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Critical Elections and Political Realignments in the USA: 1860–2000

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The sequence of US presidential elections from 1964 to 1972 is generally regarded as heralding a fundamental political realignment, during which time civil rights became as important a cleavage as economic rights. In certain respects, this realignment mirrored the transformation of politics that occurred in the period before the Civil War. Formal models of voting (based on assumptions of rational voters, and plurality-maximizing candidates) have typically been unable to provide an account of such realignments. In this paper, we propose that US politics necessarily involves two dimensions of policy. Whatever positions US presidential candidates adopt, there will always be two groups of disaffected voters. Such voters may be mobilized by third party candidates, and may eventually be absorbed into one or other of the two dominant party coalitions. The policy compromise, or change, required of the successful presidential candidate then triggers the political realignment. A formal activist-voter model is presented, as a first step in understanding such a dynamic equilibrium between parties and voters.

In 1860 Abraham Lincoln, the Republican contender, won the presidential election by capturing a majority of the popular vote in 15 northern and western states. The Whig or 'Conservative Union' candidate, Bell, only won three states (Virginia, Kentucky and Tennessee) while the two Democrat candidates, Douglas and Breckinridge, took the ten states of the South. (New Jersey split its electoral college vote between Lincoln and Douglas.) From 1836 to 1852, Democrat and Whig vote shares had been roughly comparable (Ransom, 1989), with neither party gaining an overwhelming preponderance in the North or South. Thus, between 1852, when the Democrat (Pierce) won the presidency and 1860, the American political system was transformed by a fundamental 'realignment' of electoral support.[1]

The sequence of presidential elections between 1964 and 1972 also has features of a political transformation, where the race or civil rights issue again played a fundamental role. Except for the war-hero, Eisenhower, Democrats had held the presidency since 1932. The 1964 election, in particular, had been a landslide in favor of Lyndon Johnson. By 1972, this imbalance in favor of the Democrats was completely transformed. The Republican candidate, Nixon, took 60 per cent of the popular votes, while his Democrat opponent, McGovern, only won the electoral college votes of Massachusetts and Washington DC.

In between, of course, was the three-way election of 1968, among Humphrey, Nixon, and Wallace. In some respects, this election parallels the 1856 election between Buchanan, Fremont, and Fillmore.[2] Nixon won about 56 percent of the vote in 1968, but Humphrey had pluralities in seven of the northern 'core' states, as well as Washington DC, Hawaii, and West Virginia. The southern Democrat,

Wallace, with only about 9 percent of the popular vote, won six of the states of the old Confederacy.

It is intuitively obvious that, in some sense, Humphrey and McGovern can be likened to Fremont and Lincoln, at least in terms of the 'civil rights' policies that they represented, while Wallace and Goldwater resemble Breckinridge. It is equally clear that the elections of 1968 and 1972 were 'critical' in some sense, since they heralded a dramatic transformation of electoral politics that mirrored the changes of 1856–60. In both cases parties increasingly differentiated themselves on the basis of a civil rights dimension, rather than the economic dimension of politics. This raises the question about why Republican policy concerns *circa* 1860 should be similar to Democrat positions *circa* 1972.

When Schattschneider (1960) first discussed the issue of electoral realignments, he framed it in terms of strategic calculations by party elites. For example, in discussing the election of 1896, Schattschneider argued that the Populist, William Jennings Bryan, instigated a radical agrarian movement which, in economic terms, could be interpreted as anti-capital. To counter this, the Republican Party became aggressively pro-capital. Because conservative Democrat interests feared populism, they revived the sectional cleavage of the civil war era, and implicitly accepted the Republican dominance of the North. According to Schattschneider, this 'system of 1896' contributed to the dominance of the Republican Party until the later transformation of politics brought about in the midst of the Depression by FD Roosevelt.

Recently, Mayhew (2000), has questioned the validity of the concepts of a 'critical election' and of 'electoral realignment' as presented by Schattschneider and many later writers (such as Key, 1955; Burnham, 1970; Sundquist, 1973). Indeed, it is true that one fundamental difficulty with this literature on realignment is that its principal analytical mode has been macro-political, depending on empirical analysis of shifting electoral preferences. In general, the literature has not provided a theoretical basis for understanding the changes in political preferences. Electoral choices are, after all, derived from voters' perceptions of party positions. Schattschneider implied that these party (or candidate) positions are themselves strategically chosen in response to perceptions by the party elite of the social and economic beliefs of the electorate.

Formally speaking, this implies that politics is a 'game'. Individual voters have underlying preferences that can be defined in terms of policies, and they perceive parties in terms of these policies. Party strategists receive information of a general kind, and form conjectures about the nature of aggregate electoral response to policy messages. Finally, given the utilities that strategists have concerning the importance of policy and of electoral success, they advise their candidates how best to construct 'utility maximizing' strategies for the candidates.

An extensive technical literature has developed over the last four decades devoted to the analysis of such political games. In general, the models that have been proposed assume that the 'game' takes place in a policy space, X, say, which is used to characterize individual voter preferences. Each candidate, j, say, offers a policy position, z_j, to the electorate, chosen so as to maximize the candidate's utility.

Typically, this utility is a function of the 'expected' vote share of the candidate. It is also usually assumed that all candidates have similar utilities, in that each one prefers to win. While there are many variants of this model, almost all reach a similar conclusion: candidates will adopt identical, or almost identical, policy positions, in a small domain of the policy space, centrally located with respect to the distribution of voter-preferred points.

Any such formal model has little to contribute to an interpretation of critical elections or of electoral realignment. From the point of view of this 'game theoretic' literature, change can only come about through the transformation of electoral preferences by some exogenous shock. Even allowing for such shocks, the divergence of party positions observed by Schattschneider can only occur if the perceptions of the various parties' strategists are radically different. This seems implausible.

In this paper we propose a variant of the standard spatial model, so that rational political candidates attempt to balance the need for resources with the need to take winning policy positions. Voters choose among candidates for both policy and non-policy reasons. The policy motivations of voters pull candidates toward the center. However, centrist policies do little to earn the support of party activists, who are more ideologically extreme than the median voter, and who supply vital electoral resources. Candidates realize that the resources obtained from party activists make them more attractive, independent of policy positions. This implies that candidates must balance the attractiveness of activists' resources against the centrist tug of voters.

During most elections there is a stable pattern of partisan cleavages and alliances. Candidates are in equilibrium that allows them to appeal to one set of partisan activists or another. But in certain critical elections, candidates realize that they can improve their electoral prospects by appealing to party activists on new ideological dimensions of politics. In the next section we present a sketch of the possible re-positioning of presidential candidates in the critical elections of 1860, 1896, 1932, and 1968. We then present an overview of the spatial model. The fourth section gives our variant, involving activists' choices. In the final two sections, we draw out some further inferences with a view to providing a deeper understanding of recent political alignments.

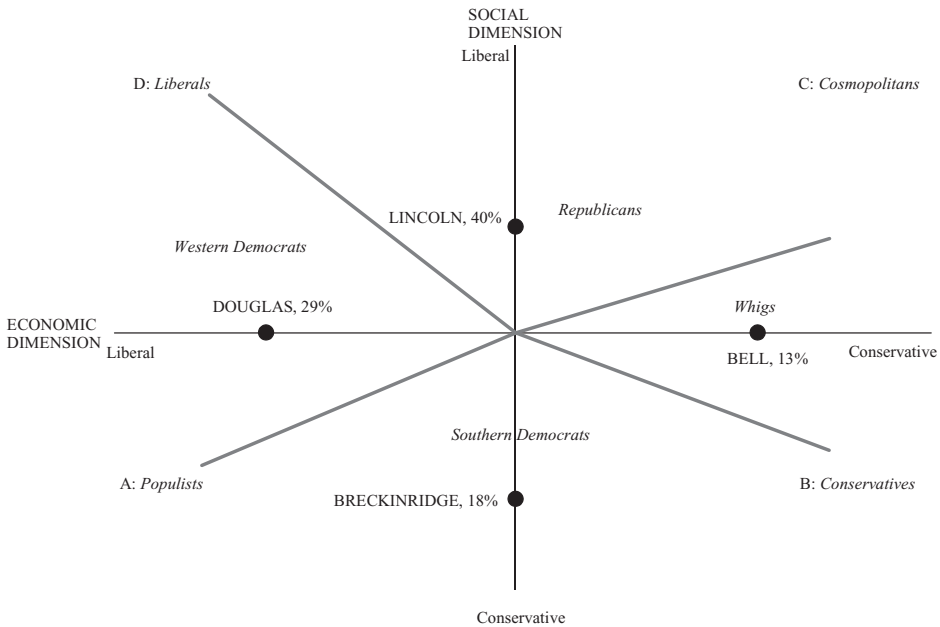
A Brief Political History: 1896–2000

Before introducing the model, it will be useful to offer schematic representations of the 'critical' elections between 1860 and 1968 in order to illustrate what it is we hope to explain. For Schattschneider, the 1896 election was based on an attack by Bryan against the sectional cleavage of the Civil War and the Reconstruction. It is therefore consistent with this argument that the contest between the Republican, McKinley, and the Populist Democrat, Bryan, was characterized by policy differences on a 'capital' dimension. It is also convenient to refer to this dimension as an 'economic' dimension. McKinley clearly favored pro-business policies, while Bryan made a case for soft-money, (bimetallism) and easy credit, both attractive to hard-pressed agrarian groups of the time. The sectional conflict of the Civil War

era had obviously been over civil rights, so we can describe this earlier conflict in terms of a 'social' dimension. Another way of characterizing this dimension is in terms of labor, since policies that restricted the civil rights of southern blacks had significant consequences for the utilization of labor. To give a schematic representation of the election of 1860, we may thus situate Lincoln and Breckinridge in opposition on the social dimension, as in Figure 1. The Whig, Bell, may be interpreted as standing for the commercial interests, particularly of the northeast. In contrast, Douglas represented the agrarian interests of the West, and his support came primarily from the states such as Iowa, Ohio, Indiana, Illinois, and so on.

With two distinct dimensions and four candidates, it is immediately obvious that the policy space could be divided into four quadrants. Voters who had conservative preferences on both social and economic axes we may simply term 'conservatives'. In the 1860 election, such voters would have commercial interests and be pro-slavery. On the other hand, voters with commercial interests, but who felt strongly that slavery should be restricted we shall call 'cosmopolitans'. Voters opposed to both slavery and commercial interests, we shall call 'liberals'. (This term is clearly something of a misnomer in 1860 since such voters would, at the time, probably be 'free soil' farmers in states such as Illinois, and so on.) Agrarian, anti-commercial interests who were conservative on the social axis, we shall term 'populists'. For convenience, we denote these four quadrants as A (Populists), B

Figure 1: A schematic representation of the presidential election of 1860, in a two-dimensional policy space



(Conservatives), C (Cosmopolitans), and D (Liberals). The boundaries in Figure 1 indicate the division of the electorate into the supporters of the four presidential candidates in 1860. Figure 1 is intended to imply that each of the candidates in 1860 had to put together a coalition of divergent interests. Prior to 1852, the social or labor dimension played a relatively unimportant role, at least in presidential elections. How and why this dimension came into prominence in 1856, has been discussed at length elsewhere, using notions from social choice theory (Riker, 1982; Weingast, 1998; Schofield, 2002). It is our contention that the economic and social dimensions are always relevant to some degree in US political history. However, at various times, one or the other may become less important, for reasons that we shall explore.

After the Civil War and the disappearance of the Whig Party (and of the distinct western Democrat faction, represented by Douglas), political conflict between Republicans and Democrats focused on the social axis, as illustrated in Figure 2.

The horizontal 'partisan cleavage line' is intended to separate the Republican and Democrat voters immediately after the Civil War. It is consistent with

Figure 2: Policy shifts by the Republicans and Democrats *circa* 1896

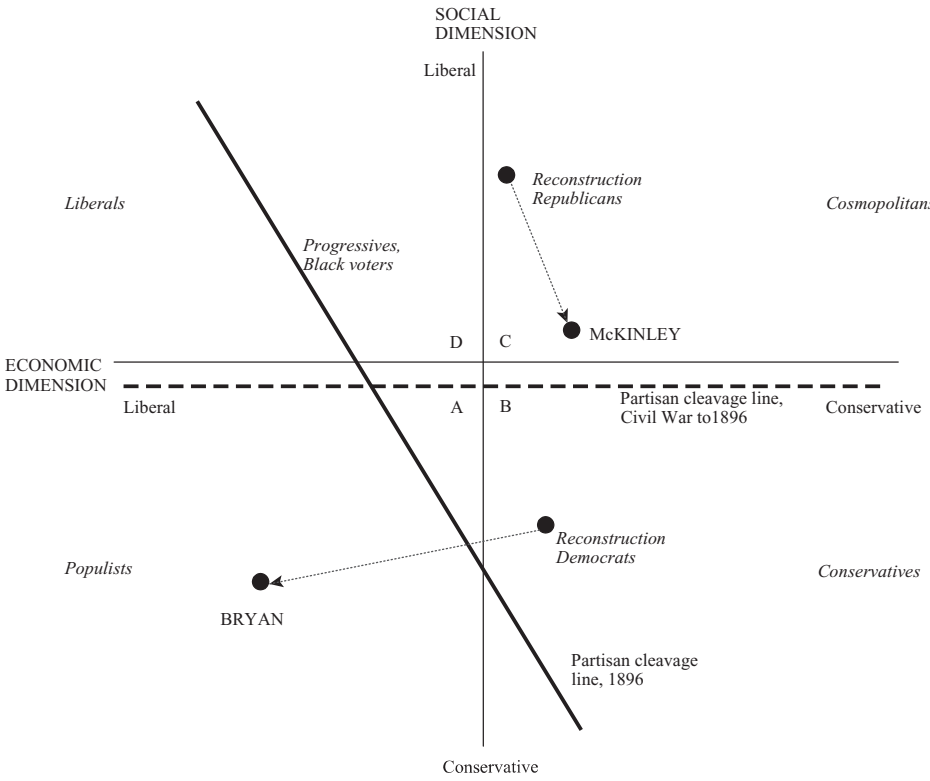
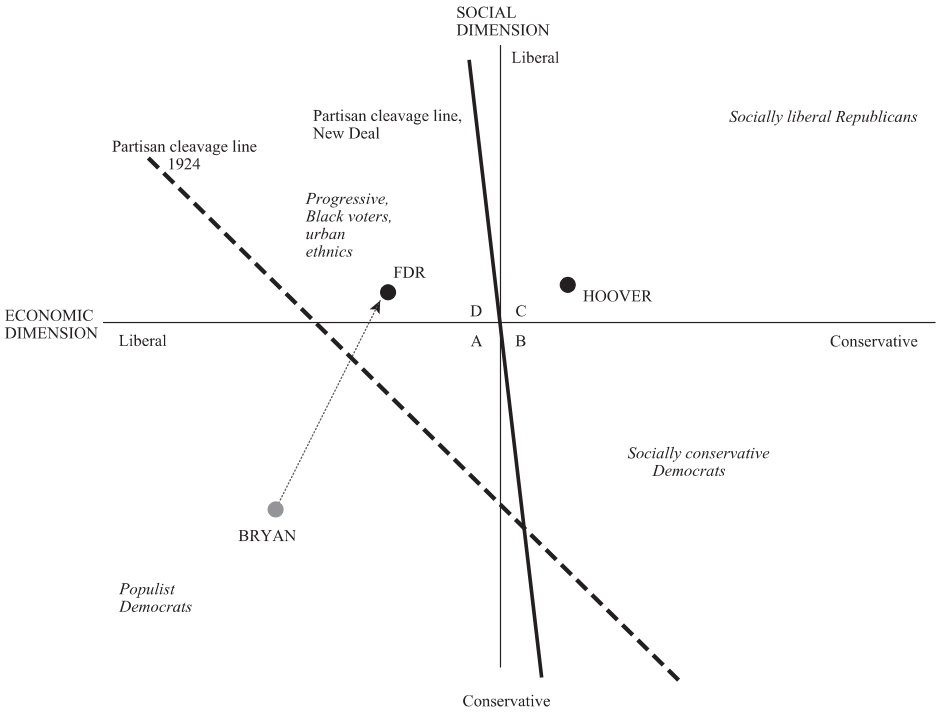


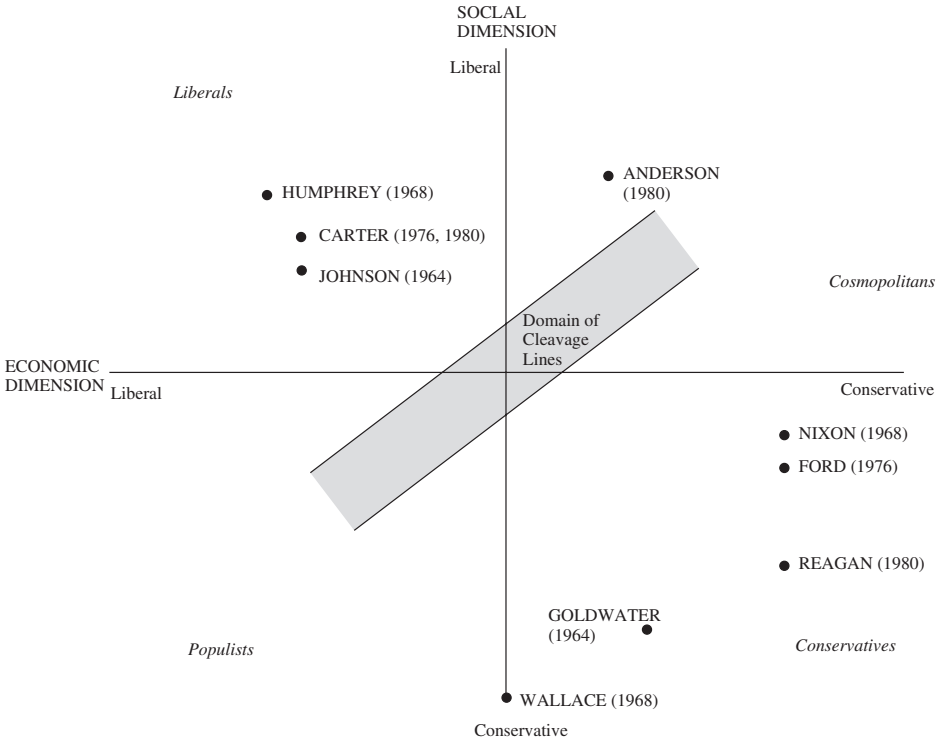
Figure 3: Policy shifts by the Democrats *circa* 1932



Schattschneider's interpretation of the election of 1896, that McKinley adopted a much more pro-business, or conservative, position on the economic axis, while Bryan took up a policy position in the populist quadrant A. The 1896 partisan cleavage line in Figure 2 is used to distinguish between Republican and Populist Democrat voters. Figure 2 makes it intuitively clear why Bryan could not win the election. Moreover, support for a conservative Democrat faction would lead to Republican predominance. As Schattschneider (1960, p. 85) observed, 'the Democrat party carried only about an average of two states (outside of southern and border states) between 1896 and 1932'. The increasing 'degree of competition' between Democrat and Republican parties in 1932 can be represented by the positioning of FD Roosevelt and Hoover on the economic axis, as in Figure 3.

The standard formal model (Downs, 1957) has tended to generalize from the location of party positions in the period 1932–60 and to infer that political competition is primarily based on the economic axis. However, as Carmines and Stimson (1989) have analyzed in great detail, 'race' (or policy on the social dimension) has become increasingly important since about 1960. Indeed, they present data to suggest that Republicans in the Senate tended to vote in a more liberal fashion on racial issues than Democrats prior to 1965.

Figure 4: Estimated Candidate Positions 1964–80



Although LB Johnson may have had many of the characteristics of a Southern Democrat while he was Senate leader, while president he introduced the major policy transformation of the Great Society. Figure 4 presents a plausible policy position for Johnson in 1964, as well as presidential candidate positions for the period 1964–80. The candidate positions for the elections of 1968 and 1976 are compatible with the empirical work of Poole and Rosenthal (1984, Figures 1 and 3), while the positions for the elections of 1964 and 1980 are based on our analyses to be discussed below.

A number of comments are necessary to understand the significance of Figure 4. As in the previous two Figures, a partisan cleavage line can be drawn in the policy space for each election, determined by the positions of the two principal presidential candidates. What we denote as the 'Domain of Cleavage Lines' in Figure 4 includes these partisan cleavage lines for the various elections. As our analysis (presented in Figure 5) suggests, the cleavage line for the 1964 election would fall below and to the right of the origin. Since the origin is at the mean of voter bliss points, this is meant to represent Johnson's successful candidacy for president. The standard spatial model of candidate positioning implies that attempts by candidates

to maximize votes draw them into the electoral center. It is apparent, however, that the estimates of candidate positions, presented in Figure 4, contradict this inference.

In the next section, we examine the standard spatial model to determine the basis for this inference, and then consider in somewhat more detail how empirical analysis suggests that the standard spatial model may be adapted to better account for candidate behavior. The principal goal of our modified activist voter model of elections is to provide the foundation for a theory of dynamic electoral change that can provide a formal account of the inferred transformation or 'rotation' in the policy space presented in Figures 1 through 4.

Models of Voting and Candidate Strategy

In this section, we shall first present a generic version of the 'standard' spatial voter model, and then discuss typical inferences drawn from it as regards candidate strategy. Of course there are many variants of the model; our intention is to give the most general version possible so as to illuminate precisely how the conclusions are driven by the assumptions.

First, all voter and candidate choices are embedded in a policy space, X, of some dimensionality, m. Early models (Downs, 1957) assumed m = 1, but we shall present evidence that m is at least 2. For empirical estimation, X can be deduced from factor analysis of voter surveys. The literature strongly suggests that the underlying policy space not only in the USA, but also in a large number of other countries (including the Netherlands, Germany, Britain, Israel) is indeed two-dimensional.[3] The responses by voter i to a voter survey allow for the inference of a most preferred, or 'bliss', point, x_i, in X. In addition, information on voter i characteristics (domicile, education, class, religion, party identification) are encoded in a vector

$\xi_i \in \mathbb{R}^k$(k-dimensional Euclidean space).

In an election where p different parties or candidates compete, the set of messages transmitted to the electorate by these p candidates is described by a p-vector, $z = (z_1, \ldots z_p) \in X^p$, where each z_j belongs to X. The message of policy intentions, $z_j \in X$ of party j can be deduced either by subjecting the manifesto of the party or candidate to a parallel analysis based on the survey (Schofield *et al.*, 1998b; Schofield and Sened, 2002), or from a survey of the party elite (Quinn *et al.*, 1999) or by a survey of experts (Laver and Budge, 1992; Laver and Hunt, 1992).

It is assumed that the political preferences of voter i can be described by a 'latent' utility function u_i: $X^p \to \mathbb{R}^p$, where $u_i(z) = (u_{i1}(z_1), \ldots , u_{ip}(z_p))$. The most general form of u_{ij} is taken to be

$$u_{ij}(z_j) = \lambda_j - A_{ij}(x_i, z_j) + (\theta^T)(\xi_i) + \varepsilon_j \quad (\text{for } j = 1, \ldots , p) \tag{1}$$

That is, u_{ij} (z_j) is i's utility from the jth party position; the term λ_j is a *valence* term for the non-policy component of candidate j's attractiveness. A_{ij} is an individual specific 'quadratic form' that measures the utility loss for the voter as a consequence of policy differences between x_i and z_j. Thus, $A_{ij}(x_i, z_j) = 0$ when $x_i = z_j$. The k-vector θ in equation (1) represents the effects of individual characteristics on

Table 1: Symbols Used in Model

x_i	voter i's most preferred policy in X
z_j	candidate j's policy position message to voters
$z = (z_1, \ldots z_p)$	the vector of messages transmitted to the electorate by p candidates
$\|x_i - z_j\|^2$	distance between voter i's preferred policy and candidate j's position
$u_i(z)$	the voter's utility, as a function of z
λ_j	the non-policy component of candidate j's attractiveness to voters
$A_{ij}(x_i, z_j)$	a measure of voter i's utility loss as a function of differences with j
ξ_i	a k-vector of voter i's personal characteristics (religion, income, etc.)
θ	a k-vector representing the effects of voter i's characteristics
ε_j	a stochastic error term with zero expected value and variance σ_j^2
y_{ij}	voter i's intention as regards candidate j; [equal to one iff voter i intends to vote for j; otherwise equal to zero]
y_i	a p-vector of voter i's choices.
ρ^*_i	a variable intended as a model of voter i's actual choice, y_i
$V_j(z)$	the expected vote share of candidate j adopting position z
β_j	parameter linking the effect of policy distance between voter and candidate j on voter's utility loss
c_{ij}	voter i's contributions to candidate j
$C_j(z)$	the total contributions to candidate j
N_R, N_D	subsets of policy space such that voters with ideal points are Republican or Democratic activists, respectively

voting propensity; so matrix multiplication of the transpose of θ with ξ_i results in a scalar which represents the cumulative impact of those individual characteristics.

The stochastic error term, ε_j, is intended to capture uncertainty in voter perceptions of party position. Typically, the expected value $E(\varepsilon_j) = 0$, for each j. Moreover, ε_j is usually taken to be Gaussian, with variance var $(\varepsilon_j) = \sigma_j^2$. The covariance matrix, Σ, of the stochastic vector $\varepsilon = (\varepsilon_1, \ldots, \varepsilon_p)$ is usually assumed to be diagonal. Indeed, the errors $\{\varepsilon_j\}$ are usually assumed to be i.i.d. (independently and identically distributed).

Each voter's actual or intended choices, obtained from the survey, are described by a p-vector, $y_i = (y_{i1}, \ldots, y_{ij}, \ldots, y_{ip})$, where $y_{ij} = 1$ if and only if i voted for candidate j. If i did not intend to vote, then $y_{ij} = 0$ for all j. Information from the survey of the set N of voters gives the data set $\{x_i, \xi_i, y_i\}_N$. This, together with the information $\{z_j\}_P$ for the set P of candidates is used to estimate a set $\{\rho^*_i\}_N$ of stochastic variables.

Each variable, ρ^*_i, is intended as a model of voter i's actual choice, y_i. The first moment of ρ^*_i can be interpreted as a vector $\rho_i = (\rho_{i0}, \ldots, \rho_{ij}, \ldots, \rho_{ip})$ where ρ_{i0} is the probability that i abstains, while ρ_{ij} is the probability that i chooses

candidate j. Obviously $\Sigma_{j=0}\ \rho_{ij} = 1$. The estimated action of voter i is to choose candidate j^* such that j^* maximizes $\{\rho_{ij}\}_j$. The estimation procedure is designed so that the estimated action j^* approximates the choice $y_{ij^*} = 1$.

So that the model can be identified, it is usual to assume that the quadratic form A_{ij} is identical across individuals, and is given by the equation

$$A_j(x_i, z_j) = \beta_j \|x_i - z_j\|^2 \tag{2}$$

Here, $\|x_i - z_j\|^2$ is simply the Euclidean distance between x_i and z_j. Indeed, many voting models assume that β_j is constant across all candidates. Under these assumptions, it is possible to estimate the two coefficients $\lambda = (\lambda_1, \ldots, \lambda_p) \in \mathbb{R}^p$ and $\beta = (\beta_1, \ldots, \beta_p) \in \mathbb{R}^p$, plus the $p \times k$ matrix $\Theta = (\theta_1, \ldots, \theta_p)$. For voter i, the probability ρ_{i0} that i does not vote can be estimated from the probability that the voter is 'indifferent' or 'alienated'. The term 'alienated' means that for every j, the utility u_{ij} (z_j) is below some minimum threshold, a, say. In two-party elections, $(j = 1, 2)$, voter i is 'indifferent' if $\|u_{i1}(z_1) - u_{i2}(z_2)\| < b$, for some small value b. For a voter i who is neither alienated nor indifferent, the estimated probability ρ_{ij} (z) that voter i chooses j, (when the candidate positions are given by z) is

$$\text{Prob}\,[u_{ij}(z_j) > u_{il}(z_l)\text{: for all } l \neq j]. \tag{3}$$

The expected vote share of candidate j is then $V_j(z) = (1/n)\ \Sigma_{i=1}\ \rho_{ij}\ (z)$, where n is the size of the sample electorate.

It is usual to assume that each candidate maximizes vote share, or some function thereof. For the vote share model, it is assumed that the utility function of candidate j is simply given by

$$U_j(z) = V_j(z). \tag{4}$$

In two party competition, it is more common to assume that candidate 1 maximizes the plurality over candidate 2, so

$$U_1(z) = V_1(z) - V_2(z). \tag{5}$$

This assumption has the feature that the candidate game is zero sum, since by definition $U_2(z) = V_2(z) - V_1(z)$, so $U_1(z) + U_2(z) = 0$. (A third possibility is that $U_j(z)$ is taken to be the share of the electoral college vote of a presidential candidate. To our knowledge, little work has been attempted in this direction, since it requires an estimation of vote shares in every state.)

We can also regard V_j, or more properly, V^*_j, as a sum of stochastic variables, so

$$V^*_j(z) = (1/n)\sum_{i=1}\rho^*_{ij}(z). \tag{6}$$

In this case, the utility $U_j(z)$ can be given in terms of the probability that $V^*_j(z)$ exceeds $V^*_l(z)$, for all $l \neq j$. In the two party case, it is then natural to define

$$\begin{aligned} U_1(z) &= 1 \text{ if Prob } [\,V^*_1(z) > V^*_2(z)\,] > \tfrac{1}{2} \\ U_1(z) &= -1 \text{ if Prob } [\,V^*_1(z) > V^*_2(z)\,] < \tfrac{1}{2}. \end{aligned} \tag{7}$$

It is also possible to allow that a candidate is 'policy concerned', with utility of the form

$$U_j(z) = tV_j(z) + (1-t)v_j(z_j). \tag{8}$$

Here, $V_j(z)$ is the vote share function, and $v_j(z_j)$ is a policy utility loss given by a measure of the difference between the candidate's true policy-preferred point and the declared position z_j.

In all of these models, the inter-candidate game is thus described by the joint utility function U: $X^p \to \mathbb{R}^p$. A *pure strategy Nash equilibrium* (PSNE) in this game is a vector $z^* = (z_1^*, \ldots, z_p^*) \in X^p$ such that, for each $j \in P$,

$$U_j(z_1^*, \ldots, z_j, z_{j+1}^*, \ldots, z_p^*) > U_j(z_1^*, \ldots, z_j^*, z_{j+1}^*, \ldots, z_p^*) \text{ for no } z_j \in X. \tag{9}$$

Conditions for existence of PSNE are well understood. A set of sufficient conditions is that (i) each U_j is continuous in z_j, and that (ii) each U_j is 'quasi concave' in z_j. The latter condition simply means that, holding the set $z_{-j} = (z_1, \ldots, z_{j-1}, z_{j+1}, \ldots, z_p)$ constant, then for each strategy $z_j \in X$, the set of strategies preferred by candidate j to z_j is itself a convex set. Failure of quasi-concavity may mean failure of existence of PSNE. However, if continuity still holds, then *mixed strategy Nash equilibria* (MSNE) will still exist. A MSNE is one where candidates may randomize over pure strategies.

It has been shown that, under conditions (i) and (ii), PSNE generally exist, for the stochastic political game just described (Lin *et al.*, 1999). One additional condition is generally required; that the variance terms $\{\sigma_j^2\}$ of the errors must be sufficiently high. Moreover, the PSNE are characterized by the *convergence property*: namely, for each j,

$$z_j^* = (1/n)\sum_{i \in N} x_i \tag{10}$$

Full technical details can be found in Banks and Duggan (1999).

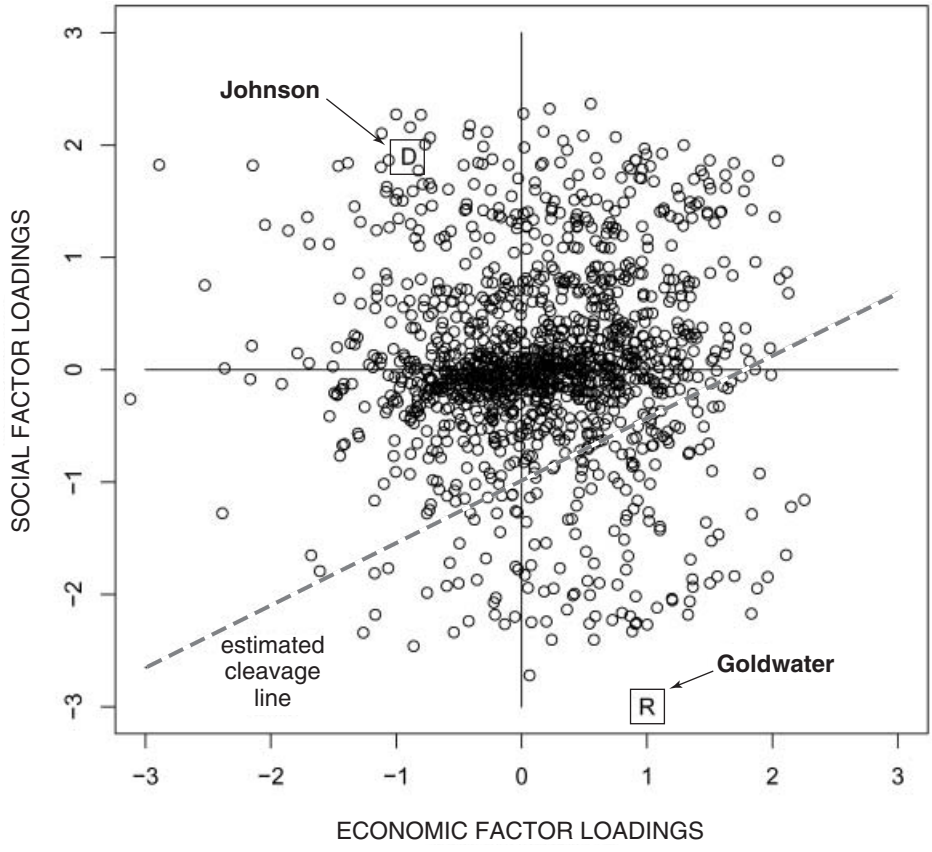
Of course, it is possible to construct a model where voter choice is completely independent of candidate positions (that is, where $\beta_j = 0$ for all j). In this case, all possible candidate positions are Nash equilibria. For β_j significantly different from zero, the theoretical results suggest that only candidate positions at the mean of the voter distribution can be PSNE.

One variant of the set of models just described is the formal 'deterministic' model where it is assumed that $\varepsilon_j \to 0$ for all j. It is well known that in this case PSNE will only exist in the one-dimensional case (Downs, 1957; Plott, 1967).

In the two-candidate case described by equation (7) the utility functions will be neither continuous nor quasi-concave, and it has been suggested that 'chaos' can ensue (McKelvey and Schofield, 1986). However, in the two party case described by equation (5), MSNE will exist (Banks and Duggan, 1999). Moreover, the support of these MSNE will lie within a small domain, centrally located with respect to the electoral distribution, called the 'uncovered set' (McKelvey, 1986; Banks *et al.*, 2002).

Even if candidates suffer utility loss from presenting policy proposals different from their preferred policies, the necessity that they win elections in order to implement policy suggests that the vote-maximizing requirement will dominate (Calvert,

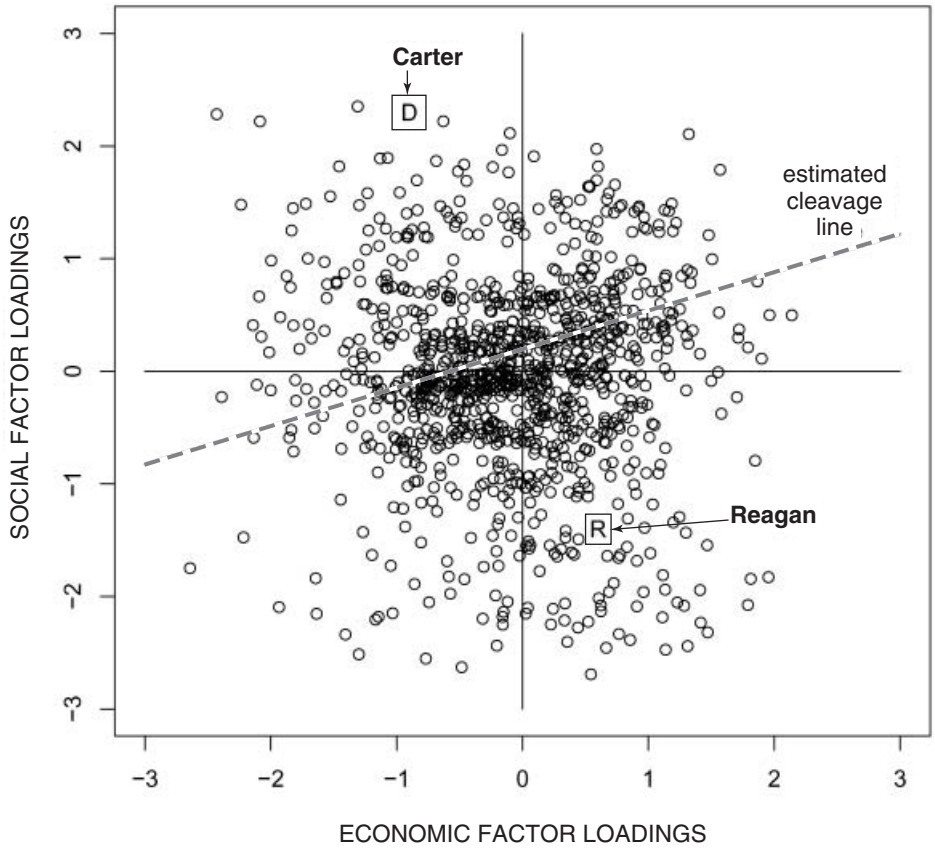
Figure 5: The two-dimensional factor space, with voter positions and Johnson's and Goldwater's respective policy positions in 1964, with a linear estimated probability vote function



1985). Consequently, it can be inferred that a robust conclusion of the spatial model is that candidates will be drawn into the center of the electoral distribution.

The advantage of using a general form as in equation (1) for the voter choice is that various models can be compared. For example, Quinn *et al.* (1999) have compared multinomial logit (MNL) and multinomial probit (MNP) models, where, respectively, the errors are assumed to be i.i.d., or multivariate normal with general covariance matrix Σ. It is also possible to compare a pure socio-structural model (where the spatial term $A_{ij}(x_i, z_j)$ is ignored) or a pure spatial model (where the coefficient matrix Θ is set to zero). As might be expected, analysis of Bayes factors (Kass and Raftery, 1995) suggests that a joint model (based on the full form of equation (1)) is superior to both the pure socio-structural and spatial models. Nonetheless, both the MNL and MNP models typically provide an excellent account of voter choice.

Figure 6: The two-dimensional factor space, with voter positions and Reagan's and Carter's respective policy positions in 1980, with linear estimated probability vote function



The MNL two-dimensional voter model of Poole and Rosenthal (1984) for the 1968 and 1976 elections also gave excellent accounts of voter choice. The success rates for the three-candidate election of 1968 and the two-candidate election of 1976 were over 60 percent. Their estimates of the 1968 and 1976 candidate locations closely correspond to the positions of candidates indicated in Figure 4. As Poole and Rosenthal (1984, p. 287) suggest, 'the second dimension captures the traditional identification of southern conservatives with the Democratic party'.

Our own analyses, presented in Figures 5 and 6 suggest that the second dimension is, in fact, a long-term factor in US elections.[4] Each circle in these figures represents the bliss point of a voter in a factor space derived from the National Election Surveys in 1964 and 1980, respectively. A pure spatial probit model was used to estimate the probability ρ_{i1} that a voter i would choose the Democrat candidate. The 'estimated cleavage lines' in these two figures gives the boundary $\rho_{i1} = {}^1/_2$. For

example, for 1964, the symbol R is used to indicate our estimation of the position of Goldwater and D, that of Johnson. Comparing the results for 1964 and 1980 suggests that Carter was just as 'liberal' on economic issues as Johnson, but slightly more liberal on social issues. Figures 5 and 6 buttress the remark make by Poole and Rosenthal (1984, p. 288) that their analysis 'is at variance with simple spatial theories which hold that the candidates should converge to a point in the center of the [electoral] distribution' (namely, the origin in Figures 5 and 6). Poole and Rosenthal suggest that this 'party stability', of divergent candidate locations, is the result of the need of candidates to appeal to a support group in order to get nominated. However, their own analysis suggests that divergent candidate positions may, in fact, result from vote maximization.

To see this, note that in their estimation of equation (1) for 1968, the intercept λ_j for Humphrey and Nixon was 3.416, while for Wallace, it was 7.515. Moreover, the coefficient β_j was 5.260 for Humphrey and Nixon, but 7.842 for Wallace. In other words, the underlying valence (λ_j) or innate attractiveness of Wallace was high, but voter support dropped rapidly as the distance between a voter's bliss point and the Wallace position increased. In their analysis of the 1980 election, the β_j coefficient for the third independent, National Union candidate, John Anderson was 1.541. Anderson only took 6.6 percent of the national vote, and this is reflected in his estimated λ_j coefficient of -0.19, in contrast to $\lambda_j = 3.907$ for Carter and Reagan. One interpretation of the λ_j coefficient in the voter model of equation (1) is that it measures *valence*. As interpreted by Stokes (1963, 1992), MacDonald and Rabinowitz (1998), Ansolabehere and Snyder, (2000), and Groseclose (2001) valence is determined by those features of the candidate which are independent of policy. It is still the case, however, that the voter model described by equation (1) implies that a candidate with high valence will maximize voter support by adopting a position at the center of the voter distribution.

In contrast to the usual assumptions, we suggest that valence comprises two components. For candidate j, there is an 'innate' valence. We suggest that this is best characterized by the stochastic error term ε_j. Thus, $e(\varepsilon_j)$ need not be zero, but can be identified with the average valence of j in the electorate. The second component, λ_j, is affected by the money and time that activists make available to candidate j. Essentially, this means that the valence component of λ_j is a function of the policy choices of all candidates. This implies that we modify the voter model of equation (1) so that voter utility is represented by the equation

$$u_{ij}(\mathrm{z}) = \lambda_j(\mathrm{z}) - \mathrm{A}_{ij}(\mathrm{x}_i, \mathrm{z}_j) + \varepsilon_j \tag{11}$$

For convenience, in terminology below we shall refer to the effect of candidate strategies on the vote share function V_j, through change in λ_j, as the 'valence' component of the vote. Change in V_j through the effect on the policy distance measure A_{ij} we shall refer to as the non-valence, or policy component. We discuss this 'activist' model in the next section. One important modification of the pure spatial model that we make is that the salience of different policy dimensions varies among the electorate. More precisely, we assume that

$$\mathrm{A}_{ij}(\mathrm{x}_i, \mathrm{z}_j) = \|\mathrm{x}_i - \mathrm{z}_j\|_i^2 \tag{12}$$

Here $\| \ \|_i$ is an 'ellipsoidal' norm giving a metric whose coefficients depend on x_i. We make this assumption clearer in the following section, in which activists,

motivated primarily by one policy dimension or the other, may choose to donate resources that increase their candidate's 'valence'. We will argue that it is the candidate's attempt to position himself with respect to different types of activists, that accounts for the partisan realignment.

A Joint Model of Activists and Voters

We adapt a model of activist support first offered by Aldrich (1983a, b). Essentially the model is a dynamic one based on the willingness of voters to provide support to a candidate. Given current candidate strategies (z), let $C(z) = (C_1(z), \ldots, C_p(z))$ be the current level of support to the various candidates. The candidates deploy their resources, via television, and other media, and this has an effect on the vector $\lambda = (\lambda_1, \ldots, \lambda_p)$ of candidate-dependent valences. We assume that each λ_j is a function of C(z) and thus z.

At this point, a voter, *i*, may choose to add *i*'s own contribution $c_{ij} \geq 0$ to candidate *j* as long as

$$c_{ij} < \lambda_j(z) - A_{ij}(x_i, z_j) + \varepsilon_j \tag{13}$$

The total contributions to candidate *j* is $C_j(z) = \Sigma_{i=1} c_{ij}(z)$. Aldrich considered an equilibrium of this dynamic process between two candidates, 1 and 2, where the candidate's position, z_j, was defined to be the mean of the ideal points of all activists who supported this candidate.

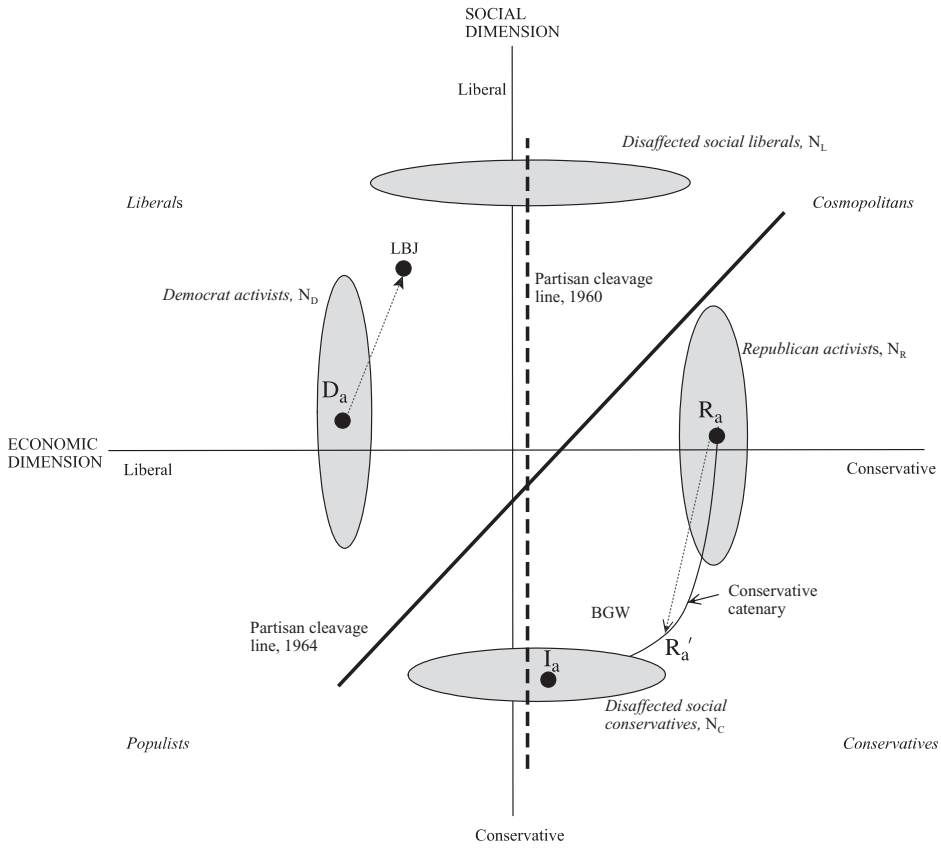
The existence of such a candidate equilibrium can be seen most easily with reference to Figure 7 (which is adapted from Miller and Schofield, 2003). Consider a group of Republican 'economic' activists. The republican candidate, *j*, is situated at the position $R_a = (x, y)$, while the activist has a utility function given by

$$u_{ij}(x, y) = \lambda_j - \left[(x - s_1)^2 / a^2\right] - \left[(y - t_1)^2 / b^2\right] \tag{14}$$

The activist contributes some amount, $c_{ij} < u_{ij}$ (x, y). Because this activist is most concerned about economic issues, it is natural to assume that a < b. If the activist actually had bliss point $(s_1, t_1) = R_a$, then his indifference curve would be given by the 'ellipsoid' centered at R_a, as in Figure 7. Depending on various parameters, there will exist a domain, N_R, say, in X, with the property that every voter whose bliss point (s_1, t_1) belongs to N_R is a contributor to the Republican candidate. For purposes of illustration, we may take N_R to be the 'ellipsoid' set of voters as in Figure 7. It is natural to assume that there is an opposing Democratic candidate, whose position is at D_a, say, and an opposing set, N_D, of democratic activists. Essentially, Aldrich showed that these conditions could be satisfied, such that R_a was given by the mean point of the set N_R, while D_a was the mean of the set N_R. It is obvious that for such an activist equilibrium to exist, it is necessary that λ_j, regarded as a function of campaign contributions, is concave (or has diminishing returns) in contributions to candidate *j*. (A more refined model could naturally include voter income.)

As Figure 7 indicates, a typical socially conservative voter would regard Democrat and Republican candidates as equally unattractive, and tend to be indifferent. Let us now suppose that such a voter, *g*, has bliss point (s_2, t_2) say, near the position I_a, with utility function

Figure 7: Illustration of flanking moves by Republican and Democrat candidates *circa* 1964–92, in a two dimensional policy space



$$u_{gj}(x', y') = \lambda_j - \left[(x' - s_2)^2 / e^2\right] - \left[(y' - t_2)^2 / f^2\right] \qquad (15)$$

Let N_C be the set of such 'disaffected' social conservatives who would be willing to contribute to a candidate so long as this candidate adopted a policy position close to $I_a = (x', y')$. We suggest that such social conservatives regard social policy to be of greater significance and so e > f in equation (15). Unlike Aldrich, we now suppose that the republican candidate adopts a position, not at the mean R_a, but at some compromise position between R_a and I_a. It is easy to demonstrate that the 'contract curve' between the point (s_1, t_1) and the point (s_2, t_2) is given by the equation

$$(y - t_1)/(x - s_1) = S \cdot (y - t_2)/(x - s_2) \qquad (16)$$

where $S = [b^2/a^2] \cdot [e^2/f^2]$. This contract curve is so denoted in Figure 7. It is of a class called 'catenary'. If the candidate moves on this catenary then the resulting

number of activists will be of order of $\mu N_R + (1 - \mu)N_C$ where μ is some constant (<1) dependent on the position taken by the candidate. Because of the asymmetry involved, the total number of activists may increase, thus increasing overall contributions to the Republican candidate. Clearly, there are plausible conditions under which λ_j increases as a result of such a move, thus increasing the effective vote share of the Republican candidate.

Determination of existence for a candidate PSNE in this modified model depends, as before, on continuity and quasi-concavity of the candidate utility functions $\{U_j\}$. While each U_j will be a function of z, its dependence on z will be more complex than the simple relationship implicit in the standard spatial model. It is important to note that this proposed model involves differing voter utility functions. To preserve continuity of voter response, it is necessary that the coefficients of voter policy loss vary continuously with the voter-preferred policy. This can be accommodated by requiring that the function $A_j(z_j)$: $X \to \mathbb{R}$ given by

$$A_j(z_j)(x_i) = \|x_i - z_j\|_i^2 \tag{17}$$

is continuous.

With these assumptions, candidate vote share functions $\{V_j\}$ will be continuous in candidate strategies. Quasi-concavity of the candidate utility functions and thus existence of PSNE will then follow from the standard assumptions as set out in the previous section (Schofield, 2003). It is worth emphasizing that the greater the relative saliencies, (b/a) and (e/f), the greater will be S, and thus, the more significant will be the attraction of using activist groups to enhance electoral support.

We may briefly sketch the proof of existence of PSNE under the assumption of vote share maximizing strategies. As equation (3) specifies, the jth vote share is $V_j(z) = (1/n)\Sigma_{i=1}\rho_{ij}(z)$, where $\rho_{ij}(z)$, the probability that i votes for j is the probability that

$$u_{ij}(z) > u_{il}(z) \text{ for all } l \neq j. \tag{18}$$

The first order condition for PSNE is that each V_j is smooth in its arguments and $\delta V_j / \delta z_j = 0$. The second order condition for PSNE is that the Hessian is negative definite. One way to guarantee this condition is if V_j is concave in all arguments. (The real-valued function f is *concave* if $f(ax) + (1 - a)y \geq af(x) + (1 - a)f(y)$ for any real number, and vectors x, y in the domain of f). Since V_j is derived from the sum of $\{\rho_{ij}\}$ then concavity of V_j will follow if each ρ_{ij} is concave in its arguments.

As Lin *et al.*, (1999) demonstrate, the concavity of ρ_{ij} will follow from the negative definiteness of its Hessian, and this, in turn, will follow from a condition on the variance and covariance terms of the errors $\{\varepsilon_j\}$. As they observe, for sufficiently large variance, this Hessian condition will be satisfied. However, in the limiting case as var $(\varepsilon_j) \to 0$ for all j, then concavity may fail.

A second route to proof of existence of PSNE is to *assume* concavity of each ρ_{ij}. Clearly, this entails a condition on the relationship between the logic of contributions to each candidate and the effect this has on $\{\lambda_j\}$. So, each λ_j can be written as a function of z. Thus, concavity of $\{\rho_{ij}\}$ depends on the concavity of $\{\lambda_j\}$ in terms of the party strategies $\{z_1, \ldots, z_p\}$. An appropriate condition on $\{\lambda_j\}$ is that each λ_j

is a concave function of the total contributions $C_j(z)$made to candidate *j*. These concavity conditions need not, of course, be satisfied in general. A more abstract proof technique utilized in Schofield and Sened (2002) is to seek local Nash equilibria (LNE). A LNE is a vector z* with the property that for each *j* there exists a neighborhood X_j of z_j* with the property that the *j*th candidate may not deviate from z_j* in the neighborhood X_j and increase vote share. Schofield and Sened (2002) show that LNE exist and are locally isolated, for almost all games of the kind considered here, as long as the game is smooth. We offer a corollary of their theorem.

Theorem. Suppose that the political game is smooth and bounded in the sense that the vote share functions $\{V_j\}$ are smooth functions of z, and non-zero only on a compact convex set of party strategies. Then for almost any such game, there exists a LNE. □

We contend that the notion of LNE is an attractive one, since it is consistent with 'local' search by presidential candidates to increase contributions, activist support and thus votes.

Computation of LNE will generally depend on the factors we have specified: the elasticity of response of the disaffected, potential activists, and the effect of contributions on the valence factors. If the contribution term is very significant, then adopting a position to maximize contributions is clearly rational. For example, let us use the intials BGW and LBJ to denote positions adopted by Goldwater and Johnson respectively in 1964 (shown in Figure 7). It is, in principle, possible to estimate the contributions and respective λ_j coefficients in response to these positions. The ratio λ_{BGW} over λ_{LBJ} will then determine the location of the 'partisan cleavage line'. A move by either candidate towards the origin will increase the 'non valence' component of the electoral vote, but at the same time, it will decrease contributions, and thus the valence component of the vote. It is the optimal balance of valence and non valence vote components that is encapsulated in the notion of LNE.

The Logic of Vote Maximization

The simple probabilistic voter model suggests that it is relatively easy for voters to identify attractive candidates, and for candidates to learn about voter response (McKelvey and Ordeshook, 1985). For candidates, opinion polls can be used to indicate how small changes in policy objectives should affect support. The theories reviewed in the third section all concur that candidates will gain most electoral support at the center. The fact that candidates do not act in this way suggests that these theories need serious revision. One extreme response is to propose that voter support is independent of candidate declarations. As suggested before, this is equivalent to supposing that $\beta_j = 0$ in equation (2). Indeed, earlier sociological or psychological models essentially made this assumption (Berelson *et al.*, 1954; Campbell *et al.*, 1960). The sociological model regarded voter choice simply as a function of 'party identification'.

It is clear enough that if one fundamental cleavage is dominant, and party candidates adopt fixed positions on this cleavage (such as D_a and R_a in Figure 7) then voters will find candidate choice relatively easy. Over a sequence of elections, it is

plausible to believe that voters will tend to identify with one party or the other. From one election to another, voter saliencies will vary, and this will affect activist support, and thus candidate vote shares. It is this phenomenon that Aldrich's activist model analyzed (Aldrich 1983a, b, 1995; Aldrich and McGinnis, 1989).

The beginning of the transformation of the principal cleavage in US politics from an economic dimension to a social, or civil rights, dimension is generally understood to have been triggered by the Civil Rights Act of 1964 (Edsall and Edsall, 1991). This political event eventually brought about the electoral shifts that we described earlier. The evidence suggests that the degree of party identification dropped from 1964 to 1980 (from about 35 percent of the electorate to 20 percent, see Clarke and Stewart, 1998). During the period from 1960 to 1972, the attitudes of Democrat and Republican activists became increasingly polarized over civil rights issues (Carmines and Stimson, 1989).

There is therefore no doubt that both voter perceptions and activist attitudes began to change rapidly in the 1960s. The model presented in the previous section suggests that these changes were due to strategic calculations on the part of candidates. To amplify this inference, let us consider how such calculations can be made. Unlike candidate choice in the simple spatial model, strategic calculation in the proposed activist model is dependent on uncertain outcomes. Consider the strategy of LB Johnson to push through the Civil Rights Act of 1964. Clearly, it appealed to those voters designated 'disaffected social liberals' (or N_L) in Figure 7. The argument presented above suggests that the total number of Democrat activists could increase as a consequence of this policy initiative. The resources made available could, moreover, increase Johnson's overall valence. At the same time, voters, particularly in the Southern states, who traditionally identified with the Democrat party, would suffer a utility loss. Such disaffected social conservatives would then more readily switch to the Republican party. However, the tradeoff between the valence and policy components of voter response are intrinsically difficult to make. For LB Johnson the calculation may well have been that the Democrat coalition of southern social conservatives and economic liberals was unstable. A second possibility, apparent from 1957 onwards, was that the Republican Party could also move to attract social liberals and to create a winning coalition. The actions undertaken by Johnson, first as leader of the Senate in the late 1950s, and then as President after JF Kennedy's assassination in 1963, all suggest that he was extremely shrewd in estimating electoral and congressional support, but also capable of extreme risk-taking.[5] In 1957, for example, he persuaded the southern Democratic senators not to deploy their traditional filibuster, but to accept a Voting Rights bill (Caro, 2002). Indeed, Johnson's maneuvers in the Senate can be characterized as 'heresthetic' (to use the term invented by Riker, 1982).

After Kennedy was elected President in 1960 (by a very narrow margin of victory against Nixon), he delayed sending a Civil Rights Bill to Congress, precisely because of the possible effect on the South (Branch, 1998). To push the Civil Rights Act through in 1964, Johnson effectively created, with Hubert Humphrey's support, an unstable coalition of liberal northern Democrats and moderate Republicans, with sufficient votes in the Senate to effect 'cloture', to block the southern Democratic filibusters. This was the first time since Reconstruction that the Southern

veto was overwhelmed. The danger for Johnson in the election of 1964 was that a Republican candidate could make use of the fact of Republican party support for civil rights to attract disaffected social liberals. Traditional Republican Party activists were thus in an electoral dilemma, but resolved it by choosing the southern social conservative, Goldwater.

Once LB Johnson initiated the policy transformation, the strategic calculation of Republican candidates, whether Nixon, Ford, Reagan, or Bush, became much easier. The knowledge of the existence of a set of disaffected social conservatives meant that such voters would appear increasingly attractive to Republican candidates. This in turn created an electoral dilemma for Democrats, as they attempted to maintain the support of both economic and social liberals. As economic competition lessened, and class became less relevant as an indicator of voter choice, activist support for Democrat candidates from the remnant of the New Deal coalition would probably fall. One possible response for a Democrat would be to seek new potential activists among the cosmopolitans, the economically conservative social liberals. Obviously, this would create conflict within the Democrat Party elite. A natural response by the Republican Party is to move their policy choices into quadrant A, the Populist domain. President GW Bush's initiatives in 2002, over protection for the steel industry and farm subsidies, indicate that this could, indeed, be his strategy.

We suggest that the initial policy move by Johnson in 1964 had a basis in rational electoral calculation. The resulting move and counter move by Democrat and Republican candidates may be in equilibrium at each election, but the equilibria appear to have slowly changed over the last 40 years. This property of the process of political realignment we refer to as 'dynamic equilibrium'.

Conclusion

Under plurality rule, or winner-takes-all elections, it is obvious that presidential candidates, if they hope to win, must attempt to create majority coalitions of disparate interests (Schlesinger, 1994). The historical record suggests that stable equilibria can occur, but these will be based on one or other of the two principal cleavages, economic or social, that characterize beliefs in the society. By definition, any such equilibrium will create two groups of disaffected, and opposed, voters. Either one of these groups of voters can become a political force once they realize their potential. This depends, of course, on their ability to successfully signal to a candidate, such as LB Johnson, that they would be willing to contribute time and money. Although we have suggested that an equilibrium will exist in this activist-voter model, we have not attempted an analysis of the complexities of the signaling game between possible presidential candidates and potential activists.

It should also be evident, from the structure of the activist model presented earlier, that the willingness of voters to become activists depend on the salience ratios (denoted by b/a and e/f for the economically or socially concerned voters, respectively). These ratios may change within the electorate as a result of exogenous shocks. In turn, this will affect the activist response to candidate positions and thus

the positional valences of the candidates. The standard spatial model has principally depended on using data based on voter-preferred policies to estimate electoral support. To estimate the more complex activist model proposed here, it would be necessary to explore the variation of cleavage saliencies within the electorate.

Although we still view the political process as a 'game' involving rational utility maximizing voters and candidates, we suggest that this game is much more complex than previous models have suggested. We believe that the model proposed here can be developed so as to offer a more empirically relevant theory of electoral dynamics. A task that still remains is to develop a macro-political account of the long run transformations that can be observed in US politics. We can only offer a very tentative outline of such a theory at present. We have suggested above that these electoral changes are based on new configurations of 'factor' coalitions, where factor refers to the classic dimensions of capital, labor, and land power. In the 1896 election, the 22 states that voted for the Republican, McKinley, all had significant industrial working class populations. Because of the growth of the economic power of the USA, there existed a natural expansionist coalition based on capital, and industrial labour (Rogowski, 1989). The hard money policy of the Republicans naturally affected the agrarian interests who tend to be indebted (Bardo and Rockoff, 1996). This is an old theme in US politics (Beard, 1913). The 23 states that voted for the Populist-Democrat, Bryan, were all basically agrarian but lacked sufficient population and electoral college votes to upset the capital-labor coalition.

In the 1930s economic decline broke the capital-industrial labor coalition. By the 1960s the Democrat coalition comprised half of Bryan's southern Populist states and half of McKinley's commercial Republican coalition. By the 2000 election the transformation was complete. The remainder of Bryan's coalition went Republican, and the remainder of McKinley's became Democrat. The decline of agriculture and the growth of modern industries in the southern and western states gave them the population, and electoral college votes, just sufficient for a Republican presidential victory. Clearly, the knife edge result of 2000 means that voters in states such as Wisconsin, Michigan, Minnesota, Pennsylvania, and Iowa could be persuaded by GW Bush's populist strategies to join the Republican activist coalition. Such continuing transformation maintains the dynamic equilibrium of US politics.

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Notes

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1 While Pierce only won 51 percent of the popular vote, its distribution in both the North and South gave him 254 electoral college votes out of 296.

2 In 1856, the Democrat, Buchanan, won 45 percent of the popular vote, and took 174 electoral college seats out of 296. Fremont, the candidate for the Republican Party, did well in the northern and western states, but still lost 62 electoral college votes in these states to Buchanan. The Whig, Fillmore, only won eight electoral college votes in the border states.

3 See the work of Poole and Rosenthal (1984); Quinn *et al*. (1999); Schofield *et al*. (1998a, b); Schofield and Sened (2002).

4 A standard confirmatory factor analysis was used to fit estimate the factor space. Standard hypothesis tests suggest that a two factor model is appropriate. The cleavage lines were estimated using a probit model, with the factor scores on each dimension used as covariates. In both the 1964 and 1980 model, the estimated coefficients are highly statistically significant ($p < 0.001$ in all cases). Both models classify reasonably well; the McKelvey and Zavoina R-squared for 1964 is 0.2000 and for 1980 is 0.465.

5 The model proposed above emphasizes maximizing expected vote share. As equation (6) indicates, however, rational candidates should also pay attention to the risk (or variance) associated with the stochastic vote share variable. Risk aversion or risk preference is thus a relevant aspect of a candidate's calculation. In principle, it is possible to construct such a general model.

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