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THE STRATEGY OF PRESIDENTIAL CAMPAIGNS

by
Jonathan Paul Day

An Abstract

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

July 2010

Thesis Supervisor: Associate Professor Douglas Dion

ABSTRACT

Do campaigns have an effect on the outcome of elections? This question is usually answered using one of two methods. The first method is when political pundits examine the two opposing campaigns and judge which one had a greater impact on the polls. The second method is when political scientists use statistical methods to analyze whether a campaign had an effect on the election outcome. Both methods fail to consider the factors influencing campaign strategies and the effect these campaign strategies have on the election outcome.

A third method, which I present in this dissertation, uses a formal model. This formal model treats the presidential election as a game between the two candidates competing for electoral votes in fifty-one locations. The model incorporates the assumption that the two candidates can have different prior probabilities of winning each state and can have different degrees of effectiveness at getting votes. The solution to this model is straightforward, but interesting. Candidate strategies are determined by the effectiveness of the candidates, the competitiveness of the state, and the state's electoral value. Candidates will allocate more resources 1) to states with higher electoral value, 2) to more competitive states, and 3) when they are more effective at getting votes. The structure of the model also provides an answer of when candidates can have an effect on the election outcome. When one candidate is more effective at getting votes, then that candidate will allocate more resources and receive a greater marginal return on each unit of resource than their opponent, resulting in an effect on the election outcome in their favor.

To test the model, I examine the historical record of the campaigns and candidate strategies in the nine presidential elections from 1976 to 2008. These historical accounts provide qualitative support for the assumptions and predictions of the model. I also statistically analyze data from five of these presidential elections and show quantitative support for the assumptions and predictions of the model.

Finally, I conclude by showing that the model is useful in answering other questions regarding campaigns in general, such as how candidates should allocate resources in governor and senate elections; how third party candidates should allocate resources; what happens if candidate effectiveness varies across state or time; and what happens if the cost varies across state? The model's ability to answer these questions shows that it can have a broad and substantial influence in the study of campaigns and elections.

Abstract Approved: _____
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Title and Department

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

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Graduate College
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CERTIFICATE OF APPROVAL

PH.D. THESIS

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

Jonathan Paul Day

has been approved by the Examining Committee for the thesis requirement for the Doctor of Philosophy degree in Political Science at the July 2010 graduation.

Thesis Committee:

Douglas Dion, Thesis Supervisor

Michael Lewis-Beck

Cary Covington

Tom Rice

Timothy Ansley

To God, Jess, and Liam

As the election approaches, intrigues become more active, agitation more lively and more widespread. Citizens divided into several camps, each of which takes the name of its candidate. The entire nation falls into a feverish state; the election is then the daily text of public papers, the subject of particular conversations, the goal of all reasoning, the object of all thoughts, the sole interest of the present.

Alexis de Tocqueville, Democracy in America

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CHAPTER 1

INTRODUCTION

> Every book I've read about presidential campaigns is the person that won ran a perfectly flawless, beautifully machined, great campaign, and the person who lost… screwed up.
>
> John McCain on Jay Leno, November 12, 2008

It was mid August in 2000 when the leaders of the Bush campaign stared at their computers, perplexed by what they could not find. There was no runway in Eastern Iowa large enough to land a 757; Bush's method of transportation on the campaign trail. Years of planning and knowing that Eastern Iowa had critical swing voters for the state, yet the campaign was unable to take their presidential candidate. The Gore campaign had outsmarted them – they had booked a river boat tour up the Mississippi River. It was too late for the Bush campaign to make any necessary changes, so instead they decided to add another visit to Western Iowa. Election Day results came six weeks later; Bush had slightly over performed in the western part of the state, but significantly underperformed on the eastern side. An unintended misstep by the Bush campaign led to a tangible campaign effect on Election Day. Bush lost the state of Iowa by 4,144 votes, just 0.31% of the total votes in that state.

If the Founding Fathers had been looking over the shoulder of Bush's campaign advisers in the summer of 2000, they would have been shocked by more than just the lighted box the well-dressed advisers were looking at. When the Founders envisioned what future elections looked like, they did not imagine a super competitive contest between two very ambitious candidates surrounded by a staff that numbered in the hundreds and in some cases thousands. They did not imagine that science would be used

in campaigns that involved analyzing almost every word spoken by the candidates; the intensive polling to constantly keep updated about the current trend of public support; the diagrams and calculations of where money should be spent and the locations the candidate should visit; the hundreds of speeches, thousands of hours, and millions of dollars spent during the course of a two year long campaign for the presidency; yet this is now the reality of presidential elections.

The super competitive nature of presidential elections makes it one of the most complex dynamics to analyze in American politics. The process of just the general election alone takes several months, involves hundreds of campaign visits by each of the candidates, and millions of dollars in advertisements. On a daily basis political pundits and journalists analyze every move made by the campaigns, using the change in the national polls as a measure of the performance of the candidates. And political scientists who study presidential elections have developed two schools of research: those that study *campaign effects* and those that study *campaign strategy*. In the next two sections, I will look at each of these approaches

Campaign Effects

Political scientists have tested the polls in presidential elections using statistical models. And while much of the literature has found that individual events may have some temporary effects, the broader finding is that campaigns are not as important as the pundits and journalists would have us believe.

These findings date back at least to the 1930s, when James Farley told Franklin Delano Roosevelt that the election is over before the campaign even begins. This observation, known as Farley's Law, has generally been supported by research on

presidential campaign effects. One of the most influential studies was done by Lazarsfeld, Berleson, and Gaudet (1940, 1948, 1968). They found that only 8 percent of the electorate changed their minds during the course of the campaign, with each campaign taking 4 percent. With such a small proportion of the population persuaded to change their vote intention and the campaigns benefiting equally, campaigns did not seem to matter with respect to the election outcome. A more recent study found similar minimal effects in other presidential elections (Finkel, 1993).

Forecasters have found that they can predict the election results without taking campaigns into account (e.g. Lewis-Beck and Rice, 1992; Abramowitz, 2008a; 2008b; Campbell, 2008b; 2008c). With just a couple of economic and political variables, these models have accurately predicted election results within 2.5 percent of the outcome. Other models using aggregated state by state forecasts have predicted the election results within 0.3 percent of the outcome (Rosenstone, 1983; Gelman and King, 1993; Klarner, 2008). If statistical models can explain the vote without considering the differences in the campaigns, can campaigns influence election outcomes? Scholars attribute some of the movement in the pre-election polls to campaign activity (e.g. Shaw, 2006; Erikson and Wlezien, 1999). These effects, however, might only be temporary, and other scholars hypothesize that the movement is only related to the enlightenment of the voters to the economic and political context surrounding the election (Gelman and King, 1993; Holbrook, 1996). In fact James Campbell claims that campaigns might have only been decisive in two presidential elections between 1948 and 2000 (Campbell, 2001). Nevertheless, campaign managers and strategists plan, coach, direct, and encourage their candidate to continue campaigning aggressively until Election Day. Even Gerald Ford's

campaign team which made it clear that it was virtually impossible for him to win[1] reassured their leader by writing, "We firmly believe you can win in November" (Campaign Strategy for President Ford 1976). And there are several reasons to believe that campaigns are important to the election outcome, despite the evidence to the contrary.

First, recent research has found that the number of potentially persuadable voters could be as high as 25% (Hillygus and Shields, 2008). This was the percentage of voters who strongly believe in an issue not traditionally supported by the party they identify with in the 2004 presidential election. Therefore any small difference in the campaigns could make a larger impact than previously thought. Second, if a candidate did not campaign at all, many voters would be uncertain about the candidate and uncertainty has been found to have a negative effect on voters (Alvarez, 1997). Furthermore, it is certainly believable that if a candidate ran a counterproductive campaign, the number of loyal voters for that party would decline in that election. Finally, forecasting models do account for campaign effects within the statistical model, just not explicitly. If the independent variables in these models are the non-campaign effects on election outcomes, then the error term can be conceived of as the net campaign effect (Lewis-Beck and Tien, 2008).

But what kind of an effect do campaigns have? There are four types discussed in the literature: *persuasion*, *priming*, *mobilization*, and *strategic alteration*. Persuasion is when a campaign is successful in switching the intended vote of a voter. Priming is

[1] Ford's campaign team wrote, "If past is indeed prologue, you will lose on November 2nd – because to win you must do what has never been done: close a gap of about 20 points in 73 days from the base of a minority party while spending approximately the same amount of money as your opponent…You cannot overcome the Carter lead on your own, no matter what you do" (Campaign Strategy for President Ford, 1976)

where campaigns make a certain issue or consideration salient to a particular voter. Mobilization is when campaigns cause a voter to vote. Finally, strategic alteration is where campaigns change the decision calculus of a voter, such as voting for the candidate most likely to win, not the one closest to them ideologically.

I define the total effect a candidate has on getting votes through persuasion, priming, mobilization, and strategic alteration as the magnitude of the candidate's effectiveness. Candidate effectiveness becomes the key factor in answering the question: Do campaigns have an effect on the outcome of elections?[2]

I begin my inquiry into the effects of campaigns on election outcomes by reviewing past research on how candidates allocate their campaign resources.

Campaign Strategies

Brams and Davis (1974) designed one of the first models of resource allocation in presidential campaigns. In their model, the goal of the candidates is to maximize the number of electoral votes they win. Candidates then spend resources in the states and the winner of each state is determined by which candidate spent more resources in that state. They assume that candidates have imperfect information about what strategy the other candidate chooses. The authors also assumed that the candidates would match each other's campaign expenditures in each state. The solution to their model is that candidates spend resources in an individual state based on the state's electoral value to the 3/2ths power. However, Colantoni, Levesque, and Ordeshook (1975a) show that this model ignores the competitiveness of the individual states as a motivation to spend

[2] The question here is not: Do campaigns alter the underlying decision making process of the individual voters? While it is certainly interesting to understand why someone chooses the direction to go at a fork in the road, I want to understand whether the campaigns have an overall effect on the number of people that go one way instead of the other.

resources. By including competitiveness as an assumption in their model, the authors show empirically that campaigns do not necessarily spend resources to the 3/2ths power shown by the Brams and Davis model[3].

Bartels (1985) used a multiplicative model based on data from Carter's 1976 campaign to test the Brams and Davis (1974) result. He found that visits were allocated based on the electoral votes of the states to the 1.64 power and TV advertisements to the 1.7 power. However, Bartels (1985) in footnote 7 reports,

> "The bivariate relationships between electoral votes and resource allocations shown in table 2 obviously ignore…competitiveness [with this variable and others]…the parameter estimates are 1.30 for campaign trips and 1.45 for advertising funds."

However, he fails to report the standard errors for these new estimates, which are critical to evaluating these coefficients. Shaw (1999b) examined the strategies of the Democrats and Republicans in the 1988, 1992, and 1996 election and found that Electoral College Strategy and opponent's resource allocations have a significant effect on resource allocations by the candidates. Electoral votes, TV ad costs, and competitiveness do not. However, there are serious concerns about this research. Reeves, Chen, and Nagano (2008) find that Shaw (1999a) did not use the method he reported to have used. The results are inconclusive when using the method that was reported to have been used. Consequently, despite the research done to develop these formal models and conduct these statistical analyses, much confusion remains concerning the allocation of resources in presidential elections.

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[3] Brams and Davis (1975) answer the criticism about not including competitiveness in their model. However, Colantoni, Levesque, and Ordeshook (1975b) explain that the Brams and Davis (1974) model only analyzes competitiveness ex post, whereas their model analyzes competitiveness ex ante.

Furthermore, there is a lengthy literature that reaches different conclusions about the biases in the Electoral College with regards to voting power and allocation of resources in presidential campaigns (e.g. Banzhaf, 1968; Sterling, 1978; Lake, 1979; Margolis, 1983; Gelman, King, and Boscardin, 1998). The one defining difference between the two camps is that the side that shows a bias in the Electoral College does not include an assumption of differences in competitiveness of the states and the other side incorporates this assumption. These two camps, in sum, only evaluate the electoral value and competitiveness as factors influencing allocation of resources by presidential campaigns.

The attempt to explain candidates' resource allocation is further complicated because they might be influenced by other possible factors. These include: helping congressional candidates win their election, gratifying important individuals within the organization, preserving political traditions, and improving public relations (Bartels, 1985). However, none of these other factors contribute to increasing the probability of winning the presidency. Anecdotal evidence seems to support the notion that campaigns are primarily concerned with winning. For example, Karl Rove used to receive emails every day asking for campaign resources or visits from the candidate for a number of different reasons, but would try to keep focused on the expenditures that would help George Bush win the presidency (Shaw, 2006).

While there is much confusion about what determines candidates' resource allocations, there is no confusion about the candidates using states as the unit of analysis. But why are the campaigns focused on the states and how important is this focus?

The Importance of States in Campaign Strategies

The Electoral College system forces candidates to focus on states because it provides them with a block of votes for every state that they win with a plurality[4]. In order to win the presidency outright, a candidate must win 270 out of a possible 538 electoral votes. Winning the state by more than one vote does not provide you with any additional electoral benefit. And losing the state by just one vote provides you with no electoral benefit. Therefore, it only benefits a candidate to expend just enough effort to win the state.

And nothing explicates the need for a state focused presidential campaign more than the result of the 2000 presidential election. In this election, a mere 538 additional votes in the state of Florida would have made Albert Gore, Jr. the President of the United States. But this is not the only example where one state decided a presidential election. In 1888, Grover Cleveland just needed 7,188 votes in the state of New York to win the presidency. In 1916, Charles Evans Hughes needed only 1,712 votes in California to win the presidency. In 1884, James G. Blaine fell short of winning the presidency by only 524 votes in New York. And finally, in 1876, Samuel J. Tilden lost his bid for the presidency by a mere 445 votes in the state of South Carolina[5]. These of course were the closest presidential elections. But one state also decided the 2004 election (Ohio), the 1976 election (Texas), the 1880 election (New York), the 1848 election (Pennsylvania),

[4] Maine and Nebraska are the two states with different systems. Winning the plurality of the votes in the state gives you two electoral votes. Then you win an additional electoral vote for every congressional district that you win a plurality of the votes.

[5] These figures are taken from Campbell, 2008a.

the 1840 election (New York), the 1812 election (Virginia or Pennsylvania), the 1800 election (Maryland), and the 1796 election (Tennessee). That means that one in every four presidential elections has been decided by one state. But, could campaigning have made a difference in these elections?

Despite the confusion among scholars about how candidates allocate their resources and to what effect, it is clear that campaigns themselves are firmly convinced that they can have a tangible effect on the outcome. They believe that "each foray produces so much coverage from local newspapers and television stations. According to Clinton's national campaign manager, David Wilhelm: 'One thing that has struck all of us in this campaign is the importance of a candidate trip into a state. There's an immediate effect, two points, maybe even three points in some cases'" (Pomper et al., 1993, pg. 87). As noted at the beginning of this chapter, analysts believe that Bush may have lost Iowa because he failed to make an appearance in the critical eastern part of the state. Campaigns further agree that campaign strategies and effects are not limited to candidate visits. In the same election that Bush made a strategic mistake by not visiting eastern Iowa, Gore's campaign made a more costly mistake. In the state of Florida, Gore allowed Bush to outspend him in advertisements by 10 million dollars. One of Gore's campaign strategists noted the mistake by saying, "Now I don't know that much about paid media, but I know that $10 million is worth 537 votes" (Jamieson and Waldman, 2001, 170).

This means that participants in elections believe that candidates have a real chance of impacting their election chances with the strategies they employ. My purpose is to expand upon our current understanding of presidential campaign strategies and

effects by developing and testing a more complete model of candidate resource allocations.

Tying the Two Schools of Research Together

The purpose of this project then is to combine the two schools of research. By developing a model which includes campaign strategies and their subsequent effect on election outcomes, a greater understanding of presidential campaigns and elections can be achieved.

Before we can proceed, we need to define the core concept: campaign effect. I define a campaign effect as follows:

> *A campaign effect is a change in the expected election outcome as a result of the expenditure of campaign resources*

The expected election outcome before campaign resources are spent is the prior probability that a candidate will win each state multiplied by each state's electoral value and added up for all fifty states and the District of Columbia. The expected election outcome after campaign resources are spent is the posterior probability that a candidate will win each state multiplied by each state's electoral value and added up for all fifty states and the District of Columbia. If there is no difference in the expected election outcome before the campaigns begin and after they end, then by this definition, there has been no campaign effect. This definition sets up an easy test to answer the question of whether or not the campaigns had an effect on the election outcome.

This way of looking at campaign effects answers the question conceptually, but not empirically, due to the problem of simultaneity. The expected election outcome before candidates allocate resources influences the candidates' decisions of how to

allocate resources and this in turn influences the expected election outcome. In the literature on presidential campaigns and elections, there is a divide between strategy and effects. Either the research focuses on what influences the strategy of presidential candidates or it focuses on trying to devise statistical measures of effects the campaign resources have on the election. However, since the strategy, resource allocations, and effects are actually interdependent, we need to disentangle these effects. Game theory is particularly suited to combining these two research programs. I can use a game-theoretic model to disentangle the simultaneity problem by understanding how both candidates will allocate their resources given the prior probability of winning the election and then use these results to determine how the resources allocated will change the expected outcome of the election.

The main key to understanding how campaigns can have an effect on the outcome of elections is to understand the candidates' abilities to gain votes (i.e. candidate effectiveness). After developing a model to understand presidential campaigns and elections, I will apply significant attention to the role candidate effectiveness plays in the model. This provides a missing link in the study of campaigns and elections that helps to understand both allocation of campaign resources and the effect this has on the outcome of elections.

The next section outlines the rest of my work.

The Road Map

In Chapter 2, I develop a theory of campaign strategies and effects in presidential elections. Candidates allocate resources based on four factors; the electoral value of the state, the competitiveness of the state, their own effectiveness and their opponent's

effectiveness at getting votes. The competitiveness of the state is determined by the state's prior voting history, its economic and political environment, and the homes of the presidential candidates. The effectiveness of the candidates is determined by the personal skill of the candidate, the experience of their campaign staff, and the political landscape. I also modify a formal model developed by Snyder (1989) and adapt it to presidential elections. This formalizes my assumptions and variables mathematically and represents the presidential election as a game. I then relax one of the basic assumptions by allowing the two candidates' effectiveness to be different. The equilibrium strategies in the game provide important insights into the relationship between candidates' allocation of resources with relation to their effectiveness, the competitiveness of the state, and the electoral value of the state. The model also provides important insights into presidential campaign effects.

I also explore the substantive predictions behind the model by providing graphical results of campaign resources and campaign effects under different election scenarios. I find that the magnitude of the campaign effect is largely determined by the difference between the effectiveness of the two candidates, but this does not mean the more effective candidate always wins.

In Chapter 3, I test the theory's assumptions and predictions in actual presidential elections from 1988 to 2004 using candidate state visits and media buys.

In Chapter 4, I explore the historical evidence for the theory's assumptions and predictions from 1976 to 2008. I will describe the economic and political environment surrounding each election which set up the prior probabilities that the candidates will win each state. Furthermore, I report on the campaigns and the evaluations of the candidates

to understand the relative strength of each candidate's effectiveness. Finally, I examine the record of several campaign strategies employed in presidential elections since 1976, which provides information on how campaigns think about the strategic environment created by the Electoral College system. All of this information provides important support for the theory's assumptions and predictions.

In Chapter 5, I provide a rough measure of the magnitude of the campaign effects in the presidential elections from 1988 to 2004. I use Klarner's (2008) forecast model to develop the prior probabilities, the regression of campaign resources to determine candidate effectiveness, and the model to calculate the change in the expected election outcome. The results show that campaigns can have a significant effect on the outcome of elections.

Finally, Chapter 6 looks at further extensions of the model that answer other major questions about presidential campaigns and elections. These extensions show that this model can have a very broad and substantial influence in the study of campaigns and elections.

CHAPTER 2

A THEORY OF CAMPAIGNS

> Even forecasters… admit that campaigns are necessary to educate their voters about the external reality upon which their predictions are based.
>
> Dr. Daron Shaw, The Race to 270

> In politics, your strategy is never based on choice – it is forced on you.
>
> James H. Rowe

In developing a theory of campaigns, I wanted to ultimately understand the effect campaigns have on presidential elections. But looking at campaign effects through non-formal theories has been done before and produced mixed results (e.g. Finkel, 1993; Shaw, 1999b). These non-formal theories make assumptions through the type of statistical methods they use, but often do not discuss their assumptions explicitly. For example, in the study undertaken by Shaw (1999b), the implicit assumption was that each unit of resource spent by the campaign produces a linear return on the votes. This assumption was never discussed as to the impact it had on the results. A different specification, such as campaign resources having nonlinear effects on the election outcome could yield vastly different results. Another implicit assumption in the Shaw (1999b) study was that the candidates were equally effective for each unit of resource they spent. In fact, this exact assumption was criticized seven years earlier in a similar study done by Nagler and Leighley (1992) when they wrote:

> "Another tempting specification is to use the difference in expenditures, rather than both expenditure variables. However, this assumes that the effects of Democratic and Republican spending are equal…There is ample prior reason – both theoretical and empirical – to doubt this. One candidate's commercials may simply be *more effective* than the other candidate's commercials." (p. 325) (emphasis added)

It is therefore important that assumptions are made explicit so that scholars can understand where a researcher is coming from and whether this is the best specification for a model and understanding the real world.

Therefore, I will introduce the assumptions in the next section. Then, I will define two important concepts I will be using in the formal theory. Finally, I will adapt an existing formal model to presidential elections to understand presidential campaign strategy and then use this model to understand campaign effects.

Assumptions

I will assume that voters have at least low-information rationality when making their decision for whom to vote (Popkin, 1991). That is voters do not necessarily have a consistent mathematical formula where they objectively plug certain numbers into pre-determined parameters to make their final decision for whom to vote. But voters do have a general knowledge about the candidates, the political and economic environment, and the issues that are being discussed. This knowledge does not have to be perfect and the voters can make a decision for a variety of reasons. Popkin (1991) explains the basis of low-information rationality as:

> "[Voters] have premises, and they use those premises to make inferences from their observations of the world around them. They think about who and what political parties stand for; they think about the meaning of political endorsements; they think about what government can and should do. And the performance of government, parties, and candidates affects their assessments and preferences" (p. 7)

Therefore, voters are not blank slates, having no foundation for making decisions. Voters have pre-determined preferences which form the basis of their assessments about candidates. Popkin (1991) goes on to explain the process of how voters reason using low-information rationality:

> "This reasoning draws on various information shortcuts and rules of thumb that voters use to obtain and evaluate information and to simplify the process of choosing between candidates…they triangulate and validate their opinions in conversations with people they trust…With these shortcuts, they learn to "read" politicians and their positions… Campaigns give [voters] much of the information they reason from as they deal with their uncertainty" (p. 7-8)

The assumption that voters have low-information rationality allows campaigns to matter. If voters were just decision makers who made random decisions, then campaigns would not make any difference in their thinking. Since voters do have preferences, collect information, and then make a decision for which candidate best meets their preferences, campaigns make an impact by choosing which information they provide to the voters to make their decision.

However, voters do not necessarily decide the same way; Lau and Redlawsk (2006) show that there are essentially four types of voters who make decisions for whom to vote in different ways. Whether perfect or not, each voter makes their decision based on the information available to them and based upon the criteria they put forth.

This assumption then is that every voter uses knowledge about the candidates, the issues the candidates select, the ideological position of the candidates, the political environment, the economic environment or any combination of these factors to make a decision for whom to vote. The candidate the voter decides to vote for is better in some way than not voting or voting for the other candidate.

Another assumption is that the candidates are rational. The candidate chooses the strategy that maximizes their probability of winning the election. This means for every decision that a candidate has to make, they opt for the one that gives them the greatest chances of winning. Some of the electorally important decisions that candidates make

during a campaign include choosing campaign advisers, picking the vice president, the number of times to visit each state, the types of campaign visits, the amount of money to spend in each state, the type of campaign ads to air, the issues to emphasize and the issues to ignore. Each decision the candidate makes is directed towards the ultimate goal of winning the election, so that at every point the candidate makes the decision that maximizes their effectiveness at getting votes given their alternatives.

A third assumption is that the candidates have equal amounts and quality of information. Neither candidate has an advantage of knowing information that the other candidate does not know. In modern campaigning, presidential candidates have millions of dollars at their disposal. This money allows candidates to buy the very best political advisers and pollsters. The assumption is that the political advisers and pollsters for both candidates have the same opportunity to obtain information about the voters. This does not mean that the skill of both candidates' political advisers is the same. It only means that both candidates see the world relatively the same way.

The fourth assumption is that candidates have equivalent costs. Neither candidate has a systematic advantage in the cost for travel, boarding, eating, facilities, materials, production of videos, access to the airwaves or any other cost associated with campaigning.

The fifth assumption is that candidate resource expenditures have a strictly positive effect on their vote total. This guarantees that candidates have an incentive to campaign. While candidates can be very ineffective at campaigning, they are not counterproductive. This means when they are campaigning they do not experience the other candidate having a net increase in votes as a direct result of their campaign.

Sixth, candidates care about winning electoral votes and each electoral vote has the same value. This means they devote resources to states proportional to that state's electoral votes. While the first five assumptions are not all that controversial, this one has some resistance in the literature. There are formal models of presidential campaigns that result in disproportionate expenditures of resources to states with larger electoral votes (e.g. Brams and Davis, 1974). However, these models are not without criticism (e.g. Colantoni, Levasquie, and Ordeshook, 1975a). And it seems more appropriate to start with the assumption that candidates care about each electoral vote the same and test this assumption with campaign data.

The seventh assumption is that the objective of the candidates is to maximize their expected electoral votes. There are three reasons why this assumption is used. First, there is historical evidence that candidates do in fact try to maximize their expected electoral votes (see Chapter 4). The candidates seek this goal so that they can claim a mandate if they win the presidency with more than a bare majority of electoral votes. Second, candidates who seem as though they are only trying to win a majority of electoral votes may be utilizing there resources in this way because this in effect is the maximization of their electoral votes. This means it could be the case that every state beyond the sum of 270 Electoral votes could be very non-competitive. Third, using the assumption that candidates want to maximize the probability of winning the majority of electoral votes unnecessarily complicates the model. Furthermore, there is no compelling reason to use any objective other than this since there is definite historical evidence that at least some of the candidates attempted to maximize their expected electoral votes (e.g. Carter and Obama as detailed in Chapter 4).

Finally, states can have different probabilities of voting for each candidate before the campaign begins (i.e. prior probabilities). This assumption captures the well known categorization of states by campaign strategists into "base", "lean", and "toss up" that creates five categories of states: base candidate, lean candidate, toss up, lean opponent, and base opponent. This assumption goes a step further than the categorization by allowing for a continuous measure of the strength of each state for the candidate prior to the campaigns. Along with this assumption, I will add the constraint that no state has a prior probability of 100% in voting for any candidate. This constraint just guarantees that all states have the possibility of voting for either candidate.

There are two concepts that need to be further defined: prior probabilities and candidate effectiveness. The definitions of these concepts are the subject of the next section.

Prior Probabilities and Candidate Effectiveness

What determines the candidate's prior probability of winning each state is its prior voting history, its political and economic environment, and whether it is the home state of the president or vice president. Every state has a long voting history and some states have a preference for a particular party. This gives one candidate an advantage for that election. A great example is the state of Virginia which voted for the Republican presidential candidate in every election from 1968 to 2004. Another example is the state of Minnesota which voted for the Democratic presidential candidate every year since 1960 except for 1972. A reason for these states having long histories of preferences for one party could be due to socialization. The ideologies of the people within that state are transferred on to their children and conformed between neighbors. And if there is very

little influx of people with new ideas, then the state becomes entrenched along a certain ideological path. Another determinant of the prior probabilities is the economic environment. As a state becomes better or worse off during a president's tenure, the citizens of that state shape their views about the benefits of each party. Simply put, the incumbent party benefits during times of economic advancement and is hurt by times of economic recession in every state (Klarner, 2008). A third influence on the prior probability of winning an election in a state for a candidate is the political environment. There are two variables that have been found by political scientists that greatly influence the election chances for the incumbent party. The first is the job approval rating of the president. Essentially this rating is a barometer for how well the American voters like the party in power. The national job approval rating does a good job at forecasting the incumbent's percentage of the two-party votes because the attitudes the American voter has for the incumbent party influences their vote on Election Day (Lewis-Beck and Rice 1992). The second variable that influences voters' likelihood of voting for a party's candidate is the length of time the incumbent party has been in office. Americans seem to get party fatigue. After eight years of the same party being in office, some American voters are ready to vote for the other party (Abramowitz, 2008a; 2008b). This factor seems to be independent of the job approval rating of the incumbent party. This could be the way that American voters balance out the direction of the country and/or they could just be tired of having the same party in the White House. The fourth major influence on the prior probability of winning an election in a state is the home state advantage (Lewis-Beck and Rice 1983). Voters in a state are more likely to vote for the candidate who comes from their state, especially because they are the most certain about that candidate's

ideological position. And certainty about a candidate's ideological position has been shown to increase the probability of voting for that candidate (Alvarez, 1997). Vice presidents also add a home state advantage to the ticket (Klarner 2008). That is why it is especially important for the presidential candidate to pick a vice president from a large competitive state. These factors influence the prior probability that a candidate will win a given state. But candidates have a chance to change these probabilities by campaigning. It is during the campaigns that candidate effectiveness matters.

What is candidate effectiveness? This is a measure of how well a candidate can use a resource and turn it into votes. This can be viewed as a production function. For every resource that a candidate spends, the candidate receives a certain amount of votes back. There are numerous factors that determine a candidate's effectiveness which include the personal skill of the candidate, the skill of the candidate's campaign team, the media's portrayal of the candidate, and the political landscape. Each candidate has a level of political skill that they have developed over their careers. Some candidates are great orators, while other candidates are great at town hall meetings. Some candidates are great at large political events, while other candidates are great at face to face meetings. The level of skill that each candidate possesses directly translates into their ability to capture votes[6]. A second factor is the skill of the candidate's campaign team. Some campaign teams are just better at helping their candidate utilize their resources. Campaign managers even recognize when their opponent's campaign manager was just more effective at utilizing a resource[7]. The third factor is the media's portrayal of a

[6] This is not to say that once a candidate has captured someone's vote it is theirs for the rest of the election. The same voter may switch votes every time they are the subject of a campaign resource.

[7] Runkel, 1989

candidate. If the media[8], which is often times the only information that a voter receives about a candidate, always portrays the candidate in a negative fashion, it would be near impossible for the candidate to be effective at getting votes. For this to be a realistic factor influencing a candidate's effectiveness, there is the hidden assumption that there can be a systematic bias in the media about the portrayal of a candidate. Finally, the political landscape can have a major influence on a candidate's effectiveness. The number of your party's officials, the popularity of these officials, and the skill of these officials can really influence how effective the candidate is, especially with campaign visits.

These two concepts, prior probability of winning an election and candidate effectiveness are the two main components to understanding campaign strategy and campaign effects. It is now important that I formalize these concepts into a model that helps us to understand their relationship to the expenditure of campaign resources and that ultimately produces a campaign effect. In the next section, I take a previous model used and adapt it to the structure of presidential elections. By formalizing this theory I can explicitly include all of the assumptions I have made and allow the mathematics to depict the relationship between these ideas and their effect on presidential campaigns and elections.

The Model

James Snyder (1989) designed a model similar to previous models[9], but incorporated two additional components so that it could deal with two parties campaigning across congressional seats and the idea that the parties could have

[8] The term media of course includes all forms of media such as newspapers, TV, and radio.

[9] Friedman (1958), Brams and Davis (1973, 1974), Rosen (1986), Tullock (1980)

advantages in different locations. The two additions were: 1) a prior probability of winning the district and 2) a vote production function instead of just a term for how many resources were allocated.

The new formula for the probability of winning any given district is thus:

$$\tilde{p}\,(x_i, y_i) = \frac{\alpha_i\, h(x_i)}{\alpha_i\, h(x_i) + \,(1 - \,\alpha_i) h(y_i)} \qquad EQ\ (1)$$

Where $\alpha_i \in (0, 1)$, and h is twice continuosly differentiable, with h(0) = 0, and h'(x) > 0 and h''(x) $\leq$ 0 for all x $\geq$ 0.

Snyder (1989) was working with parties spending resources across congressional districts and therefore used the term party for the players and districts for the location. Since I am working with candidates in presidential elections, I will be using the term candidate for the players and the term state for the location. The term α_i is the prior probability that Candidate X wins state i. Since there are only two candidates competing in this model, 1 - α_i is the prior probability that Candidate Y wins state i. The functions h(x_i) and h(y_i) are the vote production functions for each candidate. For example, if h(x_i) = x, then for every 1 unit of resource Candidate X spends, they will receive 1 probability unit[10].

Each candidate's objective is to maximize the expected number of electoral votes they receive (in Snyder's model it was congressional seats). Therefore, the utility functions are set up as follows:

$$u_x\,(x, y) = \sum_{i=1}^{n} U_i * \,\tilde{p}_x(x_i, y_i) \,-\, c_x \sum_{i=1}^{n} x_i \qquad EQ\ (2.1)$$

[10] The value of this probability unit is indeterminate without certain assumptions.

$$u_y\,(x,y) = \sum_{i=1}^{n} U_i * \,[\tilde{p}_y(x_i, y_i)] \;-\; c_y \sum_{i=1}^{n} y_i \qquad EQ\ (2.2)$$

These utility functions are summing across 51 different units (50 states + D.C.). The original Snyder (1989) model uses a generic utility parameter (U) that is constant across all of the congressional districts which means that the parties care about each district equally. I have slightly altered this utility parameter by adding a subscript so that the candidates care about each state differently. The utility parameter in this version of the model will represent the electoral value of each state (as measured by the number of electoral votes). This means a candidate values a state by its electoral worth and is one of the assumptions I have imposed on the model. The cost parameters, $c_x \; and \; c_y$, are considered the marginal cost of raising and spending resources and these are both constants. The variables x_i and y_i represent the amount of campaign resources spent (e.g. the number of campaign visits). These variables can take on any non-negative rational number greater than or equal to one.

There are two more assumptions that Snyder (1989) imposes on the model. The first is that the vote production functions are equivalent [h(x) = h(y)] and the second is that the cost functions are equivalent [$c_x = \; c_y$]. Snyder (1989) then altered the second assumption and also varied the objective of the parties, which changed their utility functions. Snyder (1989) found different equilibria by varying these two conditions. Since my theory is that campaign effects occur in presidential elections when the candidates' effectiveness is different, I will instead alter the first of these two assumptions by allowing the vote production functions to be different.

By using this model, I can show how candidates allocate their resources in equilibrium. But what I ultimately want to know is do the candidates' campaigns have an effect on the election outcome? My definition of a campaign effect enables me to expand on the model to answer this question. The expected election outcome *before the campaign* can be defined mathematically as:

$$\sum_{i=1}^{n=51} \alpha_i * U_i \qquad EQ\ (3)$$

Where α_i is the prior probability of winning state i and U_i is the electoral value of state i (measured by the number of Electoral votes). Thus if both candidates had a 50/50 chance of winning every state, Candidate X and Candidate Y would each have an expected election outcome of winning 269 electoral votes. The expected election outcome *after the campaign* can be defined mathematically as:

$$\sum_{i=1}^{n=51} \frac{\alpha_i\, h(x_i)}{\alpha_i\, h(x_i) + (1 - \alpha_i) h(y_i)} * U_i \qquad EQ\ (4)$$

This equation provides the posterior probability of Candidate X winning each state after both candidates have allocated their resources multiplied by each state's electoral value. Therefore if I simply subtract the expected election outcome before the campaign from the expected election outcome after the campaign, any result different from zero means that I have evidence of a campaign effect.

So what happens in presidential elections if I use Snyder's (1989) original assumptions? First, I need to find the relationship between Candidate X and Candidate Y in equilibrium.

Recall that the utility functions are:

$$u_x\,(x,y) = \sum_{i=1}^{n=51} \frac{U_i\;\alpha_i\;h(x_i)}{\alpha_i\;h(x_i) + \;(1-\;\alpha_i)h(y_i)} \;-\; \mathrm{c_x} \sum_{i=1}^{n=51} x_i \qquad EQ\;(5.1)$$

$$u_y\,(x,y) = \sum_{i=1}^{n=51} \frac{U_i\;(1-\;\alpha_i)\;h(y_i)}{\alpha_i\;h(x_i) + \;(1-\;\alpha_i)h(y_i)} \;-\; \mathrm{c_y} \sum_{i=1}^{n=51} y_i \qquad EQ\;(5.2)$$

Next, I want to take the derivative of each utility function and set them equal to each other and solve for one of the candidates (in this case, Candidate Y)[11].

$$\frac{\partial u_x}{\partial x} = \frac{U_i(\alpha_i)(1-\;\alpha_i)h(y_i)}{[\alpha_i\;h(x_i) + \;(1-\;\alpha_i)h(y_i)]^2} \;-\; 1 \;=\; \frac{\partial u_y}{\partial y}$$

$$= \frac{U_i(\alpha_i)(1-\;\alpha_i)h(x_i)}{[\alpha_i\;h(x_i) + \;(1-\;\alpha_i)h(y_i)]^2} \;-\; 1$$

$$y_i = x_i$$

The result is that both candidates will in equilibrium spend the same amount of resources in each state. So what happens when the vote production function is the same, the cost functions are the same, and therefore the candidates spend the same amount of resources? I can answer this question by substituting the resulting relationship between Candidate X and Candidate Y into the expected election outcome after the campaign. The expected election outcome *after the campaign* is:

$$\sum_{i=1}^{n=51} \frac{\alpha_i\;h(x_i)}{\alpha_i\;h(x_i) + \;(1-\;\alpha_i)h(y_i)} \;*\; U_i \qquad EQ\;(4)$$

Substituting in x for y because I know that in equilibrium x = y, I get:

$$\sum_{i=1}^{n=51} \frac{\alpha_i\;x}{\alpha_i\;x + \;(1-\;\alpha_i)\;x} \;*\; U_i$$

[11] To find the maximum number of visits for each candidate, you take the derivative of the utility function and set it equal to zero. This step is finding the relationship between the two candidates number of visits by setting the derivatives equal to each other. This can be done because each derivative has been set equal to zero.

Simplifying the denominator:

$$\sum_{i=1}^{n=51} \frac{\alpha_i \, x}{x} * U_i$$

The result is:

$$\sum_{i=1}^{n=51} \alpha_i * U_i$$

The result is the same as the expected election outcome *before the campaign* (EQ 3), so by definition there is no campaign effect. This is the same result that much of the literature has found when they have analyzed campaign effects. However, this model has formalized the assumptions that are sufficient for no campaign effect. These assumptions are that both candidates 1) are rational, 2) have equal amounts of information, 3) have equal cost functions, and 4) have equal effectiveness.

The results of the model are also very intuitively appealing. If both candidates are equally effective, are rational, and have equal amounts of information, then they will spend the same amount of resources in every state and the end result is no aggregate campaign effect.

But when would there be a campaign effect? Since, the four assumptions mentioned above (rationality, information, costs, and effectiveness) combine together to form a sufficient condition for no campaign effect, I need to figure out which one of these assumptions would not be present in actual presidential elections. To which I answer this question in the next section.

Expanding the Model

When it comes to presidential elections, I believe that both campaigns are rational and have equal amounts of information. This is a difficult argument to counter because the presidential candidates usually employ the most experienced campaign strategists to direct their campaigns. And with millions of dollars available to the candidates, campaign strategists have all the information they need from pollsters and focus groups to optimize their strategies. The third assumption is a little more complex. But there are reasons to believe that the cost functions are equal for both candidates in every presidential election. There is no evidence that either candidate gets a special discount to advertise on television or that either candidate uses special gas that makes their campaign visit cheaper than the other candidate. At least in the aggregate, it seems a very reasonable assumption that the cost functions are the same for both candidates.

This leaves just one assumption that can be modified to allow for campaign effects to exist in presidential elections: equal effectiveness.

Suppose I assume there can be differences in the effectiveness between the presidential candidates. To impose this new assumption on the model I will allow for the following representations of the vote production functions:

$$\mathrm{h}(x_i) = X^A \qquad EQ\ (6.1)$$

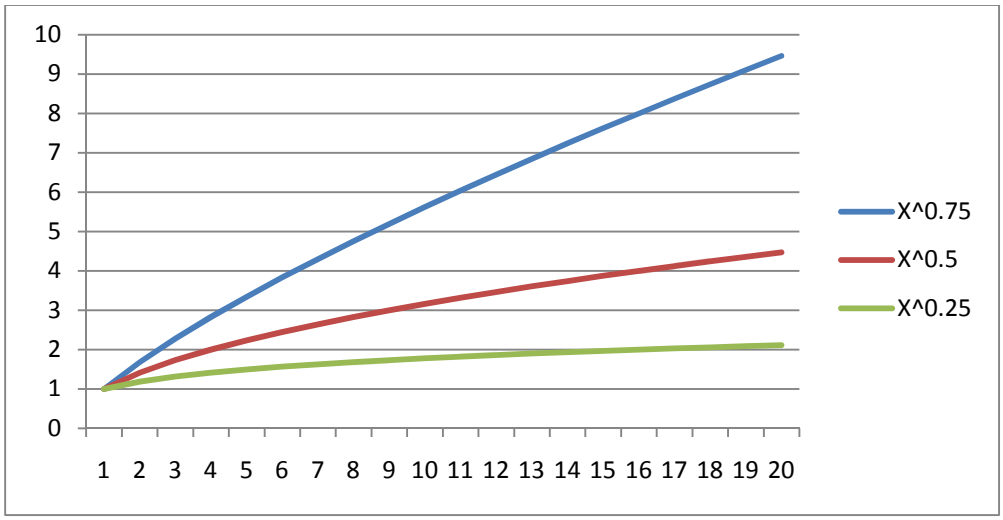
$$\mathrm{h}(y_i) = Y^B \qquad EQ\ (6.2)$$

I will constrain the exponents to the set: (0, 1]. The reason for this is that if the exponent is greater than one, then the presidential candidate's marginal return on each unit of resource would be increasing, which is extremely unlikely. And if the exponent is less than zero, then the presidential candidate would be counterproductive, which is also

extremely unlikely. This is the fifth assumption described earlier, but also adds the additional constraint that candidates do not have increasing marginal returns on the resources they spend.

A graph of various possible vote production functions helps to illustrate what the effect of campaign resources has on the vote and are shown in Figure 2.1.

Figure 2.1: Various vote production functions



This representation of the vote production function forces a diminishing marginal return from campaign spending, which is probably the best representation of the actual effect of campaign spending – that every additional unit of resource spent has less and less of an impact on the vote in each particular location.

If A = B, then Snyder's original assumption is maintained. The vote production functions under this case would be the same and therefore I would get the same results (i.e. no campaign effect). What happens then if B > A? This means that Candidate Y's

vote production function is greater than Candidate X and therefore Candidate Y is more effective at getting votes with each unit of resource. The theory predicts that there would be a positive campaign effect for Candidate Y. But does the model show this? First, I need to know what the relationship between Candidate X and Candidate Y is in equilibrium given this new formulation of the model. To do this I need the utility functions:

$$u_x\,(x,y) = \sum_{i=1}^{n=51} \frac{U_i\;\alpha_i\;X^A}{\alpha_i\;X^A + \;(1-\;\alpha_i)Y^B} \;-\; \mathrm{c_x} \sum_{i=1}^{n=51} x_i \qquad EQ\;(5.1)$$

$$u_y\,(x,y) = \sum_{i=1}^{n=51} \frac{U_i\;(1-\;\alpha_i)\;Y^B}{\alpha_i\;X^A + \;(1-\;\alpha_i)Y^B} \;-\; \mathrm{c_y} \sum_{i=1}^{n=51} y_i \qquad EQ\;(5.2)$$

Next, I take the derivative of each utility function and set them equal to each other.

$$\frac{\partial u_x}{\partial x} = \sum_{i=1}^{n=51} \frac{U_i(\alpha_i)(1-\;\alpha_i)AX^{A-1}Y^B}{[\alpha_i X^A + \;(1-\;\alpha_i)Y^B]^2} \;-\; 1$$

$$\frac{\partial u_y}{\partial y} = \sum_{i=1}^{n=51} \frac{U_i(\alpha_i)(1-\;\alpha_i)BY^{B-1}X^A}{[\alpha_i X^A + \;(1-\;\alpha_i)Y^B]^2} \;-\; 1$$

$$U \sum_{i=1}^{n=51} \frac{(\alpha_i)(1-\;\alpha_i)AX^{A-1}Y^B}{[\alpha_i X^A + \;(1-\;\alpha_i)Y^B]^2} \;-\; 1 \;=\; U \sum_{i=1}^{n=51} \frac{(\alpha_i)(1-\;\alpha_i)BY^{B-1}X^A}{[\alpha_i X^A + \;(1-\;\alpha_i)Y^B]^2} \;-\; 1$$

Finally, I solve for one of the candidates (in this case, Candidate Y). Notice the denominators are the same, both of the derivatives have $U_i\,, (\alpha_i), and\;(1-\;\alpha_i)$ in the numerators, and both have -1, so all of this cancels out. I am left with:

$$AX^{A-1}Y^B \;=\; BY^{B-1}X^A$$

$$A\,Y \;=\; B\,X$$

$$Y = \frac{B}{A} X$$

If B > A, then this means that Candidate Y has a larger vote production function than Candidate X. Candidate Y is achieving more votes for every unit of resource she is putting in compared to Candidate X. When this is the case, every 1 unit of resource that Candidate X puts into state i, Candidate Y puts in $\frac{B}{A}$ units of resources, which is more than Candidate X. Why would Candidate Y put in more resources than Candidate X, when they are achieving larger returns on their resources? This seems counter intuitive. I would expect that the more effective candidate who is achieving larger returns on their resources could put in fewer resources to achieve the same results as the other candidate. However, the objective is to increase spending until the marginal benefit equals the marginal cost. Since the marginal costs are fixed it comes down to comparing marginal benefits. Therefore the candidate with the greater effectiveness has to spend more to reach the same marginal level of benefit.

I now need to know if these equilibrium strategies have a net effect on the election outcome. This leads to Proposition 1.

Proposition 1: In the model with the following assumptions: the costs are equivalent ($c_x = c_y$), the prior probabilities are within ($0 < \alpha_i < 1$), the resources spent are equal to or greater than 1 ($x_i, y_i \geq 1$), and the probability of winning a state is given by equation 1 (EQ 1), then the candidate with the greater effectiveness will have a positive aggregate campaign effect.

Proof: I need to first set up the contradiction inequality: The expected election outcome *before the campaign* for Candidate X is greater than or equal to the expected

election outcome *after the campaign* for Candidate X if A > B (i.e. Candidate X is more effective than Candidate Y).

$$\alpha_i * U_i \quad \geq \quad \frac{U_i \alpha_i \, X^A}{\alpha_i X^A + \, (1 - \, \alpha_i) Y^B}$$

First, I can substitute in the relationship: $Y = \frac{B}{A} \, X$

$$\alpha_i * U_i \quad \geq \quad \frac{U_i \alpha_i \, X^A}{\alpha_i X^A + \, (1 - \, \alpha_i)(\frac{B}{A} \, X)^B}$$

Next, I can divided both sides by $U_i \; and \; \alpha_i$.

$$1 \quad \geq \quad \frac{X^A}{\alpha_i X^A + \, (1 - \, \alpha_i)(\frac{B}{A} \, X)^B}$$

Then I can multiply both sides of the equation by the denominator on the right hand side.

$$\alpha_i X^A + \, (1 - \, \alpha_i) \left(\frac{B}{A} \, X\right)^B \quad \geq \quad X^A$$

I can move the right hand side to the left.

$$\left[\alpha_i X^A + \, (1 - \alpha_i)(\frac{B}{A} \, X)^B\right] - \, X^A \quad \geq \quad 0$$

Rearrange the left hand side.

$$\alpha_i X^A + \, (\frac{B}{A} \, X)^B - \, \alpha_i (\frac{B}{A} \, X)^B - \, X^A \quad \geq \quad 0$$

Next, separate like terms to either side of the equation.

$$\alpha_i X^A - \, \alpha_i \left(\frac{B}{A} \, X\right)^B \quad \geq \quad X^A - \left(\frac{B}{A} \, X\right)^B$$

Rearrange the left hand side of the equation.

$$\alpha_i \left[X^A - \left(\frac{B}{A} \, X\right)^B\right] \quad \geq \quad X^A \, - \, (\frac{B}{A} \, X)^B$$

Finally divide both sides by $X^A - (\frac{B}{A} X)^B$:[12]

$$\alpha_i \geq 1$$

This contradicts my assumption that $\alpha_i < 1$. However, I need to prove $X^A \geq (\frac{B}{A} X)^B$ (footnote 12) for this to be correct. To do this I need to prove this statement:

If A > B then $X^A \geq (\frac{B}{A} X)^B$

First I set up the contradiction.

$$X^A \leq (\frac{B}{A} X)^B$$

Distribute the exponent through on the right hand side.

$$X^A \leq \frac{B^B}{A^B} X^B$$

The variable $X^A > X^B$ because the assumption is that A > B. Therefore if $1 \leq \frac{B^B}{A^B}$ does not contradict any assumptions, the proof fails.

$$1 \leq \frac{B^B}{A^B}$$

Multiply both sides by A^B.

$$A^B \leq B^B$$

Take the natural log of both sides.

$$B \ln(A) \leq B \ln(B)$$

Divide both sides by B and take the exponential of both sides.

$$A \leq B$$

This contradicts the original assumption A > B.

[12] This step is only true if $X^A \geq (\frac{B}{A} X)^B$. Otherwise the inequality sign would flip. The proof of this just mentioned inequality follows.

This means the more effective candidate will experience a positive aggregate campaign effect.

The last prediction from the model is the relationship of how the prior probabilities, electoral value, and candidate effectiveness influences campaign resource allocations. Each candidate does not have to rely on the other candidate's resource allocation to determine what amount of resources they should spend for each state. The optimum amount of resources they should spend is determined by their utility function. After finding the relationship between the two candidates' resource allocations in equilibrium, I can solve for each candidate's optimum amount of resources to spend.

First, we need the utility functions:

$$u_x\,(x,y) = \frac{U_i\;\alpha_i\;X^A}{\alpha_i\;X^A + \;(1 - \;\alpha_i)Y^B} - \;\; x_i$$

$$u_y\,(x,y) = \frac{U_i\;(1-\alpha_i)\;Y^B}{\alpha_i\;X^A + \;(1 - \;\alpha_i)Y^B} \;\; - \;\; y_i$$

Next, we can take the derivative of each utility function:

$$\frac{\partial u_x}{\partial x} = \sum_{i=1}^{n} \frac{U_i(\alpha_i)(1 - \;\alpha_i)AX^{A-1}Y^B}{[\alpha_i X^A + \;(1 - \;\alpha_i)Y^B]^2} \quad - \quad 1$$

$$\frac{\partial u_y}{\partial y} = \sum_{i=1}^{n} \frac{U_i(\alpha_i)(1 - \;\alpha_i)BY^{B-1}X^A}{[\alpha_i X^A + \;(1 - \;\alpha_i)Y^B]^2} \quad - \quad 1$$

If $X^A = \; Y^B$, we can substitute this into the respective derivatives:

$$\frac{\partial u_x}{\partial x} = \sum_{i=1}^{n} \frac{U_i(\alpha_i)(1 - \;\alpha_i)AX^{A-1}X^A}{[\alpha_i X^A + \;(1 - \;\alpha_i)X^A]^2} \quad - \quad 1$$

$$\frac{\partial u_y}{\partial y} = \sum_{i=1}^{n} \frac{U_i(\alpha_i)(1 - \;\alpha_i)BY^{B-1}Y^B}{[\alpha_i Y^B + \;(1 - \;\alpha_i)Y^B]^2} \quad - \quad 1$$

Finally, we can solve the equations for X and Y:

$$X = U_i\,[(\alpha_i)(1 - \alpha_i)]\,A \qquad EQ\ 6.1$$

$$Y = U_i\,[(\alpha_i)(1 - \alpha_i)]\,B \qquad EQ\ 6.2$$

What this means is that each party will spend campaign resources proportional to the particular state's electoral value (U_i), the competitiveness of the state $[(\alpha_i)(1 - \alpha_i)]$, and the exponent of their vote production function. This makes intuitive sense in that the larger the state's electoral value, the more resources the candidate will devote to that state which is in accordance with the assumption I imposed on the model. Also, the candidate will spend more if the state is competitive. And finally, the candidate will spend more as their vote production function increases. Graphs and tables will be used later to show the optimum amount of resources to spend for a whole range of candidate effectiveness and state competitiveness. For now, a simple example will help illustrate the effect these factors have on resource allocation: Candidate X and Candidate Y have an effectiveness of $f(X) = X^{0.9}$ and $f(Y) = Y^{0.9}$, respectively. There are two states that both have 100 electoral votes. Candidate X has a 50% prior probability of winning state i and 90% prior probability of winning state j. Candidate X and Candidate Y then would each spend 22.5 units of resources for state i and 8.1 units of resources on state j in equilibrium. This demonstrates that the candidates will spend more resources in the more competitive state (state i) in equilibrium.

Candidate X in state i: $U_i\,[(\alpha_i)(1 - \alpha_i)]\,A = 100*(0.5)(0.5)(0.9) = 22.5$

Candidate X in state j: $U_i\,[(\alpha_i)(1 - \alpha_i)]\,A = 100*(0.9)(0.1)(0.9) = 8.1$

The same equations hold for Candidate Y in both states, which also demonstrates that candidates with equivalent effectiveness spend the same amount of resources regardless of their prior probability of winning the state.

Discussion

I have demonstrated that adopting a set of assumptions and designing the presidential election as a game, reveals important insights into presidential campaign strategies and effects. First, if two candidates are rational and equally effective at getting votes for every unit of resource spent, then the two candidates will spend the same amount of resources and the end result will be no net campaign effects. Second, the greater the number of electoral votes for a state, the greater the competitiveness of the state, and the more effective candidate, the more resources that will be spent on that state. Third, if there is any difference in the two candidates' effectiveness, then the more effective candidate will spend more resources than the other candidate in proportion to the ratio of the two candidates' effectiveness. Furthermore, these additional expenditures along with the greater effectiveness will contribute to the more effective candidate receiving a positive aggregate campaign effect. While these are interesting conclusions, they are very abstract representations of what the model is demonstrating. In the next section, I will use concrete examples and graphs to uncover the relationship between two candidates competing for the presidency.

Measuring Campaign Strategies and Effects

The model of campaign strategies provides a way of measuring theoretical campaign effects given two hypothetical candidates and a known prior probability of each winning the election. In Chapter 1, campaign effects were defined as the difference

between the posterior probability and the prior probability of winning the election. The prior probability of winning the election is the candidate's chances of winning the election before either candidate spends resources campaigning. The posterior probability of winning the election is the candidate's chances of winning the election after all the resources have been spent by both candidates. To calculate the posterior probability of a candidate winning the election, the only values that need to be chosen are the prior probability that one candidate will win the election[13] and the function of each candidate's effectiveness[14]. The optimal number of visits each candidate should make is determined after these values have been chosen and the model can then be solved for the posterior probability that each candidate will win the election. It is important to note that in presidential elections, there are essentially fifty-one different elections taking place. For the sake of simplicity, the following example will assume that the presidential election is one election with 538 electoral votes. This simple example is still useful even though unrealistic because to perform this calculation in a real presidential election, one would simply do the calculation fifty-one times.

First, I will start with two candidates: X and Y. I will then set the prior probability that Candidate X wins the election at 60%. Candidate Y's prior probability of winning the election is then 40%. Next, I will set Candidate X's effectiveness at $X^{0.7}$ and Candidate Y's effectiveness at $Y^{0.9}$. These values mean that although Candidate X has a greater prior probability of winning the election, Candidate Y has a greater effectiveness

[13] The other candidate's probability of winning the election is just one minus the probability of the first candidate's probability of winning if we assume there are only two major candidates in the election.

[14] This is simply choosing a value of the exponent since each candidate's function takes on the same form $f(X) = X^A$.

at getting votes during the campaign. From these known values, we can calculate the optimal number of candidate visits[15] for X and Y. Candidate X should make a total of 83 visits and Candidate Y should make a total of 102 visits[16]. The posterior probability of Candidate X winning the election given all these values is 34%. Therefore the campaign effect is a 26% increase in the probability of winning the election in favor of Candidate Y.

The reason for this campaign effect can be understood by examining the implications this model has on campaign strategy. In the example above, since Candidate Y is more effective at getting votes than Candidate X, the model predicts that Candidate Y should visit more times than Candidate X because Candidate Y gets a larger marginal return per unit cost. This solution of the model was proven earlier. This result is further shown by deriving the optimal number of visits for both candidates. Candidate Y's optimal number of visits is 102 given the chosen values and Candidate X's optimal number of visits is 83. Therefore, Candidate Y receives a positive compounding effect. Not only does Candidate Y receive a net positive campaign effect because they make more visits, but for each visit Candidate Y receives a greater number of votes than Candidate X. This gives Candidate Y a positive campaign effect and using the model one can calculate the substantive value of this effect. Before showing graphs for a whole list of examples of the substantive effect campaigns can have on the general election, I will first demonstrate the effect different situations have on campaign strategies. For this

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[15] The formula is: $[\alpha X^A + (1 - \alpha)((B/A)X)^B]^2 = AX^{A-1}((B/A)X)^B \alpha (1 - \alpha) U_i$, which is too complicated to simplify to X = (.) Thus an excel sheet was used for the guess and check method to derive the optimal number of campaign visits for each candidate. Symbols: α = prior probability Candidate X wins the election, $1 - \alpha$ = prior probability Candidate Y wins the election, U_i = 538 (electoral votes), X = optimal number of visits for Candidate X, A = Candidate X's effectiveness, B = Candidate Y's effectiveness

[16] These numbers are rounded to the nearest integer. The more accurate numbers are: Candidate X = 83.347 visits and Candidate Y = 102.08 visits.

demonstration, I will use candidate visits, but other resources such as media buys could be used as well.

Campaign Strategies

The optimal number of times a candidate should visit a given state depends on the prior probability that she will win the state, her own effectiveness at getting votes, *and* her opponent's effectiveness at getting votes. Below are two graphs that illustrate the relationship between these factors and the number of times a candidate should visit a state.

Figure 2.2: The optimal number of campaign visits for Candidate X: Prior Probability for Candidate X is 50% and Electoral Value is 100

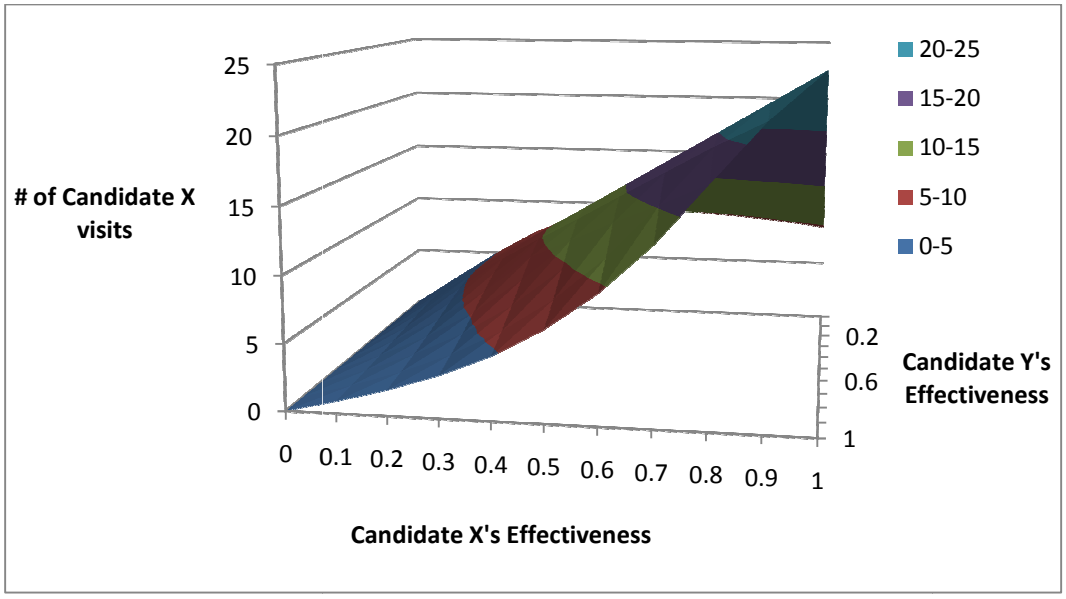


Table 2.1 – Selected Values from Figure 2.2

CE*	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1
0.1	2.5	4.94	7.1	8.65	9.6	9.94	9.96	9.75	9.4	9
0.2	2.49	5	7.36	9.2	10.4	10.83	10.83	10.55	10.1	9.55
0.3	2.355	4.93	7.5	9.8	11.4	12.1	12.2	11.8	11.2	10.5
0.4	2.155	4.63	7.35	10	12.2	13.5	13.8	13.4	12.7	11.8
0.5	1.91	4.15	6.8	9.8	12.5	14.6	15.5	15.4	14.6	13.6
0.6	1.665	3.62	6.05	9	12.15	15	17	17.5	17	15.9
0.7	1.43	3.1	5.2	7.89	11.1	14.6	17.5	19.4	19.6	18.6
0.8	1.22	2.64	4.41	6.7	9.6	13.2	17	20	21.8	21.5
0.9	1.045	2.25	3.72	5.65	8.1	11.3	15.2	19.4	22.5	24
1	0.9	1.91	3.15	4.71	6.8	9.5	13	17.3	21.6	25

*CE = Candidate Effectiveness. Row 1 is Candidate X's Effectiveness

**The values not bolded are the optimal number of campaign visits for Candidate X

Figure 2.2 illustrates the optimal number of campaign visits for Candidate X over the range of both candidates' effectiveness given that Candidate X has a 50% prior probability of winning the election and there are a total of 100 electoral votes. Table 2.1 is a group of selected values from the graph. This graph and table present some interesting results about the change in number of expected visits over a range of both candidates' effectiveness. The first result is that Candidate X's maximum number of visits with a 50% prior probability of winning the election comes when both candidates have maximum effectiveness. As expected, when Candidate X's effectiveness declines from the maximum, Candidate X's optimal number of visits declines. But, what is not expected is that when Candidate Y's effectiveness declines from the maximum, the optimal number of visits for Candidate X also declines. This result supports the idea that

the optimal number of visits is co-dependent on both candidates' effectiveness. This first result happens because fewer visits are needed for Candidate X to reach their maximum potential as Candidate Y's effectiveness declines. Another result is that for each level of effectiveness for Candidate X, the maximum number of visits needed is when Candidate Y's effectiveness equals Candidate X's effectiveness. This happens for two reasons. First, as explained before, the number of visits for Candidate X declines as Candidate Y's effectiveness declines (Candidate X needs fewer visits to maximize their potential because their relative effectiveness is increasing). Second, as Candidate Y's effectiveness increases, the relative effectiveness of Candidate X declines, and thus fewer visits maximize their potential in the election. A third result is that in the limit as Candidate Y's effectiveness approaches zero, the optimal number of visits for Candidate X does not go to zero. For example, if Candidate X's effectiveness is 1 and Candidate Y's effectiveness approaches 0, then the optimal number of visits for Candidate X is 9. This is because some visits for Candidate X are still useful to achieving a greater probability of winning the election even if Candidate Y has close to zero effectiveness[17], but only a minimum number of visits are needed in this situation. These results may only happen under the condition that Candidate X and Candidate Y have a 50% prior probability of winning the election. What happens if Candidate X has greater than a 50% prior probability of winning the election? To answer this, I have graphed the optimal number of visits under the condition that Candidate X has an 80% prior probability of winning the election, which is in Figure 2.3. Table 2.2 is a group of selected values from this graph.

[17] The optimal number of visits for a candidate cannot be calculated if one candidate has zero effectiveness because the model is undefined.

Figure 2.3: The optimal number of campaign visits for Candidate X:

Prior Probability for Candidate X is 80% and Electoral Value is 100

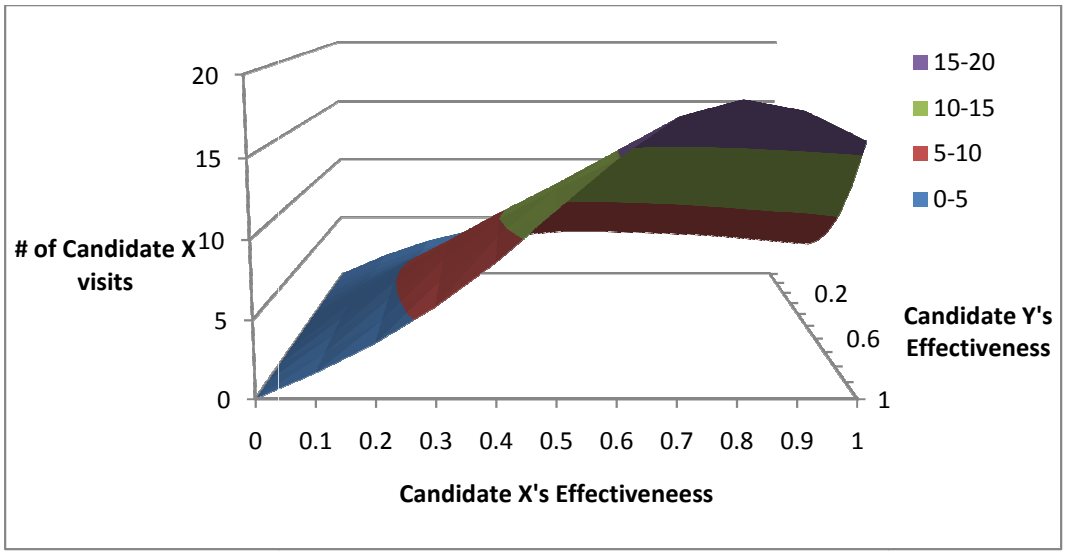


Table 2.2 – Selected Values from Figure 2.3

CE*	**0.1**	**0.2**	**0.3**	**0.4**	**0.5**	**0.6**	**0.7**	**0.8**	**0.9**	**1**
0.1	1.6	2.88	3.78	4.35	4.65	4.78	4.82	4.8	4.7	4.6
0.2	1.8	3.2	4.2	4.75	5.05	5.15	5.11	5.02	4.9	4.75
0.3	2.05	3.7	4.8	5.45	5.75	5.75	5.65	5.5	5.28	5.05
0.4	2.3	4.25	5.65	6.4	6.7	6.7	6.45	6.18	5.85	5.52
0.5	2.48	4.75	6.55	7.6	8	7.95	7.6	7.15	6.65	6.2
0.6	2.49	5	7.25	8.9	9.6	9.6	9.2	8.5	7.8	7.15
0.7	2.36	4.9	7.5	9.85	11.3	11.7	11.2	10.4	9.4	8.5
0.8	2.14	4.55	7.25	10	12.3	13.6	13.8	12.8	11.6	10.3
0.9	1.88	4.05	6.6	9.5	12.5	14.8	16	15.8	14.5	12.8
1	1.64	3.52	5.8	8.55	11.8	14.9	17.5	18.5	17.8	16

*CE = Candidate Effectiveness. Row 1 is Candidate X's Effectiveness

**The values not bolded are the optimal number of campaign visits for Candidate X

Figure 2.3 and Table 2.2 present more interesting results. The first result is that the maximum number of visits needed by Candidate X is when Candidate Y's effectiveness is at its maximum and Candidate X's effectiveness is at 0.8. This result is interesting because it means that even if Candidate Y is at their most effective, there will be fewer visits needed by Candidate X to reach their maximum potential after they pass the 0.8 level of effectiveness. All of these results show that the optimal number of visits for a candidate is more complicated when you introduce differences in effectiveness for candidates campaigning. When candidates have differences in effectiveness, the result is not simply that both candidates will have equal number of visits as is the assumption to some models (e.g. Brams and Davis 1974) and the solution to others (e.g. Snyder, 1989).

Campaign Effects

Now I will show the magnitude of campaign effects under different election scenarios. The first few graphs demonstrate the effect campaigns can have holding the prior probability of winning the election constant and varying both candidates' effectiveness.

Figure 2.4: Campaign effects when the prior probability for Candidate X is 50%

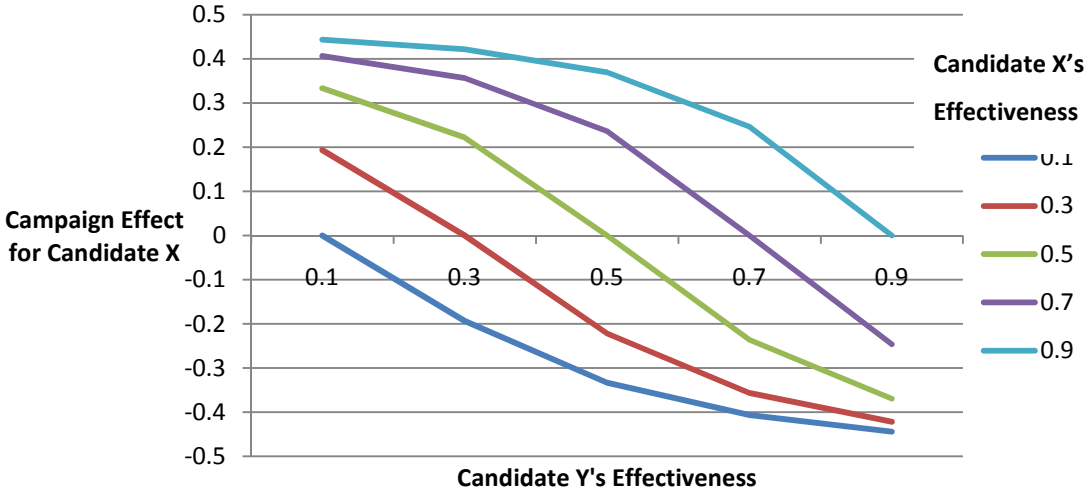


Table 2.3 – Selected Values from Figure 2.4

CE*	0.1	0.3	0.5	0.7	0.9
0.1	0	0.194	0.333	0.407	0.444
0.3	-0.194	0	0.221	0.357	0.422
0.5	-0.333	-0.221	0	0.236	0.37
0.7	-0.407	-0.357	-0.236	0	0.246
0.9	-0.444	-0.422	-0.369	-0.246	0

*CE = Candidate Effectiveness. Row 1 is Candidate X's Effectiveness

**The values not bolded are the campaign effects for Candidate X. Campaign Effect for Candidate X = posterior probability for Candidate X minus the prior probability for Candidate X.

Figure 2.4 illustrates the substantive campaign effect over a range of possible values for both candidates' effectiveness holding the prior probability that either candidate wins the election at 50%. As it is shown earlier, when both candidates have the same effectiveness, there is no net campaign effect. For example, when Candidate X's effectiveness is $f(X) = X^{0.9}$, it crosses the y=0 line when Candidate Y's effectiveness is equivalent [$f(Y) = Y^{0.9}$]. The largest campaign effect occurs when the candidates are completely asymmetrical in their effectiveness. In the graph above, when Candidate X's effectiveness is $f(X) = X^{0.9}$ and Candidate Y's effectiveness is $f(Y) = Y^{0.1}$, then the net campaign effect is a positive 44.4% in favor of Candidate X. Thus Candidate X would have a 94.4% chance of winning the election given this disparity in the two candidates' effectiveness and after all campaign resources have been spent by both candidates. The graph is also showing that the relationship is interchangeable. When the reverse is true: Candidate Y's effectiveness is $f(Y) = Y^{0.9}$ and Candidate X's effectiveness is $f(X) = X^{0.1}$, then the net campaign effect is a positive 44.4% in favor of Candidate Y. These graphical results depend on the prior probability each candidate wins the election being 50%. What happens if the prior probability of winning the election favors one candidate? We can repeat the same calculations used for the previous graph with different values on the priors. In Figure 2.5, Candidate X has a 70% chance of winning the election and Candidate Y has a 30% chance of winning the election.

Figure 2.5: Campaign effects when the prior probability for Candidate X is 70%

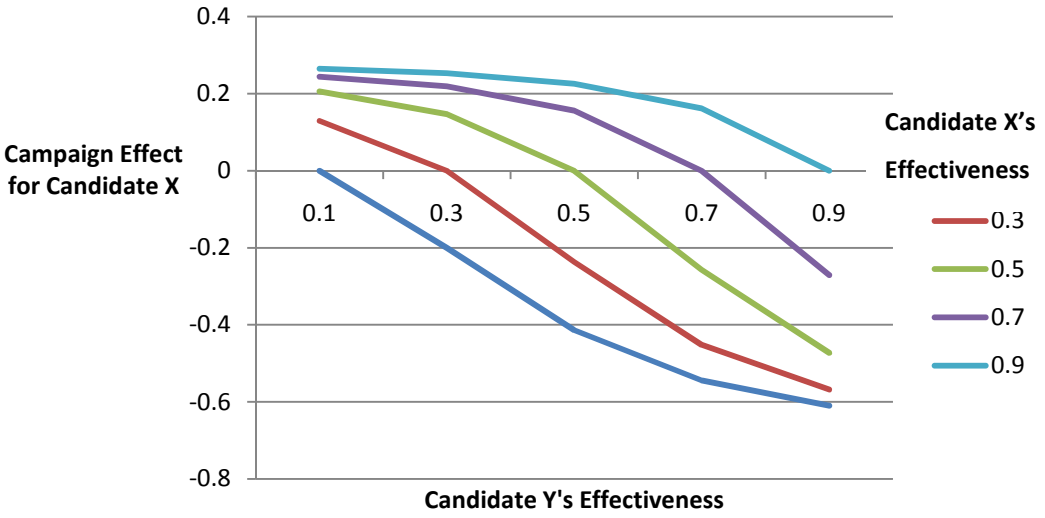


Table 2.4 – Selected Values from Figure 2.5

CE*	0.1	0.3	0.5	0.7	0.9
0.1	0	0.13	0.206	0.244	0.265
0.3	-0.2	0	0.147	0.219	0.253
0.5	-0.414	-0.237	0	0.156	0.226
0.7	-0.544	-0.452	-0.257	0	0.162
0.9	-0.61	-0.569	-0.473	-0.271	0

*CE = Candidate Effectiveness. Row 1 is Candidate X's Effectiveness

**The values not bolded are the campaign effects for Candidate X. Campaign Effect for Candidate X = posterior probability for Candidate X minus the prior probability for Candidate X.

When both candidates have the same effectiveness there is again no campaign effect. The change that occurs is in the magnitude of the campaign effect. The magnitude of the positive campaign effect for Candidate X is compressed because it is no longer possible to achieve a campaign effect greater than 30%. If Candidate X's effectiveness is again $f(X) = X^{0.9}$ and Candidate Y's effectiveness is $f(Y) = Y^{0.1}$, then the campaign effect is a positive 26.5% in favor of Candidate X. Thus the probability that Candidate X wins the election is 96.5% after all campaign resources have been spent by both candidates. An interesting result is that while the magnitude of the campaign effect is smaller in the second election for Candidate X, the overall probability that Candidate X wins the election is greater, but only by 2.1 percent. So even though Candidate X started out with a 20% higher prior probability of winning in the second election, their posterior probability of winning the election is only 2.1 percent greater given the same disparity in the candidates' effectiveness – a result of the compression effect. The flip side is that in the first election example where the candidates' prior probabilities of winning were equal, Candidate Y had a 94.4% chance of winning the election if Candidate Y had the greatest effectiveness and Candidate X had the least effectiveness. But in the second election (when Candidate Y has only a 30% prior probability of winning the election), Candidate Y has a 91% probability of winning the election after all resources have been spent by both candidates with the same disparity in effectiveness.

One interesting question that can be answered by these graphs is would a candidate prefer a 40% greater prior probability of winning the election or a 40% greater effectiveness over the other candidate given that the other candidate receives the option not chosen. To answer this question I could choose the value $f(X) = X^{0.5}$ for Candidate

X's effectiveness and the value $f(Y) = Y^{0.7}$ for Candidate Y's effectiveness[18] and give Candidate X a 70% chance of winning and Candidate Y a 30% chance of winning. Then I could insert these values into the model and find that Candidate Y has a 55.7% chance of winning the election. I would be tempted to conclude that having a 40% greater effectiveness is better than having a 40% greater prior probability of winning. The problem is that the result changes depending on which values of effectiveness you choose. For example, if I chose the values $f(X) = X^{0.1}$ for candidate X's effectiveness and $f(Y) = Y^{0.14}$ for Candidate Y's effectiveness, then Candidate Y would have a posterior probability of 33.2% chance of winning the election. So the answer to the question is that it depends on the value of effectiveness given to the candidates. If you choose to have the 40% greater effectiveness, then you want at least a value of $f(Y) = Y^{0.5722}$ in order to have a greater than 50% posterior probability of winning the election. Any value less than that and it would be more preferable to choose the 40% greater prior probability of winning the election.

Conclusion

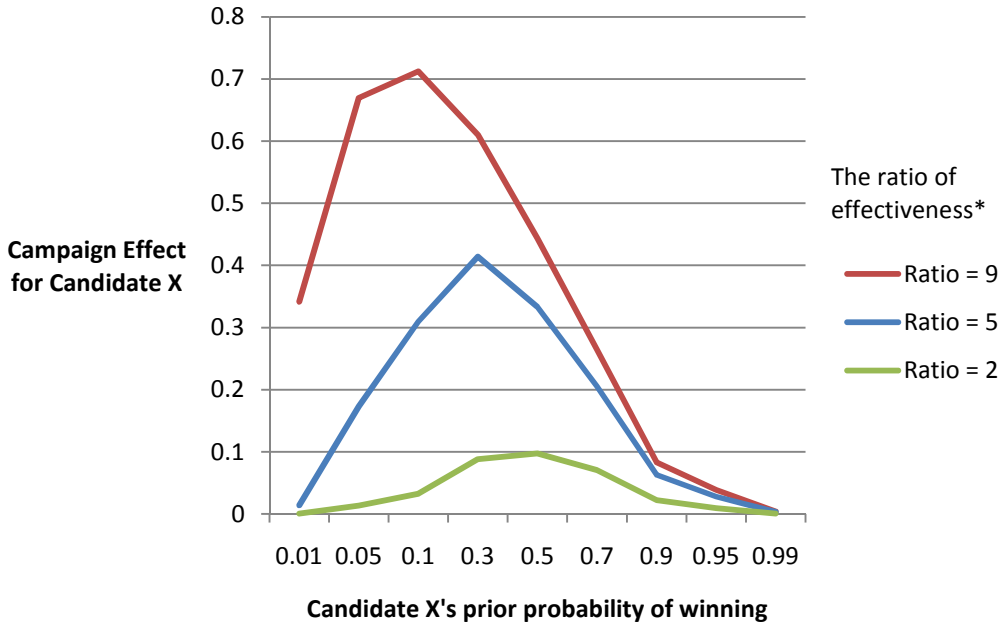
The graphs in the previous section illustrate the complex relationship between prior probabilities of winning, candidate effectiveness, number of campaign visits, and magnitude of campaign effects. Based on the model in this chapter, we learn several things about the relationships between these variables. First, the number of campaign visits is determined by the prior probability of winning the election, the candidate's effectiveness, and the opponent's effectiveness. Unfortunately, there are no general statements that can be made about these relationships, since they are nonlinear. For example, while an increase in the competitiveness of an election usually increases the

[18] These values could be chosen because 0.7 is 40% greater than 0.5

total number of visits for a candidate, this is not always the case[19]. Another example is that while an increase or decrease in a candidate's relative effectiveness decreases their total number of campaign visits – this only holds when elections are completely competitive. The relationship between two candidates number of visits, however, always equals the ratio of their effectiveness – the equilibrium result of the model. Therefore, as the relative effectiveness of a candidate increases, their relative number of visits increases, but not necessarily their total number of visits. Additionally, when the effectiveness of both candidates is equal, their number of visits is the same. One last statement about campaign visits is that the maximum number of campaign visits that we should see in any election situation is when the election is the most competitive and both candidates are the most effective. For campaign effects, the graphs show that there are no campaign effects when both candidates have the same effectiveness in every situation. Also, campaign effects favor one candidate when they have a greater effectiveness independent of their prior probability of winning the election. The magnitude of the campaign effects in favor of one candidate also increases as the relative effectiveness of that candidate increases. Finally, the magnitude of a candidate's campaign effect varies nonlinearly with the prior probability of winning the election. This is shown in Figure 2.6.

[19] One example is when Candidate X has an effectiveness of $f(X) = X^{0.1}$ and Candidate Y has an effectiveness of $f(Y) = Y^{0.6}$. Then, Candidate X should visit more times when they have the greater probability of winning (a less competitive situation- as seen in Tables 6.1 and 6.2).

Figure 2.6: The magnitude of Candidate X's campaign effect as prior probability and relative effectiveness changes



*The ratio of effectiveness is established with Candidate X having an effectiveness of $f(X) = X^{0.9}$ and Candidate Y having an effectiveness that is a ratio of this exponent. For example, a ratio of 9 means that Candidate Y's effectiveness is $f(Y) = Y^{0.1}$.

The magnitude of a campaign effect for Candidate X depends on their prior probability of winning the election. I expected the magnitude of the campaign effect to always increase as the prior probability of Candidate X decreased, but the model shows otherwise. What happens is that the magnitude of the campaign effect increases as the prior probability decreases to a certain point below 50% and then decreases. Why does this occur? The reason is that the extremely low probabilities of winning the election do not justify enough campaign visits in equilibrium to achieve a greater campaign effect. Campaign effects reach a maximum further below the 50% prior probability as the ratio

of effectiveness increases because the greater effectiveness justifies a greater number of campaign visits allowing the realization of larger campaign effects.

While this model provides interesting results with numbers of campaign visits and magnitudes of campaign effects, they would be useless if this model could not explain patterns in the real world. Chapter 3 undertakes this task by examining both the assumptions and predictions of the model using data from five recent presidential elections.

CHAPTER 3

TESTING ASSUMPTIONS AND PREDICTIONS

There are several assumptions that are imposed on the model that can be empirically tested to examine how realistic are these assumptions. At least one of the assumptions is in fact controversial in the current political science literature. The model also makes several predictions that can be empirically tested to see how well the model explains strategy in presidential campaigns. Several of these predictions are counter-intuitive and if empirical evidence supports these counter-intuitive predictions, new information will have been learned from this model. The strength of this model will be evaluated on the empirical support for both the assumptions and predictions of this model. First, the data is discussed. Then, the assumptions are tested. Finally, the predictions are examined.

Data

The data used to test this formal model are from five presidential elections (1988, 1992, 1996, 2000, and 2004). These elections are chosen because they have the most information regarding candidate perspectives on each state, candidate visits, and candidate media buys. Candidate visits are recorded as the total number of visits made to each state and D.C. Media buys are recorded as the total number of gross rating points (GRPs) purchased for each state and D.C. A GRP is based on the number of times a population sees an advertisement and is independent of the cost of that advertisement. For example, 100 GRPs purchased in a state means that the entire population of that state sees the advertisement once or half the population sees the advertisement twice or so

on[20]. Competitiveness is based on the perspectives of each candidate. How each candidate viewed every state in the categories of Base Democrat, Base Republican, Lean Democrat, Lean Republican, and Toss up. A variation of this variable is coded as 3 for Toss up states, 2 for Lean states, and 1 for Base states. Media cost is the cost of advertising in each state. The data for the last four variables are taken from Shaw (1999a, 1999b, 2006). The summary statistics for these variables are found in Tables 3.1, 3.2, 3.3, and 3.4. Candidate effectiveness is based on the simple regression of Republican resources spent against Democrat resources spent. Republican candidate visits are regressed against Democrat candidate visits allocated to each state and Republican media buys are regressed against Democrat media buys allocated in each state. The coefficient of the regression equations then reveals the relative effectiveness of the candidates in each election. This was derived from the model in Chapter 2. The more effective candidate is assigned the number 1 and the less effective candidate is given the number that matches the relative effectiveness of the two candidates. For example, in 1988 for candidate visits, the regression coefficient is 0.76. Michael Dukakis, the more effective candidate is assigned a 1 for Candidate Visit Effectiveness and George H.W. Bush is assigned 0.76. The same is done for each election and for Candidate Media Effectiveness, which uses the regressions of media buys in each state.

[20] Another example is if 50 GRPs are purchased, then half the population sees the advertisement once or a quarter of the population sees the advertisement twice or so on.

Table 3.1: Total candidate visits in the presidential elections 1988 - 2004

Year	Republicans	Democrats
1988	114	125
1992	89	93
1996	136	125
2000	133	100
2004	124	102

Table 3.2: Total media buys in the presidential elections 1988 - 2004

Year	Republicans	Democrats
1988	91,548	100,751
1992	252,823	153,665
1996	124,797	137,514
2000	305,853	227,850
2004	148,243	99,194

Table 3.3: The Republicans' view of the competitiveness of each state for every election (1988 – 2004)

	1988	1992	1996	2000	2004
Base Republican	27	14	15	19	20
Lean Republican	0	8	8	5	4
Toss Up	7	5	4	15	15
Lean Democrat	9	11	7	2	0
Base Democrat	8	13	17	10	12
N	51	51	51	51	51

Table 3.4: The Democrats' view of the competitiveness of each state for every election (1988 – 2004)

	1988	1992	1996	2000	2004
Base Republican	24	11	9	19	18
Lean Republican	11	8	8	5	14
Toss Up	8	13	13	13	7
Lean Democrat	0	9	7	3	2
Base Democrat	8	10	14	11	10
N	51	51	51	51	51

Testing the Assumptions

The first two assumptions of the model are that the candidates are both rational and have equal amounts of information. One test that would help support axioms of these two assumptions is whether or not the candidates viewed the competitiveness of the states similarly. If the candidates viewed the competitiveness of the states significantly different, then either the candidates had differing amounts of information or were not perfectly rational. An empirical model to test this is to run an OLS regression of the Republican's categorization of the competitiveness of states against the Democrat's

categorization of the competitiveness of the states. These variables were coded as follows: 1 if the candidate viewed the state as a Base Republican state, 2 if the state was viewed as Lean Republican, 3 if the state was viewed as a Toss up, 4 if the state was considered Lean Democrat, and 5 if the state was considered Base Democrat. The OLS regression of these two candidates' views of the states should have a coefficient that is not significantly different from 1. The results of the empirical model are reported in Table 3.5.

Table 3.5: Testing Rationality and Information

1988 – 2004 (N = 255)

Variables	**Coefficient (standard deviation)**
Democrat's Identification of the States	0.996** (0.24)
Constant	0.069** (0.074)
R squared	0.872

**p value < 0.05

The results support the idea that both candidates did not view the competitiveness of states differently. There is no statistical difference between the coefficient and 1. Furthermore, the Democrat's identification of the states explains over 87% of the variation in the Republican's identification of the states.

Another assumption imposed on the model is that candidates care about each electoral vote the same. This assumption is controversial because it has been argued in some articles that candidates care about larger electorally valued states disproportionately more than smaller electorally valued states. For example, the model used by Brams and Davis (1974) predicted that campaign strategies would allocate resources in relation to the state's electoral value to the 3/2ths power. This means that candidates would disproportionately allocate resources to the larger electorally valued states.

The correct way to specify the model is to use the multiplicative model, which is derived in Chapter 2 and is shown by equations 6.1, 6.2, and footnote 15. In equilibrium, resources are allocated based on the electoral value of the state, the competitiveness of the state, the effectiveness of the candidate, and the effectiveness of the opponent, all multiplied together. This model specification also provides an easy way to make a comparative test between the model's assumption that resources should be allocated proportional to the electoral value of the state versus the Brams and Davis (1974) finding that resources will be allocated to the 3/2ths power. The OLS regression equations are specified as:

The Model: $Y = \alpha X_1 X_2 X_3 X_4$

Brams and Davis (1974): $Y = \alpha X_1^{1.5} X_2 X_3 X_4$

Where, α is a constant, X_1 is the electoral value of the state, X_2 is the competitiveness of the state, X_3 is Candidate Effectiveness, and X_4 is the Opponents Effectiveness. For media buys, the costs vary by state and so the variable Media Cost is added to that model. Then I can take the log of both sides:

The Model:

$$\text{Log}(Y) = \text{Log}(X_1) + \text{Log}\,(X_2) + \text{Log}(X_3) + \text{Log}(X_4)$$

Brams and Davis (1974):

$$\text{Log}(Y) = 1.5*\text{Log}(X_1) + \text{Log}\,(X_2) + \text{Log}(X_3) + \text{Log}(X_4)$$

This allows for a straightforward test of the coefficient on X_1 to see if it is significantly different than 1.5. If the coefficient on X_1 is significantly different than 1.5, then there is evidence against the three halves power model. If it is significantly different than 1, then there is evidence against the model's assumption. The equation above is tested for both candidate visits and media buys and the results are shown in Table 3.6 and 3.7.

Table 3.6:

Testing the model's assumption versus the three halves power result

Candidate Visits 1988 – 2004 (N = 510)[21]

Variables	**Coefficient (standard deviation)**
Electoral value	1.18** (0.13)
Competitiveness	3.5** (0.21)
Candidate Visit Effectiveness	-7.07** (1.38)
Opponent's Visit Effectiveness	-5.46** (1.37)
Constant	-6.28** (0.34)
R squared	0.496

**p value < 0.001

All variables are in log form

[21] The results of simple regressions of each independent variable in Table 3.6 on the dependent variable show that both Electoral Value and Competitiveness is a significant predictor on its own. Electoral value explained 20.5% of the variation in the dependent variable. Competitiveness explained 38.8% of the variation in the dependent variable. Both Candidate Visit Effectiveness and Opponent's Visit Effectiveness was not a significant predictor on its own.

Table 3.7:

Testing the model's assumption versus the three halves power result

Candidate Media Buys 1988 – 2004 (N = 510)

Variables	**Coefficient (standard deviation)**
Electoral value	1.05** (0.31)
Competitiveness	3.75** (0.3)
Candidate Media Effectiveness	7.3** (1.45)
Opponent's Media Effectiveness	8.34** (1.45)
Media Buy Cost	-1** (0.23)
Constant	14** (1.9)
R squared	0.303

**p value < 0.01

All variables are in log form

The coefficient on electoral value (1.18) in the model on candidate visits (Table 3.5.1) is significantly different from 1.5 (p value < 0.05). This means there is statistical evidence against the three halves power model. We can also use the same coefficient to test whether there is evidence against the model's assumption. The coefficient of electoral value (1.18) is not statistically different than 1 (p value > 0.1). Therefore, there is no evidence against the model's assumption. In the model on candidate media buys (Table 3.7), the coefficient on electoral value (1.05) is not significantly different than 1.5 (p value < 0.05), so is there no statistical evidence against the three halves power model.

However, the coefficient is not significantly different from 1 (p value > 0.1), so there is no evidence against the model's assumption either. Furthermore, both coefficients show that the prediction of the model, a proportional allocation of resources to the electoral value of the state, is closer to what the data are showing (coefficients of 1.18 and 1.05).

This means the empirical data supports three key assumptions in the model. But the model also makes several predictions that can be empirically tested. These will be tested in the next section.

Testing the Predictions

The first prediction from the model is that four variables significantly influence the number of candidate visits. These four variables include: 1) the electoral value of the state, 2) the competitiveness of the state, 3) the candidate's effectiveness, and 4) the opponent's effectiveness. An OLS regression model is used to determine whether each of these variables has a significant impact on the number of candidate visits and media buys, while holding the other variables constant. These regressions have already been done in the previous section and are displayed in Tables 3.6 and 3.7.

The OLS regression in Table 3.6 confirms that each of the factors the model predicts will influence candidate visits are significantly correlated with candidate visits in the these five elections. The OLS regression in Table 3.7 also confirms that electoral value, competitiveness, candidate effectiveness, and opponent's effectiveness have a significant correlation with candidate media buys. The other variable, media cost, also has a significant effect on media buys.

The second prediction from the model is that candidates will allocate visits to states based solely on competitiveness and not on whether they are ahead or behind in the

state. This prediction is derived in Chapter 2 (equations 6.1 and 6.2) for the optimal amount of resources to spend:

$$\text{Candidate X} = U_i\,[(\alpha_i)(1-\alpha_i)]\,A$$

$$\text{Candidate Y} = U_i\,[(\alpha_i)(1-\alpha_i)]\,B$$

The candidates will, holding all other factors constant, allocate more visits to the more competitive states. Whether a state is more likely to go Republican or Democrat is not important to the overall number of visits. An example is that if a state is 40% likely to vote Republican or 60% likely to vote Republican, both candidates will allocate the same amount of resources to those states, holding all other factors constant. The same is true if that state is 30% likely to go Republican or 70% likely to go Republican. This prediction of symmetry is that candidates do not visit states they believe they are behind in more frequently than states they believe they are ahead or vice versa. This prediction is counter-intuitive because it assumes the candidates are risk neutral. The general intuition is that candidates will allocate more resources to states they are behind than to states they are ahead.

An empirical test of this prediction can be conducted if we split out the competitiveness variable back into its original form. A dummy variable for each category of state is used (Base Democrat, Lean Democrat, Toss Up, Lean Republican, Base Republican). If there is statistical evidence for the symmetry prediction, then we should expect no statistical difference between the coefficients on the Lean Democrat and Lean Republican variables and between the coefficients on the Base Democrat and Base Republican variables. The results of the OLS regression model are reported in Tables 3.8 and 3.9.

Table 3.8: Testing the Symmetry Prediction from the Model

Candidate Visits 1988 – 2004 (N = 510)

Variables	**Coefficient (standard deviation)**
Electoral Value	1.14** (0.13)
Lean Republican	-2.9** (0.46)
Lean Democrat	-1.7** (0.52)
Base Republican	-5.9** (0.39)
Base Democrat	-5.4** (0.41)
Candidate Visit Effectiveness	-6.9** (1.4)
Opponent's Visit Effectiveness	-5.6** (1.4)
Constant	-2.22** (0.42)
R squared	0.504

**p value < 0.01

All variables are in log form

Table 3.9: Testing the Symmetry Prediction from the Model

Candidate Media Buys 1988 – 2004 (N = 510)

Variables	**Coefficient (standard deviation)**
Electoral Value	0.38 (0.28)
Lean Republican	-2.83** (0.59)
Lean Democrat	-2.14** (0.66)
Base Republican	-6.68** (0.5)
Base Democrat	-5.89** (0.53)
Candidate Media Effectiveness	-23.66** (1.82)
Opponent's Media Effectiveness	-22.3** (1.79)
Media Buy Cost	-0.47* (0.21)
Constant	9.24** (1.88)
R squared	0.464

* p value < 0.05

**p value < 0.01

All variables are in log form

We can now compare the coefficients to see if there is any significant difference between Lean Republican and Lean Democratic states and between Base Republican and Base Democratic states. If there is a statistical difference in the coefficients it means that the hypothesis of symmetry is rejected. In the statistical model of candidate visits, the

coefficients on the Base Republican and Base Democrat variables are not statistically different (p value > 0.1). This means we cannot reject the hypothesis that the candidates visit Base Republican and Base Democrat states equally. However, the coefficients on the Lean Republican and Lean Democrat states are statistically different (p value < 0.05), which means for candidate visits the allocation of resources is a little different between these two types of states. In the model of candidate media buys, the coefficient on the Lean Republican and Lean Democrat variables are not statistically different (p value > 0.1) as well as the coefficient on the Base Republican and Base Democrat variables (p value < 0.05). This means that the model's prediction receives some support from both of the different types of resources allocated in presidential elections.

Another prediction of the model that is controversial is that candidates will allocate some resources to base states. The general intuition is that candidates allocate almost nothing to base states. However, the data reveals that candidates in fact do allocate some resources to the base states and this supports the prediction of the model. Of the 1,141 total visits in the model, 200 are allocated to base states (17.53%). Of the 1,642,238 total GRPs purchased, there are 354,738 GRPs purchased in base states (21.6%). This is not an insignificant amount, considering most believe almost zero resources are allocated to base states.

A fourth prediction from the model is that Republicans and Democrats should not be different strategically with how many visits they allocate to states, holding all other variables constant. A conjecture by Daron Shaw (2006), who worked closely with the Republican campaigns of 2000 and 2004, believed that Republicans made quick trips[22],

[22] In the context of this conjecture it was independent of the other variables that could influence more candidate visits to states.

thereby increasing the overall number of visits compared to the Democrats. One test of this prediction is to include a Democrat dummy variable in the OLS model to see if Democrats make a significantly different number of visits or purchase a significantly different amount of media buys compared to the Republicans, holding all other variables constant. The results of the OLS models are reported in Tables 3.10 and 3.11.

Table 3.10:

Testing the difference between Republican and Democrat Strategies

Candidate Visits 1988 – 2004 (N = 510)

Variables	**Coefficient (p-value)**
Electoral Value	1.18** (0.13)
Competitiveness	3.5** (0.21)
Candidate Visit Effectiveness	-6.8** (1.46)
Opponent's Visit Effectiveness	-5.72** (1.45)
Democrats (1 = Dem, 0 = Rep)	-0.197 (0.35)
Constant	-6.21** (0.36)
R squared	0.496

** p value < 0.001

All variables are in log form

Table 3.11:

Testing the difference between Republican and Democrat Strategies

Candidate Media Buys 1988 – 2004 (N = 510)

Variables	**Coefficient (p-value)**
Electoral Value	1.05 (0.31)
Competitiveness	3.83** (0.3)
Candidate Media Effectiveness	6.58** (1.47)
Opponent's Media Effectiveness	9.04** (1.47)
Media Buy Cost	-1.01** (0.23)
Democrats (1 = Dem, 0 = Rep)	-0.98* (0.42)
Constant	14.39** (1.91)
R squared	0.31

* p value < 0.05

** p value < 0.001

All variables are in log form

The OLS model confirms that there is no statistical difference between Republican and Democrat strategies for number of visits, holding all other variables constant. However, there is a statistical difference between Republican and Democrat strategies for amount of media buys. Holding electoral value, competitiveness, and the

two candidates' effectiveness constant, Republicans purchase a statistically significant and substantially greater amount of media buys.

Conclusion

Most of the empirical results support the assumptions and predictions from the model. This demonstrates that the model of presidential campaigns presented in Chapter 2 is very strong both in the reality of its assumptions and the truth of its predictions. In the next chapter, the historical record of the last nine presidential elections is reviewed to see if there is qualitative evidence for the model; its assumptions and predictions.

CHAPTER 4

HISTORICAL EVIDENCE FOR THE THEORY

> Campaigns are supposed to educate the public about both the candidates' personal qualities and the major issues. In fact, without effective campaigns any level of issue voting would be impossible, since voters would be unaware of the differences between candidates on the issues.
>
> Kathleen Frankovic, Public Opinion Trends

This chapter has two purposes: to describe the last nine presidential elections with the thirteen different presidential candidates[23] from the two major parties and to understand the campaign strategies of the candidates. I have decided to use the presidential elections from 1976 to 2008 for a couple of reasons. The first reason is that the 1976 presidential election is the first campaign which took place under the modern federal regulations regarding presidential campaigns. These regulations had important implications on presidential elections because they strictly limited how campaign funds could be raised. No longer could a presidential candidate receive a million dollars from a wealthy contributor and use it however they wanted. The 1976 election was also the precursor to candidate-centered elections (Wattenburg, 1992) and viewed by some as the end of party politics in presidential elections (Skinner et al., 2007). In fact, Jimmy Carter was an outsider to his own party (Witcover, 1977). Another reason why 1976 is a unique election to start with is that there was greater access to television which plays a role both in advertisements and candidate visits which are reported on local media outlets. It is also interesting to note that from this election on, there have been televised presidential debates, which did not happen in the previous three presidential elections. This point supports the importance that television has had in presidential elections since 1976.

[23] The nine presidential elections are from 1976 to 2008. During that time five presidential candidates competed in two elections each making only thirteen presidential candidates.

Finally, this election was unique because it had essentially two challengers to the White House. Ford was not elected to the presidency or vice presidency and so this would be Ford and Carter's first campaign for the presidency.

The second purpose of this chapter is to understand the campaign strategies of the presidential candidates. In each election, campaign managers and strategists are pegged with the responsibility of coming up with an Electoral College strategy. The campaign staff, the candidate, and supporting voters would like to win all 538 electoral votes, just as coaches, players, and fans like to see their opponent shut out in football, baseball, and hockey games. However, in almost every election it is unrealistic to believe it is possible to achieve such a goal[24]. Therefore strategies are developed to focus resources and attention on the states that have a realistic chance of being won. While the media focuses on the race from a national perspective, candidates are focused on the race in a state by state perspective. They want to win at least 270 Electoral votes, but of course would like to win more than this bare majority if they could. The reason for this is that it provides them with a cushion for victory and what they believe is a mandate if they win with an overwhelming majority.

Instead of going in chronological order, I have decided to group the descriptions of these nine presidential elections into two categories: elections during good economic times and elections during bad economic times. The reason for doing this is that the main factor determining the prior probability of winning the election for the incumbent party is the economic environment. This grouping shows the similarities between the parties working in similar economic environments. A definition to delineate between good and

[24] In this sense the presidential election is more like a basketball game – almost impossible to shut out the other team.

bad economic times is as follows: an election during good economic times is when the unemployment rate is relatively low. Conversely, an election during bad economic times is when the unemployment rate is relatively high. Relatively high unemployment will be defined as being 1% or more above its nine year average in September of the election year. Relatively low unemployment will be anything less than relatively high unemployment. By this definition, four of the last nine presidential elections took place during bad economic times and the other five took place during good economic times. Table 4.1 lists out the nine presidential elections, the presidential candidates, and the unemployment rates.

Table 4.1: Unemployment Rate in Presidential Elections from 1976 - 2008[25]

Year	Incumbent Candidates	Challenger Candidates	Un-Employment Rate	Nine Year Un-Employment Rate
1976	Gerald Ford Bob Dole	Jimmy Carter Walter Mondale	7.6	5.44
1980	Jimmy Carter Walter Mondale	Ronald Reagan George H.W. Bush	7.5	6.43
1984	Ronald Reagan George H.W. Bush	Walter Mondale Geraldine Ferraro	7.3	7.62
1988	George H.W. Bush Dan Quayle	Michael Dukakis Lloyd Bentsen	5.4	7.52
1992	George H.W. Bush Dan Quayle	Bill Clinton Al Gore	7.6	6.56
1996	Bill Clinton Al Gore	Bob Dole Jack Kemp	5.2	6.1
2000	Al Gore Joe Lieberman	George W. Bush Dick Cheney	3.9	5.58
2004	George W. Bush Dick Cheney	John Kerry John Edwards	5.4	5.02
2008	John McCain Sarah Palin	Barack Obama Joe Biden	6.2	5.03

The bad economic times are 1976, 1980, 1992, and 2008. The good economic times are 1984, 1988, 1996, 2000, and 2004. The table shows that there is a clear delineation between good and bad economic times. As described in the theory, the prior probabilities for the incumbent party candidates are negatively affected by bad economic

[25] Data on unemployment rate taken from Census.Gov

times. However, the purpose of this chapter is to provide a historical account of the presidential campaigns to get an understanding of the effectiveness of each presidential candidate. I will first start with the elections during bad economic times.

Elections in Bad Economic Times

1976

Gerald Ford entered the White House as Vice President in December of 1973 after Spiro Agnew resigned. Before that date Ford was the minority leader of the Republican Party in the House of Representatives, elected by the citizens of Michigan's fifth district. Then on August 9, 1974 Richard Nixon resigned because of the allegations of Watergate and this propelled Gerald Ford to the presidency, making Ford the nation's first unelected president. President Ford's approval started at 60%, but soon plummeted below 40% after he gave Nixon a full presidential pardon. Less than a year after the pardon of Nixon, President Ford declared his candidacy. The advantage for Ford in the upcoming presidential election was his incumbency, but the disadvantage was the shadow of Nixon – cemented to Ford by the pardon he gave the former president.

President Ford's campaign strategist began developing their state strategy by first carving out the country into three categories; Ford's base, Carter's base, and the swing states. In Ford's base were 83 electoral votes. In Carter's base were 87 electoral votes. This left 368 electoral votes up for grabs. The swing states were then prioritized according to three categories. First, they were ranked by their historical Republican vote totals from 1952 through 1972. Second, they were ranked by their 'winnability'. Finally, using the state's historical Republican vote total rank, the state's winnability, and their electoral value, a final rank was developed for the priority of each state in their campaign.

Stuart Spencer, Ford's campaign strategist, was clear when talking to President Ford about his abilities and the upcoming election. He said with bluntness, "Mr. Ford, as a campaigner, you're no…good!" (Witcover, 1977) This was more fully explained in detail in Ford's campaign strategy book. Ford's strategists wrote: "..although you have been able to positively influence the voters, efforts to do this in the past have resulted in very limited and temporary increases. Most importantly, your national approval rating declined during the periods when you were perceived as a partisan, particularly when we campaigned (Campaign Strategy for President Ford, 1976). This is in part why his campaign strategists decided to implement the "No Campaign Strategy" or as it is known now as the "Rose Garden Strategy". This strategy entailed a limited number of campaign visits that would be made only as an official presidential stop, not a campaign event.

This provides support for one of the predictions in the model; that campaign visits are partly determined based on candidate effectiveness. Since the campaign believed that Ford was ineffective at campaigning, they decided from the outset not to campaign, exactly what the model would predict.

Carter's strategist, however, relied on a slightly different numerical weighting system to prioritize the visits of Carter to individual states. There were several criteria that gave points to each state. The first criterion was the electoral value of each state. Each state received one point for every electoral vote it had for a total of 538 points. The second criterion was the state's potential to vote for a Democratic president. This potential was calculated by the party preferences of the state. Therefore, one point was given for each Democratic governor or U.S. senator; one point if both houses of the state legislature had a majority of Democrats; one point if the majority of the state's House

members were Democrats; and two points were given if George McGovern received more than forty percent of the vote in the 1972 presidential race or one point if McGovern received between thirty five and forty percent of the votes. All of this added the possibility of up to seven points to a state's value. The third criterion was based on the need to make a campaign effort. The states that were benefited from this criterion included states where Carter lost in the preconvention period, states where Carter had won narrowly, states where Carter spent little time or resources, and states where Caddell's polls showed Carter running close to or behind Ford[26]. Examining these four measures, Jordan then placed each state into four groups; A, B, C, and D. Group A had the greatest need to make a campaign effort and Group D had the least need. Each state in Group A received 9.8 points; every state in group B received 6.2 points; states in group C received 3.5 points; and states in group D received 2 points. This gave fifty percent weight to the electoral value of a state, twenty five percent weight to the state's potential to vote for a Democratic president, and twenty five percent weight to the need to campaign in a state (538 points were given for electoral value, 280 points for potential, 265 points for need). Finally, the percentage of campaign effort for each state was calculated by the number of points the state received divided by the total number of points doled out (Witcover, 1977; Schram, 1977).

Hamilton Jordan also made it clear what their goal was for the election. Jordan wrote:

> "Our clear and single goal must be to simply win 270 electoral votes," he wrote, underlining this sentence. "To expend our limited resources trying to win 400 electoral votes, we could easily fall short of the 270 we need to win the election…[but]…If by mid-October we have a commanding lead

[26]I have not been able to find how close to Ford these polls had to be, but this was one of four subjective criterion that Jordan used to categorize the states into four groups.

> and have the flexibility previously advocated, the goals and objectives of the campaign can be appropriately broadened. If our projected lead in the Electoral College is commanding and our survey results solid in mid-October, we can begin to spend an appropriate amount of time and resources trying to win the mandate we will need to bring real and meaningful change to this country" (Witcover, 1977, 529).

However, Jimmy Carter rejected this ordering of their goals. Carter instead wanted to broaden the campaign focus from the beginning to try and maximize his expected electoral vote count to achieve the mandate that would be crucial to impress a recalcitrant Congress. He would only narrow his campaign focus if it became mandatory in order to avoid defeat (Witcover, 1977, 529).

The formula that Jordan used to calculate percent of campaign effort provides support for one of the predictions of the model; that every state will receive some level of campaign effort. By Jordan's formula, there was not a single state that did not receive some percentage of the campaign effort. No state could have less than 5 points (3 electoral votes and 2 points if they were in Category D). This means that no state could have less than 0.46% of their total campaign resources (5/1083).

The components that went into Jordan's formula provide further support for another prediction in the model; that campaign resources will be spent based on the Electoral votes, competitiveness, and candidate effectiveness. The first component to Jordan's formula was the number of Electoral votes. The second component was based on the political landscape (e.g. number of same party senators) which in the theory influences candidate effectiveness. Finally, the third component was a rough measure of competitiveness. For example, one of the criterions to the third component was if Caddell's polls showed Carter running close to or behind Ford.

Carter also provides support for one of the assumptions to the model which is that candidates want to maximize their expected electoral votes. That is exactly what Carter emphasized to Jordan that he wanted from the beginning. Hamilton Jordan was not opposed to this goal, but wanted to focus their strategy until more data came in.

After developing these strategies, the candidates then needed to campaign effectively for the strategies to work. The two candidates certainly had different prior probabilities of winning the election. President Ford was politically unpopular and the economy was in rough shape with unemployment at 7.6 percent. And while Carter was known as a good campaigner, Ford was not. The campaign strategist for Ford "knew it would take a near-perfect campaign and some missteps by the usually sure-footed Carter, to keep Gerald Ford in the White House." (Witcover, 1977, 542)

And the greatly desired missteps by Carter came quickly. It was soon uncovered right after Labor Day that the director of the FBI had illegally taken taxpayer money to redecorate his apartment. Carter quickly reacted with scathing comments about the White House. Jim Wooten of the *New York Times* questioned Carter about whether as President would he fire Kelley. Carter said, "Knowing what I know now, yes, I would have fired him" (Witcover, 1977, 547). Then Wooten asked Carter if he did become president would he then fire Kelley. Carter replied, "I will cross that bridge when I come to it" (Witcover, 1977, 547). The press reacted to these comments and began to pin Carter as a flip-flopper. A larger misstep came when Carter was questioned on his tax reform position. Some Associated Press reporters asked Carter specifically what he meant by shifting the burden of income tax onto the rich. Carter said, "I don't know. I would take the mean or median level of income, and anything above that would be higher

[pay more taxes by paying a higher percentage] and anything below that would be lower [pay less taxes]" (Witcover, 1977, 557). When it was pointed out to Carter that the median family income is about twelve thousand dollars and hardly considered rich, Carter complained that he could not get into specifics of the tax code on the campaign trail. That exchange gave the Republicans plenty of red meat as they spread the message that Carter wanted to increase the taxes on almost everyone. And then the famous *Playboy* interview came out before the first debate on September 23rd. This interview created several problems for Carter. First, presidential candidates do not usually admit that they have lusted after many women. And Carter's use of the word "screw" did not sit well with some of his potential Christian voters. Also, giving an interview to *Playboy* created problems for potential women voters. Finally, he equated Johnson with Nixon by saying, "But I don't think I would ever take on the same frame of mind that Nixon or Johnson did, lying cheating, and distorting the truth" (Witcover, 1977, 580). This last issue created unnecessary problems for Carter in the South and especially in Texas.

Soon after these missteps and the first debate, President Ford abandoned the Rose Garden strategy and began campaigning in different states. The first major snag in Ford's campaign came when President Ford was accused of being a main character in preventing an investigation into the Watergate Scandal before the election of 1972. President Ford maintained his innocence, but this incident cast new doubt on Ford's involvement and also likely brought up the unpopular decision of pardoning Nixon in the minds of voters. The second snag came when it was reported that the Secretary of Agriculture Butz made a racial slur. Instead of firing Butz immediately, President Ford decided to talk with Butz. Three days later Butz resigned. And the Carter campaign was

able to capitalize on this delay to the fullest extent. The most damaging of the campaign snags for President Ford came in the second presidential debate. In that debate, Frankel, a former Moscow correspondent for the Times asked President Ford about the situation in Europe. After answering part of Frankel's question, President Ford then turned to the part of the question about the Helsinki Agreement and said:

> "And what has been accomplished by the Helsinki Agreement? Number one, we have an agreement where they notify us and we notify them of any military maneuvers that are to be undertaken. They have done it. And in both cases where they've done so, there is no Soviet domination of Eastern Europe, and there never will be under a Ford administration" (Witcover, 1977, 597)[27].

The message was spread that Ford believed there was no Soviet military domination of Eastern Europe. President Ford continued to exacerbate this mistake by continuing to deny that Eastern Europe was dominated by the Soviet Union, but then finally admitted to misspeaking on the issue, five days after the debate – an eternity in presidential campaigns (Witcover, 1977).

Despite these snags by President Ford, he climbed in the polls from far behind Jimmy Carter that year to finish just 2% below Carter in the final results.

These events show two important implications. First, as Ford's effectiveness increased relative to Carter, the president began campaigning more frequently – an important prediction in the model. Second, the winner of presidential elections does not always have a flawless campaign. It is certainly clear in this campaign that the mistakes by Carter almost cost him the election.

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[27] Witcover also writes, "The Carter insiders were beside themselves. Pat Caddell turned to Stu Eizenstat. '…I can't believe it!' Eisenstat replied: 'That is the dumbest thing I ever heard!' After the debate Caddell went to Carter's dressing room and told his candidate: 'That's probably the most decisive presidential debate in history.' (1977, 597)

After the election was over, Ronald Reagan, the man who just barely lost to Ford in the Republican nomination in 1976, began to lay the foundations for his 1980 presidential run with his syndicated newspaper column and radio program. Carter could not have known beforehand just how tough his presidency would be. With inflation going out of control, unemployment rising, and trouble overseas – these factors acted as dead weights on his job approval ratings. And four years later he would be running for the presidency again, but in a different situation from 1976.

1980

Reagan found himself running against an unpopular incumbent during the time the economy was stumbling. Jimmy Carter's approval rating was below 40% for most of 1980[28]. And of the last nine presidential elections, the economy was the worst in 1980. The unemployment rate was the same as it would be in 1992 at 7.6%, but inflation in 1980 was near 14.5% – almost 12.0% higher than 1992.

Richard Wirthlin, the chief strategist for Ronald Reagan, explained their state strategy in the 1980 election as follows:

> "[The] targeting decisions were heavily based upon both winnability and potential yield in electoral votes. Other things equal, states with larger numbers of electoral votes and reasonable potential for victory received disproportionately larger allocations of limited resources, according to an allocation formula developed for the Reagan campaign." (Wirthlin, 1981, 250)

This allocation of resources is exactly how the model would predict: Allocate more resources to higher electorally valued states and states that are competitive ('reasonable potential for victory'). Wirthlin goes on to explain that their prioritization methods included categorizing states into Reagan base states, Carter base states, and

[28] Jimmy Carter: http://online.wsj.com/public/resources/documents/info-presapp0605-31.html

others. States where Reagan had a greater than 70% chance of winning would be classified as Reagan's base; states where Reagan had less than 30% chance of winning would be classified as Carter's base. The other states would be prioritized according to descending order of 'victory potential', electoral size, and region of the country (Wirthlin, 1981).

For Carter, the state strategy, according to Caddell, was to focus on the Southern and Northern industrial states that elected Carter in 1976. In that year, Carter won 297 electoral votes – only 27 more than needed. Caddell gave Carter eight base states: Massachusetts (14) Georgia (12), Minnesota (10), Maryland (10), Arkansas (6), West Virginia (6), Rhode Island (4), Hawaii (4), and the District of Columbia (3) – for a total of 69 electoral votes. The battleground states would be: Ohio (25), Pennsylvania (27), Illinois (26), Michigan (21), New Jersey (17), New York (41), Missouri (7), Wisconsin (11), California (45), Texas (26), and Florida (17) – for a total of 263 electoral votes. Both New York and California were considered long shots and winning one of them was considered almost necessary to win (White, 1982).

With both of the state strategies in place, the only thing the candidates could do was to craft a message that would maximize their effectiveness.

The message for Reagan was clear. Attack Jimmy Carter on a failed presidency. Carter failed to keep the economy stable with high unemployment and even higher inflation and Carter failed to keep us safe with Americans as hostages in Iran. This message would be repeated in a series of questions posed by Reagan to the American people. Reagan would say:

> "…are you better off than you were four years ago? Is it easier for you to go and buy things in the stores than it was four years ago? Is there more

> or less unemployment in the country than there was four years ago? Is America as respected throughout the world as it was? Do you feel that our security is as safe, that we're as strong as we were four years ago?" (Abramson et al., 1982, 45)

These were the driving points that Reagan would hit and he repeated them again in the last presidential debate just a week before the election. These driving points maximized Reagan's effectiveness because it solidified in the minds of voters the reasons most likely used to disapprove of an incumbent; failing economy and failing foreign policy.

The beginning of Reagan's campaign, however, was not smooth. Reagan would often speak "off the cuff" to reporters – something he did since 1966 to show he was not just an actor reading lines. This got him in to trouble early in the general election campaign. He mentioned that the Vietnam War was a noble cause, that creationism should be taught in schools, and that Carter was starting his campaign at the birthplace of the Ku Klux Klan[29]. According to Frankovic, "The voting public seemed to be clearly aware of these mistakes, as two-thirds (and half of the Reagan supporters) consistently agreed that he 'said too many things carlelssly, without considering the consequences'" (Frankovic, 1981, 105). Before these mistakes, Carter was trailing Reagan in the polls 45 to 29. After these series of mistakes by Reagan, President Carter had rallied to a lead of one point in the polls – 39 to 38. For the rest of the campaign, Reagan's advisers made sure there was someone to run interference to keep him from making any more mistakes (Abramson, et al. 1982). The Democrats tried to score political points by pointing out that Reagan's advisers were running interference and that their candidate could not speak

[29] Carter started his campaign in Tuscumbia, Alabama. The birthplace of the Ku Klux Klan was Pulaski, Tennessee. These locations are 64.8 miles apart.

for himself, but these attacks were ineffective because it was at this time that Carter began to get himself in trouble with his own words (Abramson, et al. 1982)

Carter's message was as expected for an incumbent president in bad economic times: Reagan is bad and potentially dangerous. Carter's campaign would work "to portray Reagan as 'simplistic' and 'not equipped to be President'" (Pomper et al., 1981). The Carter campaign was trying to impose fear into the American people that the economy could get worse. Along with this fear, President Carter was trying to convey to the American people that he had learned from his mistakes and that this made him better qualified to be president because he could do a better job than the previous four years (Abramson et al. 1982). But Carter stumbled in September. His emphasis on putting fear into the American people, that their situation could get worse, was characterized as 'meanness' by the media. The 'meanness' issue was encapsulated in several lines of Carter's campaign speeches. Carter said in one speech, "I believe in peace, I believe in arms control, I believe in the rights of working people of this country, I believe in looking forward and not backward, I don't believe the nation ought to be divided one region from another. In all these respects, Governor Reagan is different from me." In another speech, Carter said, "You'll determine whether this America will be unified or, if I lose the election, whether Americans might be separated, blacks from whites, Jews from Christians, North from South, rural from urban." These speeches were characterized as mean by the media and Carter was put on the defensive for these. After Carter's issue of meanness, "The public…reacted; a near majority now believed that Carter 'says too many things carelessly, without considering the consequences'" (Pomper, 1981, 81). The Carter campaign then began to attack the media for giving Reagan a 'free ride'. Soon

after this negative coverage of Carter and the pressure by the Carter campaign, the media flipped and decided to cover Reagan more negatively. On October 7th, 1980, CBS ran a report that Reagan was switching positions on many issues and asked in a negative fashion, "Which is the real Ronald Reagan?" (Abramson et al., 1982) And the news also blasted Reagan for making an exaggeration about air pollution, when he claimed that Mount St. Helens probably released more air pollution in several months than automobile driving in the last ten years.

It appears that one of the biggest mistakes made by Carter in the 1980 presidential election was not debating against Reagan and Anderson in the first debate. When the League of Women invited Anderson to debate with the two major political party candidates, Carter refused to debate. The Carter campaign saw Anderson as a direct competitor for the liberal votes and they did not want to give Anderson attention by showing up to the debate. Carter hoped to reduce the number of viewers and deprive Anderson of the attention. However, according to Theodore White, "Though Anderson had scored best, as one-on-one over Reagan, the big loser was not Reagan, but Carter. The image the Carter campaign had painted of Reagan the killer had, simply, not shown on the screen" (White, 1982, 390). The poll results were used by analysts as evidence in this judgment: After the debate, "the opinion polls showed that Reagan converted a 4 percent deficit into a 5 percent lead over Carter[30] and that most voters were now convinced – contrary to their earlier views – that Reagan 'understood the complicated problems a President has to deal with'" (Pomper, 1981, 80).

[30] "CBS, which had Reagan down by 36 to Carter's 40 before the debate with Anderson, found that another vast shift had taken place a week after the debate. Reagan was ahead, 40/35. ABC confirmed Carter as down, 42/36. NBC, whose polling constantly showed a wider margin for Reagan than any of the other polls, checked in with 42/33" (White, 1982, 391)

There was disagreement between Carter and his staff and Reagan and his staff on whether they should debate one on one after the first debate. Caddell explained the reasons behind Carter's campaign staff's reluctance to debate:

> It "rested on three chief premises: [1] A late debate would interfere with the traditional surge in the last week of the incumbent primary which had occurred in every election since 1948, with the exception of the landslide elections in 1964 and 1972. [2] The debate offered Reagan a significant forum in which to rebut the damaging charges raised by Carter and to reassure millions of voters who had been affected by those attacks. [3] Presidential debates are the vehicles of challengers, not of incumbents." (Caddell, 1981, 283)

Carter, however, disagreed with his staff. He believed that "with his knowledge of the presidency and his command of facts, he could expose Reagan as a fraud and a risk" (White, 1982, 403). On the opposing side, Reagan's staff did not want to debate either. "They rested [their] case on the upturn in the private Reagan polls, with their candidate six points ahead. 'I wasn't all that enthusiastic; debates are high-risk events. You're putting a lot of political capital on the table for an hour and a half,' said Wirthlin (White, 1982, 403). Reagan, however, wanted to debate. The reason he wanted to debate came on October 15. That night, Reagan and Carter attended the Alfred E. Smith dinner at the Waldorf-Astoria Hotel. Carter did not appear at the reception or the dinner with Reagan. Instead, he just showed up to give his speech, a partisan one, and left. "Reagan had spoken with grace and wit" and he "had so clearly outdone Carter at the evening dinner" that he wanted to debate Carter, "wherever the 'ladies' chose, and when" (White, 1982, 403).

The final debate, which took place a week before the election, was judged as being evenly matched in the media, but polls showed that Reagan won 44 to 36 percent. And 6 percent of debate viewers said they had switched their votes; Reagan winning the

switchers two to one (Abramson et al., 1982). In the end, Reagan won the election 55 to 45.

Twelve years later, while the Republicans controlled the White House, the fortunes of the parties finally flipped. The Republicans found themselves the incumbent party in bad economic times in 1992. George H.W. Bush would also be haunted by his 1988 pledge to implement any new taxes, which he violated in a 1990 budget agreement. And Bush would also have a tough opponent, a charismatic governor from Arkansas, Bill Clinton.

1992

It should be said that the incumbent party in bad economic times has two possible strategies; blame others for the failure or attack their opponent's abilities to do any better. In 1992, George H.W. Bush tried both possible strategies. Bush started out by blaming the "do nothing" Congress for the economic failures. He argued that Congress was not passing the needed economic reforms that would improve the country's economic situation. His solution was to call for the country to elect himself to the presidency and the Republicans to a majority in Congress. When reports came out that it would be unlikely for the Republicans to achieve a majority in Congress, this message backfired. If the country were to elect Bush, divided government would continue. So Bush turned to the other possible message. His campaign focused on the inability of Clinton to improve the economic situation. Statistics of Clinton's performance as Arkansas' governor were used to show that Clinton failed to improve Arkansas' rank among the states in a list of domestic indicators that the Republicans hoped would "prove" Clinton incapable of helping the country out of this recession. The Republicans tried to go on

the offensive by saying that the economy could get a lot worse, using the fear that Democrats would "tax and spend" causing the economy and the American people to suffer more hardship. Along with this primary message, Bush tried to play defense on the economy, saying that the economy was not as bad as it was perceived. But with continual coverage of bad economic news, this message also backfired making it seem like Bush was out of touch with reality (Arterton, 1993). Bush also focused his attacks on Clinton's character. How can you trust Clinton to be the commander in chief of the military when he dodged the draft himself? And Bush tried to subtly remind voters about suspicions of Clinton's moral character using terms such as "traditional family values" (Arterton, 1993).

For Clinton, the focus of his message was clear; focus on the economy. George Stephanopoulos, Clinton's Communications Director, had a famous sign in his office, "It's the economy, stupid" to remind him of the importance of focusing the campaign around this message. Along with this message, Clinton's campaign was designed to respond quickly and effectively to any attacks made by George Bush and to return jabs about Bush's inability to handle the economy.

The context surrounding 1992 clearly favored a Democratic victory. The economy was in a recession with 7.6% of Americans unemployed and the percentage increasing monthly. The Republicans had been in office for twelve years and there was definitely an attitude for change. And George H.W. Bush's approval rating stood below 40% for most of 1992[31].

[31] George H.W. Bush: http://online.wsj.com/public/resources/documents/info-presapp0605-31.html

Clintons' campaign seemed to be the most effective. Clinton focused hard on 32 states totaling 370 electoral votes and they won 31 of these. One analyst said, after analyzing the campaign, that "…the popular vote given to the two major party nominees divided 53 to 47 percent, which just about parallels an impressionistic balance of the strategic and tactical successes of these two competing campaigns" (Arterton, 1993)

The Democrats held the White House for eight years with Bill Clinton, followed by another eight years held by the Republicans, before another election would take place in bad economic times. Unfortunately for the Republicans, the tough economic times would fall on them again. And the Republicans had the added disadvantage of a long war in Iraq, which became a drag on their incumbent's approval ratings. The Republican's nominee, John McCain, would also have a tough opponent in a charismatic senator from Illinois, Barack Obama.

2008

Barack Obama's campaign understood what the key to the White House was in 2008. Obama and the Democrats needed to at every turn to compare McCain to Bush. Joe Biden, the Democratic vice presidential nominee, most prominently emphasized this at the Democratic National Convention by saying, "That's the America that George Bush has left us, and that's the future George - I mean John - McCain will give us." The reason for this comparison was simple. George W. Bush had a very low approval rating in 2008. Bush's approval rating was below 30% for all of 2008[32]. This rating was even lower than Carter at the end of his term in office. Another contextual factor that helped Obama was that the unemployment rate was increasing month after month in 2008. The dire economic situation was solidified starting on September 14, 2008 when Lehman Brothers

[32] George W. Bush: http://online.wsj.com/public/resources/documents/info-presapp0605-31.html

announced they would be filing for bankruptcy. This solidified three contextual factors favoring Obama and the Democrats: the low approval rating for Bush, the faltering economy, and the eight years of Republican control which lends itself to change.

Though Obama was campaigning from a strong position in 2008, his campaign still focused on the number needed to win – 270. Even though they focused on this number, this was meant only as a categorization label – finding 270 Electoral votes worth of states to put into a category of most certain they could win. In fact, this is true for just about every presidential campaign since 1976. David Plouffe, Obama's Campaign Manager, explained the overall goal of Obama's campaign strategy in this way:

> "From an electoral perspective, nothing was more important to us strategically than having a wide playing field. This was my goal from Day One. We did not want to wake up on the morning of November 4 dependent on one state, as Kerry was on Ohio in 2004 and to a lesser extent Gore was on Florida in 2000. We wanted to have a wide set of targets so that we could lose some and still win the presidency." (Plouffe, 2009, 247)

Essentially, Obama was trying to go after as many possible states as he reasonably could. He made it clear to his campaign staff that he did not want to seek after this goal while losing sight of and hindering their chances for 270 Electoral votes. In relaying this message to his campaign staff, he said, "Let's just make sure we hit 270. I don't want to get 260, wishing for 360" (Plouffe, 2009)

Obama's campaign staff then turned to the time consuming task of figuring out which states would be on their targeted state list. David Plouffe explained their method as such:

> "To figure out which states we could target, we focused our analysis on determining where we could credibly get to a win in number, 49 or 50 percent in most cases (third-party candidates would skim a few votes in some states). We modeled many different scenarios for how undecided

> voters could break, and the effect of increased voter registration. Our calculus took into account patterns in each state's voting history, demographic analysis, our own research, and some old-fashioned gut instinct. We put states through the paces under various scenarios to see how they held up and if they gave us a reasonable path to victory." (Plouffe, 2009, 248)

David Plouffe's explanation reveals more intricacies of devising presidential campaign strategies. Obama's campaign staff poured through records of each state looking at past voting histories, changing demographics, and polling data to see which states were possible wins for Obama. These are the factors that determine the prior probability a candidate will win a state, which shows that the prior probability of winning a state is one of the factors that went into devising Obama's 2008 campaign strategy. Obama's message of keeping their goal on 270 and not overreaching for 360 shows that candidates want to devote more of their resources to the competitive states than the not-so-competitive states.

Finally, in Plouffe's explanation of his goal, he made it clear that they wanted to maximize their expected electoral votes to ensure that they had a cushion for victory. Plouffe emphasized this point by saying that he wanted a "wide playing field" and a "wide set of targets" (Plouffe, 2009, 247).

Contrary to Obama, John McCain did not have a clear message in the presidential campaign. "As Robert Draper of the *New York Times* put it, McCain at times was the 'heroic fighter' on the campaign trail while others were quitters; he was the 'country-first deal maker' while Obama was just a 'non-partisan pretender'; McCain was the 'leader' while Obama was a mere 'celebrity'; he was the maverick fighting against old-style deal-making Washington; he was the 'fighter' against the old Republican bug-a-boo, the 'tax-and-spend liberal'" (Johnson, 2009).

In late September, the campaign tried a tactic to slow or reverse the trend of Obama's increasing lead. McCain officially suspended his campaign to go to Washington to direct a plan to save the stumbling economy. But the tactic failed as Washington was too divided on how to act. And Obama's lead continued to hold until Election Day. In the end, Barack Obama won 53 to 47.

It is noteworthy to point out that the incumbent in bad economic times always lost, but some lost by larger margins. There were differences in mistakes made, issues emphasized and ignored, and levels of personal skill. I will now turn to the five elections that took place during good economic times.

Elections in Good Economic Times

1984

Ronald Reagan's approval rating steadily increased during the 1984 presidential campaign, mostly because he had the benefit of an improving economy. In 1983, the unemployment rate hit a peak of 11.0%, the largest percentage unemployed in decades. But over the course of one year, just in time for the election, the unemployment rate fell to under 8%. And in 1984, inflation was under 5% after reaching its peak of 14.5% in 1980. The stock market was soaring and voters felt their economic situation improving under Reagan's administration. Reagan started out in head-to-head polls 10 points ahead of Mondale and he never dropped below that level. At one time late during the campaign, Reagan had a commanding 25 point lead. There was almost no doubt in the Reagan campaign that they were going to win the election - the question was, by how much.

When Lee Atwater, Reagan's campaign deputy director, found out that the Democrats had nominated Geraldine Ferraro, making the Democratic ticket a North-North combination, he declared in a memo that the election was over. He believed that all 266 electoral votes in the South and West were solidly in Reagan's base. They only needed to pick up Ohio or Michigan to put them over the top. Atwater suggested that they 'carpet bomb' these two states with their campaign – 'as if Reagan were campaigning for governor instead of president' (Abramson, et al. 1986, 51-52). This strategy from the Reagan campaign supports a prediction from the model. The two most competitive states in Reagan's perspective, Ohio and Michigan, would receive the lion share of resources from the candidate.

Mondale's campaign knew that only major events in the campaign could provide them with a chance at winning in November. However, Mondale did not wrap up the nomination as early as they hoped, so the time they had for general election planning was very limited. They did not have a focused state strategy, but decided to think about the election in demographic terms and focus on persuading weak Democrats and independent voters. "As a geographic manifestation of this strategy the Democratic campaign chose to emphasize Reagan's strongest area, the South and West, in the early going." (Abramson, et al. 1986, 52)

The first major attempt of the Mondale campaign to cut into Reagan's lead was by nominating Geraldine Ferraro, the first woman vice presidential candidate of the two major parties, who could generate enthusiasm for the ticket. But allegations of her husband's finances seemed to quickly dampen the positive polling that was resulting. Then on Labor Day, Mondale's campaign staff made two mistakes. First, they did not

take Caddell's advice on stressing that "the election should be made a referendum on national character and values about the future, as a way to deal with the leadership problem" (Abramson, et al. 1986, 55). Second, "Mondale's appearance at the New York City Labor Day parade had been poorly attended because it had occurred very early in the morning, and that was the image that went on television in the evening" (Abramson, et al. 1986, 55). Caddell did not understand why they had not implemented his advice and he was told because the "campaign polls showed that Mondale was 'only' 11 points behind. Caddell knew that a New York Times poll would be released the next day showing a 21-point gap, and he told this to the Mondale team. 'You are the first campaign ever to come into September trailing and lose more ground,' he said. 'The first in history. You people are going down the tubes and the party's going with you'" (Abramson, et al. 1986, 55). These mistakes by Mondale had a real effect in the polls – his deficit to Reagan had increased by another 10 points.

The second major attempt to cut into Reagan's lead was in the first presidential debate. Two days before this debate the polls showed an incredible gap between Reagan and Mondale. In a Washington Post poll conducted in the 48 contiguous states, Reagan led by 18 points nationally and did not trail in a single state (Abramson, et al. 1986). Caddell said that in the debate, Mondale needed to 'rout' Reagan (Abramson, et al. 1986). The Democrats leaked that they were going to take an attack posture and come hard at Reagan. So the Republicans used David Stockman to play the role of Mondale and prepare for this attack posture. Reagan was briefed and greatly prepared on statistics and information regarding the issues. However, during the debate, it was clear, Reagan was over prepared. Mondale did not take the attack posture and this might have thrown

off Reagan. In the summary speeches at the end of the debate, Reagan mentioned being "'confused' and by giving a rambling statement, cluttered with statistics" sounded like "he [was] a college student who had crammed too much for a final exam" (Pomper et al., 1985). The press was especially negative on Reagan's performance and the polls which had showed Reagan lost by 9 percentage points immediately after the debate (43 to 34), showed Reagan to have lost by almost four to one a few days later (66 to 17) (Abramson, et al. 1986). Because of the terrible performance by Reagan in the first debate, the president's age and competence was called into question. The awful debate performance by Reagan affected voters because his lead had declined from 18 to 12.

The second presidential debate on October 21st was the last chance Mondale would have to make a huge impact on the polls. At this debate, Reagan crushed Mondale's hopes in one of the most famous debate lines. Reagan ended all discussion about his age by saying, "I will not make age an issue in this campaign. I am not going to exploit for political purposes my opponent's youth and inexperience."[33] Even Mondale could not help but laugh at this line. The polls for Reagan increased after that debate and stayed high until election night. After that second debate, when Reagan's campaign knew that they had won the debate, they campaigned to try and win every state. Reagan even made a campaign stop in Mondale's home state of Minnesota and in the end only lost it by 3,761 votes (0.28% of the total). This dynamic shows that as states became more competitive, like Minnesota, the Reagan campaign allocated more resources to those states.

[33] Transcribed from video of the 1984 Presidential Debate.

The end result is one of the largest landslides in presidential election history: Reagan – 59%, Mondale – 41%. This gave Reagan 525 electoral votes, losing only Minnesota and the District of Columbia.

In Reagan's last four years as president, the economy would remain healthy and his approval ratings would stay high. This gave the future Republican nominee, his vice president, George H.W. Bush, a great position to start his campaign from.

1988

It was 1988. George H.W. Bush looked out into the crowd at the Republican National Convention and uttered the famous line: "The Congress will push me to raise taxes, and I'll say no, and they'll push, and I'll say no, and they'll push again, and I'll say to them, 'Read my lips: no new taxes.'" With that one line George Bush was accomplishing three items on his agenda. First, he was reassuring the conservative base – a constituency group that he struggled to get his entire political career – that he had conservative principles. Second, he was continuing to fight the image of being a wimp[34], by expressing a 'pit bull' like attitude towards the Democratic-controlled Congress. Third, he was subtly reminding voters of the Mondale candidacy that four years ago admitted that he would raise taxes[35]. Bush was perpetuating the idea that Democrats always raise taxes[36]. The message appeared to have landed well with the American voter: Bush received a 6.2% post-convention bump in the polls. During the campaign,

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[34] An example of his struggle with this image came in the week of October 13, 1987 when Newsweek published their magazine with a cover photo of George H.W. Bush and the headline: "Fighting the Wimp Factor" (http://www.pbs.org/wgbh/amex/bush41/timeline/)

[35] Mondale said at the Democratic National Convention: "Let's tell the truth. It must be done, it must be done. Mr. Reagan will raise taxes, and so will I. He won't tell you. I just did."

[36] Bush reinforced this idea with the lines previous to the famous one: "I'm the one who won't raise taxes. My opponent now says he'll raise them as a last resort, or a third resort. When a politician talks like that, you know that's one resort he'll be checking into. My opponent won't rule out raising taxes. But I will."

the entire Bush message was clear from the beginning. First, solidify the hard right with a 'no new taxes' pledge. The famous 'Read my lips' line was used in sound bites and ads to reinforce this message. Next, Bush needed to take the moderate positions on education, day care, and the environment to pre-empt Dukakis. Then while vigorously attacking Dukakis to overcome the stigma of being a wimp, Bush spoke of a "kinder, gentler nation" to reassure women voters that there was nothing to be alarmed about by him when he was making these attacks. Bush would then attack Dukakis for being a liberal; *liberal on the economy* (raising taxes and more spending), *liberal on defense* (opposing new military weapons systems and too trusting of the Soviets), and *liberal on social issues* ("overly concerned with the rights of criminals, unconcerned with other people's fears of crime, happy to defend any group or belief[37]"). While Jesse Jackson was still campaigning, Dukakis appeared very moderate. But "as columnist George Will said in early June, 'The premise of the Bush campaign is that many people west of the Berkshires think that only two things come from Massachusetts, liberals and lobsters, and pretty soon they're going to wake up and say, 'That's not a lobster'" (Pomper et al., 1989, 78). And finally attack Dukakis on valence issues such as the Pledge of Allegiance and capital punishment. While Dukakis was governor of Massachusetts, he vetoed a bill that would have required teachers to lead their students in the Pledge of Allegiance. Dukakis, a lawyer, believed this was unconstitutional and therefore chose to veto the bill. When Bush used this issue to attack Dukakis and accuse him of not being patriotic, Dukakis responded by saying that Bush would not make a good president if he would sign a bill that was obviously unconstitutional. On this exchange about the Pledge of Allegiance in the campaigns, "…former Democratic national chair Robert Strauss [said], 'Dukakis

[37] (The 1988 Election: Reports and Interpretations, p. 82)

made a major mistake – he got into an election debate on the subject. He captured the hearts of seventeen lawyers and lost three million voters' (Pomper et al., 1989, pg. 87). These consistent messages appeared to have worked throughout the whole campaign. Bush started ten points behind Dukakis in May of 1988 and finished almost 8 points up in November of that year[38]. It also helped that the year of 1988 was contextually almost perfect for the Republicans. Unemployment was low. At 5.3%, the unemployment rate was the lowest in 14 years. The unemployment hit a peak of about 11.0% in 1982 and fortunately for the Republicans had decreased steadily until 1988. The other major economic indicator, inflation, was also low. At 4.0%, it was about 3 points lower than its previous 20 year average. In 1980, inflation hit a peak of 14.5% and fortunately for the Republicans had also declined very rapidly. In the realm of global politics, which is known to affect voter attitudes towards incumbents, the world was relatively at peace. The United States was not involved in any major skirmishes. And in the political context, Ronald Reagan, the incumbent president, was popular with voters[39]. These circumstances prompted one analyst to say, "If you cranked all this into a computer, it would tell you the Republicans can't lose."[40] Bush's campaign was very smart about their advantages. The campaign had Bush closely align himself with Reagan (Pomper et al., 1989). And although many felt that Bush was overshadowed by Reagan, Bush's move to align himself with Reagan allowed him to take some of the credit for the economic prosperity and feed off of Reagan's popularity. But there was one major

[38] This is calculated out of the two party split in the votes.

[39] Ronald Reagan's approval rating was above 50% for 1988 (http://online.wsj.com/public/resources/documents/info-presapp0605-31.html)

[40] In fact, Rosenstone cranked the data from 1988 into a computer and came out with George Bush winning by almost 8 points (Gelman and King, 1993)

contextual disadvantage. The Republicans had been in office for eight years. And pollsters and political scientists know that after eight years of the same party in office, "a theoretical majority supports 'change'" (Pomper et al. 1989). There were also some economic arguments to be made against the Republicans. The stock market experienced its worst crash since the Great Depression in October of 1987 and the U.S. had the largest trade and budget deficit in its nation's history. These could be used by the Democrats to cast doubt on the Republican's ability to ensure economic prosperity for Americans. But, overall, the Republicans had the clear contextual advantage heading into the 1988 presidential election.

Dukakis did not have a consistent message during the campaign. He was careful not to say he was going to raise taxes [except as a 'last resort']. He did not want to appear too liberal. He did not want to go negative. But there was little that defined the Dukakis candidacy. This allowed the Bush campaign to define Dukakis how they wanted. The adjectives used to describe Dukakis were "cool, unemotional, cerebal, and even bland" (Pomper et al., 1989). In fact, "a Newsweek writer termed him 'the Mr. Spock of politics, a totally rational alien bemused by the passions around him.'" (Pomper et al., 1989). The characterization of Dukakis as a cool, unemotional candidate was most exemplified in the second presidential debate on October 13, 1988. Moderator Bernard Shaw asked Dukakis, "If Kitty Dukakis were raped and murdered would you favor an irrevocable death penalty for the killer[41]." Dukakis responded not in an emotional way, but by saying, "No I don't Bernard and I think you know that I have opposed the death

[41] Transcribed from video clip of the Presidential Debate held on October 13, 1988

penalty during all of my life. I don't see any evidence it's a deterrent. And I think there are better and more effective ways of dealing with violent crimes[42]."

Bush, however, was also described as inspiring "little emotional fervor, little depth of ideological commitment" and "doesn't seem presidential to a majority of American voters" (Pomper et al., 1989). George Bush also had a problem of constituency. He was born and raised in New England and had a home in Maine, but he called himself a Texan even though he only had a rented hotel suite in that state.

It seemed to the Democratic campaign that Bush could not be an effective campaigner.

> "The Democrats… took comfort in the poll results. One feature of the polls was what one Democratic campaign worker called 'this incredible security blanket called 43 Negative.' Forty-three percent of poll respondents gave Bush negative ratings, a very high figure for a national politician. Based on these numbers, the Dukakis organization convinced itself that Bush was so unpopular that he simply could not be elected… Dukakis appeared to be following a strategy of 'say little. Do just enough. Don't rock the boat. Let George Bush self-destruct.'… Many in the Democratic campaign did not believe that Bush could make an effective attack. Jill Buckley, a Democratic media consultant, said '[Bush] can't afford to go after Dukakis and look small'" (Abramson et al. 1990, 42-46).

But not everyone in the campaign believed Dukakis should follow this strategy of say as little as possible. "Particularly bothersome to Susan Estrich, the campaign manager, was the inability to get Dukakis to spend more time outside of Massachusetts. In late August, for example, he went on a two-day campaign swing through nine cities making twenty stops – all within his home state" (Abramson et al. 1990, 46).

Despite the more or less evenly matched candidates, it was Bush's campaign strategy that seemed to work empirically. Even the Dukakis campaign felt the negative attacks from Bush were very successful (Runkel, 1989). And the poll numbers steadily

[42] Transcribed from video clip of the Presidential Debate held on October 13, 1988.

increased in favor of George H.W. Bush, while the Democrats became 'dispirited and frustrated' (Abramson et al. 1990, 46).

Election night ended in 1988 with George H.W. Bush receiving 54% of the two party votes. But the Democrats only had to wait eight years until they were in the same position as the Republicans, an incumbent party in good economic times. In 1996, the Democrats would now be campaigning from the position of strength.

1996

Bill Clinton in 1996 had the advantage of crafting a campaign message as an incumbent candidate during a time when the economy was very strong. The unemployment rate was below 5.5%. And inflation was only about 3%. The stock market was soaring, GDP was growing, income for middle-class earners increased, and the deficit was down (Just, 1997). Throughout the campaign of 1996, the president's approval rating continued to increase. There were many reports that should have decreased Clinton's approval rating:

> "Travelgate (the peremptory firing of the White House travel staff, which resulted in the alienation of much of the White House press corps); Filegate (the discovery that a White House security officer had requested FBI files on numerous people, including a large number of prominent Republicans); the mysterious disappearance and reappearance of documents associated with rumors and conspiracy theories about the death of White House adviser Vincent Foster and the possible financial wrongdoing of Hillary Clinton when she was a partner in the Rose law firm" (Just, 1997).

In spite of all these news stories regarding the ethics of the Clintons and the continued investigations and resulting trials around the Whitewater incident, Clinton's approval rating seemed to defy gravity; it remained above 50% and increased throughout 1996. And the charisma of Clinton seen in 1992 was still evident in 1996.

One of the major themes that Clinton used was crafted as a contrast to something Dole said in his nomination acceptance speech. Dole made a reference to building a bridge from the past, a time when America was great. Clinton said that while Dole wanted to build a bridge to the past, he wanted to build a bridge to the 21st century to take America to its best days, which highlighted in a nice way the difference in their ages. Fortunately for Clinton, Dole made the mistake of referring to the 'Brooklyn Dodgers' rather than the 'Los Angeles Dodgers', reinforcing the contrasting image of their ages that the president wanted to make. This, however, was not the only problem for Bob Dole.

Dole "was limited by a lackluster speaking style" (Just, 1997). In the past, Dole was seen as a pragmatist, so he had to reassure his conservative base by opposing late-term abortions, supporting the repeal of the assault weapons ban, and attacking Clinton's Surgeon General (Just, 1997). There was also a strategic dilemma for Dole. He needed to attack Bill Clinton. However, if Dole did attack, he could possibly be seen as mean and reinforce negative images of himself. If Dole did not attack, Clinton might slide into victory. In the media, "news reports repeatedly discussed [Dole's] inability to generate enthusiasm, his lack of a clear 'message,' and disorder in his campaign organization...Dole appeared to heed the warnings…and fired and rearranged his campaign staff several times throughout the campaign. While the public seemed deaf to the Clinton scandal stories during the campaign, they accepted the press's view of the Dole campaign. Dole tried to cut into the large Clinton lead by proposing a 15 percent tax cut for everyone. However, "it quickly became apparent… that the proposal was not making headway with the voters…a New York Times poll showed 64 percent of

respondents said that Dole would not be able to cut taxes that much if he were elected, and that was up from 51 percent who had thought that in the previous poll" (Abramson et al., 1998, 31). Because Dole could not make headway in the polls with his tax cut proposal, he began trying different appeals and tactics (Abramson et al., 1998). This shows that candidates are always trying to maximize their effectiveness, using the polls as the gauge of their performance. In a Pew Research Center poll, the public graded the Dole campaign a C compared to a B+ for Clinton" (Just, 1997).

Clinton's campaign strategy focused on twenty-three states with a total of 310 electoral votes. He had won all of these states in 1992 except for two them (North Carolina and Florida). This left two other groups of states, which were given less priority. The first group had 99 electoral votes and was considered safely in Clinton's column. The second group had 120 electoral votes and was considered favorable to Dole, since Clinton had lost all of these states in 1992 (Abramson et al. 1998). This categorization of states is consistent with the view that competitiveness of the states is an important factor in the allocation of resources.

On the other hand, Dole's campaign was not sure what states they should target, just like Mondale's campaign in 1984. One strategy was to focus on the western states with California as the big prize. Another strategy was to focus on the eastern states. And Dole's campaign manager even considered a third strategy, to focus everywhere. Finally, in late September, it became clearer what states Dole was focusing on. He would count on a base of sixteen states with 135 electoral votes and a must-win category of seven states with 77 electoral votes. But this left him 58 electoral votes shy of victory. Therefore, Dole had to include six more states with 66 electoral votes, even though

Clinton had double digit leads in all of these states. In the final weeks, Dole decided to make an all out effort to win California, despite being down by about 20 points, believing it was his best chance to win the election. There was some hesitancy about this strategy until a well respected poll came out showing Dole down by only 10 points in the state. The Republican campaign took money they planned to allocate to Ohio, New Jersey, and other states in the East and Midwest and allocated it to California (Abramson et al. 1998).

With Clinton having such a large lead in so many states, it was no surprise for anybody that when the election results came in, Clinton won handily. Clinton received 54.7% of the two party votes. For the next four years, Clinton had good economic times and a high job approval rating. The Democrats would again find themselves in a position of strength while campaigning in the 2000 election.

2000

This presidential election year resembled to a great extent the 1988 presidential election. The parties had just switched roles. Al Gore, the Democrat, was running as the incumbent party. Similar to George H.W. Bush, Gore was the vice president for eight years in the shadow of a popular president. During the year of 2000, Clinton had an approval rating close to 60%[43]. The economy was also doing very well. The stock market was soaring. The unemployment rate was only at 4% and inflation was even lower at 3%. The difference, however, was that Gore did not want to associate himself with Clinton. Gore chose this route because he did not want to be hurt by an association with scandal and deceit. However, this decision greatly cost Gore. He was not able to capitalize on the public's satisfaction with the economy – one of the largest advantages

[43] http://online.wsj.com/public/resources/documents/info-presapp0605-31.html

for incumbents in an election (Hershey, 2001). Before the Democratic National Convention, Gore was considered a terrible campaigner. The campaign "appeared to be fumbling and boring" (Hershey, 2001). And the dominant media frame throughout the summer of 2000 was that "Gore's campaign…was…the inept effort of an unlikeable man" (Hershey, 2001). Adjectives describing Gore and his campaign included "formal", "unexciting", "holier-than-thou", and "awkward" (Hershey, 2001). The convention changed much of this perception around Gore. Even though "the immediate media assessment leaned negative: that Gore's acceptance speech hadn't demonstrated enough personality change…the polling reaction politely disagreed; Gore got the 'convention bounce' in the polls that presidential candidates hope to get [the bounce was 9.2%]. The speech increased people's perception of Gore as a leader, as having a policy agenda that made sense, and as having emerged from Clinton's shadow. Just as important, his favorability ratings, until then lagging well behind Bush's, now matched those of his rival…The unflattering media frames of the candidate as a near-certain loser and a dull and ineffective campaigner quickly faded" (Hershey, 2001)[44]. And the dominant image of George W. Bush after the Republican National Convention was that he was a 'dim bulb' (Hershey, 2001).

Gore also could not benefit as much from Clinton's help in the campaign.

> "The Gore people claimed that poll data showed that while the president could rally core Democratic constituencies such as minorities when he appeared, he also turned off swing voters and energized core Republicans. This made his campaigning a net negative in most places, and the Democrats limited him to places such as Louisiana and New York, and told him to stay away from the big swing states of Pennsylvania and Michigan." (Abramson, et al. 2001, 39)

[44] Research using sophisticated surveys confirms that Gore was helped by the convention, but the exact cause of this help is not known through the data (Hillygus and Jackman, 2003).

This demonstrates that when a campaigner is ineffective in certain locations or counter-productive, they just do not campaign in that location.

Additionally there was a contextual disadvantage for Gore. He was at the eight year cycle, where some Americans desire for a changing of the guard. And by not associating with Clinton he was not able to maximize his advantage of a strong economy and a popular incumbent party. Despite all of this, Gore still managed to win the popular vote, but with a very small margin (50.27% of the two party votes). The Republicans managed to do what has only happened three times previously – win the electoral vote while losing the popular vote. And for the next four years the economy would remain strong and so would George W. Bush's approval ratings. These two factors provided the Republicans with the advantage in the 2004 election.

2004

For George W. Bush in the 2004 presidential election, the advantages were present, but not strong. His approval ratings were just about 50%, a few percentage points lower than Reagan in 1984 and Clinton in 1996. The unemployment rate was at 5.4%, slightly higher than when Clinton was running in 1996. And although this rate was lower than when Reagan was re-elected in 1984, the unemployment was hitting a peak in 2004 and was 0.3% higher than the 9 year average. These weaker advantages made the race more competitive in 2004.

> "Most observers, and both candidates' organizations believed that either George W. Bush or John F. Kerry could win (although most also thought that Bush had a real advantage) and that the campaign could really make a difference… both campaign organizations saw virtually the same states as determining the outcome. These would be the 'battleground' states, where both campaign organizations would concentrate the lion's share of their time, money, and effort. Indeed, as early as mid-March the two parties had already focused their attention on a set of eighteen states, and most of

> the other thirty-two states would be largely ignored until election day. The larger states in this group – particularly Florida, Michigan, Ohio, and Pennsylvania – would be the main focus of their efforts. Many of the remaining states, on the other hand – even larger ones such as California, New York, and Texas – would see little evidence that a presidential campaign was in progress. Thus a state perspective through the lens of the Electoral College, would determine strategy in the 2004 campaign" (Abramson et al. 2005, 34-36)

This reveals that candidates have two main factors in determining the allocation of their resources; competitiveness and electoral value. And both organizations saw virtually the same states as making up the battleground states; a critical assumption of the theory.

In the general election campaign, Bush achieved early success in 2004 by painting Kerry as a flip flopper. The main line used to paint Kerry as a flip flopper came when Kerry said that he voted for the $87 billion dollar funding for the troops in Iraq before he voted against it. Bush's campaign made a better impact in the beginning "as one [Democratic] campaign strategist conceded, 'They were ahead of us; they had a strategy set by the beginning that they were going to live and die by, and we didn't'" (Ceaser and Busch, 2005). When the Democratic National Convention came around in late July, the Democrats were hoping for the post convention bump. As an unfortunate surprise, the bump was almost non-existent.

In August, Kerry began with a 5 to 6 point lead that Bush began to whittle away over time. On August 5th, the 527 group[45] Swift Boat Veterans for Truth began a series of ads that proclaimed Kerry to be untruthful about his record and unfit to be the commander in chief. Like wild fire, this group's ads spread throughout the country with

[45] 527 groups are "tax-exempt organizations that engage in political activities…Most 527s try to influence federal elections through voter mobilization efforts and issue ads that praise or attack a candidate's record. These groups must publicly identify their contributors and expenditures" (Squire et al. 2009)

almost 80% of the public having knowledge of these ads when the campaigns were over. Many analysts credit these ads with greatly helping Bush in the polls. The Republican National Convention at the end of August and early September gave Bush a four to six point bounce in the polls. Over the next couple of months the polls would crisscross back and forth with neither side solidly taking the lead. Bush, in the end, finished ahead of Kerry 51 to 49 in the election results.

Conclusion

These nine presidential elections provide us with analytical support for many of the assumptions and predictions in the theory. In the 1980 presidential election, Reagan's staff was better at maximizing their candidate's effectiveness. For example they were successful at running interference between him and the media to prevent him from providing off the cuff answers which would often get him into trouble. In 1988, the Republican campaign staff was more effective at crafting a message for their candidate than the Democrats. The Bush team was successful at pinning down the patriotic themes whereas the Dukakis team was not successful at keeping Dukakis from his unpopular intellectual point of views on the death penalty and constitutional issues. But in 1992, the Clinton campaign was successful at crafting their message around their strength, the failing economy. And the Bush campaign in 1992 struggled to find a more effective message than blaming the do-nothing Congress and defending the economy. This also provides support for another one of the assumptions. When Bush in 1992 could not find traction for one message, he switched and emphasized another message and Dole did the same in 1996. This shows that candidates are always trying to maximize their effectiveness in the campaign.

Another assumption that is supported is that the media can influence a candidate's effectiveness. It was clear from journalists and pundits that the media was biased against Carter for most of 1976 and 1980. One of the reasons for this was that "Jimmy Carter set an incredibly high standard for himself by saying that he never, never lies. This unintentionally threw down the gauntlet for the press who were even more scrutinizing now that Carter set such a high standard" (Witcover, 1977, 550-551).

The assumption that the electoral value of a state matters in the allocation of resources is demonstrated throughout, especially in Carter's allocation formula. And the prediction that the competitiveness of a state is an important factor in the allocation of resources is demonstrated by how candidates' categorize states into base, lean, and toss up (or battleground) states, such as Obama's team looking at the demographics, past voting history, and polling data. Then the candidates allocate more resources to the states they have a better chance at winning (i.e. the battleground states).

Another prediction from the theory that is supported by these historical accounts is that the amount of resources spent by a candidate increases when that candidate's relative effectiveness increases. President Ford was instructed to do the "No campaign strategy" (aka "Rose Garden strategy") where he would not go on the campaign trail but instead speak only from the White House. This irritated Carter to no end (Witcover, 1977). And when Carter began to make mistakes and become less effective on the campaign trail, President Ford began making campaign visits.

Finally, the goal of the candidates is to maximize their expected electoral votes. They want to win as many electoral votes as they can to get a mandate (e.g. Carter) or to provide a cushion for victory (e.g. Obama).

The previous two chapters have provided statistical and historical support for the theory and its predictions. In the next chapter, I will explore the theoretical magnitude of campaign effects in the presidential elections from 1988 to 2004, which will provide an answer to the research question: Do campaigns have an effect on the outcome of elections?

CHAPTER 5

MEASURING CAMPAIGN EFFECTS

I can now use the model of campaign effects developed in chapter 2 to measure the theoretical magnitude of the campaign effects in the 1988, 1992, 1996, 2000 and 2004 presidential elections. There are three variables that are needed to measure the campaign effects in these elections: the prior probability the candidates will win each state, the effectiveness of each candidate, and the amount of resources the candidates spent in each state. I will discuss the construction of each of these variables in turn, starting with the prior probabilities. Then, I will show an example of how the campaign effects are calculated. Finally, I will present the results of the campaign effects for each of the five elections and discuss the results.

Prior Probabilities

The prior probability that a candidate will win a state was discussed in detail in Chapter 2. The prior voting history of the state, the economic and political environment, and the homes of the presidential candidates are the main factors determining the chances a candidate has of winning any given state. A recent model was developed by Klarner (2008) which incorporates data on all of these factors since 1948 and seeks to forecast the 2008 election. The variables used in this model are shown in Table 5.1 below.

The model is very successful at predicting the national popular vote (within 0.25%) and its success at predicting the national popular vote is in line with similar models developed by Rosenstone (1983) and Gelman and King (1993). But this model can also be used to generate the prior probabilities that the candidates will win each state in each of the five presidential elections. Klarner's (2008) model can forecast a predicted

percentage of the vote for the two major party candidates in each state. The model's error variance can be used to turn these predicted percentages of the vote into probabilities the candidate will receive over 50% of the two party popular votes. This is done for every state in each of the five presidential elections.

Table 5.1: OLS Regression Variables in Forecasting Model

Variables	**Explanation**
Lagged Vote	This is the percentage of the two party votes the Democrats received in the previous election
Percent State House Democratic*	The percentage of Democrats in the house of the state's legislature
Home State Advantage*	This is a dummy variable for the home state of the presidential candidates
VP Home State Advantage	This is a dummy variable for the home state of the vice presidential candidate
State Per Capita Personal Income Growth %	Measured as change from 3rd quarter of year prior to election to 1st quarter of election year (mean centered)
National Per Capital Personal Income Growth	Percent change in real disposable income, seasonally adjusted per capita income between July of the year preceding the election and May of the election year
Vote Intention*	Percentage of the two party poll in the Gallup survey (survey as close to July 4 in election year as possible)
Presidential Approval	Percentage of people approving of the president's job performance in Gallup survey (as close to June 9 as possible)
Two-Term Penalty	When the presidency was controlled by one party for two or more consecutive terms

*The lags of these variables were also included in the model

**Dummy variables were coded 1 for Democrats and -1 for Republicans

***Economic data was coded negative when the Republicans controlled the Presidency

The next section reviews how the relative effectiveness of each candidate is calculated in each election.

Relative Effectiveness of the Two Candidates

The model shows that in equilibrium the two candidates will allocate resources according to the ratio of their effectiveness. This provides an easy way to find the relative effectiveness of the two candidates in each election. If I regress the amount of resources spent by one candidate in each state against the amount of resources spent by their opponent in each state, the coefficient in the regression equation is then the ratio of their effectiveness. For each election, I regressed the Republican's visits against the Democrat's visits and the Republican's media buys against the Democrat's media buys. The results of the regression equations are presented in Tables 5.2 and 5.3. The Democrats were more effective in their campaign visits in every election except 2000. The Republicans were more effective in their media buys in every election except 1992.

There is one minor problem this variable poses for the model of campaign effects. The model needs an absolute value for the candidates' effectiveness, not a relative value. In order to solve this problem, the more effective candidate will be set at the maximum the model allows (exponent = 1) and the less effective candidate will be the value that satisfies the relative effectiveness of the candidates. The effect this has on the model is that the campaign effect calculated is the maximum theoretical campaign effect that could have occurred under the model's assumptions. The minimum theoretical campaign effect approaches zero because it is possible the two candidates could be almost completely ineffective. However, there is reason to believe that the maximum theoretical campaign effect is a realistic possibility and this is discussed at the end of this chapter.

Table 5.2: OLS Regression Results of Candidate Visits
(Dependent Variable = Republican Candidate Visits) N = 51

	1988	1992	1996	2000	2004
Democrat Candidate Visits	**.76 (.07)**	.84 (.09)	.86 (0.15)	1.11 (.12)	.94 (.06)
Constant	.36 (.33)	.22 (.24)	.57 (.57)	.43 (.45)	.55 (.3)
R square	.69	.64	.40	.63	.83

Bolded = significantly different from 1, p value < 0.1

Table 5.3: OLS Regression Results of Candidate Media Buys
(Dependent Variable = Republican Media Buys) N = 51

	1988	1992	1996	2000	2004
Democrats' Media Buys	1.27 (.25)	**.79 (.063)**	1.007 (0.052)	**1.19 (.041)**	**1.35 (.053)**
Constant	-710.64 (537.84)	**2588 (262.52)**	-269.22 (176.57)	678.74 (336.02)	276.8 (201.52)
R square	.34	.76	.89	.95	.93

Bolded = significantly different from 1, p value < 0.1

In the next section, the units of measurement for amounts of resources are discussed for both candidate visits and media buys.

Amount of Resources Spent

When using amount of resources, there are two minor problems for the model of campaign effects. The first minor problem is that if both candidates allocate no resources to a particular state, then the model has no solution because you cannot divide by zero. The second minor problem is that if one candidate does not allocate resources to a particular state and the other candidate does, then the model reports this as an uncontested election in that state and the result is that the candidate that allocated resources to that state has a 100 percent posterior probability of winning the state. Situations like this often arise when one candidate makes a campaign stop in their home state, but the other candidate views this as not competitive enough to make a campaign stop. However, it is unrealistic to believe that the candidate that made one campaign stop now has a 100% posterior probability of winning the state. There is an easy solution for both of these minor problems with regards to candidate visits and media buys. For candidate visits, I simply add the number of presidential debates to the total number of visits made by a campaign in each state. There is a theoretical reason for this type of correction. The major effect that candidate visits have in a state is that the local television channel provides news coverage of that candidate. Since the local television channels also air the presidential debates, each debate can be considered a candidate visit into that state. There were three presidential debates in 1992, 2000, and 2004. And there were two presidential debates in 1988 and 1996. This correction to the data also solves both of the calculation problems, since no state is now without a candidate visit. For media buys, the correction is to add one gross rating point (GRP[46]) to each state, which

[46] 100 Gross rating points (GRPs) is equivalent to every voter seeing a TV ad once, so 1 GRP is equivalent to 1% of the state's eligible voters seeing a TV ad once.

has a very little effect on each state, but completely solves the calculation problems for media buys. While candidates sometimes do not purchase media in some states, there is what is known as "free media". This is where candidate ads, if they are interesting, are sometimes aired on cable channels which are then viewed by some of the residents in every state. So the addition of one GRP is not without some theoretical support.

Next, I use the variables constructed in the last three sections and the model of campaign effects to measure the magnitude of the campaign effects for both candidate visits and media buys in the 1988, 1992, 1996, 2000, and 2004 presidential elections.

Calculating Campaign Effects

The model of campaign effects was developed in Chapter 2 and is shown below in equation 7.

(EQ 7):

$$campaign\ effects\ = \sum_{i=1}^{n=51} \frac{\alpha_i\ h(x_i)}{\alpha_i\ h(x_i) + \ (1 - \ \alpha_i) h(y_i)} * \ U_i \quad - \quad \sum_{i=1}^{n=51} \alpha_i * \ U_i$$

This equation shows that the magnitude of the campaign effects is the difference between the posterior probability of winning and the prior probability of winning. The posterior probability of winning each state for one candidate is multiplied by that state's electoral votes and is done for all 50 states plus D.C. The prior probability of winning each state for the same candidate is multiplied by that state's electoral votes and is done for all 50 states plus D.C. The difference between these two values is the magnitude of the campaign effects measured in expected electoral votes.

I will use one state in the 1988 election as an example to demonstrate how campaign effects are calculated. In 1988, George H.W. Bush was competing against

Michael Dukakis. According to the forecasting model, George Bush had a 52.9% prior probability of winning California, making the highest electorally valued state extremely competitive (California had 47 electoral votes in 1988). Consequently, the two candidates visited the state a combined 34 times, the most heavily visited state in this election. Also, according to the model, Bush's total number of visits to California in equilibrium should have been 76% of Dukakis's total number of visits and it was almost exactly that (Bush visited 15 times to Dukakis's 19 times for a percentage of 78.9%). Next, I include the correction of 2 presidential debates, which puts the total number of visits for Bush at 17 and Dukakis at 21. Then, I can calculate the total campaign effects using the values of these variables in the model of campaign effects.

(EQ 7):

$$\text{campaign effects} = \frac{0.529 * 17^{0.76}}{0.529 * 17^{0.76} + 0.471 * 21^{1}} * 25 \quad - \quad 0.529 * 25$$

$$= -9.57$$

The number is negative because Bush declined in his expected electoral votes, since he was less effective in his campaign visits. The campaign effect then was an increase of 9.57 expected electoral votes in favor of Dukakis. This translates into 10.18% of the votes in California. Since there were 9,757,150 votes for the two parties in California that year, then each electoral vote is worth 207,599 votes. The total effect influenced was 1,986,722 votes. If you take half of that and give it to Dukakis and the other half away from Bush, the change in the percentage of the two party votes is 10.18.

For each election, I calculated the campaign effect in each state for both candidate visits and media buys and added across all 50 states plus D.C. The magnitude of the

cumulative campaign effects for both campaign visits and media buys across all of the states in each election are shown in Table 5.4.

Table 5.4: Campaign Effects of Candidate Visits and Media Buys from 1988 - 2004

	1988	1992	1996	2000	2004
Candidate Visits Maximum Effect	-37.89	-18.74	-11.99	38.34	0.02
Media Buys Maximum Effect	84.36	-56.07	-6.18	96.08	91.44
Cumulative Electoral Effect	46.47	-74.81	-18.17	134.42	91.46
Effect in Vote Percentage	4.32%	-6.95%	-1.69%	12.49%	8.5%

*Positive numbers indicate expected electoral gain for Republicans. Negative numbers are expected electoral gain for Democrats.

Discussion and Conclusion

In three of the five elections, the Democrats receive a positive campaign effect for their candidate visits. The largest effect for the Democrats was in 1988 when Michael Dukakis received an expected gain of almost 38 electoral votes because of his more effective appearances.

The Republicans, according to the model, receive a positive campaign effect with their media buys in three of the five elections. The largest campaign effect for the Republicans with their media buys was in 2000 with an expected gain of almost 96 electoral votes.

The total campaign effect in percentage of the two party popular votes in each election ranges from 1.69% in favor of the Democrats in 1996 to 12.49% in favor of the Republicans in 2000. It is important to note that these are the maximum theoretical campaign effects that the candidates could have had in each election through their visits and media buys. More importantly, what it shows is that campaigns can have a very large effect on the outcome of elections.

There are two counter intuitive results. In 2004, Kerry receives almost zero gain in expected electoral votes for his campaign visits, despite being a more effective campaigner. This has to do with the way his campaign visits were allocated across the states. Bush visited several large electorally valued states (Pennsylvania, New York, Michigan, and Minnesota) more times than the model predicted and Kerry visited Ohio one less time than the model predicted.

The second counter intuitive result is that in 1996, Bob Dole had the more effective media buys, but Bill Clinton gained an expected six electoral votes from the

media buys. This too, is a result of the way the media buys were allocated across the states. Dole aired fewer ads in Maryland, Massachusetts, and Ohio than the model predicted and Clinton bought more ads in North Carolina, South Carolina, and Oklahoma than the model predicted.

Finally, I can use this model of campaign effects to answer an interesting question regarding the 2000 presidential election. What if Al Gore had not made the mistake of purchasing too few media buys in Florida? In this election, George Bush's media buys were 1.19 times as effective as Al Gore's. However, Al Gore spent only half of what George Bush did in the state of Florida (Gore paid for 8,249 GRPs to George Bush's 16,096 GRPs). Gore should have purchased 13,526 GRPs based on his relative effectiveness. The values of the variables used to calculate the campaign effect in this state are reported in Table 5.5.

Table 5.5: Values of the variables in the 2000 presidential election in Florida

Variables	**Values for Florida in 2000**
Gore's Media Buys	8249
Bush's Media Buys	16096
Gore's Media effectiveness	0.84
Bush's Media effectiveness	1
Gore's prior probability of winning Florida	20.2%
Bush's prior probability of winning Florida	79.8%

Equation 7 is then used to calculate the total campaign effect in Florida due to media buys by the two candidates.

(EQ 7):

$$campaign\ effects\ = \frac{0.798 * 16096^{1}}{0.798 * 16096^{1} + 0.202 * 8249^{0.84}} * 25 \quad - \quad 0.798 * 25$$

$$= 4.29$$

The campaign effect for Bush was an expected increase of 4.29 electoral votes as a result of the media buys. What if Gore would have purchased the optimal amount of media buys in the state of Florida instead of making the mistake he did? In equilibrium, Gore should have purchased 13,526 GRPs [this is found by multiplying Gore's effectiveness times the amount of GRPs Bush bought: 0.84*16,096]. The campaign effect for Bush would have been:

$$campaign\ effects\ = \frac{0.798 * 16096^{1}}{0.798 * 16096^{1} + 0.202 * 13526^{0.84}} * 25 \quad - \quad 0.798 * 25$$

$$= 3.94$$

Bush's campaign effect would have decreased by 0.35 electoral votes, which appears rather small. But the result would have been a gain of 41,742 votes for Al Gore, well more than the 538 votes he needed to win that state and the election outright[47]. The difference of what Gore purchased and what he should have purchased was 5,277 more GRPs in the state of Florida. This amount of media buys is equivalent to TV ads that are seen by every voter in Florida 52 times and this would have, according to the model, resulted in 7 out of every 1000 voters switching their vote to Gore[48]. This appears to be a

[47] There were 5,963,110 votes in the state of Florida for the office of the presidency. Therefore 0.35 electoral votes is equivalent to 83,484 votes [0.5*(0.35/25)*5963110].

[48] Of course, this is not the only thing that may have resulted in Gore winning Florida or the election in general. Examples include: Gore visiting the state more, Nader dropping out of the election, or Gore being more effective at getting Republican voters to switch their vote to him.

very reasonable result and shows that the model's maximum theoretical campaign effects in elections are a very realistic possibility.

In the final chapter, I explore how this model can answer other questions regarding campaign strategies and campaign effects.

CHAPTER 6

CONCLUSION

The landscape of presidential campaigning is continually changing. Although presidential elections have been going on for two hundred and twenty years, it is only in the last seventy years that presidential candidates began to make extensive campaign visits across the United States in order to rally supporters and woo potential voters. It has only been fifty years since television began to dominate the coverage of candidates. Thirty years ago, candidates became the center of the election process. And only in the last ten years has the internet been extensively used to raise funds and distribute information about the candidates. As the landscape of campaigning changes, the details of strategies adapt to the changing environment. Campaign visits are now used, not to change the minds of voters attending the event, but to get on the local news outlet that will be broadcast into the homes of the surrounding communities. This change does not affect the overall findings of this theory's model. Candidates still need to visit states with the highest electoral value and that are the most competitive. Furthermore, candidates need to take into account their relative effectiveness when allocating their resources. But this change in the environment does lead to further research questions. Given the need to be on local media outlets, where in the state should a candidate visit to make the most impact? Should the candidate campaign in the areas within the state with the highest number of people or the most persuadable voters? The model is very good at defining the amount of resources that should be allocated to each state, but campaign managers would also benefit from knowing where in the state the resources should be allocated. In addition to this question, there are also five other limitations to the model, which I will

briefly discuss and explore some ways in which the model can be expanded to answer these questions about campaigns and elections.

Five extensions to the model

While the model had many interesting predictions about presidential elections, it was limited to two major party candidates under the Electoral College system with each candidate having a uniform effectiveness across all states and throughout the campaign process. This construction limits the model's usefulness in two ways. First, under the current set up, the model would not be able to make predictions if there were three or more major party candidates. While it is rare for there to be a third party candidate capable of making a challenge for electoral votes, it has happened. The most recent challengers successful at receiving Electoral College votes have been George Wallace in 1968 who received 46 electoral votes and Strom Thurmond in 1948 who received 39 electoral votes. It also is not out of the realm of possibility that a third party candidate could one day make a valid challenge against the two party candidates for electoral votes. Can the model extend to third party candidates? This question will be answered in the next section.

Second, the model is limited to the Electoral College system. This system is unique in selecting a person for office. Most election systems are variations of the popular vote system. Can this model be extended to answer questions about other election systems? This question is answered in section three.

Third, the model imposes a uniform effectiveness for a candidate across all states. However, effectiveness may vary by state. For example, a Southern candidate may be more effective campaigning in Southern states than in the Northwest because they can

better identify with the people of the South. What happens to the predictions of the model if candidate effectiveness can vary by state? The answer to this question is developed in section four.

Fourth, the model imposes a uniform effectiveness for a candidate across time. But it is well known that a candidate sometimes stumbles for a few days with gaffes or the media focuses negatively on a candidate for a few days. Theoretically, this would cause the effectiveness of a candidate to vary over the length of the campaign. What predictions may possibly result if the model allowed candidate effectiveness to vary over time? The fifth section answers this question.

Finally, what happens to the model's predictions if cost were allowed to vary by state, such as with media buys? This question is answered in the sixth section.

Third Party Candidates

The model can certainly be extended to third party candidates. I only need to slightly alter the probability of winning the election and add a third utility function. The new probability of winning the election with three candidates would be:

$$\tilde{p}\,(x_i, y_i) = \frac{\alpha_i\, h(x_i)}{\alpha_i\, h(x_i) \;+\; (\alpha_j) h(y_i) \;+\; (1 - \alpha_i - \alpha_j) h(z_i)}$$

Where $\alpha_i \in (0, 1)$, and h is twice continuously differentiable, with h(0) = 0, and h'(x) > 0 and h''(x) $\leq$ 0 for all x $\geq$ 0.

The term α_i is the prior probability that Candidate X wins state i. The term α_j is the prior probability that Candidate Y wins state i. Since there are only three candidates competing in this model, (1 - α_i- α_j) is the prior probability that Candidate Z wins state i. The functions h(x_i), h(y_i) and h(z_i) are the vote production functions for each candidate.

The utility functions for each candidate needs to be subsequently altered along with adding a utility function for the third candidate.

$$u_x\,(x,y,z) = \sum_{i=1}^{n=51} \frac{U_i\;\alpha_i\;h(x_i)}{\alpha_i\;h(x_i) + (\alpha_j)h(y_i) + (1-\alpha_i-\;\alpha_j)h(z_i)} \;-\; \mathrm{c_x} \sum_{i=1}^{n=51} x_i$$

$$u_y\,(x,y,z) = \sum_{i=1}^{n=51} \frac{U_i\;\alpha_j\;h(y_i)}{\alpha_i\;h(x_i) + (\alpha_j)h(y_i) + (1-\alpha_i-\;\alpha_j)h(z_i)} \;-\; \mathrm{c_y} \sum_{i=1}^{n=51} y_i$$

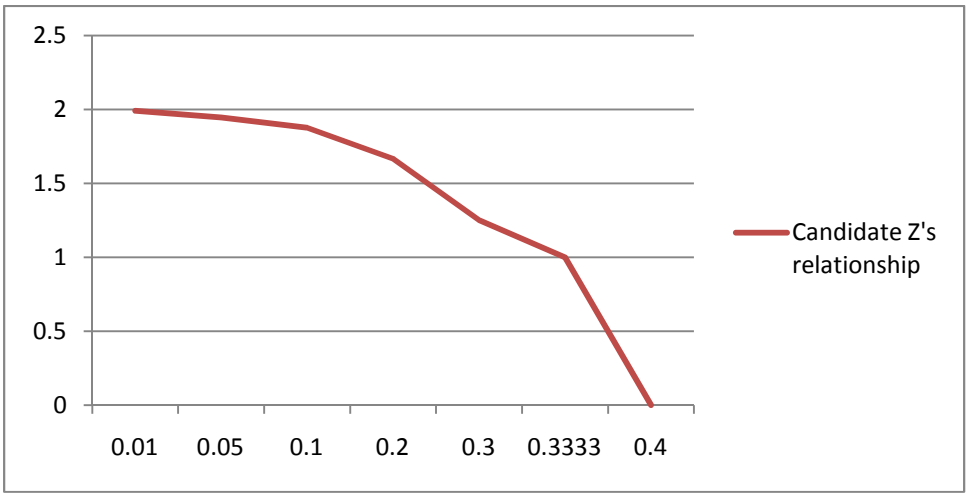
$$u_z\,(x,y,z) = \sum_{i=1}^{n=51} \frac{U_i\;(1-\alpha_i-\;\alpha_j)h(z_i)}{\alpha_i\;h(x_i) + (\alpha_j)h(y_i) + (1-\alpha_i-\;\alpha_j)h(z_i)} \;-\; \mathrm{c_z} \sum_{i=1}^{n=51} z_i$$

This model then can be used to study the relationship between three candidates in a presidential election. There are two interesting relationships that I would like to point out when the model is expanded to incorporate three candidates. First, if the prior probabilities of winning a state for each candidate are equivalent and their effectiveness at getting votes is equivalent, then in equilibrium the candidates should spend equal amounts of resources in that state. Second, if all three candidates' effectiveness is equivalent and at their maximum and two of the three candidates has the same prior probability of winning the election, then the third candidate's equilibrium relationship to the other two candidates in amount of resources spent is:

$$\mathrm{Z} \;=\; \frac{5\alpha - 2}{2\alpha - 1} * (\mathrm{X\ or\ Y})$$

The graph of this relationship is presented below in Figure 6.1.

Figure 6.1: Candidate Z's relationship to the other two candidates in resource expenditures



This relationship makes two interesting predictions. The first prediction is that when the prior probabilities of the other two candidates goes towards zero, then the third candidate should visit twice as many times as the other two candidates. The second prediction is that when the probability of winning the election is equal to or less than 20%, then the third candidate should not even campaign. This is extremely interesting! There are many examples where candidates with less than this probability of winning still campaign. Further research can be conducted to explain why it is that third party candidates still campaign when they have very little chance of winning. But another interesting question is: Can the model extend to other election systems?

Other Election Systems

Another U.S. election system that the model could extend to is U.S. Senate and Governor Elections. Candidates for the U.S. Senate or Governors office need to know where in the state they should visit. One way to adapt the model to answer this question is to treat counties within the state as individual units. The number of likely voters within each county can then be treated as the electoral value of that county. The implications from the model derived in Chapter 2 would then directly apply to these elections. Candidates for the U.S. Senate or Governors office should visit counties with higher electoral value (more populous) and are more competitive. The prior probabilities for each county could be calculated in a similar way that the prior probabilities for states are calculated in presidential elections. Also, candidates who are more effective at getting votes should visit more often. This extension also answers the original question of this chapter. Presidential candidates should treat each state as though they are running for governor or senator and can use this application of the model to direct their resources within the individual states.

Now what happens if I relax the assumption that candidate effectiveness is the same across all states?

Varying Candidate Effectiveness Across States

Relaxing this assumption is actually very easy. The only thing that is needed to relax the assumption is a subscript on candidate effectiveness. The new utility functions are then:

$$u_x\,(x,y) = \sum_{i=1}^{n=51} \frac{U_i\,\alpha_i\,X^{A_i}}{\alpha_i\,X^{A_i} + (1-\alpha_i)Y^{B_i}} \;-\; \mathrm{c_x} \sum_{i=1}^{n=51} x_i$$

$$u_y\,(x,y) = \sum_{i=1}^{n=51} \frac{U_i\,(1-\,\alpha_i)\,Y^{B_i}}{\alpha_i\,X^{A_i} + \,(1-\,\alpha_i)Y^{B_i}} \;-\; \mathrm{c_y} \sum_{i=1}^{n=51} y_i$$

The terms X^A and Y^B are exchanged for X^{A_i} and Y^{B_i}. The subscript i is just applied to the exponents to allow them to vary by state. All of the predictions and substantive implications from Chapter 2 and Chapter 3 remain the same. The difference is that the resources applied to each state are just dependent on the two candidates' particular effectiveness for that state. A good example is that if a state's population were not conducive to having their minds changed by campaigns then they would receive almost no campaign resources by the candidates. This formulation of the production functions can also be more fully developed. The production functions can be functions that are dependent on national and state specific characteristics along with the personal skill of the candidate and the skill of their campaign staff. For example, if the local media in a particular state was completely biased against one candidate, then that candidate's effectiveness would be diminished in that particular state.

What happens then if I relax the assumption that candidate effectiveness is uniform across time?

Varying Candidate Effectiveness Across Time

This would be an interesting extension to the model. It is shown in Chapter 4 that in fact candidate effectiveness does vary across time. President Ford's relative effectiveness did seem to increase when Jimmy Carter stumbled in the early part of the general election. There are two ways that can be conceptualized in varying candidate effectiveness over time. First, candidate effectiveness could fluctuate because of changes in media coverage, changes in the political landscape, or mistakes by the candidate.

Another way in which candidate effectiveness could change is based on voter receptiveness to the campaigns. It is well known that voters pay more attention to campaigns as it gets closer to Election Day. This could mean that candidate effectiveness increases as it gets closer to Election Day. Extending the model to incorporate changes over time could have interesting predictions. For example, candidates who stumble later in the campaign season may do much worse than candidates who stumble early on and then recover. The model would also help campaign strategists to constantly update their strategy based on the change in their candidate's relative effectiveness.

How would the model change if cost were allowed to vary by state, which is true for the cost of television advertisements?

Varying Cost Across States

The model can be extended to allow cost to vary by state if a subscript is added on to the cost function. The equilibrium relationship between the two candidates remains the same because the costs are equivalent for the two candidates; the cost just varies by state. The optimal amount of resources spent by each candidate would result in this formulation:

$$X = \frac{U_i\,[(\alpha_i)(1 - \alpha_i)]\,A}{C_i}$$

$$Y = \frac{U_i\,[(\alpha_i)(1 - \alpha_i)]\,B}{C_i}$$

The result is that candidates will spend on advertisements inversely proportional to the cost of the advertisement in that state. States where it is less costly to advertise, the candidates will advertise more. The empirical results in Chapter 3 (Tables 3.5.2, 3.6.2, and 3.7.2) support the prediction of this extension of the model.

In addition to these limitations, there is also a problem with the current measurement of candidate effectiveness, which will be discussed in the next section.

The Measurement of Candidate Effectiveness

The measure of candidate effectiveness I use in Chapters 3 and 5 is not ideal to measure campaign effects or to test some of the predictions of the model. The problem with the measurement is that it uses the data of visits to show the relative effectiveness of the candidates – assuming the result of the model is valid – then uses this measure as the independent variable in the statistical models. What this means is that the results of the statistical model with regards to the variables Candidate Effectiveness and Opponents Effectiveness are not completely valid tests of the model's prediction of effectiveness on votes, since these measures are endogenously created by the dependent variable. This method of constructing these independent variables does not completely invalidate the tests because they are included along with other independent variables that are predicting visits and media buys. Additionally, the variables are normalized where the most effective candidate is assigned the value of one, which means that it is independent of the variance of visits and media buys across election years. Furthermore, this does not invalidate the statistical models as tests for the other predictions, such as the effects of the electoral value and competitiveness on visits and media buys.

An ideal measure of candidate effectiveness would have several characteristics. First, the ideal measure of candidate effectiveness would be created independent of the comparison between candidates in amount of resources allocated. This characteristic ensures that the statistical models would be valid tests of the predictions of the model. The second characteristic for the ideal measure of candidate effectiveness is that it would

be able to compare candidate effectiveness across elections. One example could be to use the changes in poll surveys as a result of a candidate's visit or media buy as a possible way to measure candidate effectiveness.

Last Thoughts

Finally, some may question the use of a game theory model for presidential elections when the candidates seem to make so many mistakes that hurt their chances to win election as detailed in Chapter 4. The assumption that underpins the game theoretic model is that the candidates are rational and therefore choose the strategy that maximizes their utility. Most of the mistakes detailed in Chapter 4 hindered the candidates' effectiveness of getting votes and a few were about strategic mistakes. The few strategic mistakes seemed to be isolated to a few insignificant instances. For example, Dukakis' mistake in the 1988 election was correct in the middle of the campaign; Bush's mistake in 2000 was isolated to Iowa; and Gore's mistake was isolated to Florida. Overall, the use of game theory, I believe, is a reasonable model to use for presidential elections. The mistakes that hindered candidate effectiveness are incorporated into the vote production function and for the most part candidates seem to choose the strategy that maximizes their effectiveness.

Therefore, the model presented in Chapter 2 provides a good structure by which to study presidential campaign strategies and campaign effects. There are numerous extensions that can be added on to the basic model to increase the depth of studying presidential campaign strategies (varying costs, varying time, varying effectiveness, and third party candidates) or broaden the study to understanding campaign strategy in different election systems (e.g. U.S. Senate elections). The explicit assumptions of the

model also allow further research on whether they are realistic and the predictions can be analyzed for their truth value. It is important that we continue studying campaign strategies and effects because of the importance elections have in the democratic process. And the model used here shows that it can have a broad and substantial influence in our continued study of the election process.

APPENDIX A. DATA ON PRESIDENTIAL CAMPAINGS 1988 – 2004

A.1: 2004 Presidential Campaign

State	EV	Repub. Visits	Repub. Media Buys	Repub. categories	Dem. Visits	Dem. Media Buys	Dem. categories
AL	9	0	0	1	0	0	1
AK	3	0	0	1	0	0	1
AZ	10	2	1320	2	3	0	2
AR	6	0	582	2	0	0	2
CA	55	0	0	5	0	0	5
CO	9	4	10089	2	3	6375	2
CT	7	0	0	5	0	0	5
DE	3	0	0	5	0	0	4
DC	3	6	0	5	3	0	5
FL	27	22	12646	3	21	9045	3
GA	15	0	0	1	0	0	1
HI	4	0	0	5	0	0	5
ID	4	0	0	1	0	0	1
IL	21	0	0	5	0	0	5
IA	11	8	0	3	9	0	3
IN	7	0	9725	1	0	7765	1
KS	6	0	0	1	0	0	1
KY	8	0	0	1	0	0	1
LA	9	0	0	1	1	0	2
ME	4	1	9138	3	0	5573	2
MD	10	0	0	5	0	0	5
MA	12	0	0	5	0	0	5
MI	17	7	9693	3	3	4727	2
MN	10	7	10139	3	3	5722	2
MO	11	4	1552	3	2	0	2
MS	6	0	0	1	0	0	1
MT	3	0	0	1	0	0	1
NV	5	0	0	3	0	0	2
NE	5	3	12279	1	3	7213	1
NH	4	4	7020	3	4	3956	3
NJ	15	1	0	5	0	0	4
NM	5	3	11054	3	6	12065	3
NY	31	3	0	5	2	0	5
NC	15	1	0	1	1	0	2
ND	3	0	0	1	0	0	1
OH	20	17	12493	3	17	8354	3
OK	7	0	0	1	0	0	1
OR	7	1	7318	3	0	5332	2
PA	21	13	12127	3	6	8267	3
RI	4	0	0	5	0	0	5
SC	8	0	0	1	0	0	1

SD	3	0	0	1	0	0	1
TN	11	0	0	1	0	0	1
TX	34	7	0	1	0	0	1
UT	5	0	0	1	0	0	1
VT	3	0	0	5	0	0	5
VA	13	0	0	2	0	0	2
WA	11	0	1554	3	0	2157	2
WV	5	1	8514	3	0	3878	2
WI	10	9	11000	3	15	8765	3
WY	3	0	0	1	0	0	1
Total	538	124	148243		102	99194	

A.2: 2000 Presidential Campaign

State	EV	Repub. Visits	Repub. Media Buys	Repub. categories	Dem. Visits	Dem. Media Buys	Dem categories
AL	9	0	0	1	0	0	1
AK	3	0	0	1	0	0	1
AZ	8	1	0	2	0	0	2
AR	6	3	18106	3	1	16582	3
CA	54	17	2715	4	3	0	5
CO	8	0	0	1	0	0	1
CT	8	0	0	5	0	0	5
DE	3	0	2614	5	0	2465	5
DC	3	0	0	5	0	0	5
FL	25	11	16096	3	12	8249	3
GA	13	0	0	1	2	0	1
HI	4	0	0	5	0	0	5
ID	4	0	0	1	0	0	1
IL	22	11	3770	4	6	2065	4
IA	7	6	0	3	11	0	3
IN	12	0	20163	1	0	18636	1
KS	6	0	0	1	0	0	1
KY	8	2	5244	2	1	468	2
LA	9	2	14384	2	3	11600	2
ME	4	2	19111	3	1	11969	3
MD	10	0	0	5	0	0	5
MA	12	0	0	5	0	0	5
MI	18	18	23931	3	8	21402	3
MN	10	1	5490	3	0	2834	4
MO	11	8	20198	3	10	16680	3
MS	7	0	0	1	0	0	1
MT	3	0	0	1	0	0	1
NV	4	0	0	2	0	0	2
NE	5	0	13368	1	1	5856	1
NH	4	2	2617	3	1	558	3
NJ	15	0	0	5	2	0	5
NM	5	3	17284	3	3	14346	3
NY	33	0	0	5	0	0	5
NC	14	2	0	1	1	0	1
ND	3	0	0	1	0	0	1
OH	21	7	12624	2	5	11132	2
OK	8	0	0	1	0	0	1
OR	7	3	21959	3	4	17832	3
PA	23	12	17518	3	8	15310	3
RI	4	0	0	5	0	0	5
SC	8	0	0	1	0	0	1
SD	3	0	0	1	0	0	1
TN	11	6	6456	3	5	5536	3

TX	32	0	0	1	0	0	1
UT	5	0	0	1	0	0	1
VT	3	0	0	5	0	0	5
VA	13	0	0	1	0	0	1
WA	11	5	24880	3	4	17155	3
WV	5	2	14362	3	1	6445	4
WI	11	9	22963	3	7	20730	3
WY	3	0	0	1	0	0	1
Total	538	133	305853		100	227850	

A.3: 1996 Presidential Campaign

State	EV	Repub. Visits	Repub. Media Buys	Repub. categories	Dem. Visits	Dem. Media Buys	Dem categories
AL	9	1	700	1	1	1123	1
AK	3	0	700	1	0	1000	1
AZ	8	3	5101	2	4	5869	3
AR	6	0	700	5	3	1220	5
CA	54	23	4814	3	9	2752	2
CO	8	6	6724	2	6	5075	3
CT	8	3	4748	5	1	4500	4
DE	3	0	700	5	0	1000	5
DC	3	7	700	5	13	1000	5
FL	25	11	5429	2	5	4582	3
GA	13	6	5921	2	1	3974	3
HI	4	0	700	5	0	1000	5
ID	4	0	700	1	0	1000	1
IL	22	6	1474	4	5	1434	4
IA	7	3	3848	5	2	4046	5
IN	12	1	1925	1	0	1499	2
KS	6	3	700	1	0	1025	1
KY	8	5	6189	2	5	6854	3
LA	9	4	5650	3	2	5969	3
ME	4	0	700	5	1	2045	4
MD	10	0	700	5	0	1000	5
MA	12	0	700	5	2	1000	5
MI	18	5	6156	4	6	5148	4
MN	10	0	700	5	1	2013	5
MO	11	5	1687	4	3	2200	4
MS	7	0	700	1	0	1000	1
MT	3	0	2743	2	0	3365	2
NV	4	3	6449	3	1	6991	3
NE	5	1	700	1	0	1000	1
NH	4	1	1043	4	3	1000	3
NJ	15	6	3597	4	3	3810	3
NM	5	3	4877	3	5	4617	3
NY	33	1	2311	5	7	2685	5
NC	14	2	700	1	1	1000	3
ND	3	0	700	1	0	1268	1
OH	21	9	4980	4	10	5626	3
OK	8	0	700	1	0	1000	2
OR	7	0	1615	5	2	2606	5
PA	23	5	6542	4	2	7050	4
RI	4	0	700	5	1	1000	5
SC	8	1	700	1	0	1010	2
SD	3	1	2894	2	2	2964	2
TN	11	6	8226	2	2	9537	3

TX	32	2	700	1	4	1165	2
UT	5	1	700	1	0	1000	1
VT	3	0	700	5	0	1000	5
VA	13	2	1654	1	1	1171	2
WA	11	0	700	5	2	2256	5
WV	5	0	700	5	1	1000	5
WI	11	0	700	5	1	3065	4
WY	3	0	700	1	7	1000	1
Total	538	136	124797		125	137514	

A.4: 1992 Presidential Campaign

State	EV	Repub. Visits	Repub. Media Buys	Repub. categories	Dem. Visits	Dem. Media Buys	Dem categories
AL	9	1	3400	2	0	700	2
AK	3	0	3400	1	0	700	1
AZ	7	0	4320	1	0	700	2
AR	6	0	2300	5	2	1220	5
CA	47	1	2300	5	3	700	5
CO	8	2	7750	2	2	8530	3
CT	8	1	8840	4	2	6045	4
DE	3	1	7125	4	1	700	4
DC	3	0	3400	5	0	700	5
FL	21	3	5770	2	5	700	2
GA	12	3	8800	3	5	7350	3
HI	4	0	2300	5	0	700	5
ID	4	0	2300	1	0	700	1
IL	24	2	6050	5	3	2650	4
IA	8	1	3390	5	1	2090	4
IN	12	0	3390	1	2	1000	1
KS	7	0	3390	1	0	700	2
KY	9	4	7700	4	3	4300	3
LA	10	4	9290	4	2	8580	3
ME	4	0	6788	4	1	4010	3
MD	10	2	2300	5	2	2500	4
MA	13	1	2300	5	1	700	5
MI	20	9	9760	3	8	9960	3
MN	10	0	2300	5	0	1000	5
MO	11	5	8750	4	6	8725	3
MS	7	1	3400	1	1	700	1
MT	4	1	7910	2	0	6700	3
NV	4	0	3400	1	1	700	2
NE	5	0	2300	1	1	700	1
NH	4	0	3400	1	0	700	2
NJ	16	5	9340	3	5	7145	3
NM	5	2	8900	4	2	6400	3
NY	36	1	2300	5	2	1800	5
NC	13	3	6800	2	5	6400	3
ND	3	0	3400	1	0	700	1
OH	23	6	9100	3	7	8760	3
OK	8	2	3400	2	0	700	1
OR	7	1	2300	4	2	2750	4
PA	25	4	9150	3	3	7500	4
RI	4	0	2300	5	0	700	5
SC	8	1	3400	1	2	700	1
SD	3	2	7500	2	1	4150	2
TN	11	3	5900	4	0	4350	4

TX	29	7	5660	2	2	1200	2
UT	5	1	2300	1	1	700	1
VT	3	0	3400	5	1	3300	5
VA	12	3	4350	1	3	700	1
WA	10	1	2300	4	1	2750	4
WV	6	0	2300	5	0	700	5
WI	11	5	8600	4	4	6400	3
WY	3	0	2300	1	0	700	1
Total	538	89	252823		93	153665	

A.5: 1988 Presidential Campaign

State	EV	Repub. Visits	Repub. Media Buys	Repub. categories	Dem. Visits	Dem. Media Buys	Dem categories
AL	9	0	300	1	0	1240	1
AK	3	0	300	1	0	1240	2
AZ	7	0	300	1	0	1240	1
AR	6	1	2944	1	1	1526	1
CA	47	15	5994	3	19	3308	3
CO	8	5	4603	1	4	2395	2
CT	8	5	1108	4	3	2665	2
DE	3	1	300	4	0	1566	2
DC	3	1	300	5	5	1240	5
FL	21	0	300	1	0	1240	1
GA	12	1	1764	1	1	1240	1
HI	4	0	300	5	0	1240	5
ID	4	0	300	1	0	1240	1
IL	24	12	4819	4	11	3750	3
IA	8	1	640	5	0	2536	5
IN	12	1	361	1	0	1240	1
KS	7	0	1554	1	0	1240	1
KY	9	4	2495	1	2	2096	1
LA	10	0	1378	1	2	1351	2
ME	4	1	3001	4	1	1528	2
MD	10	1	300	5	2	2611	5
MA	13	3	300	5	12	1682	5
MI	20	9	5081	4	8	2615	3
MN	10	0	300	5	0	1896	5
MO	11	8	4343	3	7	2634	3
MS	7	0	300	1	0	1240	1
MT	4	1	3347	1	1	2293	1
NV	4	0	300	1	0	1240	1
NE	5	1	300	1	0	1240	1
NH	4	0	300	1	0	1240	1
NJ	16	9	4828	3	3	3159	2
NM	5	1	3916	1	0	1750	1
NY	36	1	3044	4	6	2335	3
NC	13	1	2110	1	2	1558	1
ND	3	0	300	1	0	2419	1
OH	23	11	5259	3	7	2078	3
OK	8	1	2318	1	0	1240	1
OR	7	1	300	3	2	2331	2
PA	25	4	2660	4	5	3693	3
RI	4	0	300	5	1	2417	5
SC	8	0	300	1	0	1240	1
SD	3	1	3542	1	3	2968	1
TN	11	1	1600	1	1	1240	1

TX	29	6	2705	3	9	2585	3
UT	5	0	300	1	0	1240	1
VT	3	1	2893	4	0	3208	2
VA	12	0	371	1	1	1240	1
WA	10	4	3691	3	3	2430	2
WV	6	0	1909	5	0	3737	5
WI	11	1	970	4	3	2831	2
WY	3	0	300	1	0	1240	1
Total	538	114	91548		125	100751	

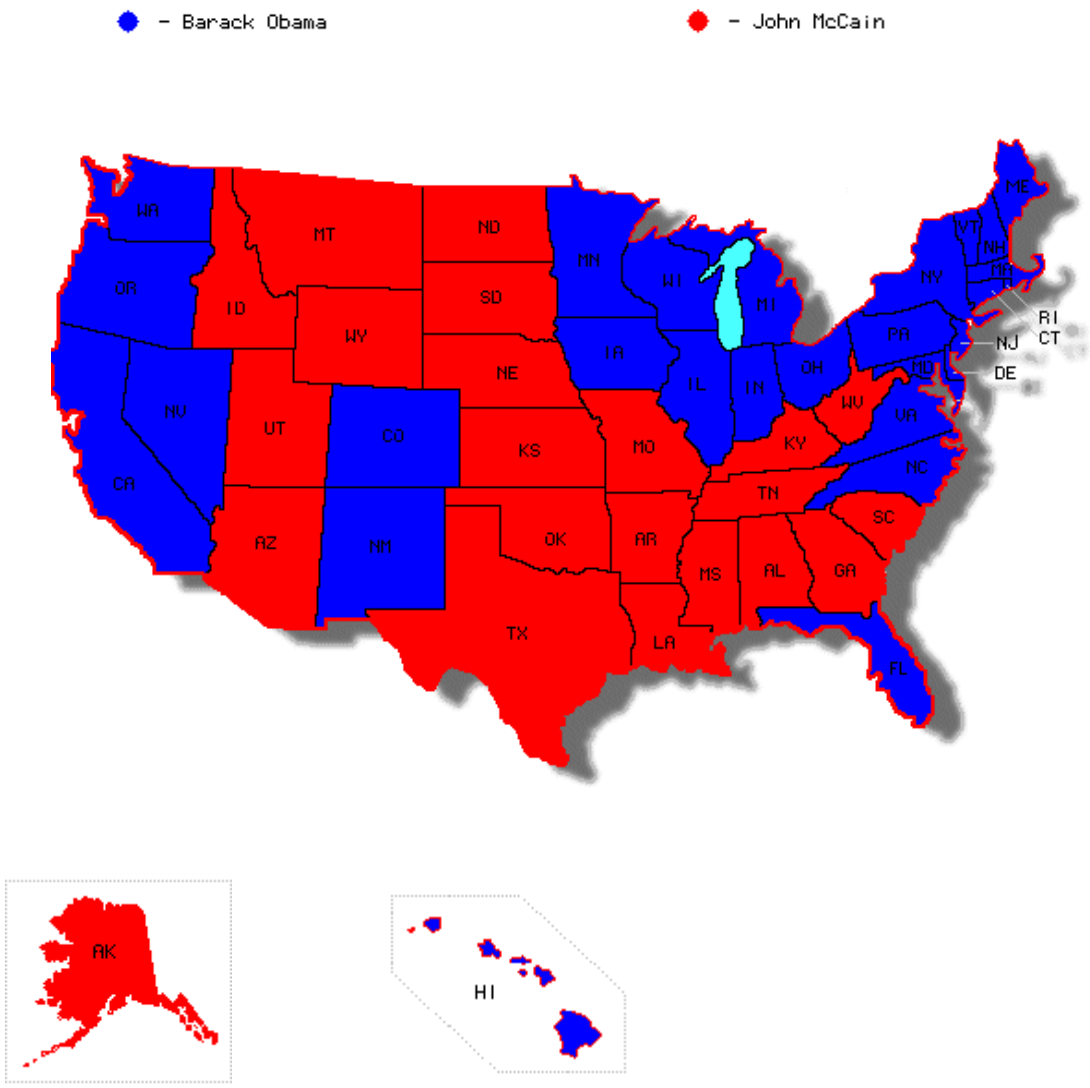
APPENDIX B. DATA ON PRESIDENTIAL ELECTIONS 1976 – 2008

Presidential Candidate	Type of Candidate	Economic condition	Percentage of Vote
Ronald Reagan (1984)	Incumbent	Good	59.17%
William J. Clinton (1996)	Incumbent	Good	54.74%
George W. Bush (2004)	Incumbent	Good	51.24%
George H.W. Bush (1988)	Incumbent (VP)	Good	53.9%
Albert Gore Jr. (2000)	Incumbent (VP)	Good	50.27%
Gerald Ford (1976)	Incumbent	Poor	48.95%
Jimmy Carter (1980)	Incumbent	Poor	44.7%
George H.W. Bush (1992)	Incumbent	Poor	46.55%
John S. McCain III (2008)	Incumbent	Poor	46.3%
Walter Mondale (1984)	Challenger	Good	40.83%
Michael Dukakis (1988)	Challenger	Good	46.1%
Robert Dole (1996)	Challenger	Good	45.26%
George W. Bush (2000)	Challenger	Good	49.73%
John Kerry (2004)	Challenger	Good	48.76%
Jimmy Carter (1976)	Challenger	Poor	51.05%
Ronald Reagan (1980)	Challenger	Poor	55.3%
William J. Clinton (1992)	Challenger	Poor	53.45%
Barack H. Obama (2008)	Challenger	Poor	53.7%

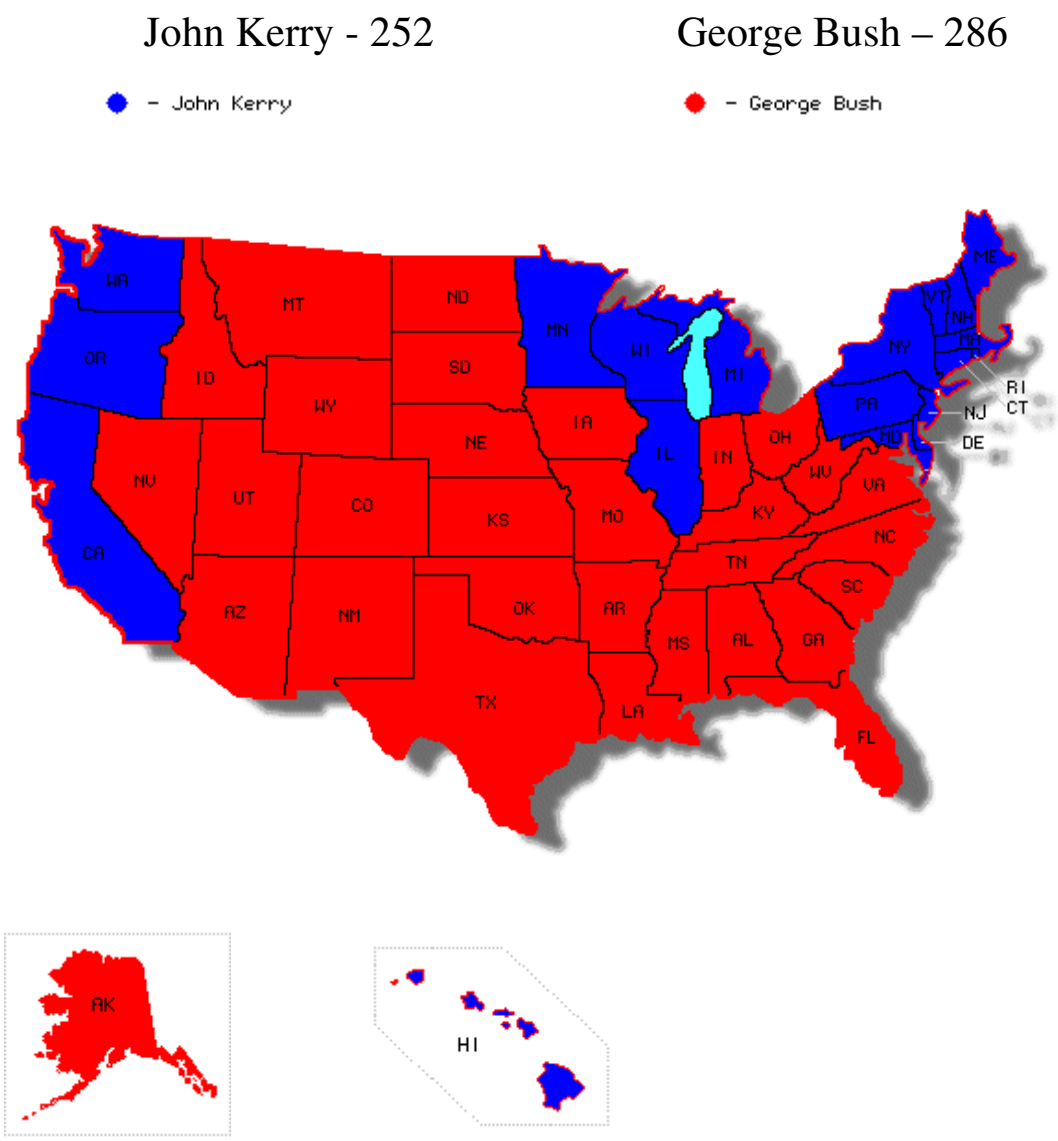
APPENDIX C. PRESIDENTIAL ELECTION RESULTS MAPS 1976–2008

C.1: 2008 Presidential Election

Barack Obama – 365 John McCain – 173



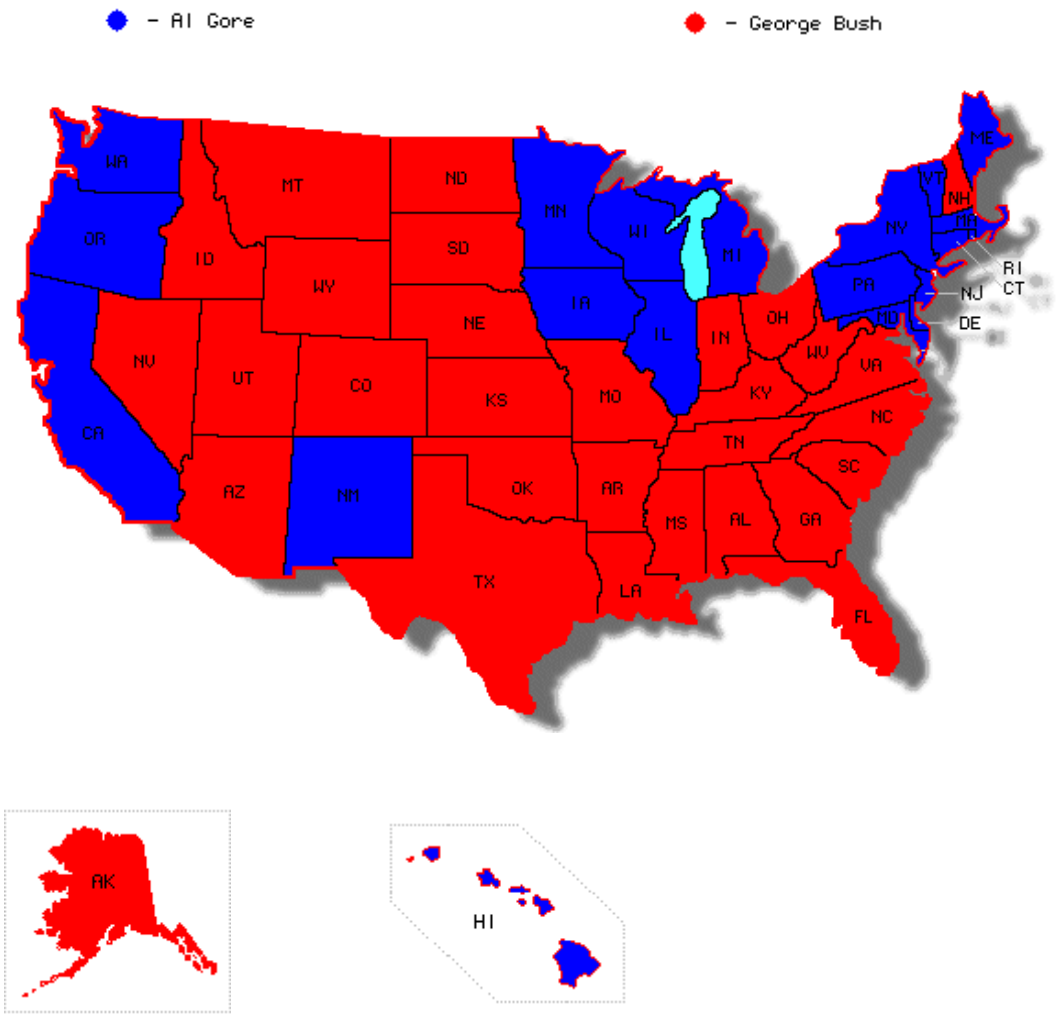
C.2: 2004 Presidential Election



C.3: 2000 Presidential Election

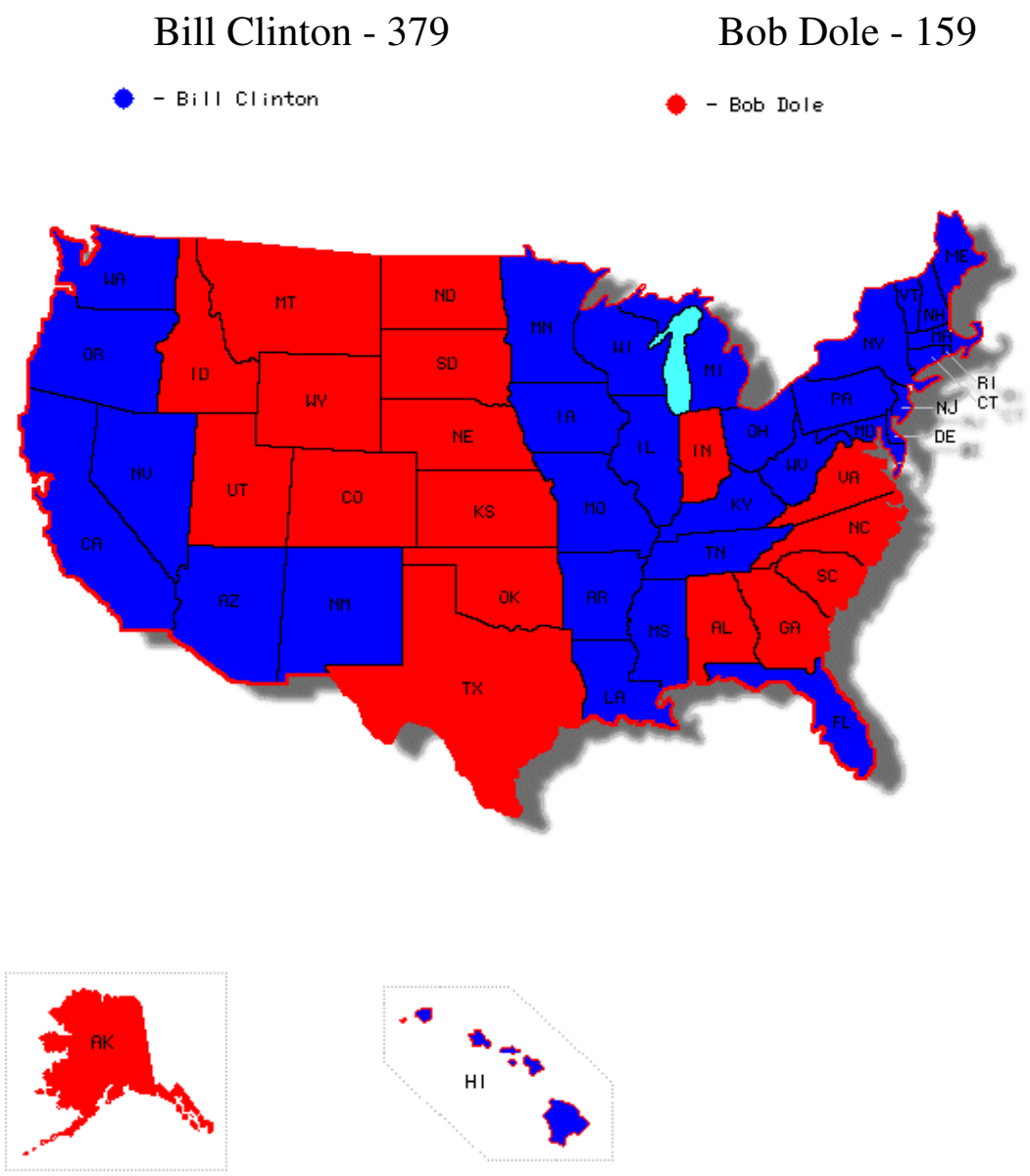
Al Gore - 266*

George Bush - 271



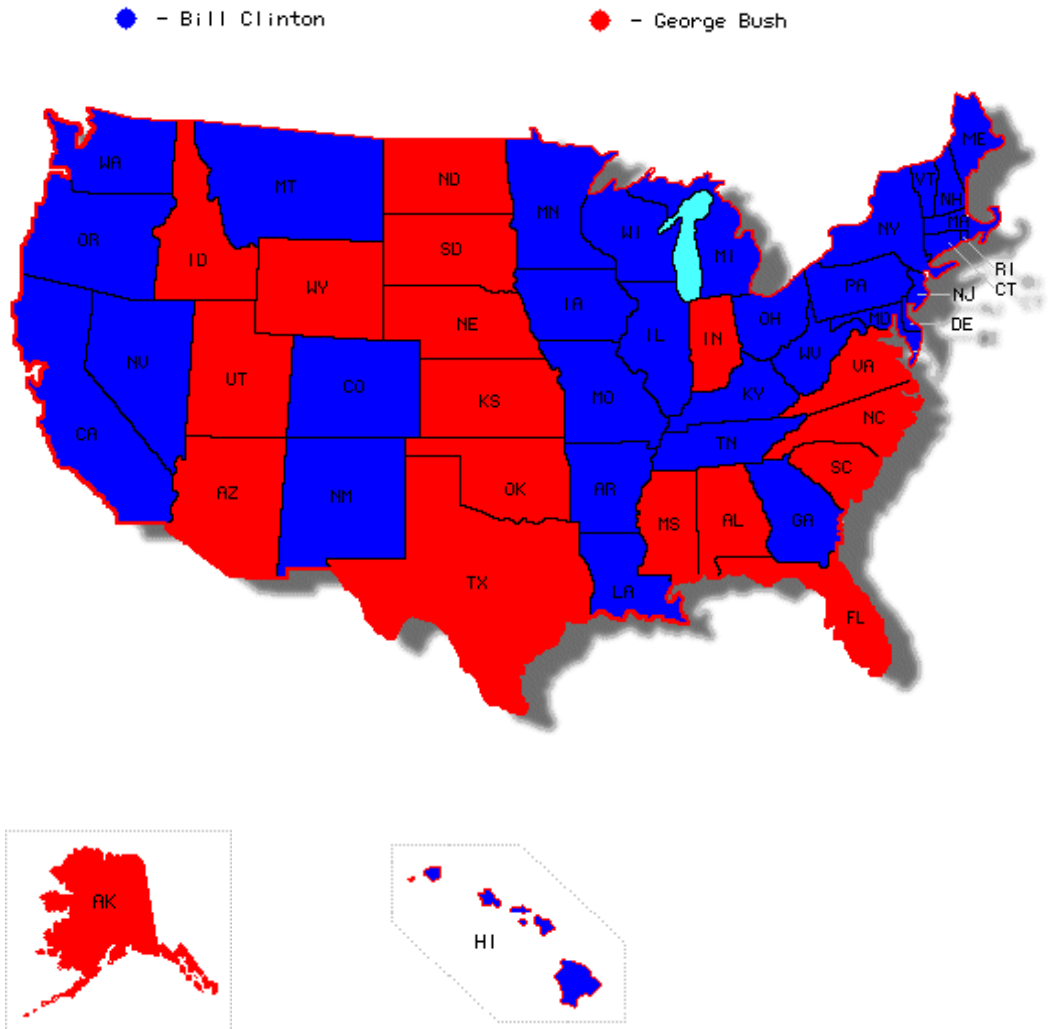
* In 2000, there was one faithless elector that abstained from voting.

C.4: 1996 Presidential Election



C.5: 1992 Presidential Election

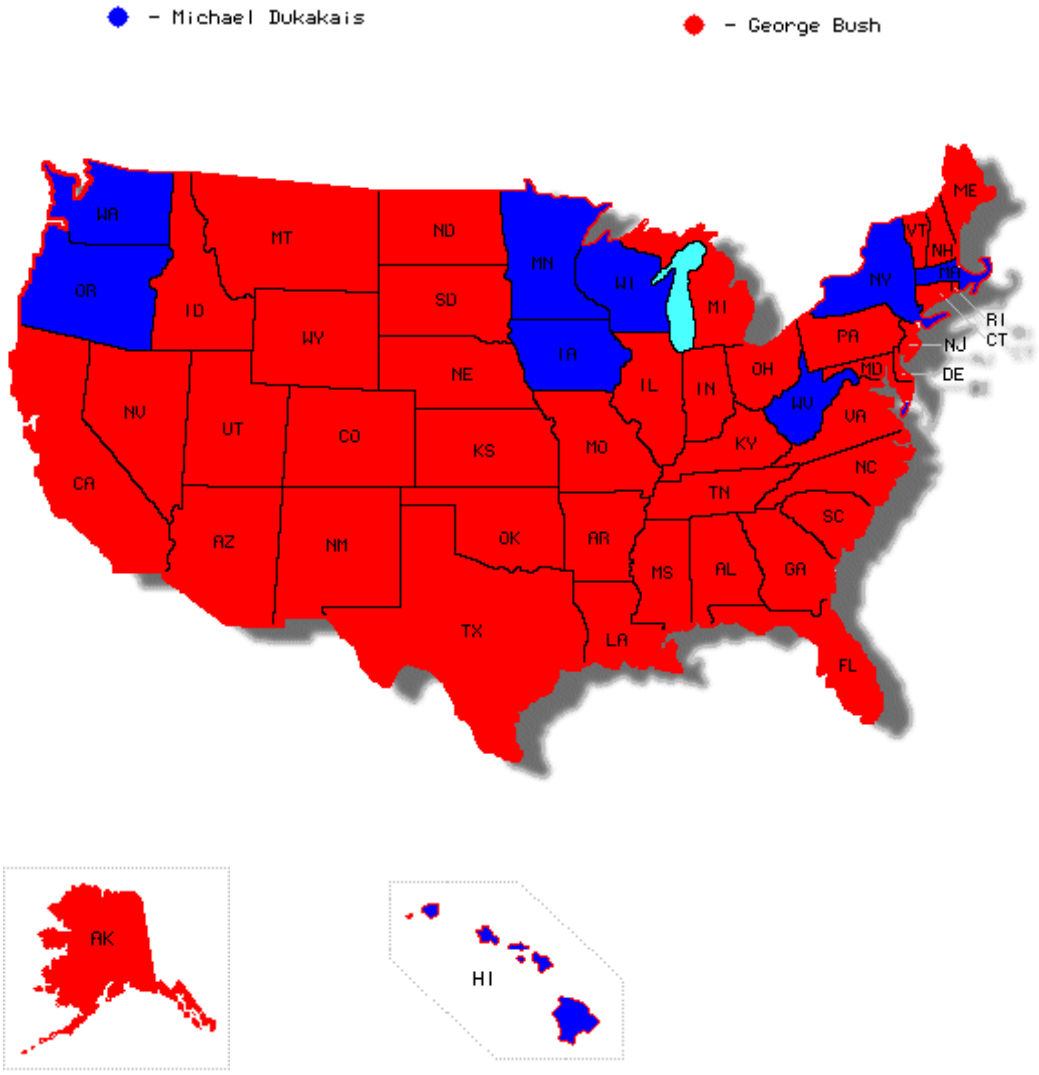
Bill Clinton - 370 George H.W. Bush – 168



C.6: 1988 Presidential Election

Michael Dukakais - 111

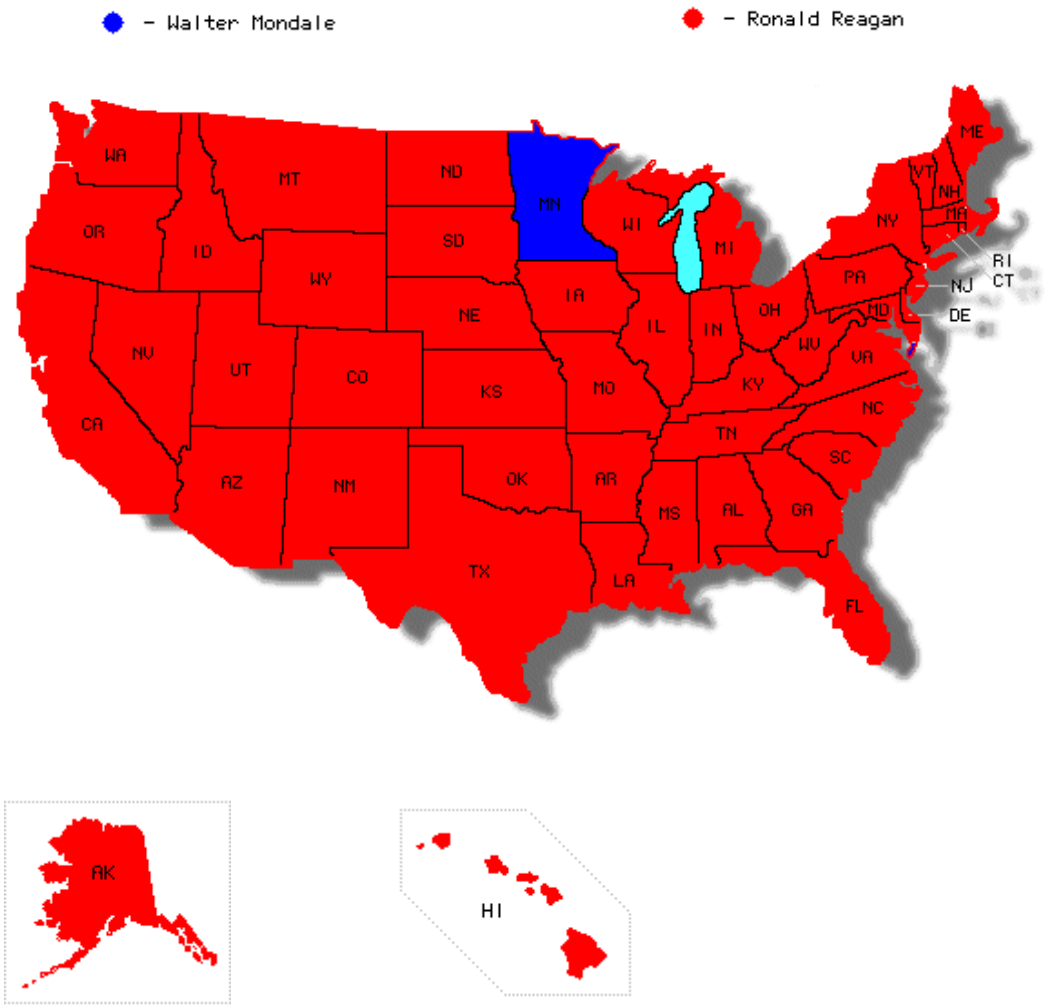
George H.W. Bush - 426



C.7: 1984 Presidential Election

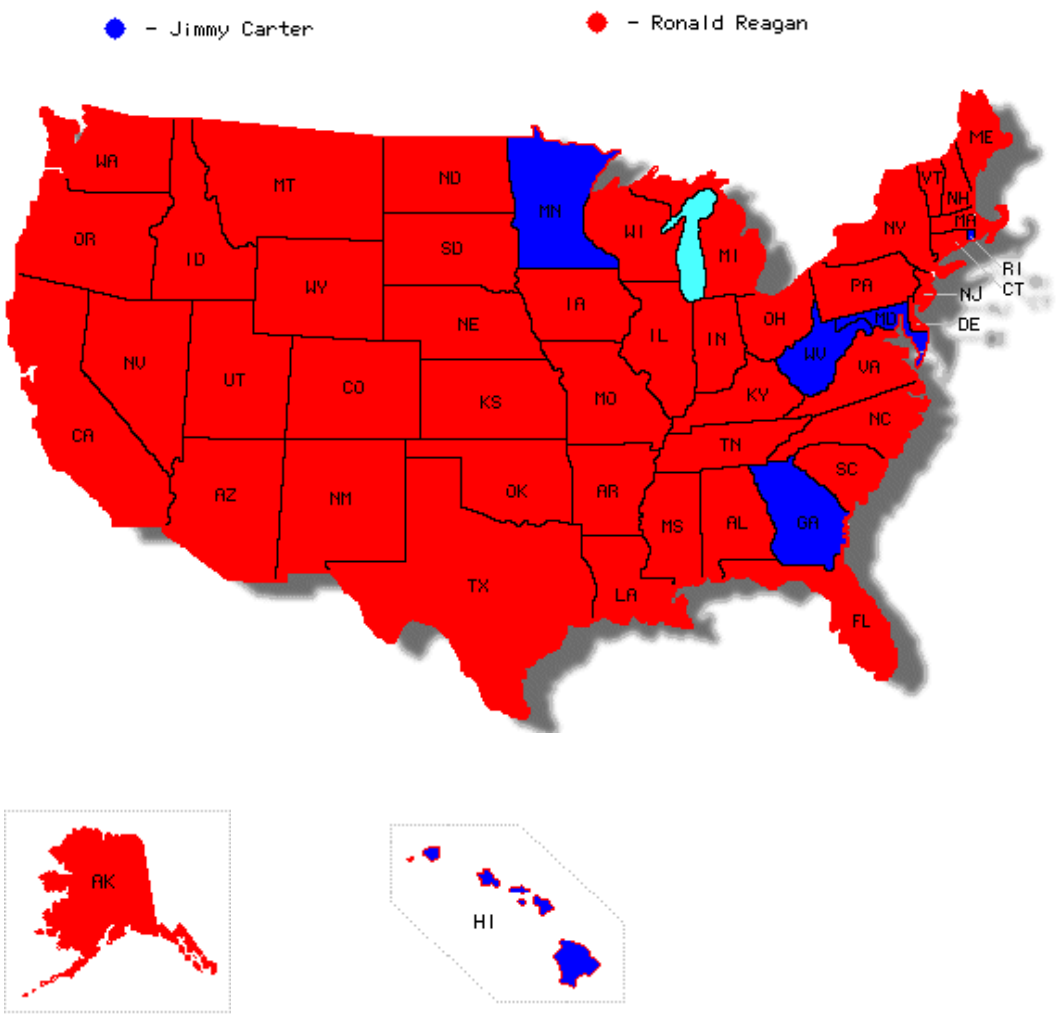
Walter Mondale - 13

Ronald Reagan - 525



C.8: 1980 Presidential Election

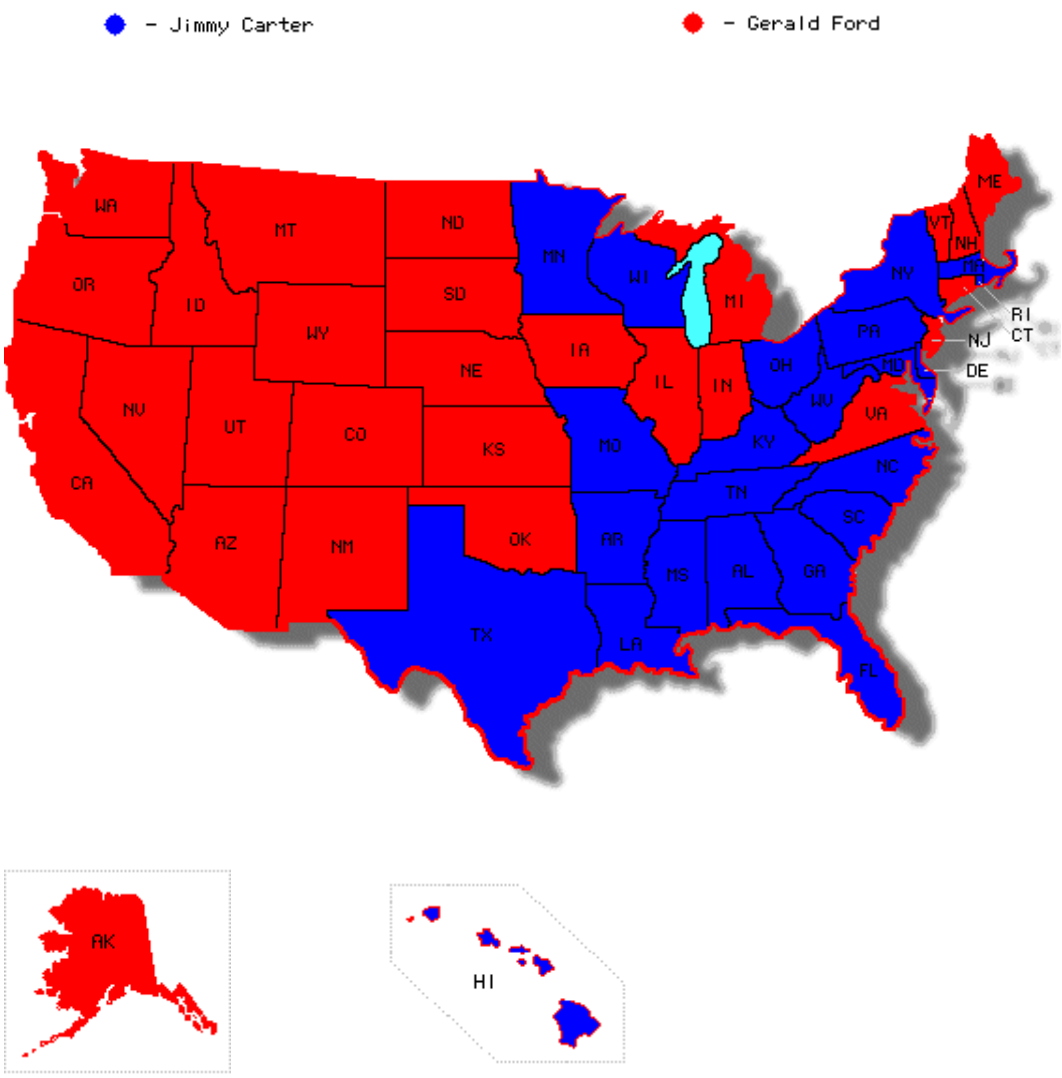
Jimmy Carter - 49 Ronald Reagan - 489



C.9: 1976 Presidential Election

Jimmy Carter - 297

Gerald Ford - 240



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