Seizing the mantle of change: Modeling candidate quality as effectiveness instead of valence

Michael K Miller

*Journal of Theoretical Politics* 2011 23: 52
DOI: 10.1177/0951629810391074

The online version of this article can be found at:
http://jtp.sagepub.com/content/23/1/52
Seizing the mantle of change: Modeling candidate quality as effectiveness instead of valence

Michael K Miller
Princeton University, USA

Abstract
In spatial models of electoral competition, candidate quality is typically modeled as valence, a measure of general appeal assumed to be constant across voters. This paper introduces and formally models an alternative conception of candidate quality according to which candidates differ in their effectiveness, or likelihood of changing policy from the status quo. Although more effective candidates are electorally favored, voters’ benefits from effectiveness are contingent on their policy preferences. The effectiveness model shares many qualitative features with the valence model, but adds several testable implications related to the position of the status quo and gives rise to non-monotonic voting. When valence and effectiveness are combined, valence dominates effectiveness in determining the winner if and only if the status quo policy is sufficiently close to the political center.

Keywords
candidate quality; elections; spatial model

1. Introduction
Beginning with Stokes (1963, 1992), a persistent criticism of Downs’s (1957) spatial model of elections has been the need to incorporate non-policy factors, particularly candidate quality. Nearly all existing empirical and formal studies model candidate quality in terms of valence, a measure of general appeal that encapsulates any ‘characteristic that is both unalterable and universally desired by voters’ (Dix and Santore, 2002: 190). Empirical results indeed show that higher candidate quality – measured by factors such as incumbency (Fiorina, 1977), integrity ratings (Stone and Simas, 2010), and prior occupation (McDermott, 2005) – improves vote shares. Although this is typically interpreted

Corresponding author:
Michael K Miller, 130 Corwin Hall, Princeton, NJ 08544, USA
Email: mkmtwo@princeton.edu
as supporting the valence approach, quality is not necessarily synonymous with universal appeal.

The current paper introduces and formally models an alternative interpretation of candidate quality, according to which candidates differ in their capacity to change policy from the status quo. I call this factor effectiveness, modeled as the probability that a candidate will implement his/her offered policy. As with valence, more effective candidates are electorally favored. However, the critical distinction is that the appeal of effectiveness depends on a given voter’s policy preference. Voters with ideals near the status quo may prefer ineffective candidates less likely to enact moderate policies. As explored below, this variation leads to divergent formal implications, including non-monotonic voting.

Effectiveness is as intuitively plausible and empirically grounded as valence, with most of the theoretical mechanisms underlying valence equally implying a role for effectiveness. Although not modeled by the current formal literature, effectiveness is central to the older qualitative literature on elections (Fiorina, 1977; Popkin et al., 1976; Stokes, 1963). According to Bruner and Korchin (1946: 15), ‘Reasons for choosing candidates seem to be classifiable most readily under three headings: economic advantage, personal appeal of the candidates, and apparent administrative effectiveness’. The first reason can be interpreted as the candidate’s policy offer and the second as valence. The third, which they associate with an ability to ‘get things done’, matches this paper’s notion of effectiveness. In line with this perspective, the argument here is that effectiveness ought to supplement, not replace, valence in models of candidate quality. Indeed, the main formal model analyzed below includes both factors in the context of policy competition.

Including effectiveness has several advantages over the pure valence model. First, it highlights candidates’ constant efforts to seize the mantle of change. As Campbell (2008: 123) notes, ‘At least one of the twin themes of change and stability has appeared in virtually every presidential campaign’. Campaign slogans running from Abraham Lincoln (‘Don’t swap horses in the middle of the stream’) to Jimmy Carter (‘A leader, for a change’) to Bill Clinton (‘Change vs. more of the same’) to Barack Obama (‘Change we can believe in’) have played on the change theme. Although stressing change is often simply meant as a signal that a candidate’s policy offer differs from the incumbent’s, candidates also work to differentiate themselves by their ability to deliver change. Second, the standard Downsian and valence models unrealistically assume that policy is guaranteed to be the winning candidate’s policy offer. The effectiveness model recognizes that politicians take power in the context of existing policy and that changes to that policy are never automatic. Moreover, the model leads to several testable hypotheses related to the location of the status quo policy. Third, effectiveness is easier to interpret and objectively measure than valence. Policy change is an observable fact, whereas greater voter utility from some innate candidate characteristic is not.

The plan for the paper is as follows. Section 2 overviews the literature on candidate valence and further explores the theoretical basis for the effectiveness model. Section 3 analyzes three variations on the one-dimensional Downsian spatial model with two policy-motivated candidates and a known median voter location: the valence model, the effectiveness model, and a combined model. Attention is focused on testable implications. The solutions to the first two models are similar in many respects – the higher-quality candidate wins for sure, chooses a policy offer on his/her preferred side of the median, and differs from the median in proportion to the difference in quality
between the candidates. However, the effectiveness model is distinguished by voting that is non-monotonic with respect to voter ideal points and an equilibrium position of the winning candidate that depends on the status quo policy. Finally, the main implication of the combined model is that valence dominates effectiveness in determining the winning candidate if and only if the status quo policy is sufficiently close to the political center. Section 4 discusses formal extensions of the effectiveness model and potential approaches to empirical testing.

2. Approaches to modeling candidate quality

2.1. Candidate quality as valence

In an early critique of Downs (1957), Stokes (1963: 373) argues that the fundamentals of the spatial model fall apart if there is also competition over ‘valence-issues’ that ‘involve the linking of the parties with some condition that is positively or negatively valued by the electorate’. He gives corruption as an example – it is not that some voters want low levels of corruption and others high. Rather, a party’s image as uncorrupt is a general valence advantage. As Stokes anticipated, the presence of valence factors impacts the results and conduct of elections, as well as the strategic choices actors make over policy. This has helped reconcile formal election models with prominent electoral phenomena that the basic Downsian model fails to predict, such as platform divergence (Ansolabehere et al., 2001; Burden, 2004; Poole and Rosenthal, 1984), incumbency advantage (Londregan and Romer, 1993; Stone and Simas, 2010), and non-policy appeals (Funk, 1999; McCurley and Mondak, 1995).

A range of studies have shown that non-policy attributes affect election outcomes, but with little consensus over which matter most. Empirical studies have posited a dizzying array of factors that can contribute to valence advantage, including incumbency (Burden, 2004; Enelow and Hinich, 1982; Feld and Grofman, 1991; Fiorina, 1977; Londregan and Romer, 1993), campaign spending (Harrington and Hess, 1996), candidate personality (Funk, 1999; King, 2002; McCurley and Mondak, 1995; Miller et al., 1980; Stone and Simas, 2010), scandals (Clark, 2009), the state of the economy (Butler and Stokes, 1969; Fiorina, 1977; Nadeau and Lewis-Beck, 2001), partisan loyalties (Wiseman, 2006), prior occupations or offices (Burden, 2004; McDermott, 2005), and communication skill (Grose and Husser, 2008).

There have been a few attempts to categorize within valence. Stone and Simas (2010), for instance, distinguish between character-valence factors that voters value intrinsically (such as integrity and competence) and campaign-valence factors that simply help win elections (such as fund-raising). Using evaluations by experts, they find that only character-valence significantly affected position-taking in the 2006 US House elections. However, it remains a near-universal assumption in empirical studies that the various measures of candidate quality proxy a general additive valence advantage.1

Formal models confirm that valence impacts policy positioning in the Downsian electoral framework (Aragones and Palfrey, 2002, 2005; Dix and Santore, 2002; Enelow and Hinich, 1982; Groseclose, 2001; Hummel, 2010; Londregan and Romer, 1993). The most sophisticated of these models assume the location of the median voter is uncertain and find, somewhat counterintuitively, that advantaged candidates pursue more
moderate policies (Aragones and Palfrey, 2002; Groseclose, 2001; Hummel, 2010). The logic is that a disadvantaged candidate is guaranteed to lose if he/she locates near his/her opponent, and hence can only win by adopting an extreme policy and hoping the median voter is also extreme. This result finds support in the lab (Aragones and Palfrey, 2004) and in real-world elections (Ansolabehere et al., 2001; Fiorina, 1977; Stone and Simas, 2010). However, Burden (2004) finds that incumbents in the 2000 congressional elections were more extreme than challengers. Fenno (1978) also theorizes that personal advantage gives candidates leeway to take more extreme positions. Since an implication of the effectiveness model is that quality advantage’s effect on policy moderation interacts with existing policy, this paper can potentially reconcile Stone and Simas (2010) with Burden (2004).

Only a few studies depart from modeling valence as a universal additive constant. Some formal models endogenize valence as arising from campaign spending (Ashworth and Bueno de Mesquita, 2009; Herrera et al., 2008; Zakharov, 2009) or candidate effort (Carillo and Castanheria, 2008; Meirowitz, 2008; Serra, 2010). Hollard and Rossignol (2008) and Gouret et al. (forthcoming) model valence as a constant that multiplies the utility term from policy, thus allowing valence’s impact to vary with the candidates’ policy offers.

2.2. Candidate quality as effectiveness

Modeling candidate quality as effectiveness is based on a simple idea: incoming politicians face existing policy and differ in their capacity to change it. More effective politicians have a higher likelihood of following through on their policy offers, which, unlike valence, appeals to voters in a manner contingent on their policy preferences.

Surprisingly, effectiveness has not been investigated in spatial models of elections. The closest in spirit is Grofman (1985), who models candidates as implementing policy a fixed proportion of the distance between the status quo and their policy offer. However, he notes that this reduces to the basic Downsian model if voters have the same perceptions of what the proportional shifts will be. Bernhardt and Ingberman (1985) and Berger et al. (2000) model policy as an uncertain outcome centered on the winning candidate’s policy offer, with candidates differing in the noisiness of their policy implementation. However, this reduces to a valence dimension for risk-averse voters and omits the role of the status quo.

Another class of models allows candidates to vary in their cost or ability to mislead voters about their intended policies (Callander and Wilkie, 2007; Kartik and McAfee, 2007), which can be thought of as a character dimension. Effectiveness can similarly be interpreted as the likelihood of fulfilling a campaign promise, but differs in that this is not under the control of the candidate. Moreover, the default policy is the status quo and not the politician’s personal policy preference. Lastly, Bendor and Meirowitz (2004) and Huber and McCarty (2004) model how a bureaucracy’s capacity to accomplish desired policy goals affects political delegation. It is an easy leap to imagine that voters also consider such capacity in choosing their political representatives.

Why might politicians differ in their ability to change policy? Four sets of reasons are discussed below. Of importance in this discussion is that many of the same theoretical mechanisms used to explain valence also imply variation in effectiveness. Hence, it makes sense to consider them both in modeling candidate quality.
2.2.1. Personal qualities. A range of personal factors might affect a candidate’s ability to change policy. Consider, for example, Stone and Simas’s (2010: 375) list of factors comprising ‘character-valence’: ‘personal integrity, ability to work well with other leaders, ability to find solutions to problems, competence, grasp of the issues, qualifications to hold public office, [and] overall strength as a public servant’. All of these qualities could also conceivably improve effectiveness. Other relevant personal qualities include management skill, connections in government, dedication to a cause, and persuasiveness.

Candidates work hard to differentiate themselves by their ability to deliver change. Three days prior to the 2008 Democratic Presidential Primary in New Hampshire, the remaining four candidates gathered for a critical debate. The stakes were very high: Senator Hillary Clinton had recently placed a disappointing third in Iowa and needed a win to survive. Interestingly, Clinton’s central message was not related to her policy beliefs or her likeability, but her capacity to change policy: ‘[M]aking change is not about what you believe. It’s not about a speech you make. It is about working hard. …The best way to know what change I will produce is to look at the changes that I’ve already made’. Responding to a questioner’s comment that voters thought Senator Barack Obama was more likeable, Clinton reiterated, ‘I am offering 35 years of experience making change and the results to show for it….I think I am an agent of change. I embody change. ….I believe I am more prepared and ready to actually deliver change’.

The remaining candidates were quick to counter that they too could deliver change. Discussing his varied political experience, Governor Bill Richardson said, ‘We want to change this country, but you have to…know how to do it, and there’s nothing wrong with having experience’. Senator John Edwards characterized affecting change as a matter of fighting spirit: ‘I’ve been fighting these people, these irresponsible corporations. …I think there are differences between us about how we fight for the future of the middle class. And I believe you have to be willing to take on these entrenched special interests. And I think if you’re not willing to do it, it is impossible to bring about the change that the country needs’. Lastly, Obama emphasized his bipartisan record and efforts at government transparency as ‘the kinds of steps that will actually lead to real changes in people’s lives, and that’s how I worked at the state level’.

Although their reasoning differs, each candidate worked hard to play up their personal effectiveness.

2.2.2. Competence. The qualitative literature on elections places particular importance on a candidate’s image of competence, or administrative capacity. Popkin et al. (1976: 793) criticize Downs (1957) for neglecting candidate evaluation based on ‘which candidate can deliver the most’. Bruner and Korchin (1946: 23) note that Boston voters repeatedly supported the Democratic Party boss, despite his corruption, based on ‘his experience and accomplishments as a man who “gets things done”’. Further, one of the oldest rationalizations of valence is that candidates differ in how well they can deliver on universally valued issues (Fiorina, 1977; Stokes, 1963). The ‘retrospective voting’ literature shows that incumbents are rewarded for successes in growing the economy (e.g., Alesina et al., 1993; Nadeau and Lewis-Beck, 2001; Powell and Whitten, 1993), reducing crime (Cummins, 2009), and so on. It stands to reason that voters may also view candidates as differing in how well they can deliver on elements of their policy platform.
2.2.3. **Policy factors.** Candidates often make the case that they can deliver change on a specific policy issue because of personal knowledge or experience with that policy. In some instances, candidates reference particular bills that would make implementation feasible. Governors running for president often point to past successes in particular policy domains at the state level as evidence that they can affect similar changes nationally. For instance, George W Bush’s 2000 presidential campaign website promised, ‘Governor Bush will reform the nation’s public schools as he has in Texas, which is one of two states that have made the greatest recent progress in education’. In the 3 October 2000, Presidential Debate, Bush argued, ‘Testing is the cornerstone of reform. You know how I know? Because it’s the cornerstone of reform in the state of Texas. Republicans and Democrats came together and asked the question, “What can we do to make our public education the best in the country?” And we’ve gone a long way working together to do so’. Ronald Reagan’s frequent referencing of his tax-cutting record as California governor is a similar example.

2.2.4. **Incumbency.** Although incumbency is one of the most commonly cited sources of valence advantage, it may actually reduce effectiveness. On the one hand, incumbents are more experienced in the art of policy-making and may occupy positions of seniority. On the other hand, their promises of change will be less credible if they are associated with current policy. Past inaction may indicate either an inability or unwillingness to change policy. Incumbency thus offers an interesting opportunity to empirically distinguish effectiveness and valence.

3. **Models**

The basic setup is a one-dimensional Downsian model with a known median voter location and two purely policy-motivated candidates. Two candidates \(\{A, B\}\) offer policy positions \(x_A, x_B \in \mathbb{R}\). \(A\) is motivated to arrive at a final policy as far to the left as possible and \(B\) is motivated to push the final policy to the right. Voters’ utilities decline with the absolute value of the final policy’s distance from their ideal points, which are uniformly distributed on a subset of the real line. The median ideal point is located at \(M\) and the right-most ideal point is located at \(R\). Voters sincerely vote for the candidate that will give them a higher expected utility upon winning, based on utility functions described below. The winning candidate is determined by majority vote. If the candidates split the vote evenly, they have an equal chance of winning.

Although this setup is simpler than models with an uncertain median voter position (e.g., Aragones and Palfrey, 2005; Groseclose, 2001), it is sufficient to compare valence and effectiveness and has the advantage of leading to pure-strategy equilibria. Section 3.1 looks at the pure valence model, included mainly for purposes of comparison. Section 3.2 introduces the effectiveness model. Section 3.3 covers the main model of the paper, which combines valence and effectiveness.

3.1. **The valence model**

Suppose candidates \(A\) and \(B\) are described by valence factors \(v_A\) and \(v_B\). These capture the policy-independent utilities that all voters gain equally by electing a given candidate.
The final policy is that offered by the winning candidate. Thus, a voter $i$, with ideal point $x_i$, gets the following utilities from candidate $A$ or $B$ winning:

$$u_i(A) = -|x_i - x_A| + v_A,$$

$$u_i(B) = -|x_i - x_B| + v_B.$$  

As in Serra (2010), to break ties, I assume that if the median voter is indifferent, he/she will vote for the candidate with the higher valence. It is then straightforward to show that the candidate with the higher valence is guaranteed to win and departs from the median in his/her favored direction, as captured in the following proposition.

**Proposition 1.** In the unique pure-strategy Nash equilibrium of the valence model, the candidate with the lower valence locates at $M$. The candidate with the higher valence locates at $M + v_B - v_A$ and wins for certain. If $v_A = v_B$, both locate at $M$ and split the vote evenly.

All proofs are contained in the Appendix.

As a result of Proposition 1, if $v_B > v_A$, $B$ wins and locates to the right of the median. If the opposite is true, $A$ wins and locates to the left. Assuming we have a reliable measure of valence, this simple result yields a number of testable predictions.

**Hypothesis 1a:** The candidate with the higher valence wins.

**Hypothesis 1b:** The candidate with the higher valence offers a policy that departs from the median ideal point in his or her favored policy direction.

**Hypothesis 1c:** The distance between the candidates’ policies increases with the difference in valence between the candidates.

### 3.2. The effectiveness model

Now suppose candidates $A$ and $B$ are described by effectiveness factors $p_A$ and $p_B$, which capture the probabilities that each candidate can change policy from an exogenous status quo. Without loss of generality, assume the status quo is located at $S$, such that $M < S < R$. If candidate $j$ wins, policy is changed to $x_j$ with probability $p_j > 0$, and stays at $S$ with probability $1 - p_j$. Thus, a voter $i$, with ideal point $x_i$, gets the following expected utilities from candidate $A$ or $B$ winning:

$$u_i(A) = -p_A|x_i - x_A| - (1 - p_A)|x_i - S|,$$

$$u_i(B) = -p_B|x_i - x_B| - (1 - p_B)|x_i - S|.$$  

To break ties, I assume that if the median voter is indifferent, he/she will vote for the candidate with the higher effectiveness. Otherwise, indifferent voters evenly randomize their votes.

In similar fashion to the valence model, the more effective candidate is guaranteed to win and departs from the median ideal point in his/her favored direction. However, as captured in the following proposition, voting can be non-monotonic and the position of $S$ affects equilibrium positioning.
Figure 1. The unique equilibrium in the effectiveness model when $B$ is more effective. $A$ locates at $M$ and $B$ locates to the right of $M$. The dotted line indicates the utility margin in favor of $A$ for each voter ideal $x_i$. Values below zero indicate a preference for $B$, and hence moderate voters favor $B$ and extreme voters are indifferent.

**Proposition 2.** The pure-strategy Nash equilibria in the effectiveness model are the following.

1. If $p_A > p_B$, $B$ locates at $M$. Candidate $A$ locates at $M - \frac{p_A-p_B}{p_A}(S - M)$ and wins. Voters favor $A$ if and only if they have ideal points less than or equal to $M$.
2. If $p_A < p_B$, $A$ locates at $M$. Candidate $B$ locates at $M + \frac{p_B-p_A}{p_B}(S - M)$ and wins. Voters with ideal points $M \leq x_i < S$ favor $B$ and all other voters are indifferent.
3. If $p_A = p_B$, both candidates locate at $M$ and split the vote evenly.

In the first case ($p_A > p_B$), $B$ locates at $M$ to minimize the expected policy distance from $M$. $A$ then locates just far enough to the left to equalize the expected policy distance from $M$. Since $A$’s expected policy location is further to the left, voters with ideals $x_i \leq M$ vote for $A$.

The second case ($p_A < p_B$), pictured in Figure 1, features non-monotonic voting. $B$ locates just far enough to the right to equalize the expected policy distance from $M$, given $x_A = M$. Unlike in the first case, this makes the expected policy location the same. As a result, voters with ideals $x_i < M$ and $x_i \geq S$ are indifferent. Voters with ideals strictly between $M$ and $S$ have smaller expected distances to $x_B$, and hence prefer $B$.

Proposition 2 leads to the following predictions.

**Hypothesis 2a:** The candidate with the higher effectiveness wins.

**Hypothesis 2b:** The candidate with the higher effectiveness offers a policy that departs from the median ideal point in his/her favored policy direction.

**Hypothesis 2c:** The distance between the candidates’ policies increases with the difference in effectiveness between the candidates.

**Hypothesis 2d:** The distance between the candidates’ policies increases with the distance between the status quo policy and the median ideal point.

**Hypothesis 2e:** The margin of victory is larger when the more effective candidate favors policies in the same direction that the status quo policy departs from the median ideal point.
Hypothesis 2f: Voting varies monotonically with the voters’ ideal points if and only if the more effective candidate favors policies in the opposite direction that the status quo policy departs from the median ideal point.

Note that the first three hypotheses are equivalent to the set of hypotheses resulting from the valence model, whereas the remaining three hypotheses are unique to the effectiveness model. Thus, although the two models overlap in many of their implications, there exists room for differentiation.

3.3. Combining effectiveness and valence

As the main formal exercise of the paper, the two measures of candidate quality are now combined in a single model. As before, \( v_A \) and \( v_B \) are the candidates’ valence factors and \( p_A \) and \( p_B \) are their effectiveness factors. Voter \( i \), at ideal point \( x_i \), gets the following utilities from either candidate \( A \) or \( B \) winning:

\[
\begin{align*}
  u_i(A) &= -p_A |x_i - x_A| - (1 - p_A) |x_i - S| + v_A, \\
  u_i(B) &= -p_B |x_i - x_B| - (1 - p_B) |x_i - S| + v_B.
\end{align*}
\]

To break ties, I assume that, if the median voter is indifferent, he/she votes for the candidate \( j \) with the higher quantity \( v_j + p_j(S - M) \).

The combination induces a surprising level of complexity. Because the high-valence candidate may differ from the high-effectiveness candidate, voting non-monotonicity easily arises. Moreover, the equilibrium is asymmetric between left and right.10

Proposition 3. For candidate \( j \in \{A, B\} \), let \( d_j = v_j + p_j(S - M) \). The pure-strategy Nash equilibria in the combined effectiveness-valence model are the following.

1. If \( p_A \geq p_B \) and \( d_A > d_B \), B locates at \( M \) and \( A \) wins by locating at \( M - \frac{d_A - d_B}{p_A} \).
2. Suppose \( p_A \geq p_B \) or \( v_B \geq v_A \). If \( d_B > d_A \), A locates at \( M \) and \( B \) wins by locating at \( M + \frac{d_B - d_A}{p_B} \).
3. Suppose \( p_A \geq p_B \) or \( v_B \geq v_A \). If \( d_A = d_B \), both candidates locate at \( M \) and split the vote evenly.
4. Suppose \( p_B > p_A \) and \( v_A > v_B \). If \( R - S \geq \frac{(v_A - v_B)(p_B - 2p_A)}{2p_A(p_B - p_A)} \), B locates at \( S - \frac{p_A}{p_B} (S - M) \) and \( A \) wins by locating at \( M - (v_A - v_B)/p_A - \frac{p_A}{p_B} (S - M) \).
5. Suppose \( p_B > p_A \) and \( v_A > v_B \). If \( R - S < \frac{(v_A - v_B)(p_B - 2p_A)}{2p_A(p_B - p_A)} \) and \( S - M > \frac{v_A - v_B}{2(p_B - p_A)} \), \( A \) locates at \( S - (R - M) - \frac{p_B(v_A - v_B)}{2p_A(p_B - p_A)} \), \( B \) locates at \( S - \frac{p_A}{p_B} (R - M) - \frac{v_A - v_B}{2(p_B - p_A)} \), and the candidates tie.

With the exception of when \( p_B > p_A \) and \( v_A > v_B \), the results are fairly straightforward. Barring this condition, the winner is the candidate \( j \) with the larger weighted sum \( v_j + p_j(S - M) \), which implies that effectiveness gains greater importance in determining the electoral winner when the status quo diverges farther from the political center.

If \( p_B > p_A \) and \( v_A > v_B \), neither candidate locates at \( M \) and the precise equilibrium depends on \( S - M \).11 For part 4, pictured in Figure 2, \( A \) wins by locating just far enough to the left so that the right-most voters are indifferent between the candidates and all voters
Figure 2. The equilibrium corresponding to part 4 in the combined model (Proposition 3). $B$ locates to the right of $M$, whereas $A$ locates to the left of $M$ and wins. $M$ and all voters to the right of $S$ are indifferent between the candidates.

Figure 3. The equilibrium corresponding to part 5 in the combined model (Proposition 3). $A$ and $B$ locate to the left and right of $M$, respectively, and tie.

Figure 4. The equilibrium winning candidates in the combined model (Proposition 3) for given values of $B$'s valence advantage and $B$'s effectiveness advantage. $A$ wins in the medium-grey area, $B$ wins in the dark-grey area, and the winner depends on $S - M$ in the light-grey area. The slope of the dividing line in the upper left is $-(S - M)$. 
to the left of $M$ prefer $A$. For part 5, pictured in Figure 3, $A$ and $B$ offer the same expected policy location and tie, with $A$ winning extreme voters and $B$ winning moderate voters.

As captured in Figure 4 and the following corollary, the equilibrium results can be usefully summarized according to the winning candidate in each condition. The corollary implies a small advantage for $A$, the candidate who favors policies opposite from the direction $S$ departs from $M$.

**Corollary 3.** In equilibrium, the winning candidates are the following.

1. If $p_A \geq p_B$ or $v_B \geq v_A$, the candidate $j$ with the higher sum $d_j = v_j + p_j(S - M)$ wins.
2. If $p_A < p_B \leq 2p_A$ and $v_A > v_B$, $A$ wins.
3. Suppose $p_B > 2p_A$ and $v_A > v_B$. If $S - M$ is sufficiently small, $A$ wins. If $S - M$ is sufficiently large, $A$ and $B$ tie.

The main testable implication of this combined model is that effectiveness weighs more heavily in determining the electoral winner when the status quo is farther from the political center.

**Hypothesis 3:** For all conditions, the high-valence candidate is guaranteed to win if the status quo is sufficiently close to the median ideal point. For nearly all conditions, the more effective candidate is guaranteed to at least tie if the status quo is sufficiently far from the median ideal point.

It follows that empirical results on candidate quality may vary by election, with valence determinative when the status quo is moderate and effectiveness more important otherwise. This is exactly in line with Bruner and Korchin's (1946: 21) claim that, when a city needs reform, voters look for politicians ‘distinguished by [their] record for “doing things”’ and capable of running an ‘efficient and active government’. If, however, a city is in good condition, then ‘the efficiency of the men will be secondary as far as voters are concerned and their moral qualities paramount’. Furthermore, if incumbency raises valence and reduces effectiveness, incumbents ought to be more highly advantaged when voters view existing policy as moderate.

### 4. Conclusion

This paper introduced an alternative notion of candidate quality that is well-grounded in the literature and the conduct of campaigns. As an introduction to the effectiveness framework, the current paper has intentionally illustrated the model in a relatively simple and tractable form. There is certainly room to complexify the effectiveness model using elements that have been explored in the valence framework, such as endogenous investments by the candidates to increase their effectiveness, multiple dimensions, campaign spending by special interests, and an unknown median voter location. Instead of assuming the final policy is either the status quo or the candidate’s position, the policy output could be modeled by a probability distribution between the two. Lastly, the probability of fulfilling a policy offer could be modeled as a function of the policy location, reflecting the idea that extreme policy changes are more difficult to achieve than moderate reforms.

Although it is beyond the purview of this article to proceed to empirical testing, it is hoped that the effectiveness model can inform empirical work on candidate quality and
rhetoric. For a known median voter, the predictions of the valence model follow from the effectiveness model, and hence much of the existing empirical work on candidate quality bolsters both equally well. However, the effectiveness model adds several testable empirical hypotheses related to the status quo policy. In particular, results on candidate quality can depend on the particular election, potentially reconciling divergent results like those in Burden (2004) (based on elections in 2000) and Stone and Simas (2010) (based on elections in 2006).

Appendix

Proof of Proposition 1
Without loss of generality, suppose \( v_A > v_B \). Note that \( A \) can guarantee an outcome of \( M + v_B - v_A \) and this is a best-response to \( x_B = M \). If \( x_A < M + v_B - v_A \), \( B \) wins with \( x_B = M \), and hence \( x_A \) cannot be in equilibrium. If \( x_B \neq M \), \( A \) has a best-response with \( x_A = M + v_B - v_A \), which cannot be in equilibrium, and hence \( x_B \) cannot be in equilibrium. It follows that the unique equilibrium is \( x_B = M \) and \( x_A = M + v_B - v_A \). The \( v_A = v_B \) case reduces to the simple median voter theorem.

Proof of Proposition 2
(1) Suppose \( p_A > p_B \). If \( A \) locates at \( M - \frac{p_A - p_B}{p_A} (S - M) \) and wins, a voter with ideal point \( M \) gets the utility

\[-p_A[M - M + \frac{p_A - p_B}{p_A} (S - M)] - (1 - p_A)(S - M) = -(1 - p_B)(S - M),\]

which is the same utility the voter gets from \( x_B = M \). Any voter to the left of \( M \) strictly prefers \( x_A \) and any voter to the right of \( M \) strictly prefers \( x_B \) in this scenario. It follows that \( A \) wins and, since any point to the left loses, \( x_A = M - \frac{p_A - p_B}{p_A} (S - M) \) is a best-response to \( x_B = M \). If \( x_A < M - \frac{p_A - p_B}{p_A} (S - M) \), \( B \) wins with \( x_B = M \), and so \( x_A \) cannot be in equilibrium. If \( x_B \neq M \), all voters with ideals to the left of some \( M + \varepsilon > M \) prefer \( x_A = M - \frac{p_A - p_B}{p_A} (S - M) \), and so \( A \) has a best-response with \( x_A < M - \frac{p_A - p_B}{p_A} (S - M) \). Since this cannot be in equilibrium, \( x_B \) cannot be in equilibrium. It follows that the unique equilibrium is \( x_B = M \) and \( x_A = M - \frac{p_A - p_B}{p_A} (S - M) \).

(2) Now suppose \( p_A < p_B \). If \( x_B = M + \frac{p_B - p_A}{p_B} (S - M) \) and wins, the expected policy location is

\[p_B[M + \frac{p_B - p_A}{p_B} (S - M)] + (1 - p_B)S = p_AM + (1 - p_A)S\]

which is the same expected policy location if \( x_A = M \) wins. It follows that any voter with an ideal point not strictly between \( M \) and \( S \) is indifferent between \( A \) and \( B \).

In contrast, voters with ideals between \( M \) and \( S \) strictly prefer \( B \). Consider a voter with ideal \( x_i \) such that \( M < x_i < x_B \):

\[u_i(B) = -p_B(x_B - x_i) - (1 - p_B)(S - x_i) = p_B(S - x_B) - (S - x_i) = p_A(S - M) - (S - x_i) > p_A(S - x_i - (x_i - M)) - (S - x_i) = -p_A(x_i - M) - (1 - p_A)(S - x_i) = u_i(A).\]
The calculation for \( x_B \leq x_i < S \) is similar. As a result, \( B \) wins and any location to the right of \( x_B \) loses (because all voters to the left of \( M \) would prefer \( A \)), making \( x_B = M + \frac{p_B - p_A}{p_B} (S - M) \) a best-response to \( x_A = M \).

Using the same logic, if \( x_B > M + \frac{p_B - p_A}{p_B} (S - M) \) in any equilibrium, \( A \) can locate slightly to the left of \( M \) and win all voters \( x_i \leq M \). Since this outcome is strictly worse for \( B \) than winning with \( x_B = M + \frac{p_B - p_A}{p_B} (S - M) \), it follows that \( x_B > M + \frac{p_B - p_A}{p_B} (S - M) \) cannot be in equilibrium.

If \( x_A > M \), \( B \) has a best-response with \( x_B > M + \frac{p_B - p_A}{p_B} (S - M) \), chosen so that the expected policy location is the same. Since this \( x_B \) cannot be in equilibrium, \( x_A > M \) cannot be in equilibrium. If \( x_A < M \), all voters with ideals to the right of some \( M - \delta < M \) prefer \( x_B = M + \frac{p_B - p_A}{p_B} (S - M) \), and hence \( B \) has a best-response with \( x_B > M + \frac{p_B - p_A}{p_B} (S - M) \). Since this \( x_B \) cannot be in equilibrium, \( x_A < M \) cannot be in equilibrium. It follows that the unique equilibrium is \( x_A = M \) and \( x_B = M + \frac{p_B - p_A}{p_B} (S - M) \).

(3) The \( p_A = p_B \) case reduces to the logic of the median voter theorem, since all voters prefer the candidate whose platform is closer to their ideal.

Proof of Proposition 3

(1)–(3) Parts 1–3 follow from the same logic as presented in the proof of Proposition 2. In parts 1 and 2, the losing candidate locates at \( M \) and the winning candidate diverges in his/her favored direction so that the median voter is indifferent. This covers all cases for which \( p_A \geq p_B \) or \( v_A > v_B \).

Now suppose \( p_B > p_A \) and \( v_A > v_B \). It will be useful to think in terms of the function \( \Delta(x) = U_A(A) - U_A(B) \), the difference in expected utility between candidates \( A \) and \( B \) winning for a voter with ideal point \( x \). First, note that if \( x_A < x_B < S \), \( \Delta(x) \) is equal for all \( x \leq x_A \). In particular, call \( \delta \) the expected policy location if \( B \) wins minus the expected policy location if \( A \) wins. Then \( \delta \geq 0 \), or else the winning candidate would prefer the other candidate to win. It follows that, for all \( x \leq x_A \), \( \Delta(x) = v_A - v_B + \delta \). In addition, for all \( x \geq S \), \( \Delta(x) = v_A - v_B - \delta \). Second, note that if \( x_A < x_B < S \), \( \Delta(x) \) is declining between \( x_A \) and \( x_B \) with slope \(-2p_A \) and rising between \( x_B \) and \( S \) with slope \( 2(p_B - p_A) \).

(4) Condition 1: \( \delta > 0 \). If \( \delta > 0 \), then \( \Delta(x_A) = v_A - v_B + \delta > 0 \). Consider \( \Delta(S) < 0 \), meaning that \( B \) is winning all voters to the right of some ideal point \( y \). \( A \) cannot have a strict majority in equilibrium since \( A \) could move further left and still win. Similarly, \( B \) cannot have a strict majority. Lastly, the candidates cannot be tied (ignoring any tie-breaking voter at \( M \)), since either could move slightly away from their favored policy direction and win for sure. Hence, no equilibrium can exist for \( \Delta(S) < 0 \). A similar analysis shows that no equilibrium exists for \( \Delta(S) > 0 \).

Assume \( \Delta(S) = 0 \). In equilibrium, \( B \) cannot have a strict majority or be tied, or else \( B \) could move slightly to the right and win all voters \( x_i \geq S \). Hence, \( A \) must be winning. It cannot be that \( \Delta(M) < 0 \), since this implies \( \Delta(x) < 0 \) for all \( M < x < S \), so \( B \) could move slightly to the right and win. Moreover, it cannot be that \( \Delta(M) > 0 \), or else \( A \) could move further left and still win. It follows that the median voter must be indifferent.
We can use the fact that \( \Delta(M) = \Delta(S) = 0 \) to solve for \( x_A \) and \( x_B \). Specifically, we have the following two equations:

\[
-p_A(S - x_A) + v_A = -p_B(S - x_B) + v_B, \\
-p_A(M - x_A) - (1 - p_A)(S - M) + v_A = -p_B(x_B - M) - (1 - p_B)(S - M) + v_B.
\]

This is solved at \( x_A = M - (v_A - v_B)/p_A \) and \( x_B = S - p_A(S - M) \).

The only condition needed is that \( B \) cannot move left and win, keeping in mind that \( B \) will only move left until \( \delta = 0 \). As a result, for the given \( x_A \), a choice of \( x_B = S - \frac{p_A}{p_B}(S - M) - \frac{v_A - v_B}{p_B} \) cannot get a majority. Some algebra shows that voters between \( M - \frac{v_A - v_B}{2p_A} \) and \( S - \frac{v_A - v_B}{2(p_B - p_A)} \) prefer \( B \) in this scenario, and hence the condition \( S - \frac{v_A - v_B}{2(p_B - p_A)} - M + \frac{v_A - v_B}{2p_A} \leq R - M \), or \( R - S \geq \frac{(v_A - v_B)p_B - 2p_A}{2p_A(p_B - p_A)} \).

(5) Condition 2: \( \delta = 0 \). If \( \delta = 0 \), then \( \Delta(x_A) = \Delta(S) = v_A - v_B > 0 \), meaning that \( A \) at least wins all voters less than \( x_A \) and greater than \( S \). A cannot have a strict majority in equilibrium, however, since \( A \) could move further left and still win. Similarly, \( B \) cannot have a strict majority. Hence, if an equilibrium exists, the two candidates must be tied and neither candidate can make a move in his/her favored direction and win.

To start, we solve for \( x_A \) and \( x_B \). There must exist two points \( y, z \) such that \( x_A < y < x_B < z < S \) and \( \Delta(y) = \Delta(z) = 0 \). Given \( \Delta(S) = v_A - v_B \) and the slope of \( \Delta(x) \), \( z = S - \frac{v_A - v_B}{2p_B - p_A} \). Given that the candidates are tied, \( y = S - \frac{v_A - v_B}{2(p_B - p_A)} - (R - M) \). A bit of geometry then gives \( x_A = S - (R - M) - \frac{p_B(v_A - v_B)}{2p_A(p_B - p_A)} \) and \( x_B = S - \frac{p_A}{p_B}(R - M) - \frac{v_A - v_B}{2(p_B - p_A)} \).

Now we need conditions for this to be in equilibrium. It must be the case that \( z > M \) and \( M - (R - M) < y < M \). Since the first condition implies the second, we only need \( S - \frac{v_A - v_B}{2(p_B - p_A)} > M \), or \( S - M > \frac{v_A - v_B}{2(p_B - p_A)} \).

\( A \) loses votes by moving left, but if the slope \( 2(p_B - p_A) \) of \( \Delta(x) \) for points to the right of \( x_B \) is lower than the absolute value of the slope \( 2p_A \) in the opposite direction, \( B \)'s vote share increases from a small move to the right. Since this would win for \( B \), it must be that \( 2(p_B - p_A) > 2p_A \), or \( p_B > 2p_A \).

A final condition is that \( B \) cannot move far enough to the right to win the voters \( x_i \geq S \) and then win. \( B \) must move at least \( (v_A - v_B)/p_B \) to the right, which implies \( \Delta(x_A) > 2(v_A - v_B) \). The left-most point \( x \) at which \( \Delta(x) = 0 \) is thus at least \( x_A + 2(v_A - v_B)/(2p_A) \). For \( B \) to lose, this must be greater than \( M \). After this, \( B \) must be greater than \( M \), and hence the condition \( S - (R - M) - \frac{p_B(v_A - v_B)}{2p_A(p_B - p_A)} + \frac{v_A - v_B}{2p_A} > M \), or \( R - S < \frac{(v_A - v_B)p_B - 2p_A}{2p_A(p_B - p_A)} \). Since \( R - S > 0 \), \( v_A > v_B \), and \( p_B > p_A \), this subsumes the condition \( p_B > 2p_A \).

**Notes**

1. An exception mentioned below is Gouret et al. (forthcoming), who test Hollard and Rossignol’s (2008) multiplicative valence model with data from the 2007 French presidential election.
2. Enelow and Hinich (1982), one of the earliest formal papers on valence, distinguishes valence from other non-spatial characteristics, such as race and religion, over which voter preferences can diverge. This approach dovetails with models of redistribution to special interests that have differing ideological affinities for parties (Dixit and Londregan, 1996; Lindbeck and Weibull, 1987).
3. Building on the basic Downsian framework, formal papers have also applied valence to multiple dimensions (Ansolabehere and Snyder, 2000; Feld and Grofman, 1991), multiple candidates (Scholfield, 2004), and models of candidate entry (Ashworth and Bueno de Mesquita, 2008; Banks and Kiewiet, 1989) and group endorsements (Wittman, 2007).


5. All quotes were taken from the online transcript, ‘The Democratic Debate in New Hampshire’, 5 January 2008, located at www.nytimes.com/2008/01/05/us/politics/05text-ddebate.html

6. A record of Bush’s issue opinions from his official 2000 website can be found at www.4 president.us/issues/bush2000/bush2000issues.htm.

7. The quote is taken from the online debate transcript found at www.cbsnews.com/stories/2000/10/04/politics/main238354.shtml.

8. Reasons include fund-raising (Harrington and Hess, 1996), constituency service (Fiorina, 1977; Londregan and Romer, 1993), reduced policy uncertainty (Berger et al., 2000), and trust (Stone and Simas, 2010).

9. Except for parts 4 and 5 of the combined model in Section 3.3, the results do not depend on whether candidates additionally benefit directly from winning the race.

10. The directions are distinguished by where $S$ lies in relation to $M$.

11. Some equilibrium conditions are specified in terms of $R - S$. However, since $R - M$ is a fixed component of the model, and $R - S = (R - M) - (S - M)$, these conditions can be equivalently stated in terms of $S - M$.

Acknowledgements

I thank Adam Meirowitz, Christine Percheski, Will Bullock, and an anonymous reviewer for their helpful comments.

References


