anchors in my experiments was surprising. One possible explanation is that rather than highlighting differences between the parties, the presence of the SNP highlighted similarities between the two parties. This would be consistent with Chapman and Johnson (1999) findings of the effect of a similar anchor on perceptions.

Like many other scales, many respondents demonstrated an inclination to place multiple parties at or near the midpoint of the scale. These findings may also be the result of the dummy identifying a group of voters who employed the ends of the scale rather than the middle. Since I am interested in seeing if Labour appears more moderate or not when the SNP appears extreme, I repeated the analysis after folding the scales measuring

perceptions of Labour so that both extremes equal five, and the midpoint is zero. Instead of the dummy for a SNP replacement on the far left. I created a dummy variable for when the SNP was at the same point or more extreme on the left than Labour. This test is exactly the same as above; to see if placing the SNP more to the left of Labour resulted in Labour being seen as more moderate. I also included a dummy for when the Liberal-Democrats appeared more extreme on the left than Labour to see whether placing Britain's main third party to the left continued to moderate the placements of Labour even after folding the dependent variable. I included the same controls as the previous regression, except I folded the respondent's self-placement in the same manner I folded the dependent variable.

The results from this analysis show that in four out of five years, if the SNP was placed at the same point as, or to the left of Labour on the taxes/spending scale, Labour was placed closer to the scale's midpoint. In Table 3.12, regression results from each of the five waves are presented. Because the dependent variable is folded, the higher the coefficient, the more extreme Labour is predicted to be placed on the scales. So, negative coefficients can be understood as predicted movement towards moderation. If the respondent placed the SNP at the same point as, or to the left of Labour, the model predicted that Labour would become more moderate by between 0.58 points (in 1992) and 0.17 points (in 1997). Placing the Liberal-Democrats to the left or at the same point as Labour also moved Labour towards the scale's midpoint. The coefficients for placing the Liberal-Democrats to the left or at the same point ranged from 1.113 (in 1996) to 0.83 (in 1992).

Except in 1997, each point on the ten-point political knowledge scale moved Labour by less than a tenth towards the extreme. So, someone who scored the highest on the knowledge scale, all else being equal, would have placed Labour a point closer to the extreme than someone with the lowest level of political knowledge. In 1997, political knowledge's effect on Labour's placement was not significantly different than zero. Higher levels of education had the opposite effect on perceptions of Labour, as people who were more educated were predicted to place Labour closer to the midpoint, but by no more than 0.15 points (in the 1997 wave). Identifying with the Conservative Party moved Labour about a half-point towards the extreme. For every point on the scale the respondent placed him or herself closer to the ends of the scale, Labour was placed about one-third of a point closer to the extreme.

Because the scale was folded, there were only six levels of the dependent variable. As a result, it would be better to fit an ordered logit analysis to the data than the regression. In Table 3.13, I present the results of the ordered logit using the identical dependent and explanatory variables. The results are almost exactly the same. All of the variables that were significant in the regression were significant in the ordered logit. By comparing the distances between the cut-points and the size of the coefficients of the independent variables, we can get a sense of the magnitude of each variable. The coefficient for the dummy variable when the SNP is placed to the left of Labour is smaller than the distance between two cut-points in every wave. Like the predictions of the OLS regression, this means that placing SNP to the left or at the same point as Labour is predicted in each of these years to move Labour less than a point up the scale towards

the midpoint. The impact of placing the Lib-Dems to the left is larger. The coefficient for the dummy variable when the Lib-Dems are placed to the left of Labour is larger than the average distance between two cut-points in every year. This means that model predicts that the Lib-Dems placement to the left or at the same point as Labour can result in a change in the perceptions of Labour of a full point along the scale, but this change is not more than two full points.

Conclusion: The Use of New Information

Key (1964) described voters' perceptions of the candidates as being in an echo chamber. People's perceptions reflect what is communicated to them. This research provides a better specified picture of that chamber, incorporating all of the candidates in competing against each other. As long as the voters are attentive to all the voices reverberating through the chambers (which many of the college students in New York and North Carolina may not have been), these voices provide information about the syntax of politics and the other voices. As a result, two identical echoes will sound differently depending on what other echoes can be heard inside the chamber. In two experiments, I was able to control for the messages the candidates sent to the voters. Noise from an additional candidate in the echo chamber influenced how these same messages were received. Candidates and parties that appeared more extreme, in the presence of an even more extreme candidate appeared more moderate or centrist. This happened to two candidates in the school experiment, one on the left and one on the right. One candidate in the growth experiment was seen as closer to the center when a candidate appeared on his flank. The Labour Party in Britain also appeared more

moderate to voters who placed the Scottish National Party to its left, but the effect of placing the SNP on the left resulted in Labour appearing more to the left.

These results suggest a new causal mechanism behind the way political institutions influence political preferences. Since electoral institutions affect barriers to entry of candidates and parties, they play a role in the expression of preferences over the candidates. Allowing additional candidates on the flank tends to cause an effect consistent with anchoring and adjustment that leaves similar candidates looking more moderate, and therefore, more attractive to some voters. The experiments using fictitious candidates and the data from Scotland demonstrates that adding a candidate disrupts the pattern of preferences for the other candidates in the choice set.

The political stimuli, especially the opposing candidates, acted much like the anchors found by scholars in other disciplines. These anchors provided more information to the voters. The respondents and subjects were attentive to this information even if the information was largely irrelevant to the choice, as Chapman and Johnson (2002) found in other domains. This irrelevant information included candidates that they did not consider voting for and incumbents that were not running for re-election. For example, in New York, the information provided by placing Mayor Giuliani on the scale made the scale more meaningful and easier to use. A lack of familiarity with the scale contributes to the flat diffuse distribution across issue space that unfamiliar respondents tend to exhibit. New information provided by the fictitious extreme candidates gave new information about the range of positions (the range effect) on the issue even though

each of the points on the scale was clearly labeled. As a result, candidates that had appeared close to the end points on the scale were now better understood as closer to the midpoint. In the growth experiment, this resulted in more votes.

This does not mean that the placement of the candidate was more accurate in the presence of the anchor. The subjects may not sufficiently adjust away from the anchor on the scale. Just because the candidate or the party appears more moderate (or closer to the median voter) does not mean that the view of the candidate is more accurate. Being closer to the median voter does have social advantages; if voters are more likely to turn out to support a candidate close to them, then turnout will increase. If the shift in perceptions makes two candidates appear equidistant, though, the choice will only be more difficult, potentially increasing flight. So, in the next chapter I will focus on how the difficulty of the choice impacts the vote.

Proximity theory can easily accommodate these changes in perceptions as a result of other candidates in the choice set. Since voters are voting for the candidate who they think will create policies closest to their ideal, if, as a result of anchoring and adjustment, candidates appear closer, they are still choosing the closest candidate based on their own subjective assessment. If extreme candidate cause shifts in the perceptions of the moderate candidates, then, according to directional theory, the moderate candidate will lose support, as even more voters will be drawn away from his middling position. Under either conception of voting, even if the new information did not

magically transform a liberal into a conservative (or vice versa) the effect of the change in perceptions could still impact the vote.

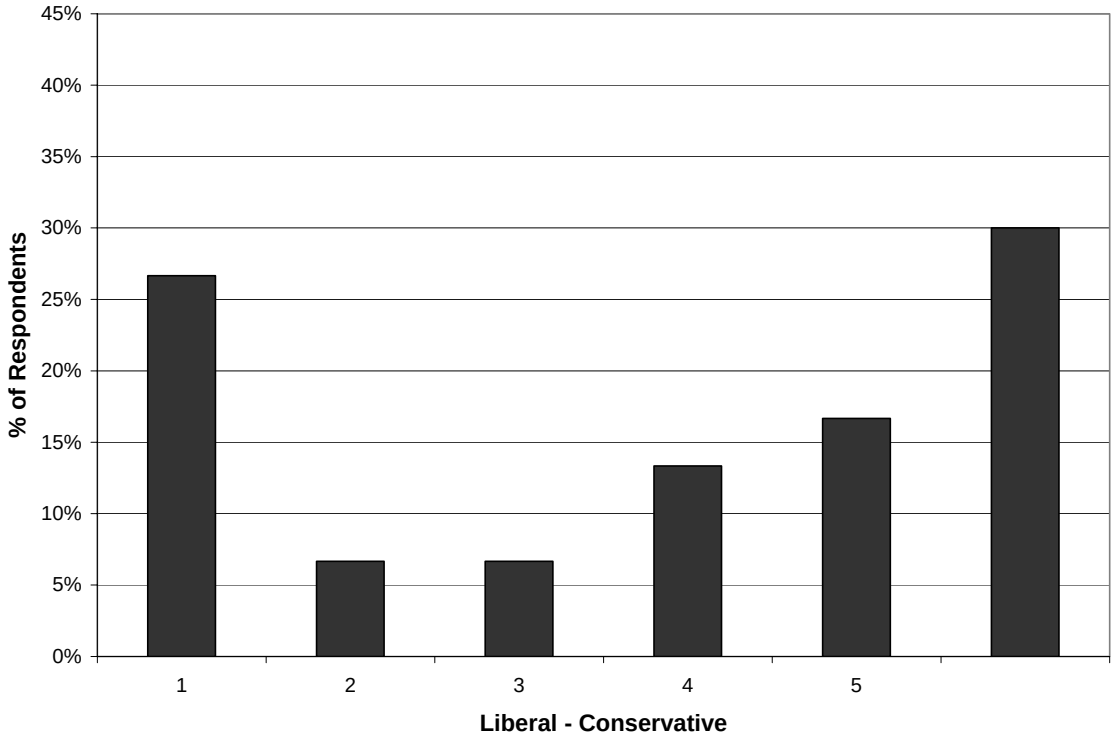


Figure 3.1 Placement of Giuliani on Ideology Scale (7 point) When Placed First on Scales

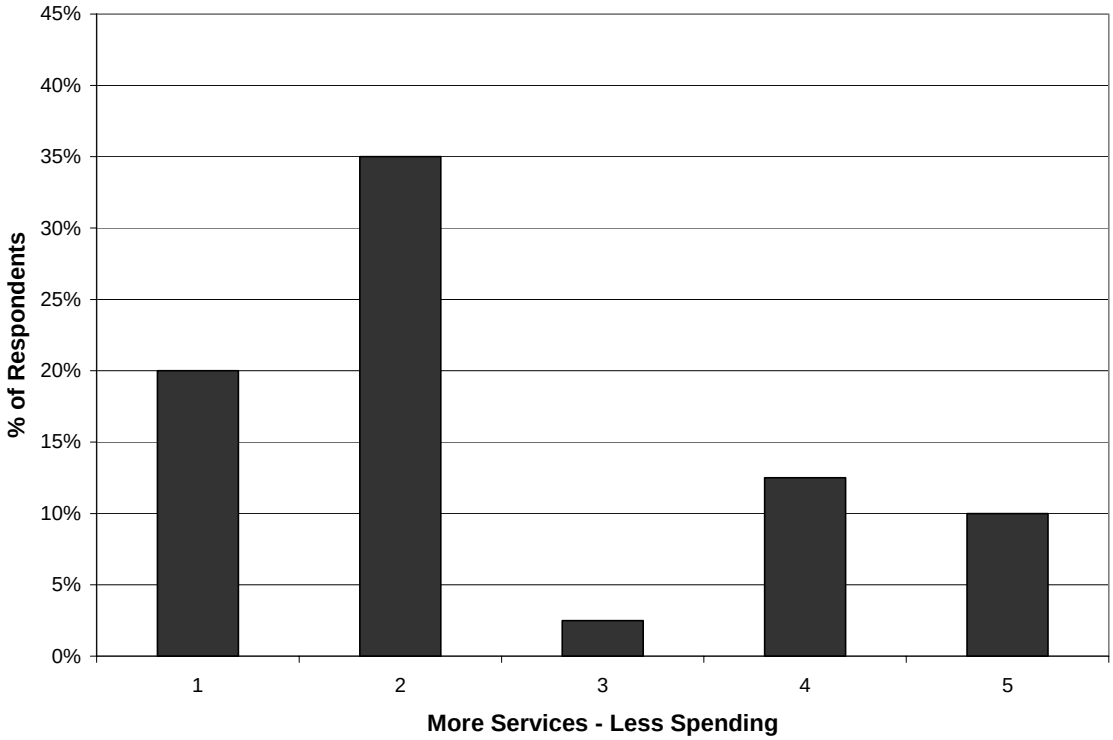


Figure 3.2 Placement of Giuliani on Services-Spending Scale (5 point) When Placed First on Scales

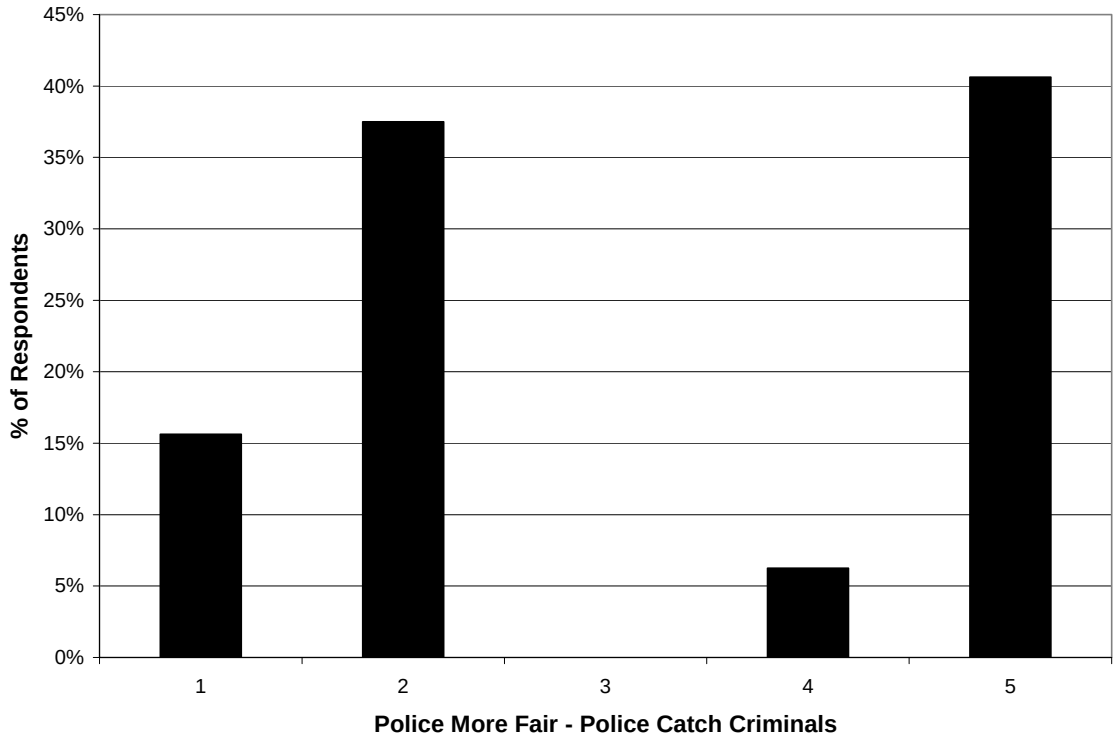


Figure 3.3 Placement of Giuliani on Police-Change Scale

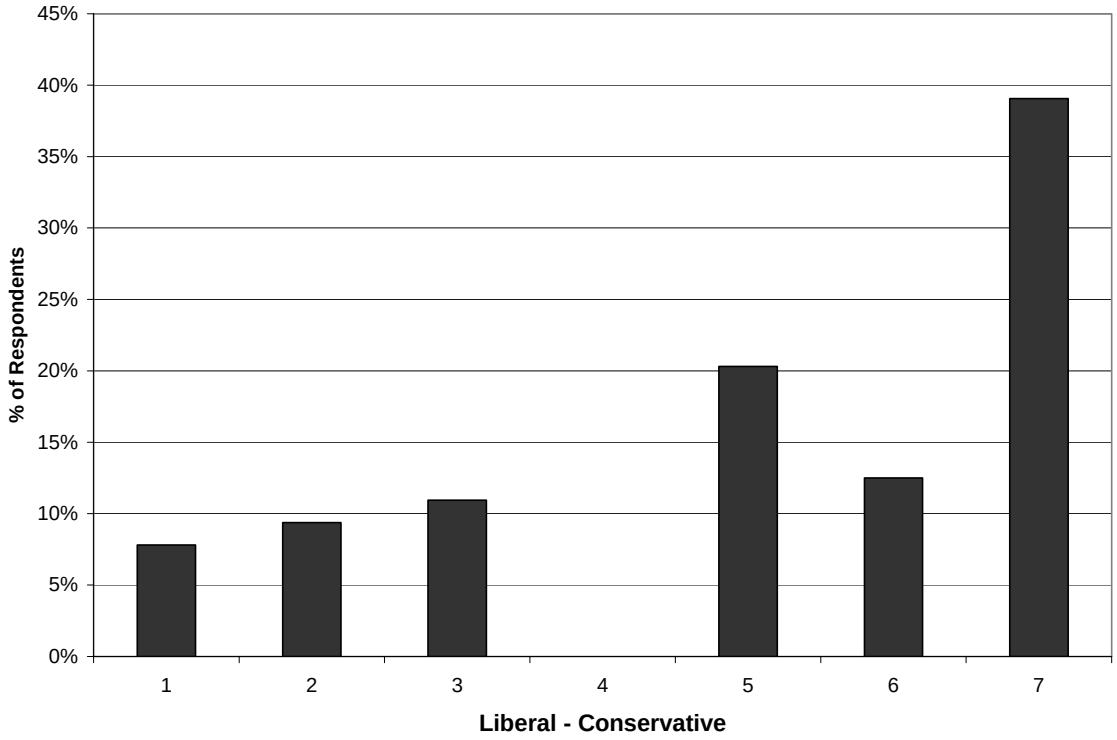


Figure 3.4 Placement of Helms on Ideology Scale

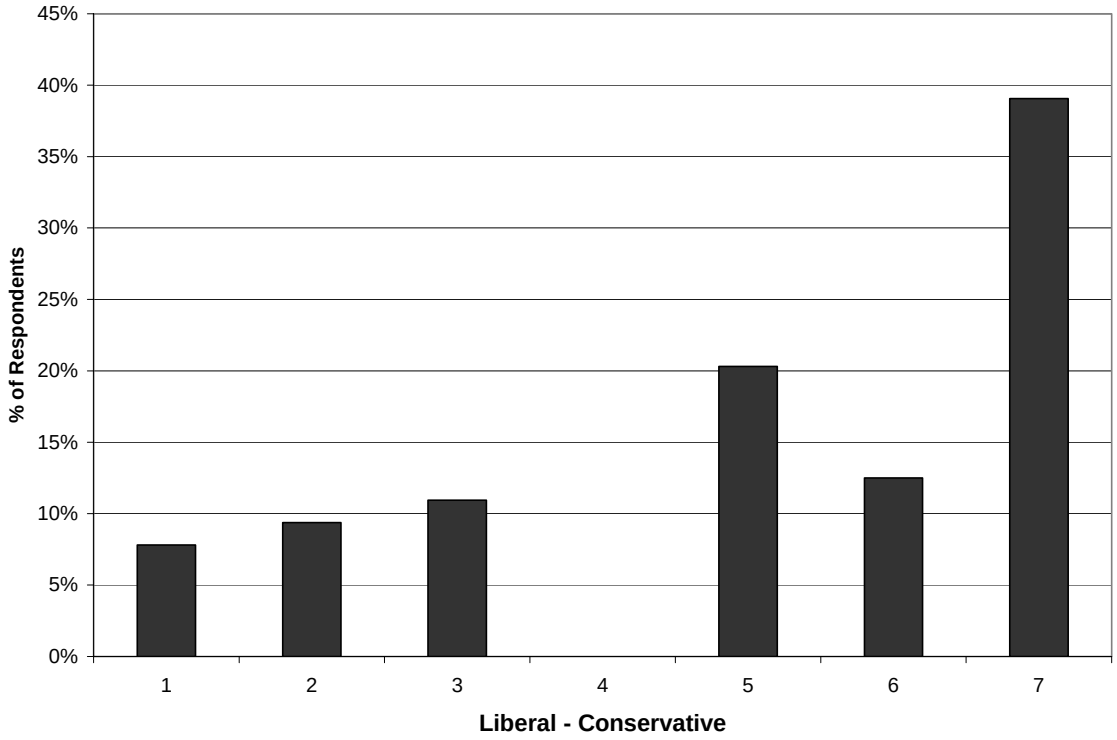


Figure 3.5 Placement of Dole on Ideological Scale, without Helms Anchor

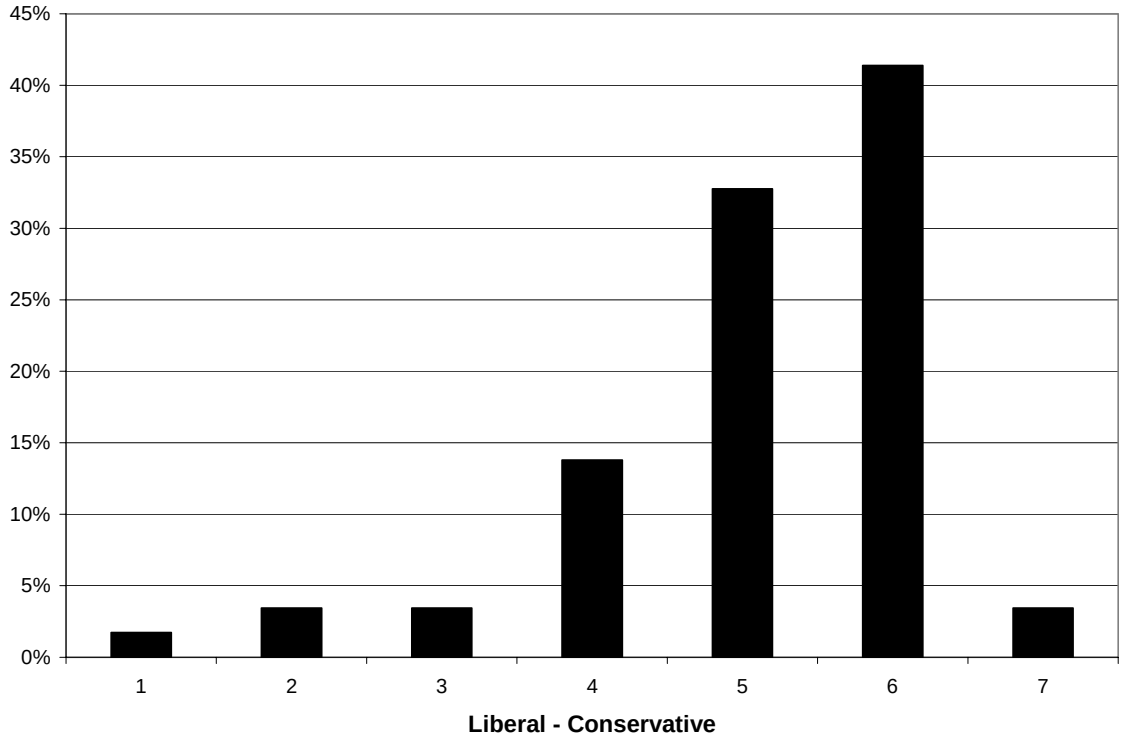


Figure 3.6 Placement of Dole on Ideological Scale, after Helms Anchor

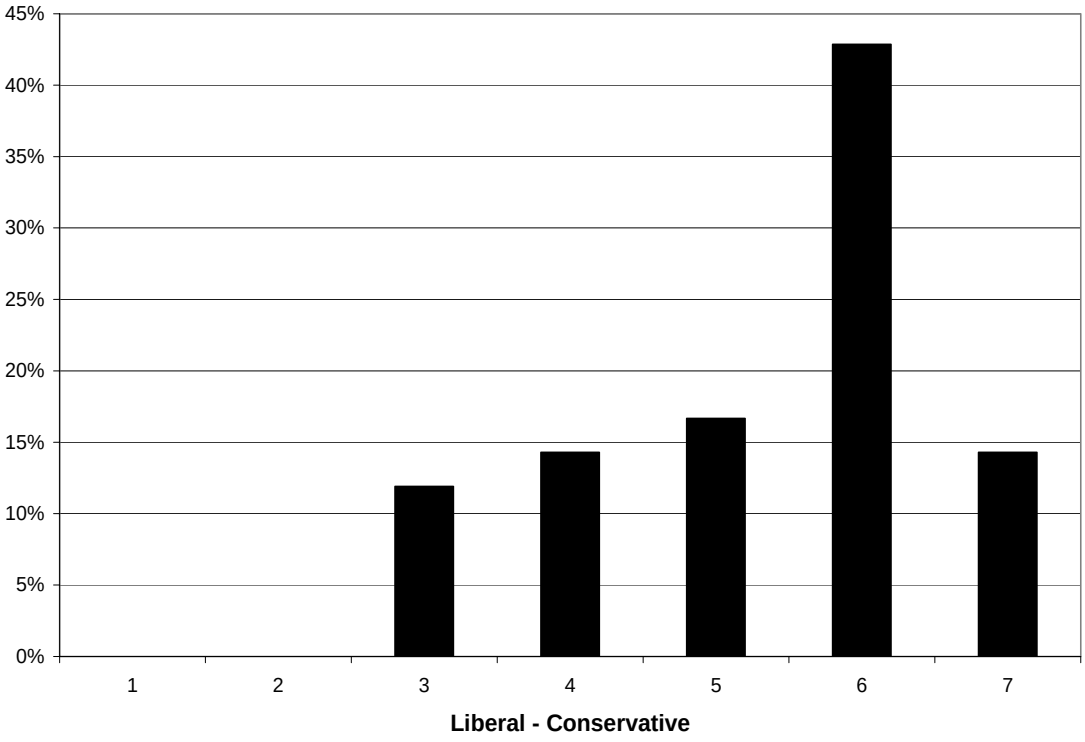


Figure 3.7 Placement of Dole, without Helms Anchor. Respondents who placed Helms on right only.

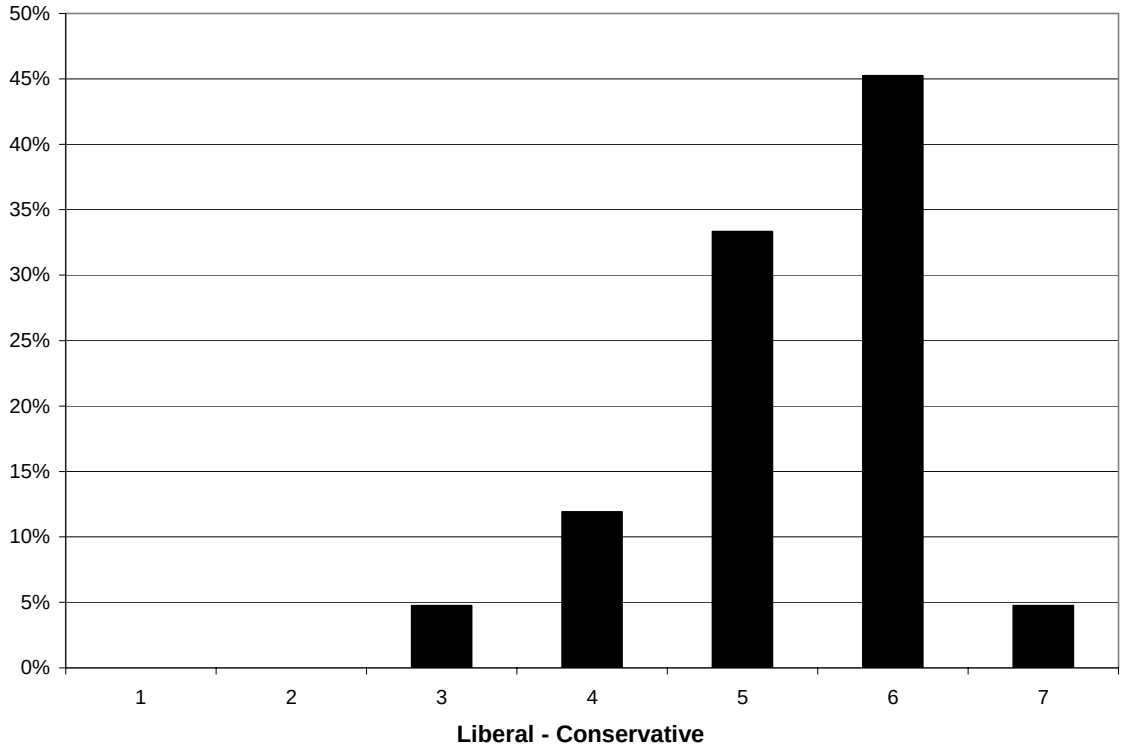


Figure 3.8 Placement of Dole, with Helms Anchor. Respondents who placed Helms on right only.

Figure 3.9 Candidate Placement: School Candidate Experiment

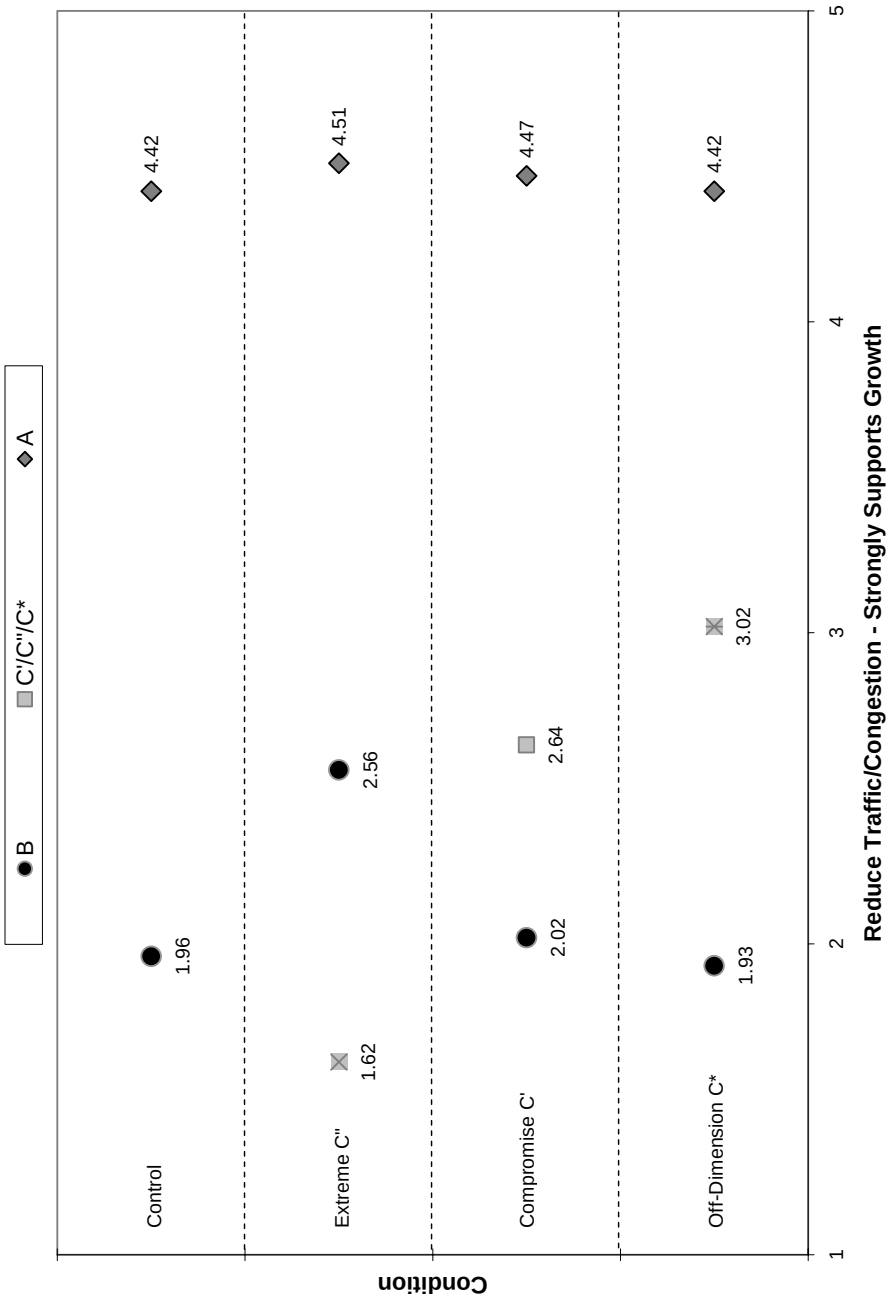


Figure 3.10 Candidate Placement: Growth Experiment

Table 3.1A Candidate Placement: New York City Mayoral Candidates

Crime

Candidate	Treatment	Mean	Std. Dev.	Range	Median	Skewness	Kurtosis	N
Badillo	Anchor	3.33	1.24	4	3	-0.28	2.5	18
	Control	3.8	1.03	3	4	-0.23	1.95	10
	Total	3.5	1.17	4	3	-0.35	2.55	28
Bloomberg	Anchor	3.25	1.48	4	3	-0.19	1.69	24
	Control	3.14	1.11	4	3	-0.06	2.05	21
	Total	3.2	1.31	4	3	-0.13	1.88	45
Ferrer	Anchor	3.96	1.32	4	5	-0.97	2.73	27
	Control	3.93	1.33	4	4	-1.37	3.78	15
	Total	3.95	1.31	4	4	-1.11	3.11	42
Green	Anchor	3.35	1.23	4	3.5	-0.29	2.1	26
	Control	3.44	1.31	4	4	-0.31	1.83	16
	Total	3.38	1.25	4	4	-0.3	1.99	42
Hevesi	Anchor	3.9	1.02	4	4	-1.02	4.22	20
	Control	3.75	0.75	3	4	-0.91	3.84	12
	Total	3.84	0.92	4	4	-0.95	4.33	32
Vallone	Anchor	3.33	1.24	4	3	-0.34	2.25	21
	Control	3.63	0.96	3	4	-0.6	2.42	16
	Total	3.46	1.12	4	4	-0.5	2.46	37

Table 3.1B Candidate Placement: New York City Mayoral Candidates

Services/Spending

Candidate	Treatment	Mean	Std. Dev.	Range	Median	Skewness	Kurtosis	N
Badillo	Anchor	3.08	1.16	4	3	-0.16	2.12	12
	Control	3.71	1.36	4	4	-0.53	1.94	17
	Total	3.45	1.3	4	4	-0.28	1.9	29
Bloomberg	Anchor	3.96	1.31	4	4	-1.3	3.66	25
	Control	3.92	1.31	4	4	-1.11	3.13	12
	Total	3.95	1.29	4	4	-1.24	3.49	37
Ferrer	Anchor	3.96	1.12	4	4	-1.05	3.41	24
	Control	3.93	0.88	3	4	-1.16	3.99	15
	Total	3.95	1.02	4	4	-1.09	3.68	39
Green	Anchor	3.5	1.44	4	4	-0.54	1.96	22
	Control	3.82	0.75	3	4	-1.2	4.62	11
	Total	3.61	1.25	4	4	-0.78	2.6	33
Hevesi	Anchor	3.78	1.22	4	4	-1.18	3.75	18
	Control	3.62	1.04	3	4	-0.09	1.92	13
	Total	3.71	1.13	4	4	-0.81	3.13	31
Vallone	Anchor	3.9	1.12	4	4	-1.65	5.28	20
	Control	3.27	1.28	4	3	-0.3	2.38	15
	Total	3.63	1.21	4	4	-0.95	3.17	35

Table 3.1C Candidate Placement: New York City Mayoral Candidates

Ideology

Candidate	Treatment	Mean	Std.Dev.	Range	Median	Skewness	Kurtosis	N
Badillo	Anchor	3.94	1.44	4	4	0.11	1.73	16
	Control	4.1	1.91	6	4	-0.05	1.96	10
	Total	4	1.6	6	4	0.06	2.01	26
Bloomberg	Anchor	4.64	1.63	6	4	-0.46	2.35	25
	Control	4.47	1.5	5	4	0.06	2.29	17
	Total	4.57	1.56	6	4	-0.27	2.29	42
Ferrer	Anchor	2.92	1.85	5	2	0.56	1.87	25
	Control	2.38	1.19	4	2	1.05	3.03	13
	Total	2.74	1.66	5	2	0.79	2.33	38
Green	Anchor	3.5	1.56	5	3	0.25	1.7	24
	Control	3.21	1.63	5	3	0.2	1.76	14
	Total	3.39	1.57	5	3	0.22	1.75	38
Hevesi	Anchor	3.68	1.57	5	4	0.01	1.84	19
	Control	3.62	1.33	4	4	0.52	2.51	13
	Total	3.66	1.45	5	4	0.17	2.04	32
Vallone	Anchor	3.7	1.29	4	4	0.33	2.25	23
	Control	3.29	0.99	3	3.5	-0.11	1.79	14
	Total	3.54	1.19	4	4	0.35	2.48	37

Table 3.2 Did R Place Candidate on Scale?

Crime - Police Policy Scale

% That Placed Candidate on Scale

	Treatment			
	Anchor	Self	*Diff.*	X^2
Badillo	51.4	33.3	*18.1*	2.15
Bloomberg	68.6	70	*-1.4*	0.02
Ferrer	77.1	50	*27.1*	5.21**
Green	74.3	53.3	*21*	3.1*
Hevesi	57.1	40	*17.1*	1.9
Vallone	60	53.3	*6.7*	0.29

Services - Spending Scale

% That Placed Candidate on Scale

	Treatment			
	Anchor	Self	*Diff.*	X^2
Badillo	34.3	56.7	*-22.4*	3.27*
Bloomberg	71.4	40	*31.4*	6.51**
Ferrer	68.6	50	*18.6*	2.32
Green	62.9	36.7	*26.2*	4.43**
Hevesi	51.4	43.3	*8.1*	0.42
Vallone	57.1	50	*7.1*	0.33

Ideology Scale

% That Placed Candidate on Scale

	Treatment			
	Anchor	Self	*Diff.*	X^2
Badillo	45.7	33.3	*12.4*	1.03
Bloomberg	71.4	56.7	*14.7*	1.54
Ferrer	71.4	43.3	*28.1*	5.25**
Green	68.6	46.7	*21.9*	3.19*
Hevesi	54.3	43.3	*11*	0.78
Vallone	65.7	46.7	*19*	2.39

Table 3.3 Candidate Placement: North Carolina Senate Candidates

Candidate	Treatment	Mean	Std.Dev.	Range	Median	Skewness	Kurtosis	N
Blue	Anchor	3.25	1.78	6	3	0.66	2.68	24
	Control	2.7	1.56	5	2.5	0.86	2.91	20
	Total	3	1.68	6	3	0.77	2.84	44
Bowles	Anchor	3.03	1	4	3	0.92	3.71	32
	Control	3.67	1.71	6	4	0.34	2.08	33
	Total	3.35	1.43	6	3	0.75	2.91	65
Brown	Anchor	3.44	1.54	5	3.5	-0.09	2.3	18
	Control	3.28	1.6	5	3	0.33	1.93	18
	Total	3.36	1.55	5	3	0.12	2.06	36
Dole	Anchor	5.1	1.19	6	5	-1.32	4.92	58
	Control	5.19	1.33	5	6	-0.57	2.28	48
	Total	5.14	1.25	6	5	-0.91	3.51	106
Marshall	Anchor	3.64	1.47	5	3.5	0	2.34	22
	Control	3.44	1.42	5	3	-0.07	2.23	18
	Total	3.55	1.43	5	3	-0.02	2.31	40
Snyder	Anchor	4.58	1.71	6	5	-0.48	2.39	19
	Control	4.5	1.67	5	4.5	-0.13	1.96	16
	Total	4.54	1.67	6	5	-0.33	2.19	35

Table 3.4 Effect of Anchor on Mean Placement of Bowles and Dole

Absolute distance from:	**Anchor Mean**	**Control Mean**	Difference	Difference of Means (One-Tailed) T	P
Erskine Bowles…					
...to Placement of Helms	**2.66**	**2.55**	0.11	0.247	0.403
...to Self-Placement	**1.59**	**1.70**	-0.11	-0.301	0.382
Elizabeth Dole…					
...to Placement of Helms	**1.42**	**1.11**	0.31	1.342	0.091
...to Self-Placement	**2.05**	**2.79**	-0.73	-2.441	0.008

Table 3.5 Did R Place NC Senate Candidates on Scale?

% That Placed Candidate on Ideology Scale

	Treatment			
	Anchor	Self	*Diff.*	X^2
Blue	31.2%	27.0%	*4.1%*	0.31
Bowles	41.6%	44.6%	*-3.0%*	0.14
Brown	23.4%	24.3%	*-0.9%*	0.02
Dole	75.3%	64.9%	*10.5%*	1.97
Marshall	28.6%	24.3%	*4.2%*	0.35
Snyder	24.7%	21.6%	*3.1%*	0.2
N =	77	74		

Table 3.6 Ordered Logit: Effect of Anchor on Distance Between Dole and R

North Carolina Senate Experiment

DV= Absolute Value [Placement of Dole – Self-Placement of R]

	Coeff. (Std. Dev.)
Anchor	-0.88**
	(0.39)
Party Identification	-0.69***
	(0.15)
Political Knowledge	0.53***
	(0.18)
White	-0.33
	(0.45)
Female	-0.15
	(0.37)
NC Resident	-1.16*
	(0.68)
Cut - Point 1	-5.36
Cut - Point 2	-3.91
Cut - Point 3	-2.6
Cut - Point 4	-1.7
Cut - Point 5	0.7
Cut - Point 6	2.45
N =	99
Pseudo R^2 =	0.131
Likelihood Ratio	
Full Model X^2 =	44.9
Nested Model (No Anchor) X^2 =	5.35
$P > X^2$	0.021

*** = P> 0.01, ** = P>0.05, * = P> 0.1

Table 3.7 School Experiment: Voting Results

	Candidate Choice				
Treatment	New Taxes	Impact Fees	No New Taxes	Cut Taxes	Total
Control - 1		**78.4%** (40)		**21.6%** (11)	51
Control - 2		**55.8%** (24)	**44.2%** (19)		43
Right Extreme		**59.2%** (29)	**26.5%** (13)	**14.3%** (7)	49
Left Extreme	**14.3%** (5)	**54.3%** (19)	**31.4%** (11)		35
Right & Left - 1	**11.9%** (5)	**71.4%** (30)		**16.7%** (7)	42
Right & Left - 2	**39.5%** (15)		**52.6%** (20)	**7.9%** (3)	38
Total	25	142	63	28	258

Table 3.8 School Experiment: Did voters project their own view on candidate perceptions?

Candidate	% of vote at same point on services/spending scale
New Taxes	43.5%
Impact Fees	43.7%
No New Taxes	58.9%
Cut Taxes	56.5%

Table 3.9 Growth Experiment: Vote Model for "B"

Logit DV: Vote for "B"	Control		Treatment 4	
	Coeff. (Std. Err)	Odds Ratio	Coeff. (Std. Err)	Odds Ratio
Constant	6.246		2.948	
Party Identification	-0.647* (0.36)	0.52	-0.519** (0.24)	0.59
Political Interest	-0.232 (0.27)	0.79	0.209 (0.21)	1.23
Gender	0.383 (1.16)	1.47	-0.900 (0.86)	0.41
Black	-2.407* (1.43)	0.09	0.230 (1.19)	1.26
Income	0.019 (0.47)	1.02	-0.102 (0.27)	0.90
Political Knowledge	1.429** (0.58)	4.18	-0.102 (0.38)	0.99
Distance from Mean Placement of "B"	-1.270*** (0.42)	0.28	-0.990** (0.41)	0.37
Choice Difficulty	-0.491 (1.66)	0.61	0.666 (1.21)	1.95
Expect B to be in a close race	-0.053 (1.29)	0.95	0.856 (0.95)	2.35
N =		58		57
Pseudo R2 =		0.55		0.33
% Correctly Classified =		89.6%		75.4%

Table 3.10 How did the Change of Perception affect the Vote for Candidate B?

First differences estimated for change in distance on the growth scale between mean placement of Candidate "B" and R's self-placement. All other variables are held at mean, except choice difficulty and closeness of race (both held at zero).

Probabilities higher than 0.5 are shadowed.

Difference between Mean Placement of Candidate "B" and R's Self-Placement Growth Scale	Odds of Voting for B **Control**	**Treat. 4**
2 Points Higher	**46.0%**	**18.1%**
	+ 13.6	*+ 6.7*
1.5 Points	**59.6%**	**24.8%**
	+ 12.6	*+ 8.9*
1 Point	**72.2%**	**33.7%**
	+ 9.8	*+ 10.9*
0.5 Points	**82.1%**	**44.6%**
	+ 6.7	*+ 11.6*
None	**88.8%**	**56.1%**
	+ 4.2	*+ 10.7*
0.5 Points Lower	**93.0%**	**66.8%**
Odds of voting for B when all variables held at mean =	80.4%	51.2%

Table 3.11 Labour's Placement on Taxes/Spending Scale (Regression Using Dummy for SNP on the Left)

	1992	1994	1995	1996	1997
Political Knowledge	-0.11***	-0.1***	-0.09***	-0.03	0.1***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Education	-0.08*	-0.06*	-0.02	0.03	0.16***
	(0.04)	(0.03)	(0.04)	(0.04)	(0.03)
Conservative ID	-0.22*	-0.16*	-0.2**	-0.4***	-0.41***
	(0.11)	(0.09)	(0.1)	(0.1)	(0.09)
Dummy: SNP placed on far left of scale.	-0.43**	-0.51***	-0.62***	-0.77***	-0.71***
	(0.2)	(0.19)	(0.21)	(0.19)	(0.17)
Lib-Dem Placement	0.43***	0.52***	0.5***	0.45***	0.35***
	(0.03)	(0.02)	(0.02)	(0.02)	(0.02)
Self-Placement (Folded)	0.08***	0.13***	0.11***	0.1***	0.21***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Intercept	1.66***	1.38***	1.61***	1.42***	0.81***
	(0.19)	(0.17)	(0.19)	(0.18)	(0.15)
R^2 =	0.21	0.3	0.27	0.24	0.28

Table 3.12 Labour's Placement on Taxes/Spending Scale (Regression, using dummy for when SNP is to left or at same point as Labour)

	1992	1994	1995	1996	1997
Political Knowledge	0.07***	0.08***	0.05***	0.07***	-0.01
	(0.02)	(0.01)	(0.02)	(0.02)	(0.02)
Education	-0.05	-0.01	-0.06**	-0.08***	-0.15***
	(0.03)	(0.02)	(0.03)	(0.03)	(0.03)
Conservative ID	0.53***	0.4***	0.4***	0.47***	0.48***
	(0.07)	(0.06)	(0.07)	(0.07)	(0.07)
Dummy: SNP on left or at same point as Labour	-0.58***	-0.43***	-0.44***	-0.36***	-0.17*
	(0.1)	(0.09)	(0.1)	(0.1)	(0.1)
Dummy: Lib-Dems on left or at same point as Labour	-0.83***	-0.95***	-0.93***	-1.13***	-0.94***
	(0.07)	(0.06)	(0.07)	(0.07)	(0.07)
Self-Placement (Folded)	0.27***	0.34***	0.34***	0.31***	0.39***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Intercept	2.77***	2.13***	2.17***	2.22***	2.39***
	(0.11)	(0.1)	(0.11)	(0.12)	(0.12)
R^2 =	0.2	0.26	0.25	0.28	0.31

Table 3.13 Labour's Placement on Taxes/Spending Scale (Ordered Logit, using dummy for when SNP is to left or at same point as Labour)

	1992	1994	1995	1996	1997
Political Knowledge	0.09***	0.09***	0.06***	0.08***	-0.01
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Education	-0.11***	-0.03	-0.08**	-0.11***	-0.2***
	(0.04)	(0.03)	(0.03)	(0.04)	(0.04)
Conservative ID	0.79***	0.62***	0.57***	0.67***	0.73***
	(0.1)	(0.09)	(0.1)	(0.1)	(0.1)
Dummy: SNP Left of Labour	-0.74***	-0.59***	-0.6***	-0.54***	-0.19
	(0.14)	(0.12)	(0.13)	(0.14)	(0.13)
Dummy: Lib-Dems Left of Labour	-0.99***	-1.21***	-1.18***	-1.44***	-1.23***
	(0.1)	(0.08)	(0.09)	(0.1)	(0.1)
Self-Placement (Folded)	0.38***	0.5***	0.49***	0.46***	0.58***
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Cut-Point 1	-1.95	-1.5	-1.54	-1.78	-2.13
Cut-Point 2	-1.14	-0.51	-0.61	-0.68	-0.85
Cut-Point 3	-0.27	0.45	0.46	0.37	0.25
Cut-Point 4	0.68	1.66	1.68	1.63	1.46
Cut-Point 5	1.62	2.82	2.91	2.86	2.63
Pseudo R^2 =	0.07	0.09	0.08	0.09	0.11

Appendix I: Description of School Experiment Sample

Table 3.A1 Demographics of School Experiment Sample

Party Identification		
Democrat	82	33.47
Lean-Democrat	19	7.76
Independent	24	9.8
Lean-Republican	21	8.57
Republican	99	40.41
Gender		
Male	121	48.4
Female	129	51.6
Education		
High School or less	9	3.69
Some College	19	7.79
2-year college degree	17	6.97
4-year college degree	73	29.92
Advanced education	126	51.64
Race		
White	234	93.98
Non-White	15	6.02
Income		
Under $20,000	7	2.97
$20,000-39,999	17	7.2
$40,000-59,999	32	13.56
$60,000-79,999	24	10.17
$80,000 or higher	156	66.1

Chapter 4: Choice Difficulty

Introduction

Traditional models of voting do not include emotions. Only recently have political scientists began to be interested in how affective responses influence the vote choice (Marcus 2002; Marcus, Neuman, and MacKuen 2000; Lau and Redlawsk 2001). However, scholars of consumer behavior have paid much attention to understanding how emotions such as anxiety and regret play a role in decision-making. These emotions play a role in menu-dependent preferences observed in the laboratory. Different options in the choice set may make certain decisions easier to justify (Simonson 1989) or reduce the level of anxiety associated with the choice (Pettibone and Wedell 2000). In this chapter, I examine whether choice difficulty influences the choice over political candidates.

To do so, I present the results from an experiment on Triangle residents using profiles of "candidates running for local office." This experiment was designed to test whether the electoral choice is dependent on the menu of alternatives. The data from this experiment enable me to investigate who is more likely to choose the moderate candidate and why. The evidence demonstrates that electoral choices depend on the menu of options of parties or candidates arrayed in front of the voter. In the presence of an extreme candidate on his flank, the adjacent candidate appears more moderate and wins the vote of subjects who find the choice to be difficult in addition to any strategic considerations of the outcome of the election the voter factored into his or her decision.

Contrary to traditional, spatial theories of voting, support for the adjacent candidate does not fall in proportion to the share of the vote earned by the extreme candidate. Instead, I observe an attraction effect benefiting the adjacent (moderate) candidate. Consistent with literature on consumer behavior, I find that when the decision-maker finds the choice to be difficult they are more likely to support the candidate that appears to be a moderate when all the candidates are discussing the same issue. This effect is in addition to a change in the perceptions of the adjacent candidate in the presence of the extreme candidate and strategic considerations about the outcome of the election. When a candidate is added that does not address the same growth issues, the respondents' own priorities highly influence their choice of candidate.

The implication of my thesis is that the voter's evaluation of the candidates is contingent on comparisons with the other candidates. As a result, it is not possible to expect people to evaluate a candidate in isolation from his opponents who shape the voters' opinion of that candidate. Since no polity allows some voters to choose between a smaller set of candidates than other candidates, an experimental design, which allows me to vary the number of candidates in an election, is necessary. This investigation is similar to work on consumer behavior, where experiment subjects are observed making choices among a set of consumer products like cameras (Simonson 1989), microwaves, restaurants and mechanics (Pettibone and Wedell 2000), or medical prescriptions (Schwartz and Chapman 1999).

Rotter and Rotter (1966) experimented with real candidates from the 1964 presidential campaign a month after the election. Their subjects, all New York area college students, were more likely to prefer Republican Barry Goldwater when also given the option of voting for Alabama Gov. George Wallace (who withdrew from the contest in July). Rotter and Rotter attributed this violation of spatial theory to range or anchoring effects (Volkmann 1951), hypothesizing that Wallace made Goldwater look more moderate and helped him attract more support.

Using fictitious candidates permits more control over the experimental conditions. It is not necessary to worry that some respondents who view a sub-set of the candidates are actually aware of the full set of candidates. The information each respondent considers can be tightly managed, ensuring that no respondent has more information available to him or her than another respondent. Lowenthal (1996) used fictional candidates to examine what happens when candidates enter, withdraw, or set the agenda for later candidates to respond to. By controlling which candidates, issues, or agendas the subject is exposed to, Lowenthal showed that the additional candidates can have an influence on issue salience. Issues that were more easily evaluated in comparison to multiple other candidates became more important. As a result, Lowenthal observed preference reversals consistent with the experimental findings of the consumer behavior researchers.

Hypotheses

I test the presence of an attraction effect in politics by expanding the choice set of candidates. Lowenthal (1996) found an attraction effect for candidates that dominate the

additional candidate. I hypothesize that an attraction effect also occurs when the additional candidate makes an existing candidate appear to be a moderate or compromise option (Simonson 1989). When an extreme candidate is present in the choice set, I wonder whether a similar, but more moderate candidate (the "adjacent" candidate) will be more likely to be chosen.

Hypothesis I: Compromise Effect. Adding a new, more extreme alternative or candidate to a choice set will increase support for the nearest, more moderate, options.

I test this hypothesis with an experiment that manipulates the number of candidates competing in an election. The control condition will include a pair of candidates. The second condition adds a third candidate taking an extreme stance on the issues. I then examine the share of the vote won by the candidate in the original pairing adjacent in policy space to the extreme candidate. Compared to the control condition, if the adjacent candidate does not lose many votes to the extreme candidate, I will have found evidence in support of this hypothesis. If the adjacent candidate loses vote share in proportion to the votes gained by the third, extreme candidate, I will reject this hypothesis. I am particularly interested in the behavior of voters who consider their own ideal point to be between the stances taken by the original pair of candidates. The extreme candidate should be irrelevant to these voters and have no influence on their decision because the extreme candidate is farther from their ideal than one or more of the original pair. For example, assume the original candidates are equidistant to the left and the right of a voter's ideal. By assuming single-peaked preferences and symmetry,

spatial theories of voting suggest that the voter should be indifferent between the two original candidates when the candidates are equidistant from the voter's ideal. The compromise effect, though, suggests that this voter will be more likely to choose the candidate on the side that the extreme candidate has been added even though this distant candidate is irrelevant and should be ignored.

The lure of the compromise or moderate candidate can be the result of three factors: new information provided by the additional candidate that casts the candidate in a new light, a strategic calculation by the voter considering the expected outcome of the race, and an emotional effect that facilitates the decision. In the previous chapter, I focused on the informational effect, finding evidence that the presence of an extreme candidate makes the adjacent candidate appear more moderate. In this chapter, I will review the evidence in favor of strategic calculations, but I focus on the non-informational effect:

Hypothesis II: The introduction of an option will most likely increase support for the moderate or compromise alternative when the decision maker finds the choice to be difficult.

Simonson (1989) and Pettibone and Wedell (2000) found that the attraction effect would occur most often when the respondent finds the choice to be difficult. In many of these circumstances, the additional option aids the decision making process by minimizing negative emotion. For example, the additional option might provide a reason to justify the choice or reduce the evaluative anxiety associated with the

decision. I address this hypothesis by asking each subject whether the decision was difficult.[1]

I test my hypothesis that the difficulty of the decision will influence the vote by including the respondent's assessment of the difficulty of the choice as an independent variable in a model explaining the voter's choice. I will reject the null hypothesis if respondents who report that making the decision was difficult are more likely to choose the compromise alternative. There are two treatments with a compromise alternative, one when I add an extreme candidate (described above) and one where I add a moderate or compromise candidate to the original pair of candidates. When there are no compromise candidates, in the control condition and in a fourth treatment when an off-dimensional candidate is added to the choice, the variable should not be significant to the vote choice.

Growth Experiment

Participants, Material and Design

With the help of assistants, I recruited about 310 residents of the "Triangle," a multi-county metropolitan area in North Carolina, including the cities of Chapel Hill, Durham and Raleigh, to participate in this study from late April to early July, 2002. We recruited most of the respondents "on the street," in a shopping district in Durham, at lunch time in downtown Durham, while attending Durham high school graduation exercises being held at a stadium on the campus of Duke University, or a track meet held by a local running club. Participants recruited through visits to work places and several church and

[1] Please see the appendix for a discussion of who found the decision to be difficult and why.

synagogue groups augmented the sample.[2] We did not recruit Duke students (who generally are not engaged in local politics). We offered subjects a beverage or a snack in exchange for completing the experiment.

While participants in the sample included a broad spectrum of views and backgrounds, the demographic distribution of the sample reflects the college-town environment. The subjects in this experiment are disproportionately well-educated and Democratic. These characteristics should decrease the likelihood of finding menu-dependent preferences. However, the sample is not unusually informed about politics. A description of the sample appears in the appendix.

We asked each respondent to read a one-page description of some candidates similar to the candidate profiles found in a newspaper or League of Women Voters' voter guides. We told respondents that the candidates were considering running for a state or local office in their area. "To protect the candidates' privacy," information like the candidates' names and addresses, their party affiliation,[3] and some of their professional background information was omitted. We described all of the candidates as middle-age men, married with at least one school-age child, alumni of a large state university in North Carolina who enjoy common hobbies like reading, tennis and biking. This was done to ensure that judgments of the candidates were not tainted by variation in these characteristics. Most of the page was devoted to the "candidates'" answers to questions

[2] I am grateful to Ericka Albaugh, Neil Carlson, Phyllis Clinckscales, Vince Gallant, David Hobbet, Ole Holsti, Marsha Horowitz, and Kristin Pitman for their assistance in recruiting subjects.
[3] Several of the municipalities in the Triangle, including Durham, conduct non-partisan elections, so it is not unusual for the respondents to review candidate information without the familiar cue of party affiliation.

about what makes them the most qualified for the office and what would be their top priority if elected. The priorities differed on attitudes towards growth and development, a salient issue in the rapidly growing region. The profiles were based on real candidate profiles.

After reading the profile, respondents filled out a short questionnaire (see Appendix IV for questionnaire and a sample of the profiles). The first question after the respondent read the questionnaire was the choice query. I then asked the respondent to tell me how difficult the decision was before posing an open-ended question asking the subjects why they made their selection. Many of the questions on the questionnaire are adapted from similar items contained on national election studies. The average completion time was estimated to be 6-7 minutes long. A sample of the candidate profiles and a copy of the questionnaire appear in the appendix.

Participants were randomly assigned to one of four conditions:

1. Control: Two candidates, “A” and “B”.
2. Extreme Candidate: Three candidates, “A,” “B,” and “C,” a candidate whose stance placed him in to the extreme of B (hereafter C").
3. Compromise Candidate: Three candidates, “A,” “B,” and “C,” a candidate whose stance placed him in the middle of A and B (hereafter C').
4. Off-Dimension Candidate: Three candidates, “A,” “B,” and “C,” a candidate whose priority is fighting crime, taking no position growth and development issues (C*).

Candidates A and B are identical across the treatments. Choosing between the two candidates should not be easy. Candidate A is pro-growth and development, arguing that the region needs new jobs. "We must make sure our community will grow… We need to cut red-tape, lower taxes and improve our roads so more companies will move to our area." Candidate B, in contrast, is concerned about traffic and the environment. "We must do a better job of protecting our open spaces, our drinking water, and our clean air. Before we approve any development, we need to carefully consider how it will impact on the quality of life of our community. We need to pursue new ways to improve the traffic problems in our area and we need to do a better job to keep fields and forests from being turned into parking lots…"

These candidates are deliberately stressing priorities that are difficult to disagree with. Few citizens would oppose new jobs and few would call for worse traffic and ruining the environment. I deliberately forced a difficult trade off on the respondents. This replicates features of experiments with consumer goods done by Simonson and Tversky (1993), Huber, Payne and Puto (1982), Highhouse (1996), Pettibone and Wedell (2000) and Luce, Payne and Bettman (1999, 2001). Some voters, like consumers who always like to purchase the best or always like to pay less, already know how they generally resolve these trade-offs, but less informed or politically engaged citizens may not. Cues like party labels that might help the respondents make a difficult decision were not included in the candidate information. As a result, the subjects may be particularly prone to constructing menu-dependent preferences.

I test the compromise effect by comparing Treatment 2 to the control. By comparing voting patterns in each treatment, I can see whether B, in the presence of the extreme candidate, C", draws supporters from A. In some consumer experiments, the moderate option increases overall market share when compared to the binary choice control condition. I must reject my hypothesis in favor of classical spatial theories of voting if B loses votes in proportion to the amount of votes won by C".

I did not include a treatment introducing an extreme candidate to the side of A. I omitted this treatment for three reasons:

1. Few respondents were expected to be staunchly pro-growth. Only 21 subjects placed themselves at the pro-growth extreme value on the five-point self-placement scale. The Triangle, especially in Durham, is dominated by the university community, which tends to be opposed to unrestrained growth in an area that has seen steady population growth sustained over a period of 15-20 years. Few candidates in the area take explicit, unrestrained pro-growth stances.

2. Candidate A is pro-growth. The mean placement of Candidate A was about 4.5 on a 5-point scale, with high values for pro-growth stances. Constructing a credible candidate that was even more pro-growth was difficult if not impossible for the area. The best way to make the candidate appear more extreme was to change the reasons why the candidate was pro-growth. This option was abandoned because it might introduce another dimension (and more noise) into the experiment. Gradations in the extent to which a candidate was anti-growth or

in favor of smart growth was much easier to construct, reflecting genuine divisions between real candidates in the area.

3. The purpose of this experiment is to provide a demonstration proof. The experiment is designed to test whether a compromise effect could be observed in electoral choice behavior. Comparing Treatment 2 to the control would provide this test and shed light in the dynamics of why or why not the compromise effect can be observed. Subsequent experiments, using a different set of candidates, employ a symmetric test of the attraction or compromise effects.

Treatments 2 and 3 tests whether those who find the decision to be difficult to choose the moderate option (Hypothesis II). In Treatment 2, candidate B is the moderate or compromise choice. In Treatment 3, a moderate or compromise candidate is introduced. C' argues that the area should "strike a balance between economic growth and protecting the environment in our area…" In Treatment 2, those who find the choice to be difficult should more likely to choose B, while in Treatment 3 they should be more likely to choose C', not B.

The difficulty of the choice should not influence behavior of subjects in Treatment 4 or the control. Treatment 4 provides an additional candidate, but no new information about growth to the respondent. There is no obvious moderate or compromise choice, so behavior in this trinary choice can easily be compared to Treatments 2 and 3 where a moderate choice might cause a compromise effect. I use this treatment to test a fourth

hypothesis, about issue priorities and the strategic manipulations of the choice dimensions.

Alternative Explanations of Choice Behavior

Spatial theories of voting argue that voters will vote for whatever candidate is closest to their ideal point (Downs 1957; Tullock 1967; Hinich and Munger 1992). When new alternatives are added to the choice set, those who like the new alternative best will vote for the new alternative instead of the most similar alternative in the original choice set. Consumers who really like French fries buy the new extra-large size rather than the large fries. In elections, it occurs when two similar candidates run against each other in the same election and draw support from each other. For example, two Democrats and one Republican compete in the general election. The two Democrats split the Democratic vote, enabling the Republican to win even though there might be more Democrats in the district. This substitution effect is the opposite of the attraction effect. I test this explanation directly when testing for an attraction or compromise effect. If the adjacent candidate loses votes in proportion to the votes won by the extreme candidate, it would be evidence of a substitution effect, not an attraction effect.

Scholars revise the spatial theory of voting to account for strategic or tactical voting. Riker (1986) defines strategic voting as "voting contrary to one's immediate tastes in order to obtain an advantage in the long run." Instead of voting for their favorite candidate, these voters take into account expectations of who will win the election in order to prevent their least favorite candidate from winning (Abramson et al. 1992).

Strategic voters are averse to wasting their vote on a candidate who is sure to lose or win.

Strategic voters may support the adjacent candidate instead of the extreme candidate because they want to make sure a candidate calling for growth limits will win against the pro-growth opposition. As a result, the aggregate vote totals do not conclusively demonstrate a compromise effect in collective choices. To ensure that the effect I am observing is not the result of strategic voting:

1. I did not provide any information about the expected outcome of the race.

2. I asked the subjects which candidate or candidates thought would win the election. Subjects could indicate which candidate was going to win, which pair of candidates were likely to win or whether all three candidates had an equal chance of winning. By incorporating the respondent's answer in the model of the vote choice, I control for strategic considerations. If strategic considerations are significant, I will be able to tell if the difficulty of the choice also plays a factor.

In Treatment 2, strategic voters who support the moderate candidate can either be voters who like A best and are afraid C" might win if they do not vote for B, or they are voters who like C" best but are afraid that A will win if they do not vote for B. In Treatment 3, voters who like one of the extremes (A or B) best, but who are afraid the opposite extreme will win if they do not vote for moderate C'. In both scenarios, a strategic voter must think that the compromise candidate is in a close race with another candidate. If I

find that those who think that B (C') are in a close race with another candidate are more likely to vote for B (C'), then strategic considerations matter and I will look to see if choice difficulty acts in addition to strategic considerations.

Niemi and Bartels (1984) found evidence of a momentum effect, similar to strategic voting but describing the attraction of some voters to support the candidates who are expected to win. Strategic voters are likely to support only those candidates or parties who are in a close race, but momentum voters support candidates (especially in primaries) who are the frontrunners. The same question I use to test strategic voting can also be used to test momentum effects. Since no information about how the candidates stood in the polls are provided, nor is this a primary election, I do not expect momentum effects to be present. I consider whether momentum effects decrease choice difficulty in the appendix.

Independent Variables

The treatments vary the number and type of candidates. I collected data on other independent variables, random factors, which do not vary with the treatment. These variables include variables commonly included in vote choice models including party identification, political knowledge, subjective level of political interest and some demographic information. Including these variables allows me to properly specify the vote model.

I measure choice difficulty by constructing a scale constructed from the five possible answers to the question: “How difficult was it to choose which candidate you would

support if the election was held today?" I also asked respondents to place the candidates on a five-point scale, indicating where they thought each candidate stood on growth issues. The highest point on the scale is labeled, "strongly supports business and residential growth even if it means more traffic congestion and less open space." The lowest point is, "strongly supports efforts to reduce traffic congestion and preserve open spaces even if it means less business and residential growth." The intermediate points are also labeled. Following the candidates' placement, I asked the subjects to place themselves on the same scale.

I gauge the expected outcome of the election[4] by asking the respondent who they think will win the election. There were seven options to the question in the three-candidate treatments. The respondent could indicate that one candidate would win, that the race would be between a two specific candidates, or that each candidate had an equal chance of winning. The calculus of voting (Riker and Ordeshook 1968) predicts that voters who think that the race is close between two candidates will support a desirable candidate from the set of those perceived to be in a close race rather than a favorite with no chance of winning. In elections with more than two candidates, this strategic calculation is very important. Voters have a rational incentive to avoid wasting their votes on candidates that have no chance of winning, especially if, as a result of those votes, the least-favorite candidate ekes out a victory. These considerations are not relevant in two-

[4] The expected outcome is a random factor because no information about the probable outcome of the race such as poll data is extended to the candidates. There was some variation in expectations, especially in treatment 2, where C' is the moderate candidate and frequently given a better chance of winning than either of the other third candidates. In each of the three trinary treatments, A is predicted to win by 20-25% of the subjects. In the binary choice, A is predicted to be the winner by 1/3 of the subjects.

candidate races because there is no incentive to vote for a candidate other than the one whom you do not like best. Several scholars have uncovered evidence of strategic voting in elections across time and in difference countries (see Cox 1997; Abramson et al. 1992; Abramson et al. 2001).

Aggregate Results

The moderate or adjacent candidate gained votes in the presence of the extreme candidate.

Table 4.1 presents the aggregate vote results. In the control treatment (1), B won 58% of the vote. When C", the extreme candidate, was added to the choice set (Treatment 2), it won nearly 21% of the vote. The traditional spatial model predicts that those votes should come from the support of B, but that was not the case in this study. B loses support, but only 3.5 percentage points (54.5%)! In contrast, support for A fell over 17 percentage points to 24.7%. Despite the predictions of the spatial model, the distant candidate, A, was hurt more than the adjacent candidate, B. These findings are consistent with Hypothesis I and the findings of Simonson (1989) who found that the market share of the moderate product actually increased in the presence of the extreme option. These results clearly reject the substitution effect, since the share of the vote won by C" is not proportional to the number of votes lost by Candidate B in Treatment 2 compared to the control.

Candidate A's share of the vote was also hurt by the compromise candidate, C', in Treatment 3. With C' winning 36% of the three-person race, A's plummeted to 16.0% while B's share of the vote fell to 48%. This is consistent with the spatial model since C'

took a stance in between the policy stances of A and B. In Treatment 4, where the off-dimension candidate, C*, was included in the choice set, both A and B lost about ten percentage points of support.

These results, especially the comparison between Treatment 2 and the control, favor my hypotheses. There is still a possibility that there were a disproportionate number of subjects in Treatment 2 who opposed unrestrained growth. However, the distribution of opinions about growth was similar across each of the treatments. Figure 4.1 depicts the distribution of answers to the self-placement question and the mean placements of the four candidates. There was no significant variation in the self-placement of the respondents across the conditions (N= 62-67). The mean self-placement ranged from 2.5 (in Treatment 4) to 2.76 (in Treatment 2). A one-way analysis of variance confirms an insignificant difference in mean self-placements across the four conditions. The diminished support for A in the three treatments was not the result of a disproportionate number of subjects in that Treatment who *ex ante* preferred anti-growth candidates. Similarly, perceptions of the candidates did not widely vary across the treatments. There was no significant variation in the placement of Candidate A (4.42 to 4.5) across the treatments. Compromise candidate, C', was correctly placed to the center of the two candidates, with an average placement of 2.76. Extreme candidate, C", was correctly placed to the extreme of candidate B, with an average placement of 1.62.

In Treatment 2, voters who might have otherwise supported A voted for B instead.

If there was no significant differences between the voters in the four treatments, or in the perception of A, what caused A's support to diminish? In this section, I examine

whose votes shifted by looking at how subjects who placed themselves in each category of the self-placement scale voted and by examining Republican voting behavior. I am especially interested in what happened in Treatment 2: Did A lose supporters to C" or did B gain supporters from A, offsetting losses to C"? If the first hypothesis is correct, A lost support to B offsetting B's losses to C".

Tables 4.2 and 4.3 demonstrate that in Treatment 2, B captured the votes of moderates and Republicans who were likely to vote for A (or C') in the other treatments. Table 4.2 shows how each self-placement category voted in each treatment. Compare how respondents who placed themselves at the midpoint (three) and at four (support for growth) voted across the treatments. B won a much higher percentage of these voters in Treatment 2.

Table 4.2A and 4.2C illustrate spatial voting patterns. With some exceptions (who may have misinterpreted the question), in the binary choice (Table 4.2A), those who support growth voted for A and those who oppose growth voted for B. The nine respondents who placed themselves in the middle, divided themselves equally among the two candidates. In Treatment 3 (Table 4.2C), C', the compromise candidate, captured the votes of all of the respondents who placed themselves in the middle of the scale, and won 40% of the respondents who placed themselves at four and two, the two intermediate points.

In Treatment 2, Candidate C" won all but one of its voters from respondents who were opposed to growth. This is as we expect, consistent with spatial models of politics and

the substitution effect. In other treatments, these anti-growth respondents voted for B, just like most Nader voters liked Gore second best. Yet, support for B did not drop in proportion to the support gained by candidate C". Table 4.2B breaks down the distribution of support for B among subjects in this treatment to see how B sustained its aggregate share of the vote. B received the support of 3 out of 4 subjects who placed themselves at the midpoint or at four, and 28.6% of those who said they support growth (four). The strong support for B from people who place themselves at the midpoint or at four is not seen in any other treatment. Only one subject who described his or herself as supporting growth in each of the first two treatments, supported B. This evidence provides evidence that B, in the presence of C", won the support of voters who likely would have supported A.

Comparing the vote pattern in Treatment 2 and Treatment 4 is useful because if they were similar the results would call the hypothesized compromise effect into question. C* does not make B appear to be a moderate since C* does not discuss growth. Support won by C* is clearly different than the support won by C". C* received most of its support from moderate (or unsure or unengaged?) respondents. In other treatments, these candidates were split between A and B. The overall pattern of support for B and A were not disrupted like it was in Treatment 3, in the presence of C".

Many of the respondents who placed themselves between A and B were Republicans. Although a minority in the sample, and clearly divided over the issue, Republicans (especially in Durham, where almost the entire sample was recruited) are more likely to

support pro-business and growth initiatives. Table 4.3 shows how the Republicans (and the independents who said they leaned towards the Republican Party) in the sample voted. In the binary choice, Republicans and the Republican-leaners divided about 60/40% between A and B. Only about 20% of the Republicans voted for B in Treatments 3 and 4. However, in Treatment 2, when few voted for the extreme candidate, C", 50% of the Republicans voted for B. Compared to 62.5% of the Republicans who voted for A in the control treatment, only 32.4% of the Republicans in Treatment 2 voted for A. The difference in support for A between Treatment 2 and the control is significant ($T = 2.34$, $P > |t| = 0.0228$).

Individual Level Results: Vote Models

Why did subjects vote for the moderate candidate?

Test of Hypothesis II: The role of non-informational effects: The more difficult the choice, the more likely the moderate candidate was preferred.

What caused the shift in support to B from A in the presence of the extreme C"? A shift in the mean perception of B occurred, but is this informational effect sufficient to explain the shift in support for the moderate candidate? The third hypothesis posits that the non-informational effect induced some people to vote for the moderate candidate (B in Treatment 2, C' in Treatment 3). To see whether the non-informational effect played a role in the support for the moderate candidate, I constructed a model of the vote choice to see if those who felt the choice was difficult were more likely to vote for the compromise alternative. Using the data collected by the survey, I can control for strategic considerations and the informational effect, giving me an opportunity to measure the impact of choice difficulty relative to these other factors.

Because my control has only two choice options and the treatments have three choice options, I cannot do an analysis of variance comparing the vote in the control to the vote in the treatment. Instead, I present maximum likelihood analyses of the vote in each condition and compare the results across the treatments.

In Table 4.4, I present results of a logit analysis with a dichotomous dependent variable, coded one when the respondent votes for Candidate B, zero when the respondent votes for any of the other candidates. The explanatory variables include party identification (Republicans have high values) and an additive scale that combines the respondents' self-evaluation of their level of political interest and how informed they are about politics.[5] The model includes two demographic dummy variables, gender (female = 1) and black, and five-point scale measuring income levels. I constructed an objective measure of political knowledge from three questions asking the subject to name the governor of the state, the mayor of Durham or Raleigh, and a congressman.[6] To measure whether the respondents found the decision to be difficult, I used a four-point ascending scale.[7] If the third hypothesis is correct, then I would expect to find that this variable will have a significant effect on predicting votes for the moderate candidate in Treatments 2 and 3. The final variable is a dummy for whether the respondent thought

[5] This scale adds the results of two items: "How interested would you say you are in local political issues?" "How informed are you about local political issues?" Both questions could be answered on a five-point scale. The average interitem covariance of the answers to these questions was 0.825, producing a Cronbach's Alpha scale reliability coefficient of 0.82. As a result, I added the two items together to create a single variable ranging from 2 to 10.

[6] Correct answers were scored "one," incorrect or blank answers, "zero." So, someone who answered all three correctly received a three.

[7] This variable was recoded to run from one to zero. The original survey has five items. I combined the easiest two categories because the data was skewed, with over 50% of the sample choosing the two easiest options and because of a printing error on some of the questionnaires that eliminated the fifth option for some respondents in one treatment.

that B was in a close race with one or both other candidates. This last variable, measuring the expected outcome of the election, controls for strategic considerations. Voters may defect from their favorite candidate in order to support their second-favorite candidate if that candidate is in a close race.

In the following discussion, I highlight how choice difficulty and expectations about the outcome of the election affected the vote. Hypothesis II predicts that those who felt the choice was difficult would vote for the moderate candidate. Treatment 2 and Treatment 3 both include moderate candidates, so this variable should be significant in both treatments. It should not be significant in Treatment 4 or the control because there is no moderate candidate. Strategic considerations (expectations about the outcome of the election) should be a factor only in the trinary choices, Treatments 2-4. I will reject Hypothesis II as an explanation for the aggregate vote results if strategic considerations are significant but not choice difficulty. If both are significant, then I can conclude that choice difficulty is important to the vote choice in addition to strategic considerations.

Control

Difficulty of the choice. *Expectation*: Insignificant. *Result*: Insignificant.

Expectations about the outcome of the election*. Expectation*: Insignificant. *Result*: Insignificant.

In Table 4.4A, I present the results of a logit analysis on the vote for B in the control condition. I do not expect that expectations about the outcome of the contest or choice difficulty will be significant in this condition because there are only two candidates. As expected, neither variable had a statistically significant impact on the vote. Both variables' coefficients are negative, decreasing the likelihood of voting for B. Controlling for the demographic variables, the subjects' [more] Republican party identification and a pro-growth self-placement on the growth scale decrease the likelihood that the subject chose B. If the subject was black or had a high level of political knowledge, he or she is more likely to choose A. The model as a whole, as measured by the pseudo R^2, explains 55% of the variance. The model correctly predicts 85% of the vote for A, and 92.1% of the vote for B.

Treatment 2: Extreme Candidate

Difficulty of the choice. *Expectation*: Significant, positive. *Result*: Significant, positive.

Expectations about the outcome of the election*. Expectation*: Significant, positive. *Result*: Significant, positive.

The left column of Table 4.4B presents the results from the original model for voting for candidate B, but with data from Treatment 2. The dependent variable is dichotomous, so a vote for either A or C" is coded as a zero, a vote for B is one. Since this is the treatment where B is the moderate option, both strategic considerations and difficulty of the choice should increase the likelihood of voting for B. Both variables behave as expected. The two variables have positive coefficients and are statistically significant. As hypothesized by Hypothesis II, the more difficult the choice, the more likely the subject will vote for the moderate candidate. When all other variables are held at their mean levels, the odds of voting for B when the choice is difficult are nearly 18 times larger compared to when the choice is not difficult. This effect is in addition to strategic considerations, which also increase the likelihood of voting for the moderate candidate. The odds of voting for B is nearly eight times larger if the respondent thinks that B is in a close race with one of the other candidates compared to those who do not expect B to be in a close race when all other variables are held at their mean levels.[8] properly specified vote model should not leave out either factor.

Women are also expected to be more likely than men to vote for B. Surprisingly, pro-growth attitudes are insignificant, but the sign is in the expected direction. Similar to the other conditions, Republican party identification has a negative effect on the likelihood of voting for B. The other control variables were statistically insignificant. The model

[8] If I restrict this group further, the odds of voting for B is nearly 14 times larger for those who think that B is in a close race with A compared to all other respondents when all other variables are held constant at their mean level.

as a whole, as measured by the pseudo R^2, explains only 30.9% of the variance but correctly predicts 73.1% of the vote for A, and 84.9% of the vote for B.

Treatment 3: Compromise Candidate

Difficulty of the choice. *Expectation*: Significant, negative. *Result*: Significant, negative.

Expectations about the outcome of the election. *Expectation*: Significant, negative. *Result*: Insignificant.

The left column of Table 4.4C presents the results from the original voting model with data from Treatment 3. The dichotomous dependent variable is coded one if the subject votes for B. Like the previous table, a positive coefficient means that when the value of the variable increases, the likelihood of voting for B increases. I do not expect that expectations of the outcome of the contest nor choice difficulty will increase the likelihood of voting for B. Both variables should be negative, since choice difficulty should increase the likelihood of voting for the moderate candidate, C' and the moderate candidate would be the most likely recipient of tactical votes to prevent an extreme candidate from winning.

As expected, the difficulty of the decision is statistically significant in this model, but the coefficient is negative, meaning that the more difficult the choice, the less likely the subject would vote for B. Gender is the only variable that has a positive coefficient and is statistically significant. Women are more likely to vote for B. Pro-growth attitudes and [a more] Republican party identification decrease the likelihood of voting for B.

The other variables, including the closeness of the race, were statistically insignificant. This insignificance is likely the result of most subjects in this treatment expecting the compromise candidate to be the winner. The model as a whole, as measured by the pseudo R^2, explained 59.6% of the variance. The model correctly predicted 86.7% of the vote for A, and 92% of the vote for B.

The second and third columns of Table 4.4C demonstrate that the recipient of votes cast by those who found the choice to be difficult is the moderate candidate, C'. In these tables, the dependent variable is vote for C' and A, respectively. The positive, large and statistically significant ($p<0.5$) coefficient in the model explaining vote for C' tells us that the more difficult the choice, the more likely the subject will vote for C'. In contrast, the coefficient for the difficulty of the choice variable is insignificant when explaining a vote for A. The odds-ratios can be easily compared across the three models. The odds of voting for C' when the choice is very difficult are 23.5 times better than the odds of voting for C' when the choice is not difficult and the other variables are held at their mean values. Comparing the odds ratio also shows that women are much more likely to vote for B than the other candidates when all the other variables are held at their mean values. The subject's placement on the growth scale is the biggest determinant of whether the subject will vote for A. The odds of voting for A are 13.34 times larger for each step towards strongly supporting growth on the scale.

Treatment 4: Off-Dimension Candidate

Difficulty of the choice. *Expectation*: Insignificant. *Result*: Insignificant.

Expectations about the outcome of the election*. Expectation*: Insignificant. *Result*: Insignificant.

The 4th Treatment is interesting because in this condition there is no compromise candidate even though there are three candidates. The third candidate in the choice set says nothing in his profile about growth. Instead, he takes a position on crime advocating a mixture of liberal and conservative positions on crime. Table 4.4D presents the same model as was used in the other conditions. The model correctly classifies 79.3% of the observed votes, 83% of the votes against B and 75% of the votes for B. Both variables of interest, as expected, are insignificant. Party identification and self-placement are the only significant explanatory variables. Pro-growth positions and a [more] Republican party identification decrease the likelihood of voting for Candidate B.

As hypothesized, choice difficulty impacted on the voter's decision when one candidate was seen as the moderate or compromise option in two treatments. Subjects who thought the choice was more difficult were more likely to vote for the moderate candidate. This helps explain why support for B in Treatment 2 did not decline in proportion to the support won by C". When there was no compromise option, choice difficulty did not influence voter choice. Similarly, strategic considerations did not influence voter choice when there were only two candidates. According to this analysis,

strategic considerations only made a difference in Treatment 2 for explaining votes for or against Candidate B.

Pooled Results: Vote for the Moderate Candidate

The individual-level vote models from each treatment very strongly support my hypotheses that the moderate candidate enjoys more support in the presence of an extreme candidate. In the two conditions where there is a compromise candidate, respondents who find the choice to be difficult are more likely to vote for that candidate. To buttress these findings, I pooled those two conditions together and re-ran the vote model. The difficulty of the choice should increase the likelihood of voting for the moderate candidate, regardless of whether the moderate candidate is B or C'. The dependent variable is a vote for whichever candidate is the moderate candidate, Candidate B in Treatment 2, Candidate C' in Treatment 3.

When separated, these models would be identical to the ones presented in Table 4.4B and Table 4.4C. As a result, the left column of Table 4.5 does not present very interesting information. Because the moderate candidate is not located at the same point in policy space (see Figure 4.1), it is not surprising that self-placement of the respondent is not statistically significant. The only variable worth pointing out is that consistent with the earlier analyses, the difficulty of the choice has a large, significant effect on the likelihood of voting for the moderate candidate. The odds of voting for the moderate candidate are nine times larger if the respondent thinks that the decision is very difficult when all other variables are held at their mean levels. No other variable has as big of an effect, including strategic considerations.

More interesting results are presented in the right column of Table 4.5. In this model, I use a variable that takes the absolute value of the distance between the subjects' self-placements and their placement of Candidate A and subtracts the absolute value of the distance between the subjects' self-placements and their placement of Candidate B. These two candidates appear in both models and the result is a variable that runs between -4 (close to Candidate A, not at all close to Candidate B) and 4 (close to Candidate B, not at all close to Candidate A). The variable is categorical because the self-placement and the placement can only be integers between 1 and 5. The mean value is 1.07, so I use one as a base to explain my results.[9] I use this variable instead of self-placement to accurately control for spatial voting. The variable significantly increases the likelihood that the candidate will vote for the moderate candidate. For every point closer to B and farther from A the respondent is, the odds of voting for the moderate candidate are 1.4 times greater when all other variables are held at their mean levels. The coefficient is positive; the closer the respondent is to Candidate B (the anti-growth candidate) relative to Candidate A, the more likely they will vote for the moderate candidate (B or C'). Since C' is seen as much closer to B than to A, this is not surprising (see Figure 4.1). However, it dramatically illustrates the appeal of the moderate candidate since the vote results suggest that C' drew much of its support from Candidate A (see Table 4.1 but also Table 4.2C).

[9] The difference between using the mean and the value of one for this variable is only a 0.005 increase in the probability of voting for the moderate candidate, when difficulty of the choice and closeness of the race is at zero and all other variables are at zero. The dummy for African-American respondents is not included in this model because of multicollinearity.

The lower the subjects' subjective level of political interest and information, but the more knowledgeable the subjects are about politics, the more likely they will vote for the moderate candidate. The odds of voting for the moderate candidate are 2.2 times larger for each level of political knowledge (out of three) when all other variables are held at their mean levels. The other control variables are insignificant, as was the expectation that B would be in a close race.

The difficulty of the choice had a large and statistically significant effect on the likelihood that the subject would vote for the moderate candidate. The odds of voting for the moderate candidate are 6 times larger if the choice was very difficult than if it was not difficult when all other variables are held at their mean levels. This is a smaller effect than the one we observe in the vote model with only the self-placement item. Nonetheless, the evidence is firmly in support of Hypothesis II, hypothesizing that the difficulty of the choice increases the likelihood of voting for the moderate candidate.

Magnitude of the Effect of Choice Difficulty: Estimation of First Differences

Using Clarify,[10] I estimated the first differences from the vote models for subjects in Treatment 2 and 3 to gauge the effect of changes in the difficulty of the choice and the distance from the candidate placements. The impact of the difficulty of the choice is very large at certain levels of opinion towards growth. In Tables 4.6A and 4.6B I present the results of my estimation of the impact of difficulty of choice when

[10] Clarify, Software for Interpreting and Presenting Statistical Results. A Stata macro by Michael Tomz, Jason Wittenberg, and Gary King; version: 2.0, 6/1/2001 (http://gking.harvard.edu/clarify). Clarify expands the dataset to 1000 observations for these estimations. As a result, other estimation programs may generate different results.

respondents place themselves either at the midpoint on the growth scale, at point two, moderate opposition to growth and point four, moderate support of growth. For respondents who place themselves at each of these positions on the growth scale, changing the difficulty of the choice can change whether they are likely to vote for B or another candidate.

Treatment 2: The first differences dramatically illustrate the effect of varying the difficulty of the choice. A small increase in difficulty is enough to change the predicted vote of the respondent to B (see Table 4-6A). When all other variables are at their mean values, the respondent has a 58.0% chance of voting for candidate B. The estimated likelihood of voting for B with difficulty of the choice and the expectation of B being in a close race held at zero instead of their mean values,[11] the respondent's likelihood of voting for B drops to 27.6%. If the respondent places themselves at two on the growth scale, the likelihood of voting for B rises to 35.4%. For these respondents who oppose unrestrained growth, increasing the difficulty of the choice by a single value on the scale, from "not at all difficult" to "a little difficult," increases the probability by 21.5 percentage points. This change is substantively significant because it is large enough to cause the likelihood of voting for B to exceed 50% (shaded cells on Table 4.6A). The likelihood that subjects at this point on the growth scale who found the choice to have been very difficult will vote for B is 0.858.

[11] The mean difficulty of choice was 0.265, between the second-least difficult category (a little difficult, 0.33) and zero. Closeness of the race is a dummy variable with a mean of 0.22. The mean of the self-placement on the growth scale for Treatment 2 was 2.76 on a 1-5 scale.

When the respondent is pro-growth, the choice is not difficult and there is no expectation that B is in a close race, the subjects' probability of voting for B is low. If the subjects place themselves at the midpoint or at four (pro-growth) on the growth scale, the decision has to be at least "somewhat difficult" to change the predicted vote to B. At the midpoint, increasing the difficult to "a little" results in a 0.196 increase in likelihood, but at "somewhat difficult," the likelihood of voting for B increases 0.403 to 0.661. The effect is smaller at four, but when the choice is "somewhat difficult," the likelihood of voting for B still exceeds 50% (55.4%). Subjects in both categories are highly likely to vote for B if the choice is very difficult.

Expectations that the race would be a close contest between B and another candidate also have a large effect in the likelihood of voting for B. For respondents who place themselves at all three middle points (points 2-4) on the growth scale, thinking that B was in a close race with one or more opponents increases the likelihood of voting for B increases by over 40 percentage points. Otherwise, none of these respondents would be expected to vote for B with all other variables but choice difficulty (at the minimum level) held at their mean levels. This jump significantly changes the prediction of how the respondent would vote. With such strong independent effects, it not surprising that the model predicts that if the choice is difficult *and* the subject thinks that B will be in a close contest, the likelihood of voting for B is a near certainty, with an estimated probability exceeding 0.90.

Treatment 3: Votes for Candidate B in Treatment 3 are primarily driven by where the respondents place themselves on the growth scale. A small distinction in self-placement on the growth scale makes a substantial difference in the likelihood of voting for B. Clarify estimates that if respondents placed themselves at the midpoint of the growth scale, the respondents are only predicted to vote for B one-third of the time (when all other variables are held at their mean value except difficulty of the choice and the dummy for whether B was in a close race whose values are held at their minimum values). If the respondents place themselves at two on the growth scale (opposing growth), they have a 74.9% chance of voting for B. As a consequence of this small shift in self-placement, the subject is no longer predicted to vote for another candidate.

Since the difficulty of the choice benefits the moderate candidate, C', the more difficult the choice, the less likely the subject will vote for B. No subject at these points on the growth scale who found the decision to even be a little difficult is predicted to vote for B. Changing the difficulty of the choice from the minimum level to the maximum level of difficulty has a dramatic effect renders the likelihood of voting for B virtually nil. At two on the growth scale (moderately opposed to growth, the point on the scale where the respondent is likely to vote for B), if the choice is difficult, the likelihood of voting for B drops 66.5 percentage points. At the other points on the growth scale presented in Table 4.6B, the effect of changing the difficulty of the choice is much smaller, but the

substantive result is the same: if the choice is difficult, the subject will hardly ever vote for B.[12]

Pooled: Table 4.7 shows the first differences from the vote model applied to the pooled treatments. The shaded figures are those greater than 0.5, when the respondent is predicted to vote for B. In this analysis, instead of self-placement on the growth scale, I used the distance from the self-placement to the position of the candidates. Positive numbers are for respondents who are closer to B than to A. If the subjects place themselves more than two points closer to B than to A, the subjects are predicted to vote for B at all levels of choice difficulty. These are the only subjects who are expected to vote for the compromise candidate when the difficulty of the choice is low. However, when the choice is very difficult, even subjects who are two points closer to A than to B are expected to vote for the compromise candidate. When the candidates are equidistant from the respondent (when the distance is zero), and the choice is not difficult, the probability of voting for the moderate candidate is 0.279. Similarly, when the subject is one point closer to B than to A, and the choice is not difficult, there is only a 0.348 probability of voting for the moderate candidate. Increasing the difficulty of the choice to somewhat or very difficult has the largest absolute effects at these points. When the choice is somewhat difficult instead of not difficult, the likelihood of voting for the compromise candidate increases by 27-28 percentage points. When the choice is very difficult, the likelihood rises by more than 0.39. These increases are enough to change

[12] When I re-estimated the model using the compromise candidate as the dependent variable, when the choice was somewhat difficult, the likelihood of voting for C' was ranged from 0.60 to 0.75 at these three points on the growth scale.

the prediction of how the subject will vote since the likelihood exceeds the cut-off of 0.5. If the respondent is one or two points close to A than to B, the choice must be very difficult for the likelihood of voting for the compromise candidate to exceed 0.5 (0.606 and 0.533 respectively).

Choice Difficulty and Strategic Considerations: Supplementing Effects

Since expecting a close race and the difficulty of the choice have such a large impact on the probability of voting for B, I investigated what effect an interaction of the two terms has on the vote. Do these factors work together in tandem, or did they counter-act each other? The right column of Table 4.4B adds an interaction term to the original vote model. Choice difficulty and strategic considerations are statistically significant, as the rest of the model remained largely unchanged. The interaction of the two variables was substantively significant and has a large, negative coefficient.[13] This means that the combination of thinking B was in a close race and that the choice was difficult reduced the likelihood of voting for B. This coefficient suggests that the two effects supplement each other.

Figure 4.2 depicts two lines showing the likelihood of voting for B as calculated by Clarify. One line is for those subjects who did not think B was in a close race, the other for those that do not. Recall that expectations that the race will be a close contest is a dummy variable, coded one when the subject thinks that B is in a close race with one of

[13] The odds-ratio, though, suggests that while the interaction term is significant, it has virtually no effect on the odds of voting for B. Adding the interaction term does not improve the model's ability to explain the observed results. With or without the interaction term, the model correctly classifies 79.66% of the sample.

the other candidates and zero when the subject expects one candidate to win or thinks the race will be close between the other candidates. Points on the lines in Figure 4.2 show the expected probability of voting for B at different levels of choice difficulty.[14] I exhibit a different graph for each of the five places on the growth scale.

For those subjects who did not think that B was a in a close race, the figures clearly show that the probability that these subjects will vote for B increases as the difficulty of the choice increases. This is true for every opinion towards growth policies. However, the line that depicts those who think that B is in a close race declines as the difficulty increases for every opinion about growth. With the exception of those who describe themselves as strongly supporting growth (five), the slope of the line is steepest at higher levels of difficulty. When the difficulty increases just a little, there is little impact on the probability of voting for B. When difficulty increases to somewhat difficult or very difficult, the probability of voting for B decreases more dramatically. The two effects seem to counter-act each other even though each individually leads to a greater likelihood of voting for B.

While the two effects counter-act each other, the effect is not very large. In every graph, I highlight the line demarcating a 50% probability of voting for B. All points above this line are at values that lead to a prediction that the subject will vote for B. Many of the points are way above 50%, suggesting that the probability of voting for B approaches a

[14] The line for those who think B was in a close race depicts the interaction term, which because closeness is a dummy is simply the difficulty of the choice for those who think the race will be close. I estimated the differences using Clarify by specifying that (for those who think the race will be close) both the interaction term and the difficulty of the choice should be at the same level.

certainty at these variable levels.[15] Notice that despite the downward slope of the line for those who think that B will be in a close race, it does not frequently dip below this line. Those subjects who placed themselves at the midpoint of the scale or one of the pro-growth points (four or five), and think B is in a close race, are predicted to vote for B unless the choice is very difficult.

It is not clear why those who find the choice to be very difficult and think that B is in a close race are no longer are expected to vote for B. These findings are not consistent with theories of strategic voting or the consumer decision-making literature. Perhaps the strategic considerations make the decision easier? Voting for a candidate is another reason that can justify the choice (Simonson 1989). There are only a handful of subjects in the sample that thought that the choice was difficult and that B was in a close race. Half of them are observed voting for the moderate candidate. There are not enough cases to make many demographic generalizations about these subjects. The interaction term between these variables was not significant in any other treatment. Additional research is necessary to further investigate this finding, since it may be an artifact of the data and the result of the expected probabilities being so high.

Treatment 4: Competition in Multiple Dimensions

Third parties or candidates may not differentiate themselves on the same dimension as the major parties. In Treatments 2 and 3, the candidate took either a more extreme

[15] These high probabilities may explain why the odds-ratio for the interaction term is so small. The odds-ratio is negative, but at many values of opinions about growth and difficulty of the choice, it has a very small substantive effect on the likelihood of voting for B.

stance or a stance in the middle of the original pair of candidates. In Treatment 4, the candidate stresses a different dimension. Budge (1983) argues that most minor parties differentiate like this off-dimensional candidate by associating themselves with an issue that does not form the basis of the primary partisan divide between the major parties. Page (1978) found that American candidates tend to emphasize different issues in campaigns. Rosenstone, Behr and Lazarus (1996) found that third parties often won voters from both major parties in this fashion, often succeeding in forcing the major parties to address their issue (at the cost of hurting the minor parties' electoral future).

I included Treatment 4 because the dynamics of the menu-dependent choice should not apply. There is no extreme candidate anchoring perceptions of the other candidates, nor is there a compromise or moderate candidate that could expect to be the recipient of votes of people who find the decision to be difficult. In these regards, Treatment 4 is similar to the control. However, there is a third candidate, so strategic considerations could still matter even though there is still no information provided to the subjects about the expected outcome of the contest.

***Hypothesis IV*:** When candidates introduce a different issue-dimension, they appeal to people who are more concerned about that issue-dimension than the issues discussed by the other candidates.

The new candidate in Treatment 4, C*, identified crime as his top priority if elected in contrast to the original pair of candidate who discussed their positions on growth. To confirm this hypothesis, I expect that subjects who thought that crime should be the

government's priority would be more likely to support C* than other subjects. Subjects who identify growth and development issues as among their most salient concerns should not support C* and their decision should not be influenced by C*. To these subjects, C* is truly irrelevant, in contrast to C' and C" who even if irrelevant shaped their perceptions or influenced their decision.

To identify which subjects cared about growth issues and which about crime, I asked them to record up to three of the most important problems in the local area from a list before reading the candidate profiles. I used these responses to create two new dummy variables. One indicated whether the subject indicated that crime or public safety was a priority and one for whether the subject indicated growth and development issues as a priority. 42.4% of the sample identified growth and development issues as a priority. 37.2% of the sample identified crime as part of the sample. 33 respondents (10.7% of the sample) named both growth and crime as two of the areas they felt should be a priority.

When I re-ran the analysis on vote for B with these dummies, crime was statistically significant ($p<0.1$). As expected, the coefficient was negative. If crime was a priority to the subject they are unlikely to vote for B. Consistent with my expectations, choice difficulty was insignificant. Strategic considerations also had no significant impact on the voter's choice. When I repeated this analysis with the dummy variables on the other treatments, I found that these issue priorities are not statistically significant explanations of voting for C' or C".

I repeated the analysis on subjects in Treatment 4, changing the dependent variable so the model explains vote for C*. The results are presented alongside the original model in Table 4.4D. In the center column, the same explanatory variables are used, except the dummy variable for black is not included because of multi-collinearity.[16] The model without the dummies is not very good, predicting nearly all of the votes for other candidates, but only 20% of the votes for C*. The model that includes the dummies performs much better, correctly classifying 86.21% of the observed votes. The model correctly classifies almost all of the votes for the other candidates and half of the votes for C. The pseudo R^2 is 0.53, a marked improvement in variance explained over the pseudo R^2 of the original model of 0.18.

As hypothesized, if the respondent feels that the community should make fighting crime a priority, the likelihood of voting for C* increases significantly. The odds of voting for C* are 60.2 times larger if the subject thinks crime is a priority compared to those subjects who did not list crime as a community priority (when all other variables at their mean values). The probability of voting for C* decreases if the subject believed growth or growth issues should be a community priority. Self-placement on the growth scale remains statistically significant in the new model. Subjects who are pro-growth are more likely to vote for C*. The odds of voting for C* are 3.3 times larger for every level the subjects place themselves at closer to "strongly supporting growth."

[16] In the analysis with vote for B as the dependent variable, the dummy for black respondents was statistically insignificant and had little substantive impact on the results of the model. The probability of voting for B when all the variables were at their mean only differed by 0.05 percentage points when the dummy for black respondents was omitted.

Even though strategic considerations were not significant in explaining the vote for B, expectations that B was in a close race was significant, but negative. Subjects who thought that Candidate B was in a close race were less likely to vote for C*.[17] Contrary to my expectations, choice difficulty decreased the likelihood of voting for C* at statistically significant levels ($p<0.05$). It is not clear why these variables are negative since they do not positively explain votes for either of the other candidates.

When all variables except the priority dummies, the closeness of the race and the difficulty of the choice (all held at their minimum value of zero), are held at their mean, the predicted probability of voting for C* is 51.1%. If the choice was very difficult instead of not at all difficult, the probability of voting for C* drops by 32.4 percentage points. If the respondent thinks that B is in a close race or thinks that growth is a priority, the likelihood of voting for C is virtually nil. The likelihood of voting for C* drops by 48.1 and 48.3 percentage points, respectively. In contrast, if the respondent thinks that crime is a priority, then the likelihood of voting for C* increases by 40.1 percentage points, making the probability of voting for C* a virtual certainty.

Implications

These findings have important implications for both the study of elections and politics and the study of decision-making. Traditional models of multi-attribute choice explain choice behavior as a function of dimension values weighted by the importance of that dimension to the decision-maker (Keeney and Raiffa 1976). In politics, models

[17] Expecting B to be in a close race was insignificant in explaining votes for Candidate A or Candidate B, and was also insignificant without the issue dummies. The significance of the variable in this model is curious and requires further study. Choice difficulty is similar, so I cannot readily explain this finding.

explaining voting behavior use this logic and assume that the dimensions are policies or policy outcomes. Values are assigned based on spatial theories about the distance of a policy proposal or expected outcome from the voter's ideal point. The results of this experiment do not conform to this description because I observed apparent violations of independence of irrelevant alternatives. If the subjects compared the candidates to an ideal point, the addition of C" would not have had an effect on the choice between A and B. Instead, I show that some voters who supported A when C" is not visible became likely to support B when C" was present. Consequently, spatial theories of voting should be modified to allow for "irrelevant alternatives" to be relevant to how the "relevant alternatives" are perceived and to account for emotions that affect the decisions (see Holt 1986; Machina 1982).

Even though I find that participants in this study contradicted claims or assumptions of the spatial model, the spatial logic should not be dismissed. The description of the vote in Table 4.2 show that in every treatment, most voters *tend* to vote for a candidate close to their own position on growth and development issues. Spatial proximity has a probabilistic effect on the vote, not (necessarily) a deterministic effect (Hinich, Ledyard, and Ordeshook 1972; Coughlin 1992; Hinich and Munger 1997). Much of my discussion has focused on probabilistic decision rules, emphasizing the probability of voting for the target candidate in terms of the likelihood of selecting that candidate. It is not unheard of for subject at the midpoint to support Candidate B without an extreme candidate in the choice set. More than half of the subjects in the control condition at that point on the growth scale support B. Even more support B when there is an extreme

candidate far from their own ideal. Manipulating the size of the choice set changes the probability that subjects with preconceived biases and predispositions will vote for a candidate.

Previous work on probabilistic voting asserts (or assumes) that, "there may be idiosyncratic characteristics" (Hinich and Munger 1997, p. 172) or unobserved dimensions that influence the vote choice. Models that include probabilistic decision rules assume that there are limits to any observer's understanding of the choice decision. Even in this experiment, where the information given to the decision-maker is tightly restricted, there are still limits to our understanding of the choice behavior. However, these findings make it possible to claim that what may have appeared to have been idiosyncratic characteristics in previous investigations may indeed be systematic (and predictable) results of changes in the composition of the choice set.

Some of these changes are consistent with the spatial model of political decision-making and traditional choice functions. The adjacent candidate appears more moderate when compared to an extreme candidate. Considerations of the expected outcome of the election are relevant to the choice when there are three candidates along a single policy dimension. The insignificant coefficients for these considerations in the two-candidate control are indicative of the lack of weight assigned to that dimension when there are only two candidates. The significance of expectations in three-candidate choices illustrate a dimensional weight change that increases the likelihood that the subject will vote for the moderate candidate. This finding differs from the report by Pettibone and

Wedell (2000) that scholars of consumer behavior (including themselves) have not found evidence in favor of a weight change explanation for menu-dependent choice behavior.

The effect of the difficulty of the choice on the decision could be interpreted similarly. My results suggest that, like candidate viability, the difficulty of the choice may be a separate choice dimension that has little weight in two-candidate choice sets, but is a factor in three candidate choice sets. Since Simon's (1955) work on choice theory, scholars have recognized that people independently value easy decisions (in principle or at least in practice). Consequently, the choice difficulty dimension should be interpreted as independent of the policy dimensions yet not separable from the policy values, specific attribute pairings, or the presence of an alternative that could diminish the choice difficulty. For example, if a candidate had a plan that scared away jobs and business, hurt the environment and made traffic worse, the voter's decision would be really easy. Similarly, two candidates with similar stances, but with one taking a slightly more desirable position is an easier decision than choosing between one of those candidates and another taking a position on a vastly different issue (Beattie and Barlas 2001). Alternatively, trading traffic woes for economic growth may be a harder trade-off than higher taxes for better schools (Luce, Bettman, and Payne 1999). When one cannot avoid the choice inducing negative emotions, this experiment highlights what happens when one option may diminish the negative emotions more than the others (Pettibone and Wedell 2000).

Previous research into decision-making has found that, compared to policy dimensions or viability, choice difficulty exercises very different effects on the decision-maker and the decision-making process. One reason for these differences is that people value easy decisions and avoid the cognitive effort required to make an accurate decision (Payne, Bettman, and Johnson 1993; Simon 1955). Another explanation is that trade-off difficulty induces the decision-maker to feel subjective threat. To deal with these negative emotions, Luce, Payne and Bettman (1999) found that consumers make predictable shifts in their choice behavior and patterns. In a later article by these authors (2001), they argue that important decisions, including many social and electoral choices, are more threatening "almost by definition." Therefore, these decisions are more likely to be influenced by coping goals resulting in predictable choice patterns such as the choice of the moderate candidate.

Pettibone and Wedell's (2000) "emergent value" model of decision argues that choice difficulty differs from policy dimension because it involves considerations that emerge from the demands of the choice task or situation (see Redlawsk 2001). Consistent with this model, I found that the difficulty of the choice was higher if the respondent considered other candidates, a process inherently dependent on the configuration of the alternatives of the choice set. The preferences in this model, unlike the traditional choice model, may be constructed during the decision-making process and are dependent on the decision-making task (see Lowenthal 1996).

Conclusion

This experiment lent support to three hypotheses. The first hypothesis posited that there was an attraction effect that benefited the compromise candidate in the presence of a more extreme candidate. The null hypothesis is supplied by the classical spatial theories of voting that expect that such an extreme candidate will hurt the adjacent candidate by siphoning off supporters. While the moderate's share of the vote decreased in the presence of the extreme candidate, the decline was not in proportion to the share of the vote won by the extreme candidate. The net result was that the third candidate more adversely affected the far distant candidate than the near candidate.

In the previous chapter, I showed how the far distant candidate was hurt when the adjacent candidate appeared more moderate (closer to the original opposition candidate), enabling it to win votes of more subjects that placed themselves between the two candidates. I proved that certain groups of subjects, including Republicans and those respondents who identified themselves as having moderate position on growth, became more likely to vote for the moderate candidate in the presence of the extreme candidate compared to similar subjects in other treatments.

The change in the perception of the near candidate was not the only way this candidate benefited from the extreme candidate. The experiment provided evidence in support of the second hypothesis. The moderate candidate appeals to subjects who think that the decision is difficult. This is only a relevant factor when there is a moderate candidate; it does not have a significant effect on the decision to vote for a candidate when that candidate is opposed by only one other candidate or when the third candidate introduces

an additional dimension. Those who find the decision to be difficult are not attracted to whoever occupies the middle of a single competitive dimension, not a particular candidate. Choice difficulty matters in addition to strategic considerations that lead voters to support a moderate candidate who is in a close race instead of their favorite candidate.

I found the difficulty of the choice to be a significant explanatory variable in the vote models even when accounting for spatial considerations traditionally used to explain voter choices and controlling for partisan identification. As hypothesized, the introduction of an additional issue dimension by a third candidate enabled that candidate to win the support of those who felt that issue should be a priority. This candidate, in contrast to the extreme candidate, did not draw support mainly from one candidate's supporters nor did he benefit from the votes of those who found the choice to be difficult.

This alternative conception of the traditional spatial voting or multi-attribute decision model is a refinement and extension of the traditional vote model, not a cause for its outright dismissal. The perceptual change caused by the information effect remains consistent with the basic thrust of spatial theories of voting. In all but one of my treatments, self-placement on the growth scale was a significant determinant of voting for Candidate B. My finding of a non-informational or emotional effect demonstrates that descriptions of choice behavior that rely on a model of choice that consists solely of weights of attribute dimensions or socio-demographic characteristics are incomplete.

These descriptions are missing potentially important factors, in this case, the information provided by the additional candidate and the impact of the negative emotional stress on the decision-makers' deliberations. In the appendix, I discuss what causes and who feels this emotional stress and, as a result, finds the choice to be difficult.

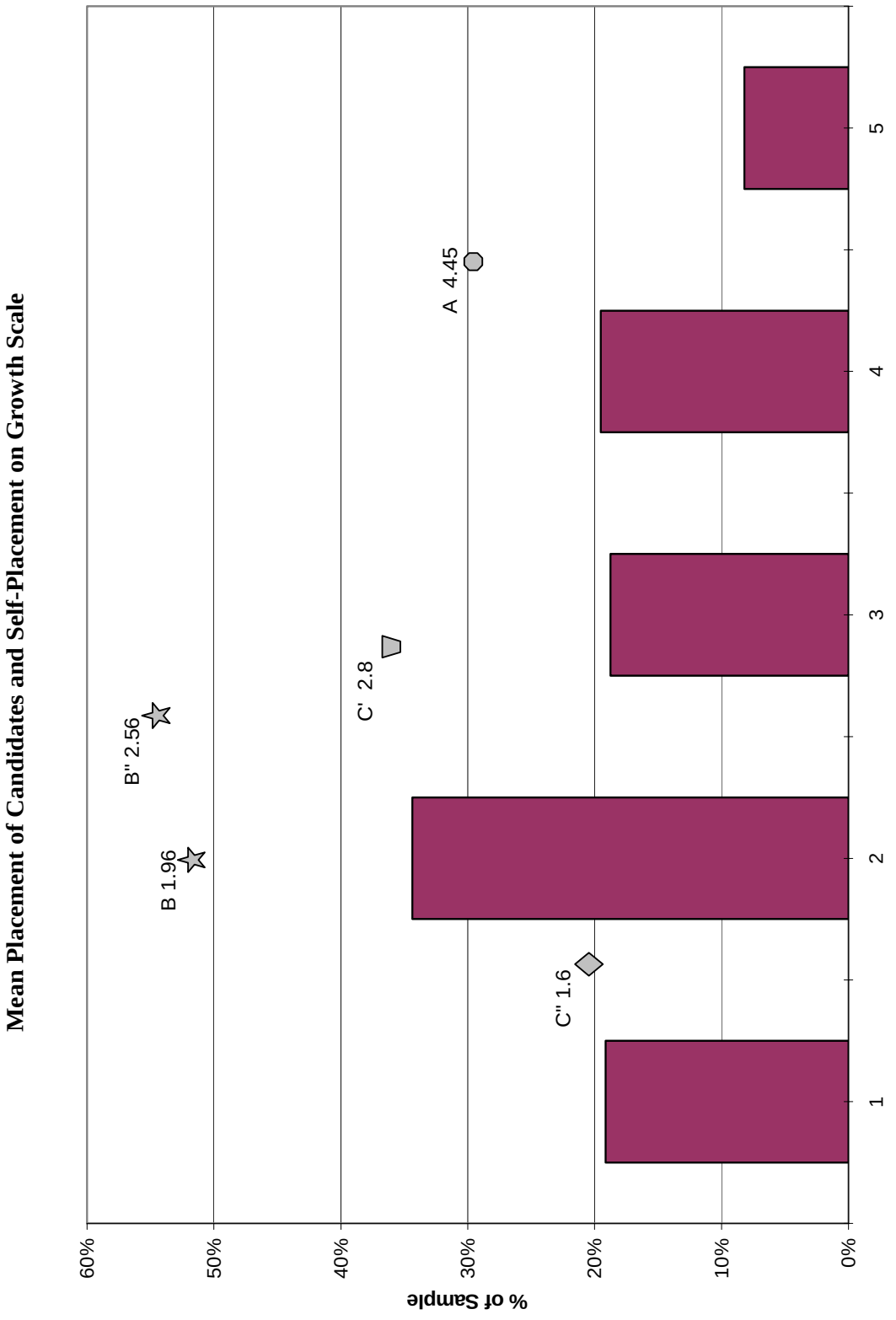


Figure 4.1 Mean Placement of Candidates and Self-Placement on Growth Scale

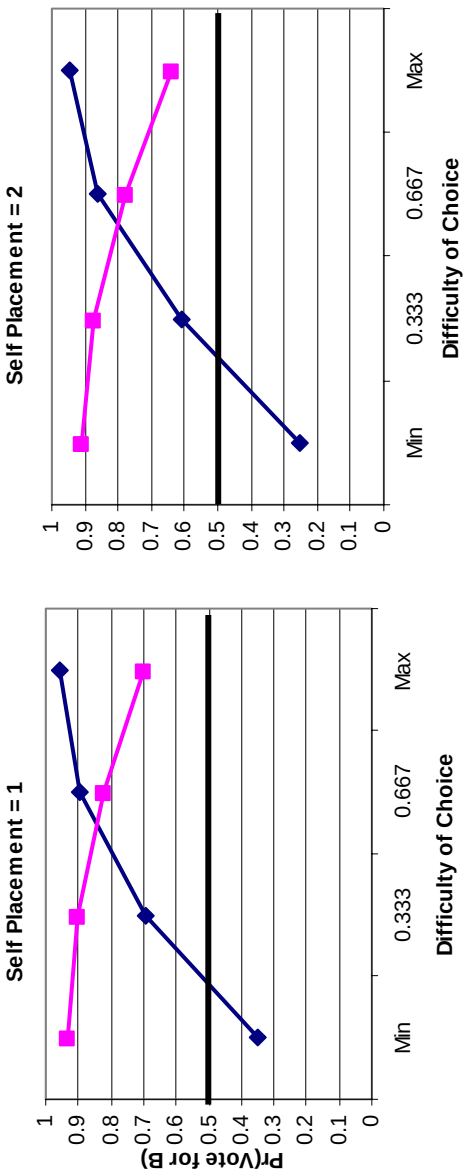
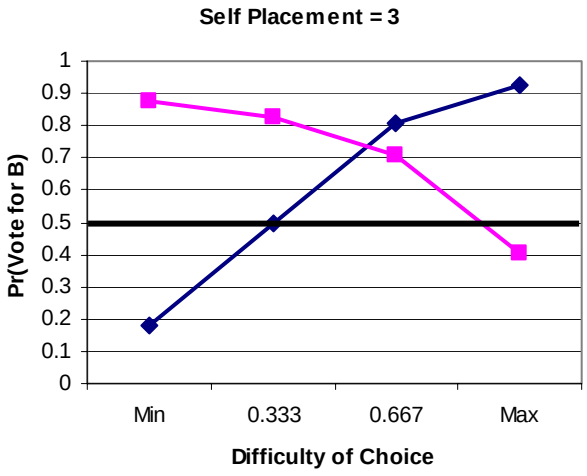
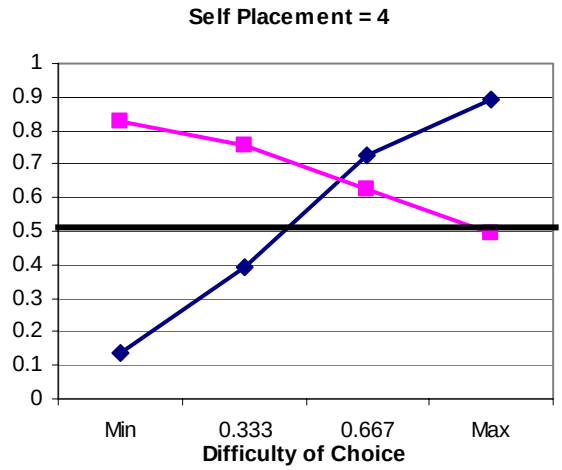


Figure 4.2 Interaction Effects with Strategic Considerations


Self Placement = 3
Pr(Vote for B)
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Min
0.333
0.667
Max
Difficulty of Choice


Self Placement = 4
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Min
0.333
0.667
Max
Difficulty of Choice

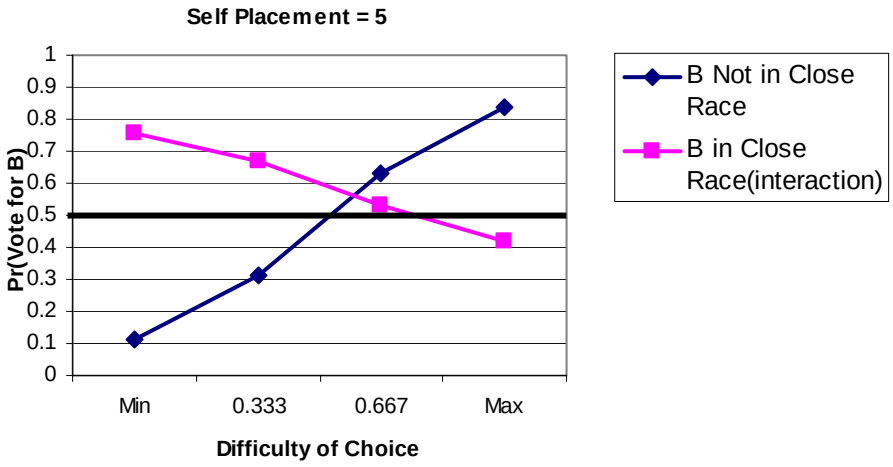

Self Placement = 5
Pr(Vote for B)
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Min
0.333
0.667
Max
Difficulty of Choice
B Not in Close Race
B in Close Race(interaction)

Table 4.1 Growth Experiment Voting Results

Treatment	**A**	**C'**	**B**	**C" / C***	N=
1	42.0%		58.0%		81
2	24.7%		54.5%	20.8%	77
3	16.0%	36.0%	48.0%		75
4	33.3%		46.7%	20.0%	75

Table 4.2A Voting Results by Self-Placement, Control

Vote	Strongly opposes growth 1	2	Neither Supports nor Opposes 3	4	Strongly supports growth 5	Total
A	7.7%	11.1%	44.4%	90.9%	88.9%	37.7%
B	92.3%	88.9%	55.6%	9.1%	11.1%	62.3%
Total N=	13	27	9	11	9	69

Table 4.2B Voting Results by Self-Placement, Treatment 2

Vote	Strongly opposes growth 1	2	Neither Supports nor Opposes 3	4	Strongly supports growth 5	Total
A	0	4.8%	21.4%	71.4%	80%	28.6%
B	44.4%	76.2%	78.6%	28.6%	0	55.6%
C"	55.6%	19.0%	0	0	20%	15.9%
Total N=	9	21	14	14	5	63

Table 4.2C Voting Results by Self-Placement, Treatment 3

Vote	Strongly opposes growth 1	2	Neither Supports nor Opposes 3	4	Strongly supports growth 5	Total
A	0	8.7%	0	53.3%	40%	19.4%
B	100%	52.2%	0	6.7%	60%	46.8%
C'	0	39.1%	100%	40%	0	33.9%
Total N=	13	23	6	15	5	62

Table 4.2D Voting Results by Self-Placement, Treatment 4

Vote	Strongly opposes growth 1	2	Neither Supports nor Opposes 3	4	Strongly supports growth 5	Total
A	14.3%	11.7%	36.8%	70%	0	29.0%
B	85.7%	70.6%	26.3%	20%	50%	51.6%
C*	0	17.7%	36.8%	10%	50%	19.4%
Total N=	14	17	19	10	2	62

Table 4.3 Candidate Choice: Republicans and Republican-Leaners Only

Treatment	**A**	**B**	**C**	Total
1	62.5%	37.5%		24
2	32.4	50.0	17.7	34
3	40.0	20.0	40.0%	20
4	48.2	22.2	29.6	27

Table 4.4A Vote Model, Treatment 1

Treatment 1	Vote for B Coeff. (Std. Err)	P>|z|	Odds Ratio
Constant	6.246		
Party Identification	-0.647 (0.36)	0.069	0.52
Political Interest	-0.232 (0.27)	0.395	0.79
Gender	0.383 (1.16)	0.740	1.47
Black	-2.407 (1.43)	0.091	0.09
Income	0.019 (0.47)	0.968	1.02
Political Knowledge	1.429 (0.58)	0.014	4.18
Self-Placement: Growth	-1.270 (0.42)	0.002	0.28
Choice Difficulty	-0.491 (1.66)	0.768	0.61
Expect B to be in a close race	-0.053 (1.29)	0.967	0.95
Distance from Mean Placement of B			
		N=	58

Table 4.4B Vote Model, Treatment 2

Treatment 2	Vote for B			Vote for B		
	Coeff. (Std. Err)	P>|z|	Odds Ratio	Coeff. (Std. Err)	P>|z|	Odds Ratio
Constant	-0.117			-0.883		
Party Identification	-0.379 (0.23)	0.099	0.68	-0.576 (0.28)	0.042	0.56
Political Interest	0.000 (0.20)	0.998	1.00	-0.010 (0.22)	0.963	0.99
Gender	1.803 (0.83)	0.029	6.07	2.363 (0.98)	0.016	10.62
Black	-2.040 (1.53)	0.183	0.13	-3.138 (1.86)	0.092	0.04
Income	0.209 (0.29)	0.470	1.23	0.379 (0.34)	0.262	1.46
Political Knowledge	0.242 (0.35)	0.483	1.27	0.312 (0.37)	0.396	1.37
Self-Placement:Growth	-0.492 (0.34)	0.143	0.61	-0.454 (0.36)	0.205	0.64
Choice Difficulty	2.890 (1.27)	0.023	17.99	4.866 (1.77)	0.006	129.83
Expect B to be in a close race	2.078 (0.91)	0.023	7.99	4.109 (1.51)	0.007	60.90
Interaction: Closeness * Difficulty				-6.845 (3.20)	0.032	0.00
		N=	59			

Table 4.4C Vote Model, Treatment 3

Treatment 3	Vote for B Coeff. (Std. Err)	P>|z|	Odds Ratio	Vote for A Coeff. (Std. Err)	P>|z|	Odds Ratio	Vote for C' Coeff. (Std. Err)	P>|z|	Odds Ratio
Constant	6.017			-21.068			-0.348		
Party Identification	-0.834 (0.47)	0.075	0.43	0.249 (0.41)	0.548	1.28	0.358 (0.28)	0.207	1.36
Political Interest	0.361 (0.35)	0.297	1.43	1.395 (0.75)	0.062	4.04	-0.499 (0.26)	0.053	0.61
Gender	3.013 (1.29)	0.020	20.34	-6.741 (3.45)	0.051	0.00	-0.730 (0.77)	0.345	0.54
Black	1.414 (1.46)	0.334	4.11	-1.850 (1.94)	0.340	0.16	-0.717 (1.20)	0.551	0.52
Income	-0.404 (0.36)	0.267	0.67	1.402 (0.78)	0.073	4.06	0.045 (0.24)	0.848	1.03
Political Knowledge	-2.120 (0.91)	0.020	0.12	-3.228 (1.60)	0.044	0.04	1.172 (0.42)	0.005	2.91
Self- Placement: Growth	-2.050 (0.70)	0.004	0.13	2.590 (1.10)	0.018	13.34	0.311 (0.30)	0.305	1.36
Choice Difficulty	-4.509 (1.94)	0.020	0.01	0.814 (2.11)	0.700	2.26	3.577 (1.44)	0.013	23.50
Expect B to be in a close race	1.557 (1.31)	0.234	4.75	2.420 (1.68)	0.151	11.24	-1.175 (0.86)	0.171	0.91
	N=	55							

Table 4.4D Vote Model, Treatment 4

Treatment 4	Vote for B			Vote for C*			Vote for C*		
	Coeff. (Std. Err)	P>|z|	Odds Ratio	Coeff. (Std. Err)	P>|z|	Odds Ratio	Coeff. (Std. Err)	P>|z|	Odds Ratio
Constant	2.948			-4.298			-9.025		
Party Identification	-0.519 (0.24)	0.032	0.59	0.250 (0.27)	0.352	1.284	0.697 (0.45)	0.119	2.01
Political Interest	0.209 (0.21)	0.321	1.23	-0.013 (0.20)	0.947	0.987	0.298 (0.34)	0.378	1.35
Gender	-0.900 (0.86)	0.296	0.41	1.385 (0.94)	0.141	3.993	2.317 (1.51)	0.126	10.15
Black	0.230 (1.19)	0.847	1.26						
Income	-0.102 (0.27)	0.703	0.90	-0.075 (0.29)	0.797	0.928	0.168 (0.47)	0.723	1.18
Political Knowledge	-0.102 (0.38)	0.984	0.99	0.213 (0.46)	0.643	1.238	0.441 (0.76)	0.559	1.55
Self-Placement: Growth	-0.990 (0.41)	0.015	0.37	0.720 (0.43)	0.097	2.055	1.198 (0.72)	0.094	3.31
Choice Difficulty	0.666 (1.21)	0.583	1.95	-2.109 (1.38)	0.127	0.121	-6.957 (3.52)	0.048	0.00
Expect B to be in a close race	0.856 (0.95)	0.366	2.35	-1.289 (1.18)	0.276	0.276	-5.909 (2.98)	0.047	0.00
Priority: Growth							-5.728 (2.90)	0.048	0.00
Priority: Crime							4.098 (1.97)	0.037	60.23
		N=	57		N=	58		N=	58

Table 4.5 Vote Model, Pooled Treatments 2 and 3

Pooled Treatments 2 & 3	Vote for Moderate Candidate Coeff. (Std. Err)	P>|z|	Odds Ratio	Vote for Moderate Candidate Coeff. (Std. Err)	P>|z|	Odds Ratio
Constant	-0.199			0.023		
Party Identification	0.024 (0.14)	0.865	1.02	0.241 (0.19)	0.193	1.27
Political Interest	-0.218 (0.13)	0.091	0.80	-0.422 (0.17)	0.016	0.66
Gender	0.294 (0.45)	0.512	1.34	-0.622 (0.56)	0.269	0.54
Black	-1.474 (0.72)	0.041	0.23			
Income	0.008 (0.15)	0.956	1.01	0.142 (0.19)	0.452	1.15
Political Knowledge	0.639 (0.22)	0.003	1.89	0.804 (0.29)	0.005	2.23
Self-Placement: Growth	0.051 (0.19)	0.784	1.05			
Choice Difficulty	2.198 (0.76)	0.004	9.01	1.824 (0.94)	0.051	6.19
Expect B to be in a close race	0.346 (0.48)	0.474	1.41	0.229 (0.57)	0.690	1.26
Distance between self & Candidates A & B				0.340 (0.16)	0.038	1.40
		N=	114		N=	82

Table 4.6A Magnitude of the Effect of Choice Difficulty, Treatment 2

Treatment 2	Self-Placement on Growth Scale		
	2	3	4
All Variables Held at Mean Except "Difficulty of Choice" = 0 and "Expectation that B will be in a close race" = 0	Supports efforts to reduce traffic congestion and preserve open spaces even if it means less business and residential growth	Neither supports nor opposes business and residential growth	Supports business and residential growth even if it means more traffic congestion and less open space
Baseline	**0.354**	**0.258**	**0.190**
A little difficult	*+0.215*	*+0.196*	*+0.161*
	0.569	0.454	0.350
Somewhat Difficult	*+0.398*	*+0.403*	*+0.364*
	0.753	0.661	0.554
Very Difficult	*+0.504*	*+0.541*	*+0.528*
	0.858	0.799	0.718
B is in a close race	*+0.418*	*+0.434*	*+0.403*
	0.772	0.692	0.593
Both difficult choice and expect B to be in close race	*+0.613*	*+0.695*	*+0.739*
	0.967	0.953	0.929

Likelihood of subject voting for Candidate B

Probabilities higher than 0.5 are shaded.

When all variables are held at mean, likelihood of voting for B = 0.58

Table 4.6B Magnitude of the Effect of Choice Difficulty, Treatment 3

	Self-Placement on Growth Scale		
Treatment 3	2	3	4
Baseline	**0.749**	**0.333**	**0.106**
A little Difficult	*-0.301*	*-0.216*	*-0.071*
	0.447	0.117	0.035
Very Difficult	*-0.665*	*-0.205*	*-0.114*
	0.084	0.023	0.008

Likelihood of subject voting for Candidate B

Probabilities higher than 0.5 are shaded.

When all variables are held at mean, probability of voting for B = 0.46

Table 4.7 Magnitude of the Effect of Choice Difficulty: First Differences

	Distance between Self-Placement on Growth Scale & Candidates A & B*								
	Likelihood of subject voting for Candidate B								
Pooled Treatments 2 & 3	-4	-3	-2	-1	0	1	2	3	4
Baseline	**0.115**	**0.142**	**0.177**	**0.222**	**0.279**	**0.348**	**0.427**	**0.508**	**0.587**
A little difficult	*+0.064*	*+0.079*	*+0.095*	*+0.113*	*+0.130*	*+0.142*	*+0.146*	*+0.140*	*+0.127*
	0.179	**0.221**	**0.272**	**0.335**	**0.409**	**0.490**	**0.573**	**0.648**	**0.714**
Somewhat Difficult	*+0.160*	*+0.190*	*+0.222*	*+0.252*	*+0.274*	*+0.282*	*+0.273*	*+0.251*	*+0.220*
	0.275	**0.332**	**0.399**	**0.474**	**0.553**	**0.630**	**0.700**	**0.759**	**0.807**
Very Difficult	*+0.279*	*+0.319*	*+0.356*	*+0.384*	*+0.397*	*+0.390*	*+0.364*	*+0.325*	*+0.279*
	0.394	**0.461**	**0.533**	**0.606**	**0.676**	**0.738**	**0.791**	**0.833**	**0.866**

* Variable is: |Self Placement - Placement of Candidate A| - |Self Placement - Placement of Candidate B|.

A high, positive value means that the voter is very close to B and far from A. A negative value means that the voter is closer to A.

Probabilities higher than 0.5 are shaded.

See Table 5 for complete vote model.

All variables held at mean except "Difficulty of Choice" = 0 and "Expectation that B will be in a close race" = 0

Appendix I: Description of Growth Experiment Sample

Table 4.A1 Demographics of Growth Experiment Sample

Gender		Obs.	%
	Men	139	47.3%
	Women	155	52.7%

Race		Obs.	%
	White	199	67.9%
	Black	62	21.2%
	Asian	11	3.8%
	Latino	6	2.0%
	Other	15	5.1%

Income		Obs.	%
	Under $20,000	49	17.7%
	$20,000 to $39,999	56	20.2%
	$40,000 to $59,999	55	19.9%
	$60,000 to $79,999	32	11.6%
	$80,000 or higher	85	30.7%

Education		Obs.	%
	No High School	5	1.8%
	High School	30	10.8%
	Some College	44	15.9%
	2 year College	15	5.4%
	4 year College	81	29.2%
	Advanced Ed.	113	40.8%

Years Living in Area	Obs.	Mean	Minimum	Maximum
	297	15.43	0	69

Political Interest and Level of Information	Obs.	Mean	Minimum	Maximum
How interested… ?	309	3.57	1	5
How informed… ?	309	3.17	1	5
Avg. Inter-item covariance		*0.909*		
Cronbach's Alpha		*0.7082*		
Merged Scale	309	6.74	2	10

Highest Priorities	N=
Growth, population, development	131
Schools, education	118
Public Safety (Crime, gangs)	115
Poverty, welfare	74
Traffic and transportation	71

(More than one answer possible)

Difficulty	Value	Obs.	%
Not very/not at all difficult	0	158	51.10%
A little difficult	0.333	77	24.90%
Somewhat Difficult	0.667	53	17.20%
Very difficult	1	21	6.80%

Political Knowledge	% Correct
Governor	53.07
Mayor	25.89
Congress	30.1
All Three Correct:	13.92
Mean of Scale:	1.090615

Did the Subjects Consider Another Candidate?

	Percentage of Subjects Who Considered Another Candidate		
Treatment	Vote: A	Vote: B	Vote: C
1	88.24	36.17	
2	66.67	75	85.19
3	36.84	92.86	75
4	80	57.14	53.33

Partisanship by Treatment

	Party Identification					
Treatment	Democrat	Lean-Dem	Indep	Lean-GOP	GOP	Total
1	33	8	16	1	16	74
	44.60%	10.80%	21.60%	1.40%	21.60%	
2	40	8	7	2	14	71
	56.30%	11.30%	9.90%	2.80%	19.70%	
3	29	5	9	3	22	68
	42.60%	7.40%	13.20%	4.40%	32.40%	
4	31	8	9	4	18	70
	44.30%	11.40%	12.90%	5.70%	25.70%	
Total	133	29	41	10	70	283
	47.00%	10.20%	14.50%	3.50%	24.70%	

Predicted Outcome of Election (by Treatment)

	Victory Likely							
Treatment	A	B	C	A/B	A/C	B/C	All=	Total
1	27	23	0	13				63
	42.90%	36.50%	0.00%	20.60%				
2	15	11	12	9	8	11	0	66
	22.70%	16.70%	18.20%	13.60%	12.10%	16.70%	0.00%	
3	15	23	2	11	3	9	1	64
	23.40%	35.90%	3.10%	17.20%	4.70%	14.10%	1.60%	
4	19	13	4	11	15	4	0	66
	28.80%	19.70%	6.10%	16.70%	22.70%	6.10%	0.00%	
Total	76	70	18	44	26	24	1	259
	29.30%	27.00%	6.90%	17.00%	10.00%	9.30%	0.40%	

Appendix II: What Makes Choices Difficult?

Most choices involve some form of a trade-off, as the decision-maker must forego some of one attribute of a good to gain more on another attribute of a good. Classical economic analysis simply asks what the exchange rate would be between the attributes. In practice, people often encounter problems performing some exchanges. Exchanges that involve unattractive alternatives or large attribute trade-offs are difficult (Chatterjee and Heath 1996). As a result, scholars began to notice that many people engage in behavior to avoid these problems (Payne, Bettman, and Johnson 1993). Recent work has explicitly identified anticipated negative emotions as a cause of trade-off avoidance (Luce, Payne and Bettman 1999, 2001). One manifestation of this avoidance behavior is an attraction for items that minimize the negative emotion associated with the decision, such as an alternative that appears to be the compromise (Huber, Payne, and Puto 1982; Simonson 1989).

Problematic exchanges include those between options with equal or almost equal utilities and especially when the options' attributes are hard to compare (Beattie and Barlas 2001). So, the choice between a pro-growth candidate and an anti-growth candidate in this experiment was expected to be difficult, but so might be the decision between candidates with similar anti-growth views. Reviews of the recent research into what makes a decision difficult can be found in the articles contained in the edited volume of Weber, Baron and Loomes (2001).

On my questionnaire, I asked the subject to rate how difficult the choice between the candidates was immediately after they made their decision. The question does not probe whether the source of the difficulty is the trade-off between growth and the environment, or the difficulty in choosing between two similar candidates. I then asked why the subject chose that candidate and elicited an open-ended response. The next question asked, "how certain are you that this candidate is the best choice for you?" The Pearson's R between the certainty of the choice and the difficulty of the choice in this sample is 0.40, Cronbach's Alpha is 0.384. Neither number suggests that the two items should be scaled together. I employ difficulty of the choice as an explanatory variable in this chapter, but as the dependent variable in this appendix. Since this experiment did not use a random sample representing the general population, the external validity is suspect. Instead, the results presented here should be read to help understand what drives choice difficulty for this set of choices, in this experiment, for these subjects.

Modeling Choice Difficulty

To explore who and why subjects in my experiment constructed their estimations of a difficult choice, I analyzed three models using choice difficulty as the dependent variable (see Table 4-A1). Model 1 exclusively uses objective socio-demographic characteristics and a variable indicating whether the subject considered voting for another candidate. Model 2 includes these variables and adds two other variables: one that measures the proximity of Candidate A and Candidate B from the voter's ideal point and a dummy for whether the subject thought that Candidate B would win or be competitive. The third model adds two subjective evaluations, whether the subjects

were certain about their choices and whether the subjects reported high levels of political interest and engagement. In all three models, difficulty of the choice increased when candidates considered another candidate. The results also suggest that the difficulty increases closer the subject's ideal was to being equidistant from the candidates, if the subject was uncertain and if the subjects reported high levels of political interest/engagement.

Socio-Demographic Variables

Since those who are not engaged in politics are more likely to find themselves in an unfamiliar position of making a policy trade-of when registering their decision, I include education, political knowledge and income in the model. I expect that those subjects who are well educated or affluent are more likely to be able to assess the candidates and make a decision about which one is closest to their ideal. Female survey respondents tend to underestimate their knowledge and abilities, so I include a dummy for gender. I speculate that, as a result, women may be more likely to overestimate (or be more honest) about how difficult the choice was for them. African-Americans were less likely to vote for the moderate candidate, so I include a dummy for race in the model as an independent variable.

Proximity to the Candidates and Considering other Candidates

If only one candidate is close to their ideal, I expect that subjects would not find the decision to be difficult. If more than one candidate was close to their ideal, I expect that choosing between them would be very hard. I constructed a variable that measures the distance from the respondents' self-placement on the growth scale to their placement of

each of the candidates on the growth scale. The result is a variable that runs from 0 (when the candidates are equidistant to the respondent), to –4 when the subjects are close to one candidate and place the other candidate all the way on the other end of the growth spectrum.[1] I expect that the more equidistant the subject is, the more difficult the choice will be.

About 68% of the subjects in my sample reported that they considered supporting more than one candidate. If only one candidate is close to their ideal, I expect that subjects would not waste time considering other options. However, if more than one candidate is desirable and/or the choice presents a difficult trade-off, I expect that the subjects will have a difficult time making their decisions. To measure whether the subject considered another candidate, I construct a dichotomous dummy variable from a question on the survey that asked, "What other candidate(s) would you consider supporting if the election was held today?" If the respondent answered one or both of the other candidates, I coded this variable one.

Momentum Effects

Simonson's (1989) original formulation of the attraction and compromise effects hypothesized that the choice of the similar or compromise item was easier to justify. Decision-makers look for reasons to justify the choice, a practice that explains the appeal of dominating alternatives (Huber, Payne and Puto 1982). I include a variable

[1] The variable takes the absolute value of the distance from the self-placement to the placement of the candidate minus the absolute value of the distance from the self-placement to the placement of the other candidate. I fold the scale so that the scale ascends towards subjects who are equidistant to both candidates. Low (negative) numbers are for subjects who are close to one candidate but far from the other. Unfortunately, not all respondents placed the candidates and themselves on the scale, so I lose about 100 cases in my analysis when I include this variable (see Table A1).

that indicates whether Candidate B is expected to win or be competitive with another candidate on the expectation that this may provide a reason for the choice of B, lowering the choice difficulty. If this expectation is backed up by my data, this could help explain "momentum effects" where candidates who are expected to win attract voters (see Niemi and Bartels 1984). This behavior challenges the rational calculus of voting because voters should be averse to wasting their votes on candidates certain to win as much as they are averse to wasting their votes on candidates certain to lose. If these expectations are significant, but negative, then perhaps the reason why frontrunners attract votes is because their status provides a reason justifying voter support.

Subjective Self-Assessments

I re-ran the model a second time with two additional independent variables. Rather than being objective indicators, both of these items are derived from subjective assessments of the subject. One is an additive scale that combines the respondents' self-evaluation of their level of political interest and how informed they are about politics. The scale adds the results of two items (see footnote 5): "How interested would you say you are in local political issues?" "How informed are you about local political issues?" I also include the answer from the question of: "How certain are you that this candidate is the best choice for you?"

Table 4-A1 presents the results of an ordered logit using the four-point choice difficulty scale as the dependent variable. Ordered logit is the correct functional form for this analysis since the scale is ascending but short. Ordered logit estimates a step function

for each level of the scale, generating a "cut-point" in between each level of the scale similar to a regression intercept.

By comparing the distance between the cut-points to the size of the coefficients we can estimate the impact of each of the variables on the likelihood that the respondent will find the decision to be difficult. If the size of the coefficient is larger than the distance between the cut-points, a change in the value of that variable is estimated to be sufficient to change the expected value of the dependent variable. In this case, if the subjects considered another candidate, they are more likely to find the decision to be difficult. In the first model, this variable had the largest effect. However, holding all other variables constant, considering another candidate is enough to move the subject no more than one level up the difficulty scale because the distance between the cut-points is 1.2 and 1.5. These distances are larger than the coefficient for considering another candidate of 0.86. Expecting Candidate B to be the winner or competitive, as expected, lowered the level of difficulty. African-Americans are predicted to find the decision to be more difficult; women and wealthier subjects are predicted to find the decision less difficult.

Adding the proximity measure increased the total amount of variance explained by the model; the pseudo R^2 for model 2 is 0.075. Considering another candidate again had the largest effect on how difficult the choice was rated. In this model, the coefficient for considering another candidate is 1.49. This is larger than the distance between the cut-points separating the four levels of the choice difficulty scale. Each level is about 1.3

points apart. Keeping all other variables constant, considering another candidate is enough to make a decision that was not difficult, somewhat difficult, or one that was a little difficult, very difficult. The proximity measure has nearly the same size of an effect is one considers the entire scale of the variable. Difficulty rises by 0.367 for each point the candidates are closer to being equidistant from the subject's ideal point. Since the growth scale is five points, this is a four-point scale. So, the effect of moving from a situation where only one of the candidates is close to the subjects' ideal to a situation where the candidates are equidistant has the potential to increase the choice difficulty by two levels. Expecting Candidate B to win or be competitive is signed in the correct direction, but is not statistically significant. Several of the demographic variables are also insignificant when the proximity measure is added.[2]

When I add the subjective self-assessment variables to the model without candidate proximity (Model 3A), the cut-points between the four levels of the difficulty scale are 1.3 and 1.6 apart. The coefficient for considering another candidate is 0.79, only enough to move the subject no more than one point on the difficulty scale (and maybe not even that). The only variables with a larger substantive effect is the uncertainty variable.[3] Uncertainty has a coefficient of 0.9, but is a five-point scale. So, moving two steps, from not at all certain or a little certain is estimated to be enough to change the

[2] While the correlation matrix does not suggest that any one of the variables is closely correlated with the proximity measure, it appears that a combination of these socio-demographic variables is correlated with the proximity measure (especially when the model drops subjects due to missing observations on the proximity measure).

[3] Political engagement has a coefficient of 0.143. This is (theoretically) a ten-point scale. Moving from the minimum level of engagement/interest to the highest level of engagement/interest is enough to move the respondent from the lowest level of difficulty to somewhat difficult. However, since the scale only runs between two and ten, going from the minimum to the maximum is insufficient to affect the level of difficulty by more than one point.

difficulty of the choice by two levels, from not at all difficult to somewhat difficult. Expectations that Candidate B will win or be in a close race reduced the level of difficulty. Contrary to my expectations, high level of political engagement actually increase choice difficulty when controlling for these other variables.

When I include the proximity measure (Model 3B), political engagement/interest, uncertainty and considering another candidate continue to have a large, significant effect on the level of choice difficulty. About 1.6 and 1.5 points separate the cut-points. As a result, both an increase in choice uncertainty and considering another candidate are sufficient to change the difficulty of the choice by two levels. The closer the candidates are to being equidistant from the subject also increased the level of choice difficulty, but the variable is narrowly insignificant ($p > |z| = 0.110$). Expectations that Candidate B will win or be competitive reduced the level of difficulty, but the effect was not statistically significant.

Conclusion

Further research will be necessary to make any strong statements as to what causes electoral choices to be difficult in the general population. The data from this experiment provide evidence that considering another candidate made the choice more difficult for the subjects in my sample. This is consistent with my expectations. Although the evidence was not as strong, the closer the candidates were to being equidistant from the subjects' ideal also increased difficulty. While the evidence for momentum effects lowering choice difficulty is not strong, these results suggest some interesting hypotheses for future research. Contrary to my expectations, high levels of political

engagement are predicted to increase choice difficulty when controlling for socio-demographic variables like income and education. This unexpected result is also worthy of future investigation.

Table 4.A2 What increases choice difficulty?

Ordered Logit	Model 1 Coeff. (Std. Err)	Model 2 Coeff. (Std. Err)	Model 3A Coeff. (Std. Err)	Model 3B Coeff. (Std. Err)
African-American	0.893** (0.32)	0.477 (0.50)	0.602* (0.34)	0.502 (0.53)
Women	-0.704** (0.25)	-0.063 (0.32)	-0.550** (0.26)	0.174 (0.35)
Income	-0.180* (0.09)	-0.197* (0.12)	-0.198** (0.10)	-0.272** (0.14)
Education	0.070 (0.09)	0.064 (0.12)	-0.033 (0.09)	-0.075 (0.13)
Consider another candidate	0.904** (0.28)	1.489** (0.42)	0.789** (0.30)	1.686** (0.48)
Political Knowledge	0.037 (0.12)	0.188 (0.16)	0.069 (0.13)	0.180 (0.17)
B is expected to win or be in a close race	-0.429* (0.24)	-0.290 (0.32)	-0.444* (0.25)	-0.226 (0.35)
Proximity to the candidates		0.367** (0.15)		0.267 (0.17)
Political Engagement			0.145** (0.07)	0.228** (0.10)
Choice Uncertainty			0.904** (0.14)	1.272** (0.20)
Cut-points 1	0.144	0.487	2.401	4.192
2	1.362	1.772	3.799	5.823
3	2.856	3.075	5.419	7.354
N=	267	177	266	176

** = P < 0.05, * = P < 0.10

Chapter 5: Menu Dependent Policy Preferences

Introduction: Choice Difficulty, Information Effects and Policy Questions

In Chapter 3, I demonstrated that the presence of a third candidate gives additional information to the voter that affects how he or she perceives the other candidates. In Chapter 4, I showed how respondents who found the choice to be difficult became more likely to vote for the moderate candidate. In this chapter, I further explore both information effects and choice difficulty by examining menu-dependent behavior over policy questions in two experiments implemented in the spring of 2003. I use data from these experiments to a) gain a better understanding of what causes political decisions to be difficult and for whom, and b) test what happens to the choice process when a change in the choice set gives the respondent more information about her options.

Scholars of consumer behavior found that people who find that a decision, or the process of making a decision, is difficult, will take steps to reduce the amount of difficulty associated with the choice. These decision-makers become more likely to choose options that make the decision easier to justify (Simonson 1989) or reduce the level of anxiety associated with the choice (Pettibone and Wedell 2000). These options include alternatives that dominate another alternative in the choice (asymmetric dominance), that appear as compromises and minimize difficult trade-offs (compromise effect), or those options whose attributes attract decision makers to

similar alternatives (attraction effect). As a result, the decision is not invariant when the choice set or the framing of the choice problem changes.

Rational choice models of political opinion emphasize choice invariance despite variations in the size of the choice set or the framing of the choice problem. When enlarging the choice set, the new alternatives should either attract decision-makers proportionately from each of the original options (Luce 1959), or substitute for a similar option (McFadden 1974). Affective responses to the choice problem do not play a role in the decision-making process. As long as the citizens' underlying beliefs do not change, they should consistently choose the same alternative on opinion surveys. When responses are observed to be inconsistent, it is a problem of the survey mechanism and there exists a body of literature that considers the sources of random variation in survey responses.

I posed five policy questions to subjects in each experiment. I varied the number of answers that each respondent could choose from for each question. After each question, I asked the respondent to indicate how difficult they found the choice. By comparing the average level of difficulty when there are fewer alternatives to the average level of difficulty when there are more options, I can test whether expanding the choice set makes the choice more difficult. This is important because in Chapter 4, I demonstrated how choice difficulty shapes choice over candidates in multi-candidate elections. When enlarging the choice set, some of the options I included were intended to trigger a compromise effect, asymmetric dominance. These options, because they

facilitate the decision-making process, should make the decision less difficult compared to decisions made when the set is missing these alternatives.

On some questions, I enlarged the choice set by dividing a broad or vague policy option into two or more specific policy proposals. For example, some respondents could choose, "Lengthen jail time to keep criminals off the street." Other respondents chose between longer mandatory jail sentences and making repeat offenders ineligible for parole. According to McFadden (1974) and Luce (1959), the substitution of the specific proposals should not cause these proposals to be more likely to be selected than the broad category. However, I expect that the new information provided by the specific proposals will enable the proposals to jointly attract more supporters than the broad category. I can test whether the specific proposals are jointly more attractive than the broad category by comparing the number of respondents to the specific proposals to the broad category. The effect of the specific proposals on choice difficulty can also be observed between subjects. Since choice difficulty should not decrease, the menu-dependent behavior will be attributed to the new information provided by the specific proposals rather than the broad category. I call this phenomenon the "sub-category" effect.

Unlike electoral choices, which are collective decisions over collective goods, these policy choices in the electorate are private even though they are over collective goods. Indirectly, opinion over policies should be linked to candidate choice. These same

choices must be made by voters evaluating the competing stances of candidates if each policy proposal is made by a different candidate.

If these policy alternatives echo the policy stances of candidates, testing the effect of providing specific policy proposals will help scholars understand multi-candidate dynamics because an important strategic decision for candidates is how specific, vague or ambiguous they should be when communicating their positions. Equivocation, ambiguity and vagueness are all strategies that, on occasion, can prove to be valuable because the candidate can appear to be different things to different people. On the other hand, such a strategy can backfire, as the candidate may appear untrustworthy or pandering. Being specific about a policy could, as might have been the case in the school experiment, give people the impression that the candidate is knowledgeable or innovative.

Research Design

Description of Experiment

By using policy opinion questions, expectations of what other people want or desire are not relevant. I can focus on choice difficulty and the information effect without worrying that any tendency to select an option is driven by strategic considerations. Other than being private choices, these experiments matched the choice task that the candidate experiments asked subjects to complete: each respondent was given a set of answers and asked to choose only one, and then evaluate how difficult it was to answer the question. So, while these experiments do not test electoral behavior

directly, they should shed light on the causal role of choice difficulty and additional information, and the prevalence of menu-dependent behavior across political domains.

I explained that the purpose of the study was to learn how difficult it was to make certain policy decisions at the start of the questionnaire. Each respondent was asked five policy questions on a pen-and-paper questionnaire. For each policy question, I randomly changed the set of possible answers to that question. After each question, the respondents were asked, "How difficult was it for you to choose an answer?" They were presented with a four-item scale ranging from "very difficult" to "not very difficult" (see Appendix). The variable was coded so that high values reflected a higher level of choice difficulty.

Before the battery of policy questions, I asked the subjects to describe their level of interest in politics and how informed they are about political issues using five-point scales. I then asked the respondent to describe how closely they follow news about the state government's budget and proposed tax increases on a four-point scale, and their familiarity with foreign and domestic policy issues using two five-point scales. Following the policy questions, I collected information about the respondents' demographics, their party identification, their level of political knowledge and interest in politics (see appendix for questionnaire sample).

There were two separate sets of questions. One focused on North Carolina political issues, such as a proposed tax increase and the establishment of a state lottery. The second questionnaire contained questions on a range of national or common [generic]

state policies. Each respondent answered five policy questions, but there were actually six different questions in each set of questions. In North Carolina, for the last of the five policy questions, half the sample saw one version of a question about cigarette taxes and the other half saw a different version about the same issue. On the national questionnaire, the second question either asked about ways to control the cost of employing public servants or a question about providing health care for small business employees.

The questionnaires were designed to look the same, with the same number of questions, and the same page designs. Only one question on the last page of the survey differed. Because the North Carolina survey asked about possible cigarette taxes, in North Carolina I asked the respondent how often they smoked. On the national survey, I asked the respondent whether they worked for a large business, a small business or the government to control for self-interested answers on the health care question and the question on providing health care for small businesses.

Subject Population

Subjects in North Carolina were primarily recruited on six visits to the jury pool room and to traffic court in the Durham County Courthouse. I also invited subjects to participate at the Streets of Southpoint Mall, the largest mall in the "Triangle" area of the North Carolina (Durham, Chapel Hill and Raleigh) on a weekday afternoon, and through personal contacts. Most of the subjects were personally invited to participate by the principal investigator or assistants under his direct supervision. National

subjects were recruited on Duke's campus during alumni weekend, in the stands prior to Duke University's college baseball games, in the waiting areas of the Raleigh-Durham, Chicago Midway, and Cleveland Hopkins airports, in Center City, Philadelphia, and in and around a train station in Chicago, Illinois. Some national surveys were completed by in-state subjects while the state subject recruitment was taking place. Some of the national subjects were invited to participate by friends and family of the principal investigator.

The national sample was, on average, better educated and more knowledgeable about politics (measured by seeing if they could identify their governor, a Senator and the Chief Justice of the U.S. Supreme Court). 10% of the national sample was black, 20% of the state sample was black (see Appendix IV). A plurality in both samples was Democratic. There were more Democrats in the state sample. Durham County is not much like the rest of the United States. The county is 40% black, the city of Durham is 45% black. Since many respondents were recruited from the county's jury pool, it is not surprising that the state sample has more minority subjects and more Democrats.

Hypotheses: Choice Difficulty

Hypothesis I: *Increasing the number of options will make the respondents, feel, on average, that the choice task was more difficult, unless:*

Hypothesis II*: The choice set includes an alternative that is seen as clearly inferior to another alternative (Asymmetric Dominance).*

Hypothesis III: *The choice set includes an alternative that is seen as a moderate or compromise option, allowing the decision-maker to make less of a trade-off when selecting the answer (Compromise Effect).*

I expect that subjects who are choosing between several answers will have a more difficult time answering the question. If they do not immediately know what their opinion is, the need to consider more options should make the task harder. Identifying the best option when the ideal is not available or unclear, or choosing between the lesser of some evils is expected to be more challenging when there are many options. These scenarios should be more likely than situations where the decision-makers can readily identify answers they like. I test Hypothesis I by comparing the average level of difficulty reported by respondents who answered from a larger set of alternatives to respondents who answered from a smaller set of alternatives.

Asymmetric dominance occurs when a target alternative (and only the target) is seen as clearly superior to another option (the decoy). The target is more likely to be selected because its dominance over the decoy supplies a reason for the target's selection (Simonson 1989; Huber, Payne, and Puto 1982), making the decision easier. The decoy should not be a very popular choice. The compromise effect similarly facilitates the decision by providing an option that does not require as much of a trade-off between desirable attributes as the other alternatives. The same between subjects test of Hypothesis I should not reveal any increase in the average level of choice difficulty.

Results: Tests of Hypothesis I

Health Care Insurance for Small Business

Test: Compares four-option to five-option set, including "none of above."

Expectation: Increase difficulty and more "none of above answer." *Result:* Significant

A question on health care options for small businesses included two treatment conditions. I did not expect many respondents to be familiar with insurance options for small businesses since even small business owners and employees may not closely follow discussions about potential changes in the law. Consequently, I expected the level of difficulty to be high. The control condition includes four options, including "none of the above." In the control, one of the options was to allow business to form pools to purchase insurance. The single treatment adds an option similar to one in the original set of answers, allowing businesses to purchase insurance through trade associations (see Appendix). The additional option provides a test of whether the five-option choice was more difficult than the four-option choice. This can be measured in two ways, by comparing the level of difficulty gauged by the respondents and by the frequency of the respondents choosing "none of the above." Since there was an additional option provided in the treatment, "none of the above" should be less popular in the treatment than the control, except that if the choice was difficult, people might look to avoid making a decision and choose, "none of the above."

Only half of the national sample answered this question, so there were 126 subjects who saw the control set and 128 who answered from the treatment set. The order of

the answers did not vary. The target appears third in the control and the treatment. The additional option, allowing businesses to buy through trade associations, appears fourth in the treatment, between the target and "none of the above."

The five-choice set treatment, was, on average, found to be more difficult than the four-choice control. In the four choice control set, the average level of difficulty was 1.72 on the four-point scale. Those who made a choice from the treatment set, on average, found the difficulty to be 1.94. The two-tailed test of the difference of means confirmed that the average level of difficulty in the treatment was significantly more difficult at $P < 0.05$ ($T = 2.22$, $P < T = 0.027$). More respondents, 9.4%, chose "none of the above" in the treatment, than in the control (6.35%), further indicating that the additional option made the choice more difficult.

Crime Solutions

Test: Three-option control, three four-option treatments.

Expectations: Increase from control to treatment. *Result:* One out of three significant.

The control choice set for a question about what would be the best solution to the crime problem included three possible answers, community programs to prevent crime, more police and longer jail terms. Each of the three treatment conditions replaced one of these broad categories with two specific policy initiatives. For example, the more police option was replaced by "hire more police officers," and "hire more federal officers, such as FBI agents." The average level of difficulty in the

control treatment was 1.46. When there were two prevention programs to choose from, the average level of difficulty rose to 1.86. The average level of difficulty in answering the other two treatments was 1.65 and 1.68. The one-way analysis of the variance of the mean levels of difficulty was significant (F = 4.42, P = 0.004). The Scheffe multiple comparison test indicated that only the difference between the control and the two prevention program treatment was significant (P=0.005). There were no significant differences in the difficulty of answering the question between the different treatments.

Aid to Israel

Test: Three-option control, four- and five- option treatments.

Expectation: Increase difficulty. *Result:* Four-option set significantly more difficult.

Should the US give more aid to Israel to defray security costs born by Israel as a result of the War in Iraq? Israel asked the U.S. government for $4 billion in extra aid on top of the $3 billion in aid already given to Israel annually. The question wording described the request and the justification, the present amount of aid, and reported that some critics think that the government should stop aiding Israel until Israel withdraws from the occupied territories. In all treatments, respondents could choose to reduce the aid to Israel, maintain the status quo, or increase the amount of aid given to Israel. The control included only these three options. The treatment conditions varied the options of increasing aid to Israel. One treatment had four options; increasing the amount of aid given to Israel was divided into two options, one to give aid less than $4 billion,

and one to increase the aid by the full amount. The third condition had five questions: increase aid to Israel by $1 billion or less, by $1-3 billion, or by the full amount. These options are simply more specific proposals; they are not compromise decoys or targets. None of the existing alternatives asymmetrically dominate another alternative in the set. Consequently, I expect that the level of difficulty will increase in the treatments as compared to the controls.

In the control condition, the average level of choice difficulty was 1.6. In the four-choice set and the five-choice set, the average level of choice difficulty exceeded 1.7. The two-tailed test of the difference of means confirmed that the average level of difficulty in the treatments (pooled together) was significantly more difficult than the control at $P < 0.1$ ($T = -1.7$, $P < T = 0.089$, assuming unequal variance). The difficulty of the decision did not rise additively with the number of alternatives in the choice set. The five-option choice set was marginally *less* difficult to answer than the four-option choice set (1.72 to 1.75).

Cigarette Tax Bill

Test: Four-option control, five-option treatment.

Expectations: Difficulty increase. *Result:* No increase.

On the state survey, half the sample saw a question about a proposed increase in the cigarette tax. The question explained that the current tax was a nickel and the state legislature was considering two new taxes, one for 35 more cents, the other for 70

more cents. The subjects could choose either bill, neither bill or either bill in the control condition. In the treatment, instead of choosing "neither one," the subjects could choose, "neither one: the state should increase the cigarette tax by more than 70 cents," and "neither one: the state should not increase the cigarette tax by as much as 35 cents." The average choice difficulty in the control was 1.45. In the treatment, instead of increasing the difficulty of the choice, as I expected, the average choice difficulty was almost exactly the same, 1.44.

Results: Test of Hypothesis II

Drought

Test: Asymmetric dominance. Two-option controls, three-option treatments.

Expectations: Difficulty should decrease in one treatment, increase in others.

Result: Significant decrease, one out of two significant increases.

Hypothesis I hypothesized that the greater the number of options, the more difficult the choice. Hypothesis II, though, qualifies the hypothesis and says choice difficulty should not increase if the additional option is inferior to one of the other alternatives in the choice set. In the consumer studies, this inferior product was identified a priori because it was similar to the targeted product, but its attributes, such as length of warranty, price, or number of features were not as desirable as the target. As a result, it was never chosen by many subjects, but it increased the frequency that the target was chosen

A question about how to best deal with a drought and a water shortage tested both Hypothesis II and Hypothesis I. There were two control conditions with two options in the choice set. In one, the respondents chose from taxing water consumption of vaguely described restrictions on when or where people could water. In the second, respondents could choose taxing water consumption or a specific restriction on people watering their lawns more than three times a week (see Appendix). The first control, when compared with the first treatment that adds an option that the government should encourage people to buy water saving devices, tests Hypothesis I since the size of the choice set increases. The second treatment adds an option to restrict people from watering their lawns in the middle of the day to the options in the second control. A third treatment includes a more onerous restriction, restricting watering lawns to once a week. All treatments increase the set of alternatives, but the third one tests asymmetric dominance because the restriction is similar, but more onerous. The first two treatments should results in an increase in the level of difficulty, relative to the control(s), but the one with the onerous restriction should not result in an increase.

Subjects who saw the first control condition reported an average level of difficulty of 1.58 on the national survey and 1.5 on the state survey. On both surveys, the average level of difficulty increased when the additional item of encouraging people to purchase water saving devices, but by only 0.06 on each survey. Neither change was large enough to be statistically significant.

National subjects who chose between restricting people from watering more than three times a week and increasing taxes on water consumption, reported, on average, a level of choice difficulty of 1.51 on the four-point scale. North Carolina subjects found the choice to be more difficult, 1.68. As expected, adding an option to restrict people from watering their lawns in the middle of the day increased choice difficulty to 1.78 and 1.73 in the national sample and the state sample, respectively. The two-tailed test of the difference of means in the national sample confirmed the change in difficulty was a significant increase at $P < 0.05$ ($T = -2.18$, $P < T = 0.03$, assuming unequal variance). The test of the difference of means in the state sample was not significant ($T = -0.32$).

Consistent with Hypothesis II, national subjects who were assigned the choice set with three options, including the dominated option, did not report a significantly higher level of average choice difficulty, 1.58. State subjects who saw the same option actually reported an average level of difficulty in answering the question (1.66) slightly lower than the average level of difficulty in answering the two-choice control set. As expected, the inclusion of a dominated option makes the choice easier, even though the harsh restrictions were a surprisingly popular choice (35.6% of the national sample, 30.5% of the state sample).

The decoy's failure to be truly irrelevant indicates that, rather than a failure of asymmetric dominance, this question item failed to be a good test. The popularity of the dominated choice suggests that rather than simply being seen as an inferior option

quickly dismissed as a possible choice, people actually considered the onerous restriction as their choice of policy responses. When the target (watering no more than three times a week) was one of two options, the average difficulty for people who chose that option was 1.45. On the national survey, respondents who chose the target chose the target with, on average, a higher level of difficulty (1.7). When the target appeared with the restriction on watering the laws in the middle of the day, the average choice difficult was even higher 1.93. On the state survey, the average choice difficulty was 1.63, the same in the two-option control, and slightly lower than the average difficulty alongside the restriction on watering the lawns (1.71). So, while the decision with the onerous restriction may not have been as hard as the decision with the non-dominated restriction, enough people considered it that it made the three-option decision of the target, on average, at least as hard as when there were only two options. Clearly, the onerous restriction did not behave as the theory predicts, but that might have been a result of its popularity and the consideration people gave it as a possible option.

The drought question appeared on both the North Carolina study and the national survey. On the national survey, it was the fifth question. 503 subjects answered the question on the national survey. On the North Carolina survey, the drought item appeared third. 360 subjects answered the question on the state survey.

Results: Tests of Hypothesis III

State Employees

Test: Four-option set, five option treatment.

Expectations: Decrease choice difficulty. *Result:* Insignificant decrease.

Similar to Hypothesis II, Hypothesis III argues that if an alternative is viewed as a compromise and enables the respondent to choose an alternative without a difficult trade-off, the average choice difficulty should not increase. The half of the national sample that did not answer the question about business health saw another difficult policy question about cutting costs through reducing the size of the public sector or lowering the wages of the public employees. With an average and median level of difficulty of two (on the four point ascending scale of difficulty), this was the most difficult question to answer on the survey. The question asked respondents what would be the best way to cut public costs, but also provided an option for the respondent to choose to make no change in the number of state employees or how much the state pays them. The control condition contained four alternatives in the choice set. The treatment adds one more alternative, a compromise between freezing the wages of the state employees and paying them less, the option of giving the employees a smaller cost-of-living increase. This option was the third of the five options and was chosen by a 35.4% of the subjects, a plurality of the subjects in the treatment.

Consistent with the Hypothesis III, the average difficulty of answering the question went *down* slightly in the treatment, from 2.05 in the control condition to 1.93. The

two-tailed difference of means test indicated that the change was in the average level of difficulty was not statistically significant (T = 1.03, P > T = 0.3). According to Hypothesis I, there should have been an increase, so even though the difference is insignificant the results support Hypothesis III. The average level of difficulty reported by respondents who chose this compromise was 2.15, which was a higher level of difficulty than any other option in the choice set with more than two respondents choosing it.[1] In comparison, the average level of difficulty reported by respondents who chose the status quo or the option to lay-off state employees was 1.74.

Sales Tax Reduction

Test: Two three-option conditions, four-option treatment with compromise.

Expectation: Decrease difficulty. *Result:* Significant *increase*.

In 2002, the North Carolina General Assembly voted to reduce the state sales tax by a half-cent, with the deduction taking effect on July 1, 2003. However, a shortfall in budget revenue led Governor Mike Easley to propose delaying the deduction for another two years. On the state survey, I asked respondents what they thought the government should do, reduce the sales tax now, delay it, or increase the sales tax. In one condition, I kept the choice set the same size, but replaced reducing the sales tax with the more specific, "reduce the state sales tax by a half-cent now." In the other condition, I added the option of decreasing the sales tax by more than a half cent.

[1] The option to keep the same number of employees, but pay them less was chosen by only two respondents, one of whom rated the choice difficulty a 2, the other a 3.

Compared to the control, this treatment tests the subcategory effect. Compared to the more specific sales tax reduction set, this additional option recasts the half-cent reduction into a compromise or moderate position rather than the extreme. This would be a very difficult test of the compromise effect since while the half-cent reduction appears less extreme, the status quo may be the option associated with the lowest level of evaluative anxiety. This compromise could also not benefit from appearing in the middle of an odd-numbered set. Faced with a difficult decision, keeping the sales tax "as is," may be a less difficult decision than a moderate decrease.

Respondents who chose an answer from the three-choice sets had virtually the same average level of difficulty, 1.56 and 1.57. Adding a fourth option increased the choice difficulty to 1.79. The difference in means was statistically significant at $P > 0.05$ ($F = 3.05$, $P > F = 0.049$). The comparison between the larger choice set and the three broad categories was consistent with Hypothesis I; the larger choice set increased choice difficulty. However, if the state sales tax was seen as the compromise position, the results are not consistent with Hypothesis III, since choice difficulty should have decreased. Instead, respondents who chose a half-cent decrease found the question, on average, more difficult than the other respondents, with an average choice difficulty of 2.08.

Hybrid Car Deduction

Test: Three-option control, five option "full" set, four option treatments.

Expectation: Significant decrease in full set, increase difficulty relative to full in treatments.

Result: Insignificant change.

A second test of the effect on choice difficulty of having a compromise candidate in the choice set was a question about subsidies for hybrid cars. The question explains that people who purchase hybrid cars, such as the Toyota Prius™ and others, currently qualify for a federal tax deduction of $2000. This deduction is currently being phased out, so by 2007, there will no longer be a deduction. The question mentions that some people want the deduction to be permanent, while others want to eliminate it completely to reduce the federal budget deficit. The control contained three options, eliminating the deduction immediately, reducing the deduction by $500 a year, and making the $2,000 deduction permanent. Here, the status quo is the compromise option, so I expect the average level of difficulty for the control condition to be very low.

In the treatments, I add intermediate categories, options to phase out the deduction more slowly or to phase it out more quickly (but not eliminate it all at once). One of the treatments contains the three original alternatives and the two additional options. This increases the size of the choice set without influencing what appears to be the compromise option. The same option is now the middle of a set of five options, not three. The other two conditions contain four alternatives, so the status quo no longer appears as the center or compromise option. Instead, the status quo and the extra

option occupy the policy space between the extremes. As a result, I expect that the level of difficulty would be high relative to the control and the full five-item choice set. The question was answered fourth out of the five questions on both the national survey and the state survey. 362 subjects answered the question on the state survey, 517 subjects answered the question on the national survey.

The average level of difficulty reported by national respondents in the control condition was 1.6. When all five options were presented, the average level of difficulty increased to 1.78. On the state sample, the average level of difficulty in the control was 1.75. The average level of difficulty in answering the full set of alternatives rose to 1.84. This was inconsistent with my expectations from Hypothesis II. Neither change was significant using a two-tailed difference of means test (national: $T = -1.5727$, $P > |t| = 0.12$, but $P < t = 0.059$); state: $T = -0.64$, $P > |t| = 0.53$).

The one average differences in difficulty between the four conditions were not statistically significant.[2] In contrast to the results in the sales tax reduction question, the presence of a separate compromise and status quo options in the choice set, the subjects in one treatment on each of the surveys actually found the decision to be slightly *easier* than the control condition, 1.7 compared to 1.75 on the state survey and 1.58 compared to 1.59 on the national survey. The other treatment in the state survey,

[2] The one way analysis of variance for the national sample results were: $F = 1.48$, $P = 0.22$. The same test of the state sample was significant, but the test failed Bartlett's test of invariance. The Kruskal-Wallis equality of populations test was not significant ($P = 0.39$, with ties).

consistent with the tax reduction question, was more difficult to answer (1.89). On the national survey, respondents reported an average difficulty on one treatment in between the control and the full set (1.71). Confusingly, these findings did not come from the same treatment.

Cigarette Tax Increase

Test: Five conditions, presenting four- to eight- cigarette tax options.

Expectations: Observe less difficulty when number of option sin choice set shrinks. Largest decrease when compromise present in odd-numbered sets.

Results: Consistent with expectations, but insignificant.

While half the sample saw a question that explicitly identified two bills proposed in the state legislature to increase the cigarette tax, half the sample was asked their opinion about an increase in the cigarette tax without that frame. All these respondents were told was that the current tax was a nickel, the average across the nation is 45 cents, but some states' taxes are as high as $1.50. Subjects were given a list of possible answering, ranging from no increase to more than 70 cents increase. The conditions varied by the number of alternatives presented to the subject. The full set included eight options: no increase, 5¢, 10¢, 25¢, 35¢, 50¢, 70¢, and more than 70¢. The seven option set dropped the nickel option, so that 35¢ was now the middle option. The six option set included the nickel increase, but dropped the quarter and the 50¢ options. The five option set excluded the nickel, the quarter and the 50¢ options, so 35¢, was

again the middle option. The four option set only included the "no increase," 10¢, 35¢ and "more than 35¢ options." Based on Hypothesis III, I expect that the odd-numbered choice sets, with a clear compromise option, should be less difficult than the even-numbered choice sets without a clear compromise. However, the six option set, by including the nickel increase, but dropped the quarter and the 50¢ options created "space" around 35¢, with the nearest two options being 35¢ more, or 25¢ less, so even though it was not truly the middle option, it might appear as such. More than the other experimental conditions, this set looked like a pair of large increases, two small increases (and "no increase"), and the moderate increase. I designed this set to see if this made the choice easier compared to the other treatments.

As expected, the full set of eight alternatives was the hardest for the respondents to answer, 1.47 on the four-point scale. The seven-option set was easier, 1.33. The six-option set (with the likely compromise option) was slightly easier, 1.30. The five-option choice set was the easiest to answer, with an average of 1.23. The four-option set, which did not have a compromise option, was slightly more difficult than the seven-choice option, 1.34. While the differences were all consistent with the hypotheses, the Kruskal-Wallis test of the equality of population medians was not significant (X^2 with ties = 2.8, P = 0.59).[3]

[3] The one-way analysis of variance of the average level of difficulty also did not find significant differences, but the analysis failed Bartlett's test of equal variances so the results are not reliable. The difference of means test between the full set and the five-choice set treatment was statistically significant at P <0.05
(assuming unequal variances).

Discussion: Choice Difficulty

Evidence was collected in favor of all three hypotheses. Questions on health care insurance for small businesses (on the national survey) and sales tax reductions (on the state survey) demonstrated that as the number of options increased, so did the average level of difficulty (see summary of results in Table 5.3). One treatment of crime solutions also supported Hypothesis I. The only question that did not provide any support for Hypothesis I was the cigarette tax bill. As the answers to the question on aid to Israel showed, this increase was not always linear since the level of difficulty did not continue to increase along with the number of options.

Hypotheses II and III predicted that when the respondent could choose a dominated or compromise option, the level of difficulty would decrease. As predicted, when a dominated or compromise option was available in answers to the drought, cigarette tax and state employees questions, the tendency for the choice difficulty to increase along with the size of the choice set was not observed. However, in an answer to the sales tax reduction question, difficulty increased and the answers to the hybrid car tax deduction did not conform to expectations on either survey.

Overall, these questions did not strike most people as particularly difficult to answer. On the state survey, only the question about hybrid cars induced more than 1 in 5 respondents to say the question was “somewhat difficult” or “very difficult.” On the national survey, more than 25% thought the state employee and business health questions were somewhat difficult or worse. Questions about Israel and crime each

induced about 1 in 4 to complain that the question was at least "somewhat difficult" to answer. If these questions are designed to be more difficult than most policy matters, than it appears that it is not common for people to consider policy questions of this sort to be difficult.

Since this is not a random or representative sample of the broad population, we cannot broadly generalize these results to the whole country. However, we can break down the results using the attitudinal and demographic questions to see what is associated with high levels of choice difficulty.

I asked respondents who answered "very difficult" or "somewhat difficult" to tell me why from a list of five options and a place to write in their own reason (see Table 5.1). On the state survey, 20.9% said they "had a hard time choosing between two or more answers." The other responses were nearly evenly divided between not liking any of the possible answers, not having enough information, or not being very knowledgeable about the policy. On the national survey, 32.8% said they had a hard time choosing between two or more answers, giving more credence to the hypothesis that more choices should be more difficult. 20.5% of the national respondents said the choice was difficult because they did not like any of the possible answers. It was not clear whether this was the result of a constrained choice set or simply because some of the respondents would have preferred options that would have avoided some of the tradeoffs altogether.

Who found the choice to be difficult?

The size of the choice set is not the only factor that makes people think the decision is difficult. Some people found the control sets to be difficult; some did not find any questions to be difficult. To identify what attitudinal and demographic variables may have played a role in determining who found the choices to be difficult, I regressed several socio-demographic variables, the respondent's political knowledge, how often the respondent follows the news, and indicators of the number and type of options the respondent saw on the average level of difficulty across the five questions. I expect that high levels of political knowledge (measured through three questions about the respondent's knowledge of political figures) are associated with lower levels of difficulty in answering the questions. Those who follow the news more closely should have an easier time answering the questions because they are likely to be more aware of the issues. According to the same logic, high levels of education should also be associated with low levels of difficulty. The extent that the respondent follows the news was measured with a four-point scale.

Female subjects, on average, found the policy questions harder to answer (one tailed test, $T = -2.49$, $P < T = 0.007$ in the national sample, $T = -1.81$, $P < T = 0.036$ in the state sample). Since enlarging the choice set made the choice more difficult, I built a variable that summed the number of possible answers that the respondents saw. Since alternatives that were asymmetrically dominated or appeared to be compromise options were not expected to increase level of difficulty, I created two variables that took the number of treatments in which the respondent saw one of these alternatives.

Finally, because each survey employed a split sample for one question, I included a dummy to note which question the subject answered. I controlled for party identification by including a five-point scale running from Democrat to Republican.

I present the results from the regression in Table 5.2. Because average choice difficulty is an average of five different five-point scales, a single step increase in difficulty on one question would result in a 0.2 increase in average level of difficulty.[4] As expected, following the news had a significant effect on decreasing the average level of difficulty. On the state survey, following the news decreased the average level of difficulty by 0.07. This means that someone who does not follow the news closely at all, all else being equal, are more likely that one question was more difficult by one level compared to someone who follows the news very closely. On the national survey, the coefficient was larger, 0.1, so someone who does not follow the news very closely are more likely to find one question to be more difficult by one level compared to someone who follows the news very closely. Women were more likely to experience a higher level of average difficulty. On the national survey, women's average level of difficult was 0.13 larger than mens'. So, all else being equal, women were not more likely to have indicated that one question was more difficult by one level. The coefficient for state respondents was smaller, 0.06, but was not statistically significant.

[4] The dependent variable is an average of four, four-point scales. The best form to fit to this variable is an ordered logit. I present the results of an OLS regression since a) the results were substantively the same, and b) easier to understand. The dependent variable has 11 "cut-points" or 12 levels in the state sample, 13 "cut-points" in the national sample.

Consistent with my expectations, when controlling for everything else, political knowledge decreased the level of choice difficulty on the state survey. However, the effect was not statistically significant on either surveys and it was signed the wrong way on the national survey. The more Republican the respondent identified on the party identification scale, the less difficult he or she was likely to have found answering the questions on the state survey. The same variable was nearly zero in the national survey and was signed in the wrong direction. It was not statistically significant on either survey, so we cannot be sure party identification had any effect on average choice difficulty. Education level was signed the wrong way and was insignificant.

The total number of answers to the five questions that the respondents saw had a small effect on choice difficulty. For every additional answer, average choice difficulty in both models increased by nearly 0.02. So, someone who saw ten more answers, all else being equal, was likely to rate one question harder by one level of the difficulty scale. Even though this variable was statistically significant on the state survey, it is very small. Most of the changes in average choice difficulty were observed from the inclusion of a single additional option. This model suggests that two additional options on every single question would need to be added for respondents to increase the level of difficulty they indicated. The variables for asymmetric dominated and compromise options, which might have reduced the impact of adding answers were insignificant, as was the dummy variable for the question seen in the split sample.

The models as a whole were not very strong, explaining only 5.2% of the variance in the state data and 4.5% of the national data as measured by the R-squared statistic. The *F* statistic with 10 variables and 496 degrees of freedom in the national sample was 2.85 (P = 0.01). The F statistic for the state model with 9 variables and 340 degrees of freedom was only 2.05 (P = 0.034), so the null hypothesis that the coefficients on all independent variables is only rejected at the generous level of 0.5. For the national model, the F statistic was 2.58 with 9 variables and 491 degrees of freedom (P = 0.007).

Information and the Subcategory Effect

Hypothesis IV: Specific proposals, constituting a subset of a broader alternative, will attract more support than a broader policy option (Subcategory Effect).

What would be the effect of adding an option that essentially just creates a sub-category of an existing option? Two different types of water restrictions were added to the set of possible answers to the drought response question. Would the pattern of answers be any different if the answer set only included the option of water restrictions (in general)? The sum of the parts should not exceed the whole. I hypothesize, though, that the specific options may provide valuable information, reminding the decision-makers of a particular option that they had neglected to attend to when the options were broader and less specific. This informational effect would counter the substitution effect, leading to an increase in support for more narrow proposals. This hypothesized informational effect should be should be similar to

priming except that the priming occurs prior to the choice or in the question wording. Instead the information that primes the respondent is contained within the set of options. The question is not altered in any way by a novel prime or alternative frame. The null hypothesis is that adding proposals that are subcategories of a broad class of policies will not result in increased support. Those who choose the category would choose one of the subcategories. Someone who would choose one of the other categories would not choose one of the subcategories.

Nobel Prize-winning economist Daniel McFadden (McFadden 1974; Domencich and McFadden 1975) pursued a similar line of inquiry regarding transportation options. McFadden studied what mode of transportation, cars, buses, or trains, people would select to go to work or on leisure trips. McFadden showed that when modeling transportation decisions using Luce's (1959) axiom of independence, adding another brand of busses would bizarrely increase the likelihood that a bus would be selected. To correct this error, McFadden was concerned with developing a way of analyzing the decision presuming that the decision-maker is making the decision in steps, first deciding between driving, taking the train, or the bus, and then choosing which brand of bus.

I investigate such behavior in these policy choices because it is not clear whether people making these policy options are behaving in a way consistent with the conditional or nested logit models. Alvarez and Brehm (2002) argue that citizen opinions, like voter perceptions of candidates, can be represented by probability

distributions around a central tendency. Those who are well informed give answers to policy questions that are closely arrayed around the central tendency. However, those who are not well-informed, which since the Columbia School's first investigations into voter knowledge (Berelson, Lazarsfeld, and McPhee 1954) would appear to be a vast majority of Americans, would have a flat and diffuse distribution across issue space. For many of these people, their opinions are constructed during the decision-making process. To do so, they may consider each of the proposals in turn or concurrently, without nesting the choice. If decision-makers choose a nested structure, they would need to partition the choice task so that they first choose from among the broad categories, and then choose specific options within the category. Expanding the choice set into a collection of specific proposals may influence whether or not decision-makers recognize or employ a nested structure to the choice. This is problematic, because even if this is merely an unintended consequence of the survey design, these surveys are the primary indicators of mass preferences for scholars and politicians.

If decision-makers recognize a nested structure, than even those who are politically uninformed are unlikely to be influenced by the expansion of the choice set, since they will partition the choice set into categories, choose a category (even through a random method), and then an option. If the decision-makers do not recognize that a nested structure will be the appropriate way to construct an opinion over the alternatives, their opinion can be influenced by the sub-category effect because their choice

becomes distributed over the expanded choice set, say four transportation options instead of three.

Under the umbrella of a broad category, people may not remember all the various options. Alternatively, a broad category may include both desirable and undesirable policy options. Breaking down the category into these specific options enables the decision-maker to choose an option he or she likes but not a proposal he or she dislikes. As a broad category, the proposal he or she dislikes may be salient enough that the decision-maker eschews the broad category for another option. For example, "raising taxes" may not be chosen even if the subject supports a small increase in the sales tax or favors a sin tax.

Even with a nested choice, if the specific proposal reminds the decision-maker that one category includes the most desirable option (or least desirable outcome), a sub-category effect can be observed. So, a sub-category effect would occur in McFadden's transportation example if people are reminded by the different brand of bus that riding [such] busses are the best way to get to their destination. The effect would also be observed if commuters are very uncertain about their opinions or the range of choices, the distribution of their choices will range over entire set of options, whether that set includes three, four or a dozen travel options. Conditions for a nested decision that does not suffer from a sub-category effect would be met by McFadden's transportation model. People who daily make decisions about how to move about town are quite

familiar with their favorite mode of transportation and a reminder that some of the busses are red is probably not enough to have them change how they travel.

If the subcategory effect is driven by new or otherwise forgotten information, I expect that it will be most likely seen with proposals in issue domains with high levels of unfamiliarity. People not familiar with the topic area will be most likely to be provided useful information by the specific proposal about what the category actually entails or what specific actions are likely to stem from support for a broad category. As a result, I selected several of the question items I introduced above because I expected these conditions to be met: people might not be familiar with issues such as appropriate small business health insurance possibilities, or they might not have thought about how much tobacco taxes should be raised. Specific proposals that remind the subjects that choosing more cops on the street might include more FBI agents could make that choice more desirable. Mentioning sin taxes in place of a broad category of raising taxes reminds decision-makers that support for raising taxes does not necessarily mean that income or sales taxes that they personally pay will increase.

To the best of my knowledge, this has not been tested in consumer behavior although similar effects ("sub-additivity") have been observed in the way people calculate probability of future events (see Fox 1999). According to prospect theory (Kahneman and Tversky 1979), people overweigh events with low probabilities and underweigh likely events. For example, people who estimate the likelihood of an accused criminal being not found guilty (acquitted or trial ending in mistrial) is smaller than the

combined estimates of whether the accused will be acquitted and whether the trial will end in a mistrial. Gonzalez and Wu (1999) found that attitudes about gambling was explained by a two-parameter weighing function, one interpreting probabilities, the other explaining attitudes towards gambling. Because people tend to have preferences over outcomes, caring about payoffs (not gambles) much like they like policy outcomes (not policies), the underlying causal mechanism for choice about gambles may be similar to the causes of choice over policies. People may not fully weigh all possible outcomes when choosing a policy or a gamble.

I will reject the null hypothesis if the combination of the specific policy options attracts more supporters than the broader alternative in a between-subject test. Recall that these additional categories are not (generally) seen as compromise options, nor are they dominated by another alternative. In the discussion of results above, the inclusion of these items increased the average difficulty of the answering the question. This indicates that some other causal mechanism is responsible for the menu-dependent preferences I observe.

Procedures and Results

Crime Solutions

Test: Three different categories. A different category replaced by two proposals in each of three treatments.

Results: In two out of three treatments, support for proposals exceeded support for category.

This policy question uses four conditions to test the subcategory effect on the national survey (see Appendix). The control includes each of the three broad categories as options. Each treatment breaks down a different category into two specific proposals that would otherwise be subsumed by the broader category in the control and the other treatments. Fighting crime is a familiar topic. While the broad categories of crime prevention and enforcement are well-known, specific proposals are not very salient, so this provides an interesting test of the sub-category effect.

In the control, prevention programs got support from 77% of the sample, more police was chosen by 8.7% and longer jail sentences by 14.3% of the sample. Two of the three treatments provided evidence in favor of the subcategory effect. Most dramatically, when longer jail terms was split into longer mandatory jail sentences and making repeat offenders ineligible for parole, the two were chosen by 31.2% of the sample, more than double the support of the broad category. When more police officers was replaced by hire more local police officers and hire more federal officers, 14.2% of the sample chose the two, a 75% increase over the control category. However, when two different community programs were presented, after school programs and an increase in neighborhood watch, the sum of the two prevention programs was 74%, less than the broad category of 77%.

Aid to Israel

Test: Three option control; one category replaced by two proposals in one treatment, three proposals in second treatment.

Result: Sum of support for two proposals exceeded category, sum of support for three proposals did not substantially exceed support for category.

On the third question on the national survey, respondents in the control condition chose between reducing aid to Israel, maintaining the status quo, or increasing the amount of aid given to Israel as a result of the Iraq War. The treatment conditions varied the options of increasing aid to Israel, so I test the subcategory effect by comparing support for these options to support for increasing aid in the control. One treatment had four options; increasing the amount of aid given to Israel was divided into two options. The third condition had five questions, including three difficult levels of aid increases.

In the control, 13.8% of the respondents chose increasing aid to Israel. When there were two options, one to give aid less than $4 billion, and one to increase the aid by the full amount. Increasing aid, but less than $4 billion received nearly as much support as the broad category did. 11.3% of the respondents chose to partially fulfill Israel's request. Another 9.6% chose to increase the aid by the full amount. Consistent with my expectations, the sum of the two categories was much higher than the broad category.

In the third treatment, the three options for increasing aid to Israel were: increase aid to Israel by $1 billion or less, by $1-3 billion, or by the full amount. Only 2.3% of the respondents chose the smallest increase, 5.1% chose the intermediate increase and

7.4% chose the full amount. Contrary to my expectations, the sum of the three, 14.8%, is only one percentage point higher than the full category in the control.

Lottery

Test: Control with binary choice, taxes or lottery. Treatment substitutes three specific tax increase proposals. Other treatments allow binary choice between a specific tax increase and lottery.

Result: Support for three tax proposals exceeded support for category.

There were three questions on the state survey that touched on proposed North Carolina tax increases or decreases. The first question measured support for a lottery (which North Carolina currently does not have) or a tax increase. The question mentioned that "several different ways of raising more money have been suggested," but did not specify what those different alternatives were. One condition included the full set of possible funding sources, the lottery and the three most likely tax increases in 2003; an increase in the sales tax, an increase in the cigarette tax, and an increase in the state income tax. To test the sub-category effect, another condition replaced all three specific tax increases with the broad category of "raising taxes." Three other conditions substituted one of the taxes for the broad category.

22.2% of the sample chose to raise taxes over a lottery. Consistent with my expectations, when all three tax increases were presented, 41.1% chose one of the three taxes from the full set of alternatives. Most of the supporters of increased taxes,

27.4% of the sample, chose cigarette taxes. When just a sales tax increase and just an income tax increase were presented, the percent of the sample choosing to increase taxes rather than establish a lottery was smaller than the broad category. When just cigarette tax was presented as the only tax in the choice set, 29.6% of the sample chose the tax over a lottery. Support for cigarette tax increases, rather than a lottery, was not reflected by the general category of raising taxes, but support for sales and income taxes were reflected by the general category.

Sales Tax Deduction

Test: Control with three options, treatment replaces one option with two specific proposal.

Results: Sum of support for two proposals exceeded support for category in control.

A question about a sales tax deduction explicitly discussed how, one year after the legislature passed a scheduled half-cent deduction in the sales tax, the Governor of North Carolina proposed delaying the deduction for another two years. On the state survey, I asked respondents what they thought the government should do, reduce the sales tax now, delay it, or increase the sales tax now. In one condition, I replaced the option of reducing the state sales tax now with two more specific proposals to test the sub-category effect: decreasing the sales tax by more than a half-cent and decreasing the sales tax by a half-cent. I expect that the sum of these two proposals will be larger than the broader category because the framing of the question does not mention that some think that, given the economic climate, the sales tax should be cut even more

than a half-cent. The additional category will remind the respondent that a larger cut is a possible option (that should have been subsumed under reducing the sales tax).

The broad category received 28.5% of the choices. The larger deduction received 17.2% of the support of the respondents in the treatment, while the half-cent reduction won the support for 20.7% of the respondents in the same treatment. The sum of the two, 37.9%, exceeds support for decreasing the sales tax in the control by nearly ten percentage points. This increase lends support for Hypothesis IV.

Cigarette Tax Bill

Test: Four-option control including option of "neither." Five-option treatment replaces "neither" with two different "neither" options, too much and too little.

Results: Sum of support for two "neither" options exceeded support for single "neither."

The third question about state finances that tested the sub-category effect was shown last on the questionnaire to half the respondents on the state survey. The question explained that the current tax was a nickel and the state legislature was considering two new taxes, one for 35 more cents, the other for 70 more cents. The subjects could choose either bill, neither bill, or either bill in the control condition. In the treatment, instead of choosing "neither one," the subjects could choose, "neither one: the state should increase the cigarette tax by more than 70 cents," and "neither one: the state should not increase the cigarette tax by as much as 35 cents." According to the null

hypothesis, the sum of the two "neither" options should sum to "neither" in the control.

Contradicting the null hypothesis, the sum of the two "neither" options was higher than the broad category in the control. In the control, "neither" attracted 21% of the respondents in that condition. In the treatment, 16.7% of the respondents thought that the state should increase the tax by less than 35 cents. 18.75% of the respondents in the same treatment thought that the state should increase the cigarette tax by more than 70 cents.

Cigarette Tax Increase

Test: Five choice sets varying number of different tax increases. One has maximum value of 35¢ and "more than 35 cents" is broad-category control. Four have maximum value of 70¢ and "more than 70 cents."

Results: Support in one treatment sum of proposals exceeded category. In other three, the sum of the support for the different proposals was less than support for the category.

The other half of the state sample saw a different question on the same topic of cigarette taxes. This question did not specifically mention the bills pending in front of the North Carolina General Assembly. The choice set was a list of different increases, ranging from none to more than 70 cents. The treatments varied by the number of different increases listed, from the full set of eight categories, to only four options.

Among these four options was an option to support an increase of more than 35 cents a pack. This tests the sub-category effect since the other treatments included specific options of 70¢ a pack, more than 70¢ a pack, and 50¢ a pack.

The results were mixed. In one treatment the sum of the different proposals exceed the popularity of the broad, "greater than 35 cents" category. In the other three, they did not. In the four-option set, 54.7% of the subjects chose the option to raise taxes more than 35¢ a pack. Contrary to my hypothesis, in the full set of eight options, the three alternatives that were greater than 35 cents attracted less support than the broad category, only 50.9% of the sample. However, those same three options in the set of seven alternatives attracted 65.3% of the sample. 56.6% of those who chose from six alternatives selected the three options larger than a 35¢ increase. In the five-choice set, 50¢ was not an option. The two options greater than 35 cents were chosen by 47.2% of the sample.

The largest category was the most popular choice in every treatment. 70¢ a pack hardly attracted any support. 50¢ a pack was the choice of 10.9% of the respondents in the seven-alternative choice set, but attracted only a single vote in the full set. There were no significant differences in population means or population medians across the largest five choice sets (with the same range of options).

Drought

Test: Control with two categories. Treatment replaces one category with two specific water restrictions. Another treatment replaces same category with only one specific water restriction.

Results: Sum of support for two proposals exceeds broad category. Support for one proposal by itself slightly exceeded support for broad category.

The different possible responses to a drought included a test of the sub-category effect. One control asked respondents to choose between increasing taxes and guidelines for when people can use water and/or what they can use water for. Since two different sets of restrictions were outlined, there was arguably more information provided in this item than in the other questions, but the policy was still broad and vaguely defined. The second treatment replaced the "guidelines" with two specific restrictions, stop people from watering their lawn more than three times a week, and from watering their lawn in the middle of the day. In another control condition, stopping people from watering their lawn more than three times a week was presented on its own in place of "guidelines."

In the control, 65% of both the national and the state respondents chose "guidelines." Marginally more, 69% and 66.7% of the national and state respondents, respectively, chose the specific option of stopping people from watering their lawn in the second, two-option choice set control condition. In the treatment, 77.3% of the national respondents chose one of the two restrictions. 81.3% of the respondents in the state

sample chose one of the two restrictions. Almost the same percentage of respondents to the state survey chose "guidelines" in the control, restricting watering lawns to three times a week when it was by itself, and restricting watering the lawns to three times a week when it appeared with stopping people from watering their lawn in the middle of the day. On the national sample, there was some evidence of a substitution effect. The percentage who selected the three-times a week restriction dropped to 51.6% of the treatment. The sub-category effect, though, was larger than the substitution effect. Restrictions on when people could water their lawns were the choice of 25.8% of the respondents, nearly double the size of the reduction in support for the restriction on watering more than three times a week.

Discussion: Information Effect

These experiments produced multiple tests of an informational effect generated by adding additional options. For sales tax reductions, the cigarette tax bill, the lottery and the drought, the evidence showed that there was a subcategory effect, increasing support for individual proposals within a broader category (see summary of results in Table 5.3). Two of the three tests using a question about crime solutions, and one of two tests using a question about aid for Israel lent support in favor of rejecting the null hypothesis. A question about the appropriate size of a cigarette tax left mixed results in favor of Hypothesis I. The strength of the evidence appears to be on the side of rejecting the null hypothesis.

These individual proposals did not decrease choice difficulty like dominated or compromise options. Instead, for most they increased the average level of choice difficulty, or as in the case of the cigarette tax bill, left the average difficulty unchanged. Instead of influencing the decision-maker's evaluative anxiety or need to provide a justification for the choice, menu-dependent behavior was induced by providing the decision-maker with more information. The additional, specific policy options primed the decision-maker to be attentive to elements of the broad category that otherwise might have been forgotten or given little consideration.

The extra support for these specific policies did not seem to result because one of the options was an intermediate or adjacent option that drew support from the most similar policy or option on those issues where it easy to think about them using the spatial proximity model. For example, the aid to Israel issue can be understood as a continuum from stopping aid to Israel to giving away the entire federal budget to Israel. One option called for decreasing aid, the second option advocated leaving aid at existing levels, and the target answers of possible aid increases. The additional proposals that replaced increasing aid included several small increases that might have attracted the support of people who otherwise would have supported leaving aid at existing levels rather than lend support for too much aid. When the broad category of increasing aid was replaced by two proposals with super-additive levels of support, support for leaving the aid at existing levels was unaffected. In the control, leaving aid to Israel at its current levels was selected by 37.1% of the sample. Despite the increase in support for increasing aid, 37.3% of the sample chose to keep aid at the same level.

The addition of the extra category actually hurt the popularity of reducing aid. Support for reducing aid dropped from 49% to 41.8%. Recall that in the candidate growth experiment, a similar pattern was exhibited: the extreme candidate's inclusion in the choice set hurt the distant candidate more than the adjacent candidate.

In the other treatment, when three proposals replaced the broad category, support for the other categories was affected by the change in the choice set even though the additional proposals did not result in an increase in support for aid. Support for the existing levels of aid rose to 41.5%, a four percentage point increase over support for existing levels of aid. Reducing the aid received 43.75% of the subjects in the sample, more than 10% less than the level of support for reducing aid in the control condition. One possible explanation for the increase in support for the status quo in this treatment is a compromise effect benefiting leaving aid at the existing level since the average choice difficulty was unchanged between the four-alternative choice set and this five-alternative choice set. Another possible explanation is that the choice set or the set of options to increase aid became so large that the decision-makers recognized the nested structure of the decision, and considered, an increase, a decrease or the status quo, and then only those who considered an increase chose from the three increases.

Similar results were observed in the pattern of answers to the sales tax reduction question. Again, we can think about possible taxes along a continuum from zero to infinity (or an infinite subsidy to an infinite tax). Additional support for reducing the sales tax, especially for a small reduction would most likely come at the expense of

the option to delay the reduction and maintain the existing sales tax. However, the option to delay the reduction only lost a fraction of its supporters as a result of additional options to reduce the size of the tax. In the control, 60.3% of the respondents chose the option to delay. When there were two proposals to reduce the sales tax, 57.8% of the respondents chose the option to delay. Instead, most of the additional support won as a result of the sub-category effect appears to have been at the expense of the proposal to increase the sales tax, the distant policy instead of the adjacent policy. Support for increasing the tax was not a very popular choice, but thirteen respondents out of the 116 in the control condition (11.2%) chose to increase sales taxes. Ten out of 130 (7.7%) respondents chose the option in the three-alternative choice set with the specific tax reduction. Only five out of 116 (4.3%) chose it in the treatment with two proposals.[5]

Strong evidence that the popularity of the specific options was the result of an information effect similar to priming was provided by the pattern of answers to the lottery question and the cigarette tax bill question.

On the cigarette tax bill question, the two "neither" answers reminded respondents that a choice of "neither" could mean that the increases are too much *or* too little. On the

[5] This question followed the lottery question, on the first page of the North Carolina survey. In two treatments, the lottery question included an option to raise the sales tax. A projection effect is unlikely, but possible, to have disproportionately affected the treatments other than the one with the two sales tax reduction alternatives. Very few subjects chose a tax increase when answering either question. Compared to those who saw the broad category, the income tax or sales tax options, subjects who chose the cigarette tax were much less likely to choose to increase the sales tax. A disproportionate number of respondents saw the cigarette-only treatment in the lottery question and the two-reduction alternative treatment (42.5%, compared to an overall average of 32.3%). This may have depressed the number of respondents choosing the distant option in the treatment with two sales tax reduction options.

control, the broad "neither" category is presented first, before the two bills. If some respondents think that the option only refers to "neither, the two taxes are too much," I expect those respondents who would like the tax to be raised more than 70 cents will choose the larger of the two tax proposals. If these respondents are attracted to the "neither" categories after being reminded that "neither" is best for those who think the taxes are too much or too little, the additional support should be at the expense of support for the larger bill. As expected, the additional support came at the expense of the larger tax increase (42.1% down to 29.2%).

For further evidence of an information effect, consider how differently smokers and non-smokers responded to the same piece of information when answering the lottery question. When smokers were provided information about cigarette taxes they would pay, they became more inclined to support the lottery rather than raising taxes. When non-smokers were reminded about the same tax, they became more likely to support raising taxes instead of instituting a lottery. Tversky and Kahneman (1973) identified the availability heuristic that leads people to give more weight to attributes or concerns that are most prominent in their minds at the time of the decision. I expected that, in a state with a low cigarette tax, sales taxes or income taxes would come to mind when smokers and non-smokers think about "raising taxes." Since cigarette taxes are unavailable, even smokers may not sufficiently weigh potential sin taxes when thinking about raising taxes versus the lottery. Smokers did not differ noticeably from non-smokers in their support for the broad category of raising taxes (two out of eleven smokers, 23% of non-smokers chose "raising taxes"). When reminded of the sin tax

that they would not pay, over 31.5% of non-smokers chose to increase cigarette taxes when it was both the only option other than the lottery and when cigarette taxes were surrounded by the full set of tax proposals. In comparison, no smokers supported cigarette taxes when presented with the full set of options and only 21% supported the cigarette tax when the only other option was a lottery.

These findings have important implications for politicians, and campaign strategists, who must weigh the extent to which a candidate's stance or proposal is vague or specific relative to the other candidates' positions. Talking about two specific proposals, about say increasing the number of police officers, may attract more supporters than vague generalizations about putting more police on the street. Pollsters must keep in mind how vague categories may underestimate actual support for position(s) within that category when estimating the distribution of opinion on a particular issue. Rather than talking about taxes, they might need to remind people of very particular elements of the broad category that would not have otherwise received much weight.

The cigarette tax bill results are particularly interesting for opponents of proposals and legislation. The number of people dissatisfied with all competing proposals may be underestimated if people are simply asked if they do not like any of the proposals. Being more specific about what is disliked would better estimate the size of the population that would prefer a novel proposal to any of the ones on the table. Opponents of the existing proposals, such as the legislative minority party, could use

this information to show the unpopularity of the governing parties' proposals. Conversely, those who desire any action over inaction would be best to keep the opposition category as vague and as ill-defined as possible.

The finding of a sub-category effect also has implications for the study of decision-making. Allais' famous paradox of rational decision-making demonstrated that people will violate expected utility theory when choosing between lotteries and certain payoffs with identical expected utility. A lottery with the same utility as a certain gain will be chosen by people unless there is a small chance of losing big. This paradox has been widely researched in economics and psychology. The evidence from these experiments suggests that an interesting application of these findings would be to pose a question to Allais' decision-maker about whether he or she would like an uncertain (lottery) outcome or a certain payoff (gain or loss). This is not much different than the question about raising taxes or a state lottery, both in terms of question structure and payoffs.[6] In that question, it appeared that my respondents did not fully account for the possibility of a cigarette tax and their preferences for that tax. If the decision-maker did not fully weigh the possibility that the lottery might include a huge win or a devastating loss, a specific lottery options might cause a preference reversal as the decision-maker avoids the lottery with the possibility of a sharp loss or becomes attracted by huge payoff.

[6] A tax that is borne by everyone is a sure payoff in the domain of losses, so the choice of tax/lottery is similar to the payoffs that Allais gave to people.

Table 5.1 Why was the question difficult to answer?

Question: If you thought that choosing an answer to any of those policy questions was "very difficult," or "somewhat difficult," please tell us why. Select the answer or answers that best describe why you found the choice to be difficult

	State		**National**	
	N	*%*	*N*	*%*
Hard time choosing.	41	20.9	102	32.8
Did not like answers.	32	16.3	64	20.6
Not enough information.	26	13.3	47	15.1
Not very knowledgeable.	34	17.4	40	12.7
Not sure which was best.	34	17.4	25	8.0

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Table 5.2 Regression: What made the questions difficult to answer?

Dependent Variable: Average Level of Difficulty

	State	National
Political Knowledge	-0.039	0.014
	(0.03)	(0.02)
Follow the News	-0.07**	-0.10***
	(0.03)	(0.03)
Female	0.062	0.132***
	(0.05)	(0.05)
Party Identification	-0.026	0.003
	(0.02)	(0.01)
Education	0.009	0.012
	(0.02)	(0.02)
Options	0.019*	0.018
	(0.01)	(0.02)
Split-Sample Dummy	-0.009	-0.019
	(0.06)	(0.05)
Asymmetic Dominated	-0.056	0.066
	(0.06)	(0.06)
Compromise	0.002	-0.022
	(0.04)	(0.04)
Intercept	1.467	1.517
	(0.20)	(0.37)
R- Squared	0.052	0.045
F-Statistic	2.05	2.58

Table 5.3 Summary of Results

Question	Result
Hypothesis I: Additional options increase choice difficulty.	
Business Health Insurance	Significant increase.
Crime	Increased, one/three significant
Israel	Significant increase to four, not to five.
Cigarette Tax Bill	No increase.
Hypothesis II: Unless asymmetric dominance.	
Drought	Significant decrease, one/two significant increase.
Hypothesis III: Unless compromise effect.	
State Employees	Insignificant decrease.
Sales Tax	Significant increase instead of decrease.
Hybrid Car Tax Reduction	Insignificant change.
Cigarette Tax Increase	Insignificant change.
Hypothesis IV: Subcategory Effect: Support for subset exceeds broad category.	
Crime Solutions	Two/three exceeded category.
Israel	Two/three exceeded category.
Lottery	Exceeded category.
Sales Tax	Exceeded category.
Cigarette Tax Bill	Exceeded category.
Cigarette Tax Increase	One/four exceeded category.
Drought	Exceeded category.

Table 5.4 Significance Tests of Subcategory Effect

National Survey

Crime	Pearson's X^2	P =
All	21.9948	0.001
Control & Prevention Sub-Categories	0.2442	0.885
Control & Enforcement Sub-Categories	2.0466	0.359
Control & Sentencing Sub-Categories	10.2696	0.006
Aid to Israel		
All	4.648	0.325
Control & Two Sub-Categories	3.3562	0.187
Control & Three Sub-Categories	0.9644	0.617

State Survey

Lottery		
All	14.0638	0.007
Control & Full Set	5.9613	0.015
Control & Sales Tax	10.5137	0.001
Control & Cigarette Tax	2.0877	0.148
Control & Income Tax	7.1806	0.007
Sales Tax		
All	5.2573	0.262
Control & Specific Tax Reduction	1.6184	0.445
Control & Two Sub-Categories	5.1927	0.075
Cigarette Tax Increase		
All	23.4327	0.024
Control & Seven Alternatives	3.3981	0.334
Control & Six Alternatives	9.7483	0.021
Control & Five Alternatives	5.0261	0.17
Control & Four Alternatives	4.391	0.222
Cigarette Tax Bill		
All	3.2037	0.361

Both Surveys	National		State	
Drought	X^2	P =	X^2	P =
Control and all sub-category tests	4.5332	0.209	5.7633	0.124
Control & Specific Restriction	0.3021	0.583	0.0361	0.849
Control & Restrictions Sub-Categories	3.4824	0.062	4.7396	0.029
Control and Asymmetric Dominance	2.3847	0.123	0.3221	0.57

Appendix I: Description of Sample

Table 5.A1 Demographics of Policy Experiment Sample

	National Sample		State Sample	
How interested would you say you are in politics?				
	Obs.	Percent	Obs.	Percent
Not at all	17	3.26	13	3.58
Not very	40	7.68	53	14.6
A little	76	14.59	68	18.73
Somewhat	201	38.58	138	38.02
Very	186	35.7	89	24.52
D/K	1	0.19	2	0.55
Total	521		363	
How informed are you about political issues?				
	Obs.	Percent	Obs.	Percent
Not at all	6	1.15	7	1.93
Not very	32	6.14	34	9.37
A little	74	14.2	81	22.31
Somewhat	278	53.36	175	48.21
Very	130	24.95	63	17.36
D/K	1	0.19	3	0.83
Total	521		363	
How closely do you follow the news about state government budget and tax increases?				
	Obs.	Percent	Obs.	Percent
Not closely	34	6.56	40	10.96
Not very	150	28.96	132	36.16
Somewhat	223	43.05	132	36.16
Very	111	21.43	59	16.16
D/K			2	0.55
Total	518		365	
How familiar are you with foreign policy issues?				
	Obs.	Percent	Obs.	Percent
Not at all	28	5.36	18	4.95
Not very	58	11.11	71	19.51
A little	96	18.39	92	25.27
Somewhat	230	44.06	123	33.79
Very	110	21.07	59	16.21
D/K			1	0.27
Total	522		364	

	National Sample		State Sample	
How familiar are you with domestic policy issues?				
	Obs.	Percent	Obs.	Percent
Not at all	17	3.26	7	1.92
Not very	31	5.94	34	9.34
A little	111	21.26	86	23.63
Somewhat	246	47.13	175	48.08
Very	117	22.41	61	16.76
D/K			1	0.27
Total	522		364	
Political Knowledge (Objective Measure)				
# of correct answers	Obs.	Percent	Obs.	Percent
0 Correct	78	14.94	92	25.41
1 Correct	101	19.35	57	15.75
2 Correct	176	33.72	140	38.67
3 Correct	167	31.99	73	20.17
Total	522		362	
Party Identification				
	Obs.	Percent	Obs.	Percent
Democrat	193	36.97	164	44.93
Lean Democrat	66	12.64	34	9.32
Independent	76	14.56	54	14.79
Lean GOP	31	5.94	17	4.66
Republican	156	29.89	96	26.3
Total	522		365	
Education	Obs.	Percent	Obs.	Percent
No high school	7	1.36	7	1.96
High School	27	5.26	36	10.08
Some college	58	11.31	100	28.01
2-year College	25	4.87	27	7.56
4-year College	142	27.68	87	24.37
Advanced Ed.	254	49.51	100	28.01
Total	513		357	

	National Sample		State Sample	
Gender	Obs.	Percent	Obs.	Percent
Male	250	48.64	160	44.32
Female	264	51.36	201	55.68
Total	514		361	

Race	Obs.	Percent	Obs.	Percent
White	413	80.19	251	69.92
Black	57	11.07	80	22.28
Asian	27	5.24	19	5.29
Latino	18	3.5	9	2.51
Total	515		359	

Income	Obs.	Percent	Obs.	Percent
< $20,000	43	8.83	47	13.62
$20-39,999	55	11.29	39	11.3
$40-59,999	60	12.32	58	16.81
$60-79,999	52	10.68	56	16.23
$80-99,999	75	15.4	56	16.23
> $100,000	202	41.48	89	25.8
Total	487		345	

Geographic Breakdown

National Sample

	Obs.	Percent
NC	96	18.6
IL	61	11.82
PA	56	10.85
OH	44	8.53
NY	34	6.59
CA	23	4.46
MN	20	3.88
MD	19	3.68
FL	16	3.1
NJ	16	3.1
31 Others	131	25.4
Total	516	

State Sample

	Freq.	Percent
NC	313	86.7
VA	9	2.49
FL	5	1.39
SC	4	1.11
16 Others	0	0.0
Total	361	

Appendix II: Results – National Survey

Crime Solutions

8) These days, many people are talking about how to reduce crime in our communities. Some think we should focus on preventing crimes before they occur through community programs. Some think that we need to do a better job of enforcing the laws by hiring more police officers. Others think that we need to keep criminals off the street by imposing longer and tougher jail sentences. What do you think should be your community's priority?

Control: Categories

1	Community programs aimed at preventing crime.	77.0%
2	Hire more police officers.	8.7
3	Lengthen jail time to keep criminals off the street.	14.3

N = 126

Avg. Difficulty = 1.46

Prevention Sub-Categories

1	After school programs to keep kids out of trouble.	62.0%
2	Increase the number of neighborhood watch programs.	12.4
3	Hire more police officers.	9.3
4	Lengthen jail time to keep criminals off the street.	16.3

N = 129

Avg. Difficulty = 1.87

Enforcement Sub-Categories

1	Community programs aimed at preventing crime.	73.8%
2	Hire more local police officers.	11.9
3	Hire more federal officers, such as FBI agents.	2.4
4	Lengthen jail time to keep criminals off the street.	11.9

N = 126

Avg. Difficulty = 1.65

Sentencing Sub-Categories

1	Community programs aimed at preventing crime.	62.4%
2	Hire more police officers.	6.4
3	Longer mandatory jail sentences for criminals.	16.0
4	Make repeat offenders ineligible for parole.	15.2

N = 125

Avg. Difficulty = 1.68

State Employees

10) To reduce the budget deficit, most states are looking for ways to cut costs even if they are considering raising taxes. One option is to reduce the number of state employees through lay-offs, even if this means lowering the number of state troopers and social workers. Another way to save money would be to freeze the state employees' wages at their current levels or to pay the state employees less. Which of these options to cut costs do you support the most?

Four Alternatives

1	Reduce the number of state employees through lay-offs.	18.3%
2	Keep the same number of state employees, but freeze wages.	49.6
3	Keep the same number of state employees, but pay them less.	5.3
4	Make no change in the number of state employees or how much the state pays them.	26.7

N = 131

Avg. Difficulty = 2.05

Five Alternatives

1	Reduce the number of state employees through lay-offs.	25.4%
2	Keep the same number of state employees, but freeze wages.	14.6
3	Keep the same number of state employees, but give smaller cost-of-living increases than usual.	35.4
4	Keep the same number of state employees, but pay them less.	1.5
5	Make no change in the number of state employees or how much the state pays them.	23.1

N = 130

Avg. Difficulty = 1.94

Health Insurance for Small Businesses

10) Today, many small businesses are struggling to afford the cost of health care for their employees. Because small businesses are so important to our economy, government leaders and policy experts have proposed several ways to control health care costs for small businesses. Which of the following proposals would you support?

Four Alternatives

1	Provide government-funded health insurance.	29.4%
2	Allow small businesses to purchase insurance at prices set by the government.	12.7
3	Link small businesses together in large insurance pools.	51.6
4	None of the above.	6.4

N = 126

Avg. Difficulty = 1.72

Five Alternatives

1	Provide government-funded health insurance.	28.9%
2	Allow small businesses to purchase insurance at prices set by the government.	8.6
3	Link small businesses together in large insurance pools.	46.1
4	Allow small businesses to purchase insurance through trade associations.	7.0
5	None of the above.	9.4

N = 128

Avg. Difficulty = 1.95

Aid to Israel

12) Israel recently asked the U.S. government for loan guarantees and an extra $4 billion in aid to help pay for the cost of preparing Israel's defenses in case Saddam Hussein attacked Israel during the War on Iraq. This money is in addition to the $3 billion the U.S. government already gives Israel each year. Some critics think that the U.S. government should stop aiding Israel until Israel withdraws from the occupied territories in the West Bank and the Gaza Strip. What do you think the U.S. government should do?

Control: Categories

1	Reduce the amount of aid given to Israel.	49.1%
2	Keep the amount of aid given to Israel the same as it has been.	37.1
3	Increase the amount of aid given to Israel.	13.8

N = 159

Avg. Difficulty = 1.59

Two Sub-Categories

1	Reduce the amount of aid given to Israel	41.8%
2	Keep the amount of aid given to Israel the same as it has been.	37.3%
3	Increase aid to Israel, but by less than the $4 billion requested by Israel.	11.3%
4	Increase the amount of aid given to Israel by $4 billion.	9.6%

N = 177

Avg. Difficulty = 1.75

Three Sub-Categories

1	Reduce the amount of aid given to Israel	43.8%
2	Keep the amount of aid given to Israel the same as it has been.	41.5
3	Increase the amount of aid given to Israel by $1 billion or less	2.3
4	Increase the amount of aid given to Israel by $1 billion – $3 billion	5.1
5	Increase the amount of aid given to Israel by $4 billion.	7.4

N = 176

Avg. Difficulty = 1.73

Appendix III: Results – State Survey

Lottery

8) Advocates for increased spending on education in North Carolina have proposed raising more money for schools by creating a lottery or by raising taxes. Several different ways of raising more money have been suggested. Which of these ways do you like the most?

Control: Categories

1	Establishing a state lottery.	77.8%
2	Raising taxes.	22.2

N = 72

Avg. Difficulty = 1.42

Full Set: Three Tax Increases (Sub-Categories)

1	Establishing a state lottery.	58.9%
2	Raising the state sales tax.	5.5
3	Raising the state cigarette tax.	27.4
4	Raising the state income tax	8.2

N = 73

Avg. Difficulty = 1.53

Sales Tax Only

1	Establishing a state lottery.	83.3%
2	Raising the state sales tax.	16.7

N = 72

Avg. Difficulty = 1.46

Cigarette Tax Only

1	Establishing a state lottery.	70.4%
2	Raising the state cigarette tax.	29.6

N = 71

Avg. Difficulty = 1.37

Income Tax Only

1	Establishing a state lottery.	79.7%
2	Raising the state income tax	20.3

N = 69

Avg. Difficulty = 1.46

NC Sales Tax

10) Last year, the North Carolina General Assembly voted to reduce the state sales tax by a half-cent. This tax cut is scheduled to take effect on July 1st. However, now the Governor is looking for more money to balance the state budget. To do so, he has proposed delaying the reduction in the state sales tax for two years. What is your opinion about the state sales tax? What do you think the government should do?

Control: Categories

1	Reduce the state sales tax now.	28.5%
2	Delay the proposed half-cent reduction and keep the sales tax as it is.	60.3
3	Increase the state sales tax now.	11.2

N = 116
Avg. Difficulty = 1.57

Specific Tax Reduction

1	Reduce the state sales tax by a half-cent now.	34.6%
2	Delay the proposed half-cent reduction and keep the sales tax as it is.	57.7
3	Increase the state sales tax now.	7.7

N = 130
Avg. Difficulty = 1.56

Two Tax Reduction Sub-Categories

1	Reduce the state sales tax by more than a half-cent now.	17.2%
2	Reduce the state sales tax by a half-cent now.	20.7
3	Delay the proposed half-cent reduction and keep the sales tax as it is.	57.8
4	Increase the state sales tax now.	4.3

N = 116
Avg. Difficulty = 1.79

Cigarette Tax Increase

16) The state tax on cigarettes in North Carolina is currently five cents per pack. The average state tax on cigarettes is about 45 cents per pack. Some states have cigarette taxes as high as $1.50 per pack.

There has been talk of increasing the tax on cigarettes in North Carolina to help balance the state budget. How much of an increase would you favor?

Eight Alternative Choice Set

1	No increase	19.6%
2	5 cents more per pack	7.8
3	10 cents more per pack	11.8
4	25 cents more per pack	2.0
5	35 cents more per pack	7.8
6	50 cents more per pack	2.0
7	70 cents more per pack	3.9
8	More than 70 cents per pack	45.1

N = 51

Avg. Difficulty = 1.47

Seven Alternative Choice Set

1	No increase	13.0%
2	10 cents more per pack	4.4
3	25 cents more per pack	6.5
4	35 cents more per pack	10.9
5	50 cents more per pack	10.9
6	70 cents more per pack	2.2
7	More than 70 cents per pack	52.2

N = 46

Avg. Difficulty = 1.32

Six Alternative Choice Set

1	No increase	18.9%
2	5 cents more per pack	1.9
3	10 cents more per pack	1.9
4	35 cents more per pack	20.8
5	70 cents more per pack	1.9
6	More than 70 cents per pack	54.7

N = 53

Avg. Difficulty = 1.30

Five Alternative Choice Set

1	No increase	35.9%
2	10 cents more per pack	9.4
3	35 cents more per pack	7.6
4	70 cents more per pack	5.7
5	More than 70 cents per pack	41.5

N = 53

Avg. Difficulty = 1.22

Four Alternative Choice Set

1	No increase.	15.1%
2	10 cents more per pack.	11.3
3	35 cents more per pack.	18.9
4	More than 35 cents per pack.	54.7

N = 53

Avg. Difficulty = 1.33

Cigarette Tax Bill

16) The state tax on cigarettes in North Carolina is currently five cents per pack. The average state tax on cigarettes is about 45 cents per pack. Some states have cigarette taxes as high as $1.50 per pack.

There are currently two bills in the North Carolina state legislature proposing cigarette tax increases. One suggests raising the tax by 35 cents per pack, the other calls for raising the tax by 70 cents per pack. Which proposal would you support?

Control: "Neither" Category

1	Neither one.	21.1%
2	35 cents per pack increase.	22.8
3	70 cents per pack increase.	42.1
4	Either bill.	14.0

N = 57

Avg. Difficulty = 1.44

"Neither" Sub-categories

1	Neither one: the state should not increase the cigarette tax by as much as 35 cents.	16.7%
2	35 cents per pack increase.	20.8
3	70 cents per pack increase.	29.2
4	Either bill.	14.6
5	Neither one: the state should increase the cigarette tax by more than 70 cents.	18.8

N = 48

Avg. Difficulty = 1.46

Appendix IV: Results – Repeated Questions on Both Surveys

Drought Response

16) During the summer, many parts of our country suffered a severe drought, leaving many sources of safe drinking water at dangerously low levels. Of the following options, what would be the best way to reduce water consumption next summer to ensure the problem will not happen again?

	National	State
Control: Broad Category, "Guidelines"		
1 Increase taxes on high levels of water use to make using lots of water very expensive.	34.6%	35.0%
2 Set guidelines for when people can use water and/or what they can use the water for.	65.4	65.0
	N = 104	60
	Avg. Difficulty = 1.58	1.50
Control: Specific Restriction		
1 Increase taxes on high levels of water use to make using lots of water very expensive.	31.0%	33.3%
2 Stop people from watering their lawns more than three times a week.	69.0	66.7
	N = 100	57
	Avg. Difficulty = 1.51	1.68
Additional Option		
1 Increase taxes on high levels of water use to make using lots of water very expensive.	19.8%	15.2%
2 Set guidelines for when people can use water and/or what they can use the water for.	33.7	53.2
3 Encourage people to buy water-saving appliances and faucets.	46.5	31.7
	N = 101	79
	Avg. Difficulty = 1.64	1.56

Restrictions Sub-Categories

1	Increase taxes on high levels of water use to make using lots of water very expensive.	22.7	18.8%
2	Stop people from watering their lawns more than three times a week.	51.6	63.8
3	Stop people from watering their lawns in the middle of the day.	25.8	17.5
		N = 97	80
		Avg. Difficulty = 1.78	1.75

Asymmetric Dominance Restriction

1	Increase taxes on high levels of water use to make using lots of water very expensive.	24.8%	30.5%
2	Stop people from watering their lawns more than three times a week.	39.6	39.0
3	Stop people from watering their lawns more than once a week.	65.4	30.5
		N = 101	82
		Avg. Difficulty = 1.58	1.66

Hybrid Car Tax Reduction

14) People who purchase hybrid cars, such as the Toyota Prius™, Honda Insight™ and Honda Civic™ Hybrids, currently qualify for a federal tax deduction. This year, the deduction was $2,000. Starting next year, the deduction will be phased out by $500 per year, so that in 2007 there will be no deduction. Some feel we should encourage more people to buy fuel-efficient cars by permanently setting the deduction at $2,000. However, some argue that Congress should completely eliminate the deduction to reduce the federal budget deficit. What would you favor?

		National	State
Three Alternatives: Compromise = Status Quo			
1	Eliminate the tax deduction immediately.	23.1%	23.5%
2	Reduce the deduction by $500 per year.	21.5	27.1
3	Make the $2,000 tax deduction on hybrids permanent.	55.4	49.4
		N = 130	85
		Avg. Difficulty = 1.58	1.75
Five Alternatives: Compromise = Status Quo			
1	Eliminate the tax deduction immediately.	18.2%	14.1%
2	Phase out the deduction quicker, by $1000 per year.	4.6	2.2
3	Reduce the deduction by $500 per year.	15.9	16.3
4	Phase out the deduction slower, by $250 per year.	22.7	23.9
5	Make the $2,000 tax deduction on hybrids permanent.	38.6	43.5
		N = 132	92
		Avg. Difficulty = 1.78	1.84
Four Alternatives: Phase Out Deduction Quicker			
1	Eliminate the tax deduction immediately.	17.6%	16.7%
2	Phase out the deduction quicker, by $1000 per year.	3.2	6.3
3	Reduce the deduction by $500 per year.	25.6	24.0
4	Make the $2,000 tax deduction on hybrids permanent.	53.6	53.1
		N = 125	96
		Avg. Difficulty = 1.71	1.70

Four Alternatives: Phase Out Deduction Slower

1	Eliminate the tax deduction immediately.	23.9%	20.2%
2	Reduce the deduction by $500 per year.	16.9	16.9
3	Phase out the deduction slower, by $250 per year.	18.5	18.0
4	Make the $2,000 tax deduction on hybrids permanent.	40.8	44.9
		N = 130	89
		Avg. Difficulty = 1.58	1.89

Conclusion

Introduction

On Thursday, July 31, 2003, a Democratic filibuster in the U.S. Senate blocked the nomination of Alabama Attorney General William Pryor Jr. to the 11th U.S. Circuit Court of Appeals. Pryor's candidacy was opposed by Democrats on the grounds that his views on abortion, civil rights, and church-state integration were too extreme. Interest groups such as the Anti-Defamation League which normally do not take positions on appellate court judicial nominees publicly opposed Pryor's nomination. In a press release on Friday, August 1, 2003 President Bush criticized the Democratic obstruction, "unprecendented, unfair and unfaithful to the Senate's constitutional responsibility to vote on judicial nominees."[1]

While some might see the defeat of Pryor's nomination as a setback to President Bush, the implications of this thesis are that Pryor's nomination was a qualified strategic success. At the time, 137 out of 140 of President Bush's judicial nominations have been confirmed by the U.S. Senate. "These highly qualified nominees have stellar records that represent the mainstream of American law and values, and strong bipartisan support from those who know them best," said Bush in his press release. Compared to Pryor, most probably do represent the "mainstream of American law and values." In this dissertation, I argue that they appear to be mainstream because of this comparison

[1] The text President Bush's press release was accessed on August 3, 2003 from PRNewswire at http://biz.yahoo.com/prnews/030801/dcf021_1.html. Ori Nir reported on the ADL decision's to fight the Pryor Nomination in The Forward (New York), on July 25, 2003. Other wire sources were consulted to describe the nomination fight, including stories from Reuters and the Washington Times.

to Pryor. If not for someone like Pryor, groups like the Anti-Defamation League might have joined the battle against other (and more) nominees. A defeat for President Bush and Mr. Pryor can maximize the number of nomination victories for the President.

In this conclusion I review the causal mechanisms I identified in the thesis that explain menu-dependent preferences, evaluate the implications of this research for rational choice theories of politics and other theories of utility maximization, before discussing some legal and political ramifications of my findings. I end by discussing some new directions suggested by my research.

Information Effect

Additional candidates in multi-candidate elections provide information that changes perceptions of the other candidates. This informational change is one of two mechanisms that I identify that cause menu-dependent preferences to change how people vote in multi-candidate elections. In the introduction, I described the 1948 U. S. Presidential Election, where two minor-party candidates may have influenced perceptions of President Harry Truman. Two historians, Samuel Lubell and Irvin Ross, presented anecdotal evidence that Truman appeared to be a principled, determined moderate, in contrast to the dramatic policy changes promised by Thurmond and Wallace and Dewey's pledge to clean house in Washington. Truman appeared tough on Communism relative to Progressive Henry Wallace, and favoring the civil rights of African-Americans relative to Dixiecrat Strom Thurmond.

In Chapter 3, I described an anchoring effect that moved perceptions of one candidate away from perceptions of a second candidate. When people consider more than two candidates, as the Senators consider more than one judicial nominee, their perceptions of those candidates are influenced by their views of the other candidates under review. Extreme candidates or parties like the Scottish National Party in Britain can make other parties or candidates appear more moderate. As a result, candidates on one's flank are not just a drain on support. In the growth experiment I present in Chapters 3 and 4, these extremists can actually draw supporters to the adjacent candidate, as appears to be the case of Taiwan's Democratic Progressive Party. Some evidence was presented in Chapter 3 that priming for the perception of other political figures can also cause anchoring effects in the perceptions of candidates in a multi-candidate election. According to this logic, it is not unreasonable to assert that Ralph Nader helped Al Gore's candidacy or that Pryor's nomination assisted dozens of other Bush nominations.

Other information makes attributes that are difficult to evaluate in isolation, and therefore underweighted, comparable and salient (Hsee 1996; Lowenthal 1996). Additional candidates can also prime the voter to consider dimensions that had not been relevant to the choice. By raising new and different issues than the ones fought over in two-party competition, the presence of a new candidate can induce a preference reversal over the two original candidates.

The third party can also force the candidates to change tactics to counter the upstart's challenge or preclude the upstart from taking advantage of any weaknesses. By

presenting the same candidate profiles for the original set of candidates to subjects, I prevented these effects from contaminating my experiments. When I did introduce a candidate with a different policy priority, he demonstrated the ability of a third-party candidate to add an additional dimension by drawing supporters who thought that his issue should be a governmental priority.

Chapter 5 illustrated another way the information effect manifests itself to cause instances of menu-dependent preferences. In Chapter 5, I demonstrated the presence of a subcategory effect, where two or more specific policy proposals win attract the support of more voters than a broad, vague policy category that encompasses both of the specific policy proposals. In other words, the sum of the parts exceeded the value of the whole. I interpret these findings as an indication that the individual parts can be reminders of elements of the broad category of policies that the decision-maker had neglected.

Choice Difficulty

The second causal mechanism I identified was choice difficulty. According to psychologists studying consumer behavior, this difficulty is induced by anxiety associated with the choice process (Pettibone and Wedell 2000), or a need to justify one's decision (Shafir, Simonson, and Tversky 1993), or because of risk aversion (Simonson and Tversky 1992). In Chapter 5, I demonstrated that the number of options available to a decision-maker increases the self-reported average difficulty experienced by that decision-maker while arriving at a choice. In Chapter 4, this measure of choice difficulty played an important role in the success of two moderate candidates, the

additional candidate (C') whose stances were between A and B, and B's candidacy in the presence of a more extreme candidate (C"). Voters were more likely to vote for the moderate candidate that minimized the number of trade-offs they might have to make between economic expansion and the social and environmental costs of growth. Voters who thought their ideal point lay in between two candidates gravitated towards the candidates with a more extreme candidate on his flank when they thought the decision was difficult. The finding that choice difficulty matters is consistent with recent research by scholars in both decision science (Luce, Bettman, and Payne 1999; Luce, Bettman, and Payne 2001; Pettibone and Wedell 2000) and political science (Marcus, Neuman, and MacKuen 2000). Both sets of scholars have proposed new models that give greater weight to how the configuration of options triggers negative emotional responses like evaluative anxiety. These strategies should be particularly common in politics when the decision cannot be avoided (Kivetz and Simonson 2000).

I observed these effects in the experiments contained within this dissertation in addition to strategic considerations that might cause a voter to vote against their favorite candidate in order to influence the outcome of the election. Strategic or tactical voters defect from candidates with little or no chance of winning. When there are more than two candidates, one candidate can take away enough votes from a similar candidate that a third could win. To avoid having the least desired candidate win as a result of the split in the vote of his or her opponents, voters may defect to the candidate with the best chance of defeating the least desired candidate.

In order to act strategically, voters must take into account the viability of each of the candidates. Voters in two-candidate races do not need to take into account the viability of the candidates when deciding whom to vote for because there is no risk of causing the least-favorite candidate to win.[2] After taking into account the viability of the other candidates, the voters' choice over the other candidates can change. I controlled for expectations of the outcome of the election and strategic considerations in my individual-level vote analyses in the growth experiment. Choice difficulty mattered in addition to the strategic considerations.

Implications

By providing information that changes perceptions, introduces a new issue dimension or increases the weight of an issue dimension, by facilitating a choice in a specific direction, or by making the distribution of preferences in the electorate meaningful, additional options are hardly irrelevant even when they are unlikely to attract many supporters. Their presence, or absence, plays a role in the voters' decision. The evidence I present that a voter's choice could change in a predictable fashion in the presence of a third candidate shows that voting models that assume of independence of irrelevant alternatives are misspecified. Instead, scholars should take into account that a voter's choice is not independent of the set of candidates in the election.

The evidence for menu-dependent preferences goes beyond demonstrating changes in the probable vote from A to B in the candidate experiment. Because some voters became more likely to support a different candidate in the original, two-candidate set,

[2] A close race may influence a voter to turn-out, but not who to vote for in a two-candidate election.

we can conclude that other voters must surely have used the same comparative decision-making process even if the choice did not vary with the composition of the choice set. For these voters, the observed vote is the same whether we assume they are employing a menu-dependent decision rule or their choice is independent of the set of candidates. The change in perceptions may have made the candidate appear even closer or desirable. Their ideal point may still have been closer to the same candidate even though the number of dimensions of the issue space has changed. Alternatively, the choice may not have been difficult, or the increase in difficulty made it even more likely they chose the same, moderate candidate. Thinking about viability may have just precluded them from voting for the minor party candidate.

The observations that vote changes did occur demonstrates that voters employ a menu-dependent process of comparison all the candidates in the election race. Even if most voters' decisions do not appear to violate regularity, if some voters have violated regularity scholars need to rethink any assumptions of regularity. Instead, scholars need to account for the voter's views of the candidates and likely choice of candidates may change along with the choice set.

Preferences and survey response

When people act strategically and vote for a candidate other than the one they like best, the choice of candidate and the underlying preference for those candidates is different. Otherwise, voters are assumed to act sincerely, using their vote as an expression of their preferences over the candidates. As a result, we can discuss their behavior in terms of their preferences, not just as a result of their observed choices.

Unlike the studies on menu-dependent purchasing of consumer goods, I elicited a measurement of the voter's underlying preference by asking my subjects in the two candidate experiments to place themselves on a scale capturing what I hoped would be the primary division between the candidates. Extensive research has found that each method of measuring these preferences and the voters' perceptions of the candidates is sensitive to the method of elicitation. As a result, my findings in Chapter 3 are vulnerable to the criticism that rather than observing menu-dependent preferences, I am observing menu-dependent survey responses. With this research I have no way of ascertaining whether there is much of a difference between the menu-dependent survey response and the preference. For the study of politics, especially in the developed world it does not matter much, since the scales I used to measure preferences are the methods most commonly used to observe citizen beliefs. If they are artifacts of the survey, their use on so many opinion surveys means that these "artifacts" are what most scholars and politicians understand to be preferences. These measurements are used to justify policy decisions and understand support for particular candidates. I chose these scales because they are so close to what is commonly used, as opposed to different methods that might have been more likely to show menu-dependent effects.

Rational choice and menu-dependency

If these are indeed preferences, then my finding that the preferences are menu-dependent and contingent on the set of options raises serious concerns for theories of rational choice. These theories apply principles of microeconomic thought to political behavior. Downsian rational choice assumes preferences are single-peaked. Each voter

has an ideal, and the closer a candidate is to his or her ideal, the better he or she likes the candidate. People's preferences are complete over all the possible options, so voters can say evaluate each candidate and say whether they like one candidate over the other or are indifferent between the two. The voters' opinions are transitive, so if they like Truman better than Thurmond, and Thurmond better than Wallace, then they like Truman better than Wallace.

Menu-dependent preferences could violate these assumptions because of the preference reversal that occurs as a systematic result of the menu change. If Dewey to Truman when Thurmond and Wallace are not in the choice set, but Truman to Dewey when Thurmond and Wallace are in the choice set, then one cannot describe one's preference over Truman and Dewey while assuming transitivity and completeness.

Rather than assuming that preferences are exogenous to institutions, the demonstration of menu-dependent preferences provides a new causal mechanism for scholars like March and Olsen (1976; 1989) and Steinmo, Thelen and Longstreth (1992) who argue that preferences can be generated by institutions and organizations. Since the menu of candidate options are determined (in part) by institutions, and preferences are conditional on this menu, then the expressed preferences are also conditional on the institutional arrangement without reference to ill-defined cultural constructs. This institutional-determinism is reconcilable with rational choice since rational choice says little about the formation of preferences. If theories of menu-dependent preferences combined with electoral institutions help explain the formation of preferences,

traditional analyses based on the calculus of voting (Riker and Ordeshook 1968) can continue to be used to model choices over the set of candidates given the number of candidates in the race.

The spatial theory of voting can be adapted to account for menu-dependence by specifying the menu when calculating the utility generated by the distance from the voter's ideal to the candidate. Luce's (1959) microeconomic independence of irrelevant alternatives never played a prominent role in studies of voting behavior because political scientists assumed that similar candidates would cause a substitution effect. What is notable as a result of this study is it demonstrates for the first time that decions over political candidates can violate independence through an attraction effect benefiting similar candidates.

However, finding menu-dependent preferences may cause political scholars to reconsider some basic models of political behavior. In economics, much work is being done revising utility maximization theories to better capture menu-dependent preferences and similar preference reversals. Sen (1997) focused his efforts on redefining the maximization of utility. Machina (1982) dropped the independence axiom, allowing indifference curves to be non-linear, offering an explanation for paradoxes created by risk-averse behavior such as Allais'. Rank-dependent expected utility (Quiggin 1982; Schmeidler 1989) weakens the independence axiom so that affect depends on comparisons of outcomes produced by different events. These comparisons yield a rank-ordering that affects the amount of attention people pay to each of the

events. Loomes and Sugden (Loomes and Sugden 1982) proposed a regret/rejoice function that accommodates violations of transitivity, such as preference reversals.

Ramification for Electoral Laws

Assumptions about a substitution effect have found their way into electoral laws. In *Buckley v. Valeo*, the majority of the opinion of the Supreme Court was worried what might happen if campaign finance limits were not applied to independent candidates: "Even when a minor-party candidate has little or no chance of winning, he may be encouraged by major-party interests in order to divert votes from other major-party contenders."

The court has upheld barriers to minor parties such as signature petition requirements and double-digit support in the preceding election to qualify for an automatic ballot line in the subsequent elections. In *Jenness v. Fortson* (403 U.S. 431, 1971), the Supreme Court rejected the minor-party plaintiffs claim that their rights under the equal-protection clause had been violated on the grounds that the state had a justifiable interest to prevent voter confusion stemming from a lengthy ballot. The state can prevent this confusion in the interest of enabling the voter to make an informed and reasoned choice. This interest was later affirmed in *American Party v. White* (415 U.S. 738, 1974). However, if additional candidates generate an information effect that voters find useful in deciding between the major candidates, excluding these candidates would prevent the voter from making an informed and reasoned choice.[3]

[3] See Harvvard Law Review, Volume 88, 1974-1975, p. 1138 for more extensive review of these cases.

The Harvard Law Review's (Volume 88, 1974-1975, p. 1138) analysis of the Court's opinions on electoral laws concluded that the state had an interest to encourage coalition politics and prevent ideological fragmentation which might ensure if candidates could easily place their names on the general election ballot instead of seeking major party nomination. The change in perceptions that I identify and the compromise effect that would seem to be likely among "confused" voters confronted with the difficulty of a long list of candidates indicate that such fears are overstated. Instead of encouraging fragmentation, fringe candidacies may benefit moderate candidates well-positioned to form coalitions in the government. One might argue that this increase in choice difficulty may sound similar to the confusion the Supreme Court was concerned with preventing. Chapter 5 demonstrates that average choice difficulty increases when there are more options in the choice set. If this is the situation, this research shows that the Court wrongly assumed that the effect of such confusion would be fragmentation. Nothing in this research suggests that the information provided by the additional candidates somehow confuse or distract voters into thinking that the candidates are dramatically different than they might otherwise appear. Instead, the presence of a profile of a third candidate and the opportunity to read the profile was only sufficient for a small change in perception. However, the anchoring experiments in Chapter 3 failed to show that anchoring actually clarifies what is often a vague view of the candidates.

Implications for the Art of the Heresthetic

William Riker (1986) defined the heresthetic as "the art of constructing choice situations so as to be able to manipulate outcomes." The demonstration of menu-dependent preferences further emphasizes the importance of manipulating choice situations to those who want to succeed in politics. In particular, the compromise effect offers great promise to losers who seek to become winners. Two influential models of candidate competition with entry, Palfrey (1984) and Greenberg and Shepsle (1987), both argue that the two major parties need only converge to a point where it would be unlikely for a third party to find enough votes in the center or on the flank to win enough votes to win the election or at least displace one of the other parties. The compromise effect in voting would suggest that the ability of the two existing parties to find a space that would successfully deter a moderate candidate from entering is limited because the moderate candidate may be able to expand the existing space by attracting supporters to the candidate's centrist position. Alternatively, a major party candidate may use the compromise effect to his or her advantage by aiding the candidacy of a fringe candidate on his or her flank in hopes of benefiting like Taiwan's Democratic Progressive Party.

This is not the only application of menu-dependent preferences to the tools of the heresthetic. Even though the behavioral scholars found little evidence in support of weight change explanations, one of the most important tools of a heresthetic is influencing the number of salient dimensions (Riker 1986; Shepsle 2003; McLean 2001). Just because a new party enters does not mean that an additional dimension is

introduced. An additional dimension is only introduced as a result of deliberate strategy. For example, one candidate can question the truthfulness of a claim that a policy will result in the desired policy outcome, introducing a credibility dimension to the decision-making process.

The ability to influence the dimensions of the choice is consequential because if there was only one salient dimension, say fiscal policy, the choice set would not include any asymmetrically dominated candidates. Symmetrically dominated decoys do not help the dominating alternatives. If asymmetric dominance benefits the target, then the target candidate should pursue a campaign agenda designed at making salient a second dimension so as to improve his or her own standing.

Future Directions

1. Party Labels. Before any conclusion can be made about the use of menu-dependent preferences by a heresthetic politicians will need to understand if party labels moderate menu-dependent preferences. Will the attraction effect make the centrist party more appealing, or will party loyalists hesitate to defect? In my candidate experiments, no party labels were attached to the candidates. This did not greatly influence the validity of the experiments because local elections in Durham County, North Carolina are non-partisan. Future investigations should see how party labels interfere with the compromise effect. The historical evidence suggests that minor party candidates in the center, such as John Anderson in 1980 or Ross Perot in 1992, may not have much success luring votes away from the major parties. If the compromise effect is driven by risk aversion or a search for an option that can be easily justified when the choice

becomes difficult, then falling back on one's party identification may prove to be an even easier justification or the least risky choice (Simonson and Tversky 1992). If this is the case, when the minor party is on a major party's flank, like the Greens, the adjacent major party will especially benefit, but when it is a major party on the fringe, the minor-party may win little votes.

The moderating influence of party affiliation can be tested by creating "mismatches" of candidates and party labels, like a liberal Democrat. Racial cues (or pictures) of the candidates can be used the same way, since race is another common identifier that generates a range of assumptions about political beliefs. These assumptions contribute to the drawing of a color line in American politics that many white voters do not appear to cross. It would be important to see if adding an extreme African-American candidate to a election contest with a moderate African-American candidate would induce enough of an information effect to move the moderate further to the middle, re-drawing the color line, or whether the color line is so strong that the only effect is a substitution effect as the two African-Americans divide the white liberal and African-American vote.

2. Group Think and Menu-Dependent Preferences. A second question worthy of investigation is the impact of group deliberations on extremeness aversion in politics. Research into group dynamics suggests that people in groups are more likely to choose extreme opinions. My experiments showed that in collective votes without group deliberation, the compromise effect was present, but future research is necessary to see

whether the tendency of groups to polarize is more powerful than the compromise effect. Experiments designed to test this effect did not make it through the piloting stage because the items people were choosing over did not inspire strong opinions. Nevertheless, studies of this subject will be particularly interesting to scholars of legislative politics since menu-dependent preferences implies that the order resolutions are considered will matter to the final decision, and will indicate whether the bipolarization of the legislature is exacerbated by the group-think or ameliorated by a compromise effect that minimizes difficult trade-offs.

3. Anchoring and Clarification. In Chapter 3, I presented results from experiments that attempted to show how other candidates or the incumbent can anchor perceptions of the candidates contesting the election. While there was evidence those candidates altered perceptions of their competitors, there was little evidence in support of my hypothesis that this anchoring would reduce some of the uncertainty associated with the candidate placement. Future research with a large sample of voters who are not college students should investigate whether measuring perceptions using a consistent anchor results in more consistent and certain answers from respondents. This would be important test of whether the information effect has a beneficial or clarifying effect on the decision-maker, or whether perceptions shift without any corresponding affect on certainty.

4. Nested Choice. The subcategory effect displayed in Chapter 5 indicated that in choices that might have been approached with a nested approach were not. The result was that the sum of the support for specific proposals exceeded support for the broad

category of policies that both proposals fell under. A process tracing approach with experimental subjects can shed light as to whether some people nested the options, or whether everyone considered each of the options at the same time. It would be particularly interesting to test whether further expansion of the choice set would induce more people to use a nested approach. For example, all of the experiments replaced one category with specific proposals. What would happen when specific proposals replace more than one proposal? Would the choice become more difficult or would people cope with the extended menu by nesting the options?

These future questions point to a promising direction for future research into behavioral decision theory and political science. This dissertation demonstrates the presence of menu-dependent preferences in politics. Future research building off of this foundation can provide insight into topics as diverse as racial politics, legislative agenda-setting and formal models of decision-making.

Appendix I: Hypothesis Testing

There are two general categories of tests employed in this thesis, one set of tests are used with aggregate data, the other for individual-level data.

Aggregate Data

In Chapter 3, I examine differences in perceptions of candidates of the respondents. Much of the analysis considers the entire sample of experimental subjects as I investigate what happens to perceptions of a candidate like Elizabeth Dole. To understand changes in the perceptions in the sample between conditions, I focus primarily on the mean or average perception of the candidate. My hypotheses ask whether there is a difference between the mean under one condition and a mean in the other condition.

When there are only two conditions being compared, a T-test is appropriately employed. The T-test tells me whether I can be sure one mean is smaller or larger than the other (a one-tailed test), or certainly different (a two-tailed test). A T-test assumes that variance of the observations in the two groups is equal and the observations to be distributed normally, but I can specify that the statistical package should relax this assumption if I find the variances to be unequal.

When there are more than two conditions, I generally employ a one-way analysis of variance (or ANOVA), which is similar to a T-test. The analysis of variance tests the same thing as the T-test: whether the average in each condition is significantly different, or (as a result of a small number of observations or small difference in means) not

different. Unlike a T-test, the one-way analysis of variance allows me to compare more than two condition or sub-population means.

The Scheffe multiple comparison test is one of three similar methods (the others are Bonferroni's and Sidak's) supported by STATA, the statistical package I used, to determine which of the conditions are significantly different and which are not. This test generates a table showing the differences between each pair of means to see whether the one-way analysis of variance's conclusion of a statistically significant difference is the result of the means of several treatments being different or a result of a large difference between one pair of means. This test was only reported if the one-way analysis of variance confirmed a significant difference in means. Scheffe is reported because Hamilton (2003) found the test to be valid under a wider variety of conditions and a more difficult test to pass. No differences were observed with the other methods. Similar findings were found, and often reported, using a T-test on these pairs of sample means.

ANOVA tests assume that the variance around the mean is equal across the groups or conditions. The test of the equal-variance assumption is Bartlett's X^2. If the variance around the mean is not the same across the conditions, the one-way analysis of variance is not reliable. If the variance is unequal, I cannot use the ANOVA, so I must either (a) report T-tests that assume unequal variances done on pairs of condition means, or (b) use a non-parametric alternative.

These non-parametric tests make no assumptions about the population distribution. Instead of the sample mean, these tests compare the sample medians. I employ two of these tests, the Wilcoxon Matched-Pairs Signed Rank Test (also called the Mann-Whitney U test) and the Kruskal-Wallis Test. The Wilcoxon test collects the absolute values of the differences between two observations. These differences are then ranked from 1 to *n*, with the smallest difference being one. The sums of the ranks of the positive and negative differences are compared. If they are equal, the population distribution is thought to be equal and symmetrically distributed about a mean of zero. If they are unequal, the population distributions are significantly different. The Kruskal-Wallis generalizes this ranking technique to multiple samples. The null hypothesis is that the groups of observations are drawn from identical populations. If the X^2 is high enough, the null hypothesis can be rejected and we can conclude that the observations are drawn from different populations. This is desirable when comparing results from a control condition to multiple treatment conditions.

Individual Level Analysis

Rather than just compare aggregate results across two samples, I also analyze individual data. This is very useful if I think that there may be factors other than treatment condition that drive choices or judgments. For example, in Chapter 4, I was interested in explaining why some respondents voted for Candidate B, but others did not. In Chapter 3, I wanted to explain the placement of Labour on an eleven point scale. Factors such as political knowledge, party identification, income and gender all potentially play a role in such judgments and decisions. Individual analyses takes the values for each

respondent on all of these factors and examines which one or ones appear to have an impact on the dependent variable we are interested in explaining.

When the dependent variable was dichotomous, such as when the voter could vote for A or B, I employed a logistic regression analysis. Independent variables push the voter up or down the curve, making it more likely the voter will vote for B or more likely the voter will choose to vote for A. The variable coefficients may not be significantly different than zero. A more reliable way to see whether the independent variables have a significant effect is to perform a likelihood-ratio test, comparing the results of one model to the results of the same model without one or more independent variables. If the likelihood ratio is significant, than the excluded variables have a significant effect on the dependent variable even when controlling for the other variables. I report the odds-ratios and the first differences using Clarify to best understand the magnitude of the effect of each independent variable on the likelihood of voting for B (or A) when all other variables are held constant.

When the dependent variable is not dichotomous, I often transformed the dependent variable to a dichotomous one. For example, in the treatments for the Growth Experiment, there are three candidates. To make the dependent variable dichotomous, I combined the votes for A and C so the dependent variable is B or not-B. There are also multinomial logistic regressions that can be performed, but since many of these assume choice-item independence, they were not appropriate to be used as tests in this paper. However, placement on some short scales or candidates that are easily ordered on one

dimension can be analyzed using ordered logit regressions. Instead of one curve, there is a curve fitted between each step on the ordered scale. In a sense, an ordered logit is a series of logistic regressions. When I report an ordered logit regression, I state the cut-points, which are the locations of the steps from one ordered level to the next. These cut-points are important because they delineate the distance of each level. When this distance is compared to the size of the coefficients, we can grasp the magnitude of the coefficient. If the coefficient is smaller than the distance, a change in the value of that variable cannot change the expected value of the dependent variable by more than one point. First differences can also be calculated for ordered logit regressions. I employed ordinary least squares (OLS) regression when the dependent variables were large scales because these coefficients are easily interpretable by many readers. There was no substantive difference when I used a regression instead of an ordered logit.

Appendix II: New York City Questionnaire

Appendix III: North Carolina Senate Questionnaire

Appendix IV: Growth Experiment Questionnaire

Appendix V: Sample Profiles: Growth Candidates

Appendix VI: Sample Profiles: School Candidates

Appendix VII: Policy Questionnaire

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