Support for Political Leaders*

Norman Schofield[†], Evan Schnidman[‡] and Maria Gallego,[§]
Center in Political Economy, Washington University,
1 Brookings Drive,
Saint Louis,
MO 63130

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Abstract

Previous empirical research has developed stochastic electoral models for Britain, the United States Israel, and other polities. The work suggests that *convergence to an electoral center* (often predicted by electoral models) is a non-generic phenomenon. In an attempt to explain non-convergence, a formal model based on *activist valence* is presented.

Since activists provide crucial resources of time and money to their chosen party, the party can use these resources to enhance its image before the electorate, thus affecting its overall valence. In the model presented here, these resources can be used to indirectly influence voters, through the media etc., so that voters become more likely to support the party. The problem for each party is that activists tend to be more extreme than the typical voter. By choosing a policy position to maximize activist support, the party will lose centrist voters. The party must therefore calculate the optimal marginal condition to maximize vote share, or some other maximand such as probability of electoral success.

The theoretical result presented in this paper is a (first order) *balance condition* which encapsulates the logic of this trade off. It is possible to infer conditions under which there will exist a "Nash equilibrium" of party positions. The theoretical model is complemented with a comparison of elections in polities with plurality electoral systems such as the United States, Canada and Britain in contrast to those with proportional systems such as Israel, Turkey and Poland. Finally, we discuss political choice in non-democratic regimes.

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[†]Taussig professor of Political Economy (schofield.norman@gmail.com)

[‡]PhD Student, Department of Government, Harvard University, (evan.schnidman@gmail.com)

[§]Department of Economics, Wilfrid Laurier University, Waterloo, Canada. (mgallego@wlu.ca)

1 Introduction: Modeling Politics

Much of the existing literature in political economy relies on a one-dimensional spatial model of democracy to understand the inter-relationship between politics and economics.[1] However, this spatial model treats vote choice as a function of voters' policy preferences only, and tends to predict convergence towards an electoral center. Yet, in almost every polity there seem to be electoral or policy outcomes that the pure one-dimensional spatial model cannot easily explain. Increasing polarization of party or candidate positions in the United States is just one example.[2] There also appears to be increased radicalism in many European countries such as Austria and France, as well as the occurrence of unusual coalitions spreading across the ideological spectrum in many eastern European countries.

The current paper focuses on constructing a formal apparatus that extends the spatial model to include multiple dimensions as well as voter judgments about the competence or quality of party leaders and candidates. An earlier version of this model has already proved useful in accounting for party or candidate position in a variety of countries, including Argentina, Israel, the Netherlands, the United Kingdom and the United States.[3]

Voter judgments about candidate and leader competence are modeled by the notion of *valence*. In this respect, the formal model can be linked to Madison's understanding of the nature of the choice of Chief Magistrate (Madison, 1999 [1787]). Schofield (2006a) has suggested that the elegant argument of Madison on the "extended Republic" may well have been influenced by Condorcet's work on the so-called "Jury Theorem" (Condorcet, 1994 [1785]). This aspect of Condorcet's work is based on the notion of electoral judgment rather than preference, and it has recently received renewed attention (McLennan, 1998). Formal models involving valence have been developed recently and can be seen as a contribution to the development of a Madisonian conception of elections in representative democracies as methods of aggregation of both preferences and judgments.[4]

The standard spatial model is based on the assumption that it is only candidate *positions* that matter to voters. Within the context of the spatial model, there has been controversy over whether rational candidates will converge to an electoral center, as suggested by the work of Downs (1957) and many other theorists, or whether elections will be fundamentally chaotic, as argued by Riker (1980, 1982, 1986).

However, as Stokes (1963, 1992) emphasized many years ago, the non-policy evaluations, or valences, of candidates by the electorate are just as important as electoral policy preferences. Based on the empirical and theoretical work

[1] See, for example, Acemoglu and Robinson (2006) and the applications of the model in Acemoglu et al., (2008).

[2] This appears to have occurred even though survey data suggest that the electoral distribution remains relatively centrist. See Schofield et al. (2010a,b) and Fiorina, Abrams and Pope (2005).

[3] Schofield and Sened (2006) and Schofield and Cataife (2007).

[4] Aragones and Palfrey (2002); Schofield (2006a), Zakharov (2009).

presented here, we argue that neither the Downsian convergence result nor the chaos theorems gives an accurate picture of democratic elections. Instead, both position and valence matter in a fundamental way.

Earlier work developed an empirical stochastic electoral model based on multinomial conditional logit methodology (MNL).[5] In this model, each *agent,j*, was characterized by an *intrinsic valence,*λ_j. This model can be considered to be Downsian, since it was based on a pure spatial model, where the estimates of valence were obtained from the intercepts of the model. It was possible to obtain the conditions for existence of "a local Nash equilibrium" (LNE) under vote maximization for a parallel formal model using the same stochastic assumptions as the MNL empirical model. A LNE is simply a vector of agent positions with the property that no agent may make a small unilateral move and yet increase utility (or vote share).

This work led to results (Schofield, 2006b, 2007a) on the necessary and sufficient conditions for the validity of the *mean voter theorem for the pure spatial model with intrinsic valence*. This mean voter theorem asserts that all candidates should converge to the electoral origin.[6] Recent empirical analyses of US elections for 2000, 2004 and 2008 (Schofield et al., 2009, 2010a) has corroborated the earlier work by Enelow and Hinich (1989) and shown, by simulation on the basis of the MNL models, that presidential candidates should converge to the electoral origin. However, the empirical work also suggests that presidential candidates do not in fact adopt positions close to the electoral center. Figure 1, for example, shows the estimated positions of the presidential candidates in the 2004 election in the U.S.

[Insert Figure 1 here]

This figure corroborate previous work empirical work by Poole and Rosenthal (1984) who also noted that there was no evidence of candidate convergence in U.S. presidential elections.

This paper offers a more general model of elections that, we suggest, accounts for the difference between the estimates of equilibrium positions and actual candidate positions. The model is based on the assumption that there is a second kind of valence is known as *activist valence*. When party, or candidate j adopts a policy position z_j, in the policy space,X, then the activist valence of the party is denoted $\mu_j(z_j)$. Implicitly we adopt a model originally due to Aldrich (1983). In this model, activists provide crucial resources of time and money to their chosen party, and these resources are dependent on the party position.[7] The party then uses these resources to enhance its image before the electorate, thus affecting its overall valence. Although activist valence is affected by party position, it does not operate in the usual way by influencing voter choice through the distance between a voter's preferred policy position, say x_i, and the party position. Rather, as party j's activist support, $\mu_j(z_j)$, increases due to increased contributions to the party in contrast to the support $\mu_k(z_k)$ received by party

[5] Schofield and Sened (2005a,b).

[6] The electoral origin is the mean of the distribution of voter preferred points.

[7] For convenience, it is assumed that $\mu_j(z_j)$ is only dependent on z_j, and not on $z_k, k \neq j$, but this is not a cucial assumption.

k, then (in the model) all voters become more likely to support party j over party k.

The problem for each party is that activists are likely to be more extreme than the typical voter. By choosing a policy position to maximize activist support, the party will lose centrist voters. The party must therefore determine the "optimal marginal condition" to maximise vote share. The Theorem, presented in Section 3, gives this as a (first order) *balance condition.* Moreover, because activist support is denominated in terms of time and money, it is reasonable to suppose that the activist function will exhibit decreasing returns. The Theorem points out that when these activist functions are sufficiently concave, then the vote maximizing model will exhibit a Nash equilibrium.

It is intrinsic to the model that voters evaluate candidates not only in terms of the voters' preferences over intended policies, but also in terms of electoral judgements about the quality of the candidates. These judgements are in turn influenced by the resources that the candidates can raise from their activist supporters.

In the next section we sketch the model and then apply it to consider the 2008 election in the US. Section 3 presents the formal model, and discusses the extension to the case where there are multiple activist groups for the candidates. The general activist model is applied in Section 4 to discuss the case of newly democratic or partially democratic polities. We argue that political leaders in such polities must still retain some political support, and therefore have to depend on activist support from various political elites. Section 5 briefly comments on political realignments in the past in the United States, and Section 6 concludes.

2 Activist Support for the Parties.

To present the model, suppose there are two dimensions of policy, one economic, and one social. These are found usually by factor analysis of survey data.

As in Figure 2 indicates, we can represent the of conflicting interests or bargains between the two activist groups of supporters for the Republican Party, located at R and C, by a "contract curve." This represents the set of policies that these two groups would prefer their candidate to adopt. It can be shown (Miller and Schofield ,2003) that this contract curve is a *catenary* whose curvature is determined by the eccentricity of the utility functions of the activist groups. We call this the *Republican contract curve.* The Democrat activist groups may be described by a similar contract curve (This is the simplest case with just two activist groups for each candidate. As Section 3.1 shows, this idea can be generalized to many activist groups.

The theorem presented in this paper gives the first order condition for the candidate positions (z^*_{dem}, z^*_{rep}) to be a Nash equilibrium in the vote share maximizing game. This condition is that the party positions satisfy a *balance equation.* This means that, for each party, $j = dem$ or rep, there is a weighted electoral mean for party j, given by the expression

$$z_j^{el} = \sum_i \varpi_{ij} x_i. \tag{1}$$

This is determined by the set of voter preferred points $\{x_i\}$.Notice that the coefficients $\{\varpi_{ij}\}$ for candidate $j$will depend on the position of the other candidate,k. The *balance equation* for each j is given by:

$$\left[z_j^{el} - z_j^*\right] + \frac{1}{2\beta}\left[\frac{d\mu_j}{dz_j}|_z\right] = 0. \tag{2}$$

The locus of points satisfying this equation is called the *balance locus* for the party. It is also a catenary obtained by shifting the appropriate activist catenary towards the weighted electoral mean of the party.The gradient vector $\frac{d\mu_j}{dz_j}$ is called *the marginal activist pull for party j* (at the position z_j^*) and represents the marginal effect of the activist groups on the party's valence. The gradient term $\left[z_j^{el} - z_j^*\right]$ is the *marginal electoral pull of party j* (at z_j^*). Obviously, this pull is zero at $z_j^* = z_j^{el}$. Otherwise, it is a vector pointing towards z_j^{el}.In Figure 2, the point $z_1^*(z_1^*)$ is the balance solution for a Republican candidate. This point lies on the balance locus of the Republican party, and is also a function of the Democrat candidate location. A similar balance locus can be constructed for the Democrat candidate. Note that Figure 1 is compatible with Figure 2. Figure 1 also shows a partisan cleavage line. This cleavage line joins the preferred points of voters who, according to the stochastic vote model, would choose the candidates with equal probability of one half.

[Insert Figure 2 here]

2.1 The 2008 election and the consequent policy changes

The previous section has suggested that a candidate's valence at election time is due to the ability of activist groups to raise resources for the candidate. At the same time, the candidate positions are the result of a balancing act between choosing an electorally optimal position and being able to persuade activist groups to provide these reources.

We briefly provide some information about this balancing act. Figure 3 shows the estimated positions of Republican and Democrat candidate positions prior to the 2008 election. The Figure clearly suggests that Obama adopted a fairly extreme policy position, very liberal on both economic and social axes.

Figure 4 suggests that Obama and Hilary Clinton were both very successful in raising campaign resources, and that these were highly correlated with the electoral support. Other candidates fell far behind and dropped out of the race. Figure 5 suggests that McCain was also extremely popular, even though his campaign, in January 2008, had not been very successful in raising contributions. This inference is compatible with McCain's estimated fairly moderate position in Figure 3. Obviously, the relationship between campaign resources and popular vote in primaries and in the general election is extremely complex.

Further research will attempt to utilize the model presented here to clarify this relationship. [Insert Figures 3, 4 and 5 here]

Obama's victory on November 4, 2008 suggests that it was the result of an overall shift in the relative valences of the Democrat and Republican candidates from the election of 2004. In fact, since Obama took 52.3% of the vote, a simple estimate of the probability, ρ_{obama}, of voting for Obama is given by

$$\rho_{obama} = [0.523] = \frac{\exp[\lambda_{obama}]}{1 + \exp[\lambda_{obama}]}$$

It immediately follows that an estimate of Obama's valence, λ_{obama}, relative to λ_{McCain}, is given by

$$\begin{aligned} \log_e \left[\frac{0.523}{0.477}\right] &= \log_e[1.096] \\ &\simeq 0.09. \end{aligned}$$

In fact there were differential shifts in different regions of the country. In a region of the country from West Virginia through Tennessee, Arkansas and Oklahoma, there was a shift of 20% in the increase in the republican vote, suggesting a change of about 0.6 in McCain's valence advantage.

Obama's victory in 2008 suggests that policy outcomes from 2009 onwards will lie in the upper left hand quadrant of the policy space, and all indications are that Obama's policy position is close to the estimate of Gore's position in 2000. The precise policy outcome from Obama's administration will, of course, depend on the degree to which Republicans in the Senate will be able to block Democratic policies through the use of the filibuster.[8] However, all the indications in the early phase of the new administration are that Obama's policy initiatives will pass. This is indicated by the vote, on January 15, 2009, in the Senate of 52 against 42 in support of Obama's economic recovery program. On February 6, an agreement was reached in the Senate to reduce the size of the stimulus bill to $780 billion, in return for the support of three Republican senators. On February 9 the senate did indeed vote by the required majority of 61 to halt discussion of the stimulus bill, thus blocking a filibuster. A compromise bill of $787 billion, including some tax cuts, was agreed by House and Senate within a few days, which the House passed with 245 Democrats voting against 183 Republicans, while the Senate passed it with just 60 votes. The bill was immediately signed by Obama.

As Obama commented afterwards:

> Now I have to say that given that [the Republicans] were running the show for a pretty long time prior to me getting there, and that their theory was tested pretty thoroughly and its landed us in the situation where we've got over a trillion dollars' worth of debt and the biggest economic crisis since the Great Depression, I think I have a better argument in terms of economic thinking.

[8] See Miller and Schofield, 2008) for a discussion of Republican blocking tactics in recent years.

On February 26, Obama proposed a 10 year budget that revised the priorities of the past, with an estimated budget deficit for 2009 at $1.75 trillion (or over 12% of GDP). It included promises to address global warming and to reverse the trend of growing inequality. A $3.6 trillion Federal budget proposal passed the House on April 2, by 233 to 196, with even "blue dog" conservative Democrats supporting it, but, again, no Republicans. Finally, the Waxman-Markey climate change bill, formally called the American Clean Energy and Security Act (ACES), passed on a 219-212 vote in the House on June 26, 2009, and will go to the Senate. It is likely that passage will be opposed by Republicans, with some support from conservative Democrats. The long delayed victory by Franken, junior senator for Minnesota as of June 30, formally gives the Democrats 60 votes in the Senate, sufficient to overcome Republican filibusters.

Obama's social policies may eventually pass, as indicated by the vote in the Senate of 61 to 36, on January 22, 2008, for a bill against pay discrimination. The House also gave final approval on February 4, by 290 to 135, to a bill extending health insurance to millions of low-income children. Forty Republicans voted for the bill, and 2 Democrats voted against it. When the bill was signed by President Obama, it was seen as the first of many steps to guarantee health coverage for all Americans.

Obama gained another important victory when the Senate confirmed Sonia Sotomayor as Supreme Court Justice on August 6, 2009, by a vote of 68 to 31. She will be the first Hispanic and the third woman to serve on the Court.

Events in 2009 and 2010 are consistent with the model presented in Schofield and Miller (2007) and Miller and Schofield (2008). Obama is attempting to attract and retain pro-business social liberals with his response to the economic crisis. His massive budget proposal addresses the economic down-turn but has angered most Republicans. It is possible that the Republican Party will eventually gain votes from the blue-collar voters who are suffering the most from the economic collapse. However, if there is any economic recovery by the 2012 election, it is likely that most of the pro-business group in the country will respond to Obama's attempt to get the economy moving by supporting him. That will leave the Republican Party with nothing but the old-style populism of William Jennings Bryan: anti-Wall Street, anti-banking, anti-Detroit, anti-immigration, and pro-evangelical religion. This will result in a party realignment to a situation where the predominantly socially and economically liberal "cosmopolitan" Democrats are opposed to populist Republicans.[9]

In October, 2009, the so-called "tea party activists" opposed to Obama's policies on health care began lining up against the centrist Governor Charlie Crist in the GOP Senate primary. On November 1, the centrist Republican candidate, Dede Scozzafava, decided to drop out of the special election in New York's 23rd congressional district and endorse the Democrat candidate, Bill Owens. He won the election in a district that had been Republican since 1872.

[9] That is, unlike the situation in the previous figures, the Republican Party will move to the lower left quadrant of the policy space, while business interests in the upper right quadrant will switch to the Democrats. It is indicative of this trend that on April 28 Arlen Specter, the senator from Pennsylvania, shifted his allegiance from the Republican Party to the Democrats.

Increasingly, the Democrats in Congress represent the richest and the poorest constituencies, while the Republican Party no longer is the party of the wealthy. In the health bill vote in the House in early November, 219 Democrats with 1 Republican voted for the bill, while 176 Republicans and 39 "Blue Dog" Democrats voted against.[10] By December 19, Senator Bernie Sanders of Vermont, an independent who caucuses with the Democrats, as well as Democrat Senators Ben Nelson and Sherrod Brown, had agreed to a compomise bill. This brought the size of the coalition to the critical size of 60 votes, sufficient to force a decision in the Senate.[11] Finally on Christmas Eve, 2009, the health bill passed in the Senate, again by 60 votes with 39 Republicans opposed. However, the victory by Republican Scott Brown in the special Senate election in Massachusetts on January 19 deprived the Democrats of the 60 seat majority required to push through the legislation. On February 25, 2010, an attempt to reach a bipartisan compromise failed, and there was talk of using a maneuver known as "reconciliation" to force though a health bill using majority rule.

In fact, such political "gridlock" can be overcome, as illustrated by the 62-30 vote in the Senate on February 22 and again by 68 to 29 on March 17 to implement two multi-billion "jobs creation" programs. Gridlock over health care also seemed to broken on March 25, after strenuous efforts by President Barack Obama and House speaker, Nancy Pelosi, when the House voted 220-207 to send a health care bill to the President. Republicans voted unanimously against the legislation, joined by 33 dissident Democrats. The President signed a draft of the bill, the "Paitient Protection and Affordable Care Act", and the Senate passed the bill by simple majority of 56 to 43, as required for reconciliation.

It is clear that President Obama, in the first stage of his administration, has made every effort to recreate the American New Deal compact, and possibly a new global compact,[12] to begin to deal with the possibility of economic collapse[13] and a fractured world facing the possibility of catastrophic climate change. Under vigorous pressure from Obama, the Copenhagen Accord was agreed to, in December 2009, by the United States together with four key emerging economies - China, Brazil, India and South Africa. It is non-binding, and faces opposition from many developing countries, but was hailed as a start in dealing with climate change.[14]

We now present the formal stochastic model.

[10] On Saturday, November 21, the Senate voted 60 to 40, along partiasan lines, to move to the final discussion on the health care bill.

[11] Cloture is a motion aimed at bringing debate to an end. It originally required a two-thirds majority, but since 1975 has required a super-majority of 60.

[12] In parallel to the Bretton Woods system after World War II.

[13] A start has been made in this direction, as indicated by the agreement, in April, 2009, of the G-20 group of Industrial countries, under pressure from Obama, to make $850 billion, as well as $150 billion in Special Drawing Rights, available through international financial institutions such as the IMF and World Bank.

[14] The activist model that we present suggests that any binding agreement will depend on international activist groups finding ways to bring pressure to bear on their governments.

3 The Formal Stochastic Model

The electoral model presented here is an extension of the multiparty stochastic model of McKelvey and Patty (2006), modified by inducing asymmetries in terms of valence. The justification for developing the model in this way is the empirical evidence that valence is a natural way to model the judgements made by voters of party leaders and candidates. There are a number of possible choices for the appropriate model for multiparty competition. The simplest one, which is used here, is that the utility function for the candidate of party j is proportional to the vote share, V_j, of the party in the election. [15] With this assumption, we can examine the conditions on the parameters of the stochastic model which are necessary for the existence of a pure strategy Nash equilibrium (PNE). Because the vote share functions are differentiable, we use calculus techniques to obtain conditions for positions to be locally optimal . Thus we examine what we call *local pure strategy Nash equilibria* (LNE). From the definitions of these equilibria it follows that a PNE must be a LNE, but not conversely.

The key idea underlying the formal model is that party leaders attempt to estimate the electoral effects of policy choices, and choose their own positions as best responses to other party declarations, in order to maximize their own vote share. The stochastic model essentially assumes that candidates cannot predict vote response precisely, but that they can estimate the effect of policy proposals on the expected vote share. In the model with valence, the stochastic element is associated with the weight given by each voter, i, to the average perceived quality or valence of the candidate.

Definition 1. ***The Stochastic Vote Model*** $\mathbb{M}(\boldsymbol{\lambda}, \boldsymbol{\alpha}, \boldsymbol{\mu}, \beta; \Psi)$ ***with Activist Valence***.

The data of the spatial model is a distribution, $\{x_i \in X\}_{i \in N}$, of voter ideal points for the members of the electorate, N, of size n. We assume that X is a compact convex subset of Euclidean space, $\mathbb{R}^w$, with w finite. Without loss of generality, we adopt coordinate axes so that $\frac{1}{n}\Sigma x_i = 0$. By assumption $0 \in X$, and this point is termed the *electoral mean*, or alternatively, the *electoral origin*. Each of the parties in the set $P = \{1, \ldots, j, \ldots, p\}$ chooses a policy, $z_j \in X$, to declare prior to the specific election to be modeled.

Let $\mathbf{z} = (z_1, \ldots, z_p) \in X^p$ be a typical vector of candidate policy positions.

We define a stochastic electoral model, which utilizes socio-demographic variables and voter perceptions of character traits. For this model we assume that voter i utility is given by the expression

$\mathbf{u}_i(x_i, \mathbf{z}) = (u_{i1}(x_i, z_1), \ldots, u_{ip}(x_i, z_p))$ where

$$u_{ij}(x_i, z_j) = \lambda_j + \mu_j(z_j) + (\theta_j \centerdot \eta_i) + (\alpha_j \centerdot \tau_i) - \beta\|x_i - z_j\|^2 + \epsilon_j \quad (3)$$

$$= u^*_{ij}(x_i, z_j) + \epsilon_j. \quad (4)$$

[15] For refining the model, and for empirical analysis, it would be more appropriate to use the share of the electoral college votes, or a combination of this and the party vote shares in the elections to Congress. We adopt this simplifying assumption in order to present the essential structure of the formal model.

Here $u^*_{ij}(x_i, z_j)$ is the observable component of utility. The constant term, λ_j, is the *intrinsic valence* of party j, The function $\mu_j(z_j)$ is the component of valence generated by activist contributions to agent j. The term β is a positive constant, called the *spatial parameter*, giving the importance of policy difference defined in terms of a metric induced from the Euclidean norm, $||\cdot||$, on X. The vector $\boldsymbol{\epsilon} = (\epsilon_1,...,\epsilon_j,..,\epsilon_p)$ is the stochastic error, whose mutivariate cumulative distribution is the Type 1 extreme value distribution, denoted by Ψ.

Sociodemographic aspects of voting are modeled by $\boldsymbol{\theta}$, a set of k -vectors $\{\theta_j : j \in P\}$ representing the effect of the k different sociodemographic parameters (class, domicile, education, income, religious orientation, etc.) on voting for party j while η_i is a k-vector denoting the i^{th} individual's relevant "sociodemographic" characteristics. The compositions $\{(\theta_j \centerdot \eta_i)\}$ are scalar products, called the *sociodemographic valences* for j.

The terms $(\alpha_j \centerdot \tau_i)$ are scalars giving voter i's perception of the *traits* of the leader (or candidate) of party j. The coefficients, α_j,correspond to different candidates. We let $\boldsymbol{\alpha} = (\alpha_p, ...\alpha_1)$.[16] The trait score can be obtained by factor analysis from a set of survey questions asking respondents about the traits of the candidate. including moral, caring, knowledgable, strong, dishonest, intelligent, out of touch. Schofield et al. (2009a,b) show that the electoral perceptions of candidate traits are statistically relevant for modeling US presidential elections.

It is assumed that the intrinsic valence vector

$$\boldsymbol{\lambda} = (\lambda_1, \lambda_2, .., \lambda_p) \text{ satisfies } \lambda_p \geq \lambda_{p-1} \geq \cdots \geq \lambda_2 \geq \lambda_1.$$

Voter behavior is modeled by a probability vector. The probability that a voter i chooses party j at the vector $\mathbf{z}$ is

$$\begin{aligned} \rho_{ij}(\mathbf{z}) &= \Pr[[u_{ij}(x_i, z_j) > u_{il}(x_i, z_l)], \text{ for all } l \neq j]. \quad (5) \\ &= \Pr[\epsilon_l - \epsilon_j < u^*_{ij}(x_i, z_j) - u^*_{il}(x_i, z_l), \text{ for all } l \neq j]. \quad (6) \end{aligned}$$

Here Pr stands for the probability operator generated by the distribution assumption on ϵ. The *expected vote share* of agent j is

$$V_j(\mathbf{z}) = \frac{1}{n} \sum_{i \in N} \rho_{ij}(\mathbf{z}). \quad (7)$$

The differentiable function $V : X^p \to \mathbb{R}^p$ is called the *party profile function.*

The most common assumption in empirical analyses is that Ψ is the *Type I extreme value distribution* (also called the Gumbel (maximum) distribution). The theorem in this paper is based on this assumption. This distribution assumption is the basis for much empirical work based on multinomial logit estimation.

Definition 2: ***The Type I Extreme Value Distribution,*** Ψ.

(i) The cumulative distribution,Ψ, has the closed form

$$\Psi(h) = \exp\left[-\exp\left[-h\right]\right],$$

[16] For US elections we talk of the traits of candidate j, rather than party leader j.

with probability density function

$$\psi(h) = \exp[-h] \exp\left[-\exp\left[-h\right]\right]$$

and variance $\frac{1}{6}\pi^2$.

(ii) For each voter i, and party j, the probability that a voter i chooses party j at the vector $\mathbf{z}$ is

$$\rho_{ij}(\mathbf{z}) = \frac{\exp[u^*_{ij}(x_i, z_j)]}{\sum_{k=1}^{p} \exp u^*_{ik}(x_i, z_k)}. \tag{8}$$

See Train (2003:79)

In this stochastic electoral model it is assumed that each party j chooses z_j to maximize V_j, conditional on $\mathbf{z}_{-j} = (z_1, .., z_{j-1}, z_{j+1}, .., z_p)$.

Definition 3. ***Equilibrium Concepts.***

(i) A vector $\mathbf{z}^*$=$(z_1^*, ..., z_{j-1}^*, z_j^*, z_{j+1}^*, ..., z_p^*)$ is a *local Nash equilibrium* (LNE) iff, for each agent j, there exists a neighborhood X_j of z_j^* in X such that

$$V_j(z_1^*, ..., z_{j-1}^*, z_j^*, z_{j+1}^*, ..., z_p^*) \geq V_j(z_1^*, ..., z_j, ..., z_p^*) \text{ for all } z_j \in X_j.$$

(ii) A vector $\mathbf{z}^*$=$(z_1^*, ..., z_{j-1}^*, z_j^*, z_{j+1}^*, ..., z_p^*)$ is a *pure strategy Nash equilibrium* (PNE) iff X_j can be replaced by X in (i)..

(iii) The strategy z_j^* is termed a *local strict best response*, a *local weak best response*, or a *global best response*, respectively to $\mathbf{z}^*_{-j}$=$(z_1^*, ..., z_{j-1}^*, z_{j+1}^*, ..., z_p^*)$ depending on which of the above conditions is satisfied.

(iv) Strict local Nash equilibria (SLNE) and strict Nash equilibria (SPNE) are defined analogously by requiring strict inequalities in the definition.

From the definitions, it follows that if $\mathbf{z}^*$ is a PNE it must be an LNE.

Notice that in this model, each agent is uncertain about the precise electoral outcome, because of the stochastic component of voter choice. None the less, we presume that each agent uses opinion poll data, etc. to estimate expected vote share, and then responds to this information by searching for a "local equilibrium" policy position.in order to gain as many votes as possible.

It follows from (8) that for voter i , with ideal point, x_i, the probability, $\rho_{ij}(\mathbf{z})$, that i picks j at $\mathbf{z}$ is given by

$$\rho_{ij}(\mathbf{z}) = [1 + \Sigma_{k \neq j}[\exp(f_{jk})]]^{-1} \tag{9}$$

$$\text{where } f_{jk} = u^*_{ik}(x_i, z_j) - u^*_{ij}(x_i, z_j).$$

We use (9) to show that the first order condition for $\mathbf{z}^*$ to be a LNE is that it be a *balance solution.*

Definition 4: The balance solution for the model $\mathbb{M}(\boldsymbol{\lambda}, \boldsymbol{\alpha}, \boldsymbol{\mu}, \beta; \Psi)$.

Let $[\rho_{ij}(\mathbf{z})]$ =$[\rho_{ij}]$ be the n by p matrix of voter probabilities at the vector **z,** and let

$$[\varpi_{ij}] = \left[\frac{\rho_{ij} - \rho_{ij}^2}{\Sigma_{k=1}^{n}(\rho_{kj} - \rho_{kj}^2)}\right] \tag{10}$$

be the n by p matrix of weighting coefficients.

The *balance equation* for z_j^* is given by expression

$$z_j^* = \frac{1}{2\beta}\frac{d\mu_j}{dz_j} + \sum_{i=1}^{n} \varpi_{ij} x_i. \tag{11}$$

The vector $\sum_i \varpi_{ij} x_i$ is a convex combination of the set of voter ideal points. This vector is called the *weighted electoral mean* for party j. Define

$$z_j^{el} = \sum_i \varpi_{ij} x_i. \tag{12}$$

The balance equations for $j = 1, ..., p$ can then be written as

$$\left[z_j^{el} - z_j^*\right] + \frac{1}{2\beta}\frac{d\mu_j}{dz_j} = 0. \tag{13}$$

The bracketed term on the left of this expression is termed the *marginal electoral pull of party* j and is a gradient vector pointing from z_j^* towards the *weighted electoral mean*, z_j^{el}, of the party. This weighted electoral mean is that point where the electoral pull is zero. Notice that the each entry in the vector $\mathbf{z}^{el} = (z_1^{el}, z_2^{el}, ...z_p^{el})$ depends on all other entries. The vector $\frac{d\mu_j}{dz_j}$ is called *the marginal activist pull for party* j.

If $\mathbf{z}^*$satisfies the system of balance equations, for all j, then call **z*** a *balance solution.*

For the following discussion note again that by suitable choice of coordinates, the equi-weighted electoral mean $\frac{1}{n}\Sigma x_i = 0$, and is termed the *electoral origin.*

The following theorem is proved in Schofield (2006b) .

Theorem.

Consider the electoral model $\mathbb{M}(\boldsymbol{\lambda}, \boldsymbol{\alpha}, \boldsymbol{\mu}, \beta; \Psi)$ based on the Type I extreme value distribution,and including both intrinsic and activist valences.

(i) The first order condition for $\mathbf{z}^*$ to be an LNE is that it is a balance solution.

(ii) If all activist valence functions are highly concave, in the sense of having negative eigenvalues of sufficiently great magnitude, then a balance solution will be a LNE.

Notice that if X is open, then this first order condition at **z*** is necessary for **z*** to be a PNE.

3.1 Extension to the case with multiple activist groups

(i) For each party leader, j, let $\{A_j\}$ be a family of potential activists, where each $k \in A_j$ is endowed with a utility function, U_k, which is a function of the

position z_j.The resources allocated to j by k are denoted $R_{jk}(U_k(z_j))$. The total activist valence function for leader j is the linear combination

$$\mu_j(z_j) = \sum_{k \in A_j} \mu_{jk}(R_{jk}(U_k(z_j))). \tag{14}$$

where $\{\mu_{jk}\}$ are functions of the contributions $\{R_{jk}(U_k(z_j)\}$, and each μ_{jk} is a concave function of R_{jk}.

(ii) Assume the gradients of the valence functions for j are given by

$$\frac{d\mu_{jk}}{dz_j} = a_k^* \frac{dR_{jk}}{dz_j} = a_k^* a_k^{**} \frac{dU_k}{dz_j} \tag{15}$$

where the coefficients, $\{\ a_k^*, a_k^{**}\} > 0$, and are differentiable functions of z_j.

(iii) Under these assumptions, the first order equation $\frac{d\mu_j}{dz_j} = 0$ becomes

$$\frac{d\mu_j}{dz_j} = \sum_{k \in A_j} \frac{d}{dz_j}[\mu_{jk}(R_{jk}(U_k(z_j))) \tag{16}$$

$$= \sum_{k \in A_j} (a_k^{**} a_k^*) \frac{dU_k}{dz_j} = 0. \tag{17}$$

The *Contract Curve* generated by the family $\{A_j\}$ is the locus of points satisfying the gradient equation

$$\sum_{k \in A_j} a_k \frac{dU_k}{dz_j} = 0, \text{where } \sum_{k \in A_j} a_k = 1 \text{ and all } a_k > 0. \tag{18}$$

The *Balance Locus* for the leader j, defined by the family, $\{A_j\}$, is the solution to the first-order gradient equation

$$\left[z_j^{el} - z_j^*\right] + \frac{1}{2\beta}\left[\sum_{k \in A_j} a_k \frac{dU_k}{dz_j}\right] = 0. \tag{19}$$

The simplest case, discussed in Miller and Schofield (2003) is in two dimensions, where each leader has two activist groups. In this case, the contract curve for each leader's supporters will, generically, be a one-dimensional arc. Miller and Schofield also supposed that the activist utility functions were ellipsoidal, mirroring differing saliences on the two axes. In this case the contract curves would be *catenaries*, and the balance locus would be a one dimensional arc. The balance solution for each leader naturally depends on the positions of opposed leaders, and on the coefficients, as indicated above, of the various activists. The determination of the balance solution can be obtained by computing the vote share Hessian along the balance locus. Because the activist valence functions can be expected to be concave in the activist resources, the Hessian of the overall activist valence, μ_j, can be expected to have negative eigenvalues. For

this reason, the Theorem gives a formal reason to expect existence of a PNE. If we associate the utilities $\{U_k\}$ with leaders of the activist groups for the parties, then the combination

$$\sum_{k \in A_j} a_k \frac{dU_k}{dz_j}$$

may be interpreted as the marginal utility of the candidate for party j, induced by the activist support. Notice that the model presented here is formally identical to one where the party leader has policy preferences, as modelled by Duggan (2006) and Peress (2010). This activist model can be given a game-theoretic foundation, as in Grossman and Helpman (2001), and can in principle be extended to the case where there are multiple activist groups which have the option of choosing from among a set of possible party leaders, all with varying intrinsic valences and preferences (Schofield and Sened 2006; Galiani, Schofield and Torrens, 2010).

4 Modeling Politics under proportional representation and Plurality rule.

Recent work on modeling elections in the Netherlands, Canada, Britain and the United States (Schofield et al. ,2010b)suggests that the centripetal attraction towards an electoral center, induced purely from the electoral incentive, will be very strong.

For the United States, the convergence coefficients for various presidential elections lay in the range [0.40, 1.1], while the convergence coefficients were found to be 1.18 for the Netherlands in 1977, 1.26 for Canada in 2004, 0.84 in Britain in 2005 ((Schofield et al. (2010c) and 1.7 in Russia in 2007 (Schofield and Zakharov, 2010).

On the other hand, empirical analyses show that the convergence coefficients were 6.82 for the 1997 election in Poland (Schofield et al. 2010a), 5.94 for the 2002 election in Turkey (Schofield et al. 2010d) and 3.98 for the 1996 election in Israel (Schofield et al. 2010b). These polities all have highly fragmented party systems. According to the formal model, parties should diverge from the origin in these polities.

A standard way of estimating political fragmentation is in terms of the *effective number of party vote strength* (*env)* or *effective number of party seat strength (ens)*.[17]. For example, the fragmentation in votes and seats is captured by the fact that in Poland in 1997 the *env* and *ens* were 5.5 and 3.1 respectively and .increased to 7.7 and 5.0 respectively by 2005.

[17] Fragmentation can be identified with the *effective number* (Laakso and Taagepera, 1979). That is, let H_v (the Herfindahl index) be the sum of the squares of the relative vote shares and $env = H_v^{-1}$ be the *effective number of party vote strength.* In the same way we can define *ens* as the effective number of party seat strength using shares of seats.

Between the elections of 2004 and 2008, the *env* for all of Canada increased from 4.0 to 4.1, while the *ens* increased from about 3.1 in 2004 to 3.4 in 2006 and 3.5 in 2008. In the Netherlands, the env increased significantly from 4.2 in 1977 to 8.3 in 2006. Although the convergence coefficients for Canada and the Netherlands were similar, the *ens* and *env* were much lower in Canada. We conjecture that the proportional electoral system of the Netherlands facilitates interest group fragmentation, and this would be matched by a much higher convergence coefficient for recent elections.

In the United Kingdom, the *env* for the 2005 election was 2.7, while the *ens* was about 2.5, indicating that the electoral system is more majoritarian than that of Canada.[18]. We conjecture that the higher value of the convergence coefficient in the Canadian election is correlated with the greater degree of political fragmentation than in the United Kingdom.

For the very fragmented polities with high convergence coefficients the both *env* and *ens* were also very high. For example in Poland the *env* increased from about 5.5 in 1997 to 7.7 in 2005, while the the *ens* increased from 3.1 to 5.0. In Israel in 1996 the *env* and *ens* were both about 6.5 but increased to about 10.0 in 2009. In Turkey in 1999 and 2002, the *env* was about 7.7, while the ens fell from 5.0 to 2.3 in 2007 as the result of a high cut-off for Parliamentary representation. The results to date on the convergence coefficients and effective numbers are given in Table 1. This Table suggests that the convergence coefficient in various polities does indeed correlate with the degree of political fragmentation.[19]

[Insert Table 1 here]

Even though the valence model indicates that the parties should converge towards the electoral origin in the Netherlands, Canada and Britain, activists appear to pull the parties apart. We conjecture that the tendency towards activist group coalescence in Canada is weaker than in the strongly majoritarian electoral systems of the United States and the United Kingdom, but stronger than in the proportional electoral system of the Netherlands, and much stronger than in the highly fragmented, proportional polities of Poland, Israel and Turkey.

This argument suggests that inferences made by Riker (1980, 1982, 1986) on the degree of instability depends on the context of the differing levels of conflict between electoral incentives and the influence of activist groups in polities with different electoral systems.

We now turn to consider partial democracies and autocracies.

[18] Schofield and Sened (2006) modeled the elections in the United Kingdom for 1992 and 1997 and found convergence coefficients in the range [1.0,2.0].The *env* for these elections increased slightly from 3.1 in 1992 to 3.2 in 1997, while the *ens* decreased slightly from 2.3 to 2.2, reflecting the size of the Labour victory in 1997.

[19] The one country that stands out is Russia in 2007. Schofield and Zakharov (2010) obtain a value of 1.7 for the Duma election. There is a dominant pro-Kremlin party, United Russia, with 64% of the vote and 70% of the seats, giving low *env* and *ens*.

5 Partial Democracies

Recent works by Przeworski et al. (2000),Boix (2003), Acemoglu and Robinson (2006), North et al.(2009) and Schofield (2010) have explored the transition from autocratic regimes to democracy. A recent contribution by Epstein et al (2006) has emphasized the existence of the category of "partial democracies." These exhibit mixed characteristics of both democratic and autocratic regimes. In Latin America and many of the polities of the old Soviet Union, for example, there have been moves towards partial democracy and then reversion to military or autocratic rule. In this section we briefly comment on the application of the activist model to such political transitions.

Models of democratic transitions have tended to consider a single economic axis, and to utilize the notion of a median citizen as the unique pivotal player. While these models have been illuminating, we believe it necessary to consider policy spaces of much higher dimension and to utilize a stochastic model so as to emphasize the aspect of uncertainty.

To construct a general theoretical model, we first start with the political economic assumption that power derives from the control of the factors of capital, land and labor. The distribution of these factors can be described by a point in a high dimensional *economic factor space*. Perpendicular to the economic space is the *political space.*

The empirical work to date suggests that the definition of the political space depends on the specific country and time. For example, recent work has presented evidence that this political axis in the United States can be identified with civil and social rights.[20] For Britain, Schofield and Sened (2006) argue that this axis is defined by attitudes to the European Union. The analysis of Turkey (Schofield et al , 2010c) indicates that both religion and nationalism define the political space.[21]

For purposes of exposition, Figure 6 gives an extreme simplification of this idea, representing a single dimensional economic factor space, involving an opposition between Land or Labor and Capital, and a single dimensional political space, to be interpreted in terms of the degree of political equality in the society - namely the opposition between pure democracy, to the north in Figure 6, and autocracy to the south in the figure.[22] Figure 6 is based on the same idea of activist groups as Figure 2. It is meant to suggest that democratic and partial democratic polities can in principle be modelled in similar ways.

[Insert Figure 6 here]

Schofield (2006a, 2009) suggests the following formal model.

Firstly, each factor elite has an ellipsoidal utility function, as illustrated in Figure 6, indicating their primary concern with that factor. Similarly the

[20] See Schofield, Miller, and Martin (2003), Miller and Schofield (2003, 2008) and Schofield and Miller (2007).

[21] Schofield and Sened (2006) found the electoral model for Israel to be very similar to Turkey, with two electoral axes, religion and security.

[22] Indeed, for countries like Turkey and Israel, it would be necessary to utilize a two dimensional political space and however many dimensions would be necessary to represent the conflicting economic interests.

political elite, whether autocrat or prime minister or president, is less interested in the particular disposition of economic factors, but rather in their utilization in order to maintain political power. This assumption on elite utilities allows the economic and political elite to bargain. Figure 6 presents a *contract curve* (defined in (18) in Section 3.1) between the economic elite (whether land or capital) and the autocrat's supporters. In many parts of the world, the key autocrat supporters would be the military. It is implicit here that the preferred societal policy point of different elements of the economic elite need not coincide with those preferred by the military. This contract curve represents the set of bargains that are possible, and thus specifies the nature of the resources, military and capitalistic, that can be made available to the political leader. Again, it is not crucial that the bargain be only between capital and the political or military elite. It is quite possible in some regimes that the landed elite control the critical factor.[23] The resources made available by this contract can then used to maintain political power, either by offering bribes in order to maintain support, or by threatening punishment against opposition members.[24]

With just two activist groups, the activist valence of the autocrat, named 1, can then be expressed as a combination

$$\mu_1(z_1) = \mu_A(R_A(U_A(z_1))) + \mu_C(R_C(U_C(z_1))).$$

As defined more precisely in Section 3.1., $R_A(U_A(z_1))$ are the resources contributed by the immediate autocrat supporters, expressed in terms of the supporters' utility function, $U_A(z_1)$, and dependent on the autocrat position, z_1,while $R_C(U_C(z_1))$ are the resources contributed by the capitalist elite. In the same way we may assume that an anti-regime leader, named 2, will gain resources from democratic and labor activists, as described by a contract curve located in the opposed quadrant in Figure 6. As in the formal model presented in Section 3, each member of the population has a utility function, based partly on some preferred position in the factor space, but also on what we have called the *valences* of the various political leaders. This model distinguishes between the perceived valences by the citizens of the various political leaders and the valence that results from the resources made available to the political leader by the economic or political elites. The *balance locus* (defined in (18) in Section 3.1) gives the equilibrium locus of the political leaders, obtained by the maximization of an appropriate support function, V_1. In Figure 5, the point marked $z_1^*(z_2)$ satisfies the balance condition, because the electoral and activist pulls are directly opposed. This point denotes the position that maximizes the regime's support function, in response to an opposition position, denoted z_2. The simple vote maximation model can be readily extended using the notion of a family of support operators, defined via a system of beliefs, over the probabilities associated with various outcomes.

[23] As Diamond (2008) has noted, oil is the crucial factor in many authoritarian petro-regimes, including such states as Azerbaijan, Gabon, Iran, Kazakhstan, Nigeria, Russia, Sudan, Uzbekistan and Venezuela.

[24] Acemoglu et al. (2008) offer a more economic model of a game between elite, citizenry and the military.

In a democratic regime, the LNE of a political leader will depend on the intrinsic valences of political opponents and the activist contribution functions. In a "partial democracy" or autocracy, the equilibrium position of the leader will be a weighted sum of the preferred positions of those with some power in the polity (called the *selectorate* by Bueno de Mesquita et al, 2003). In both kinds of political regimes,, the leader with greater intrinsic valence will be less dependent on the resource support of activists or the factor elite. Moreover, the greater the intrinsic valence of an opponent, whether a revolutionary or a leader of a democratically chosen opposition, the further will the leader's position be from the center. In Figure 6, the point denoted "the mean of the selectorate" is used to denote the center. The expression for the activist valence, given above, is for the simple case of two activist groups supporting the autocrat. The model can be readily generalized to the case of many groups, as shown in Section 3.

While the model presented in Section 3.1 focuses on the expectation of the leader's popular support function, it should be emphasized that this is a stochastic model, and the support function will necessarily exhibit some variance. This variance can, in principle, be used to model the probability that the leader stays in power (Schofield, 2007a).

Some partial democratic systems have evolved so that the political equilibrium is stable, as illustrated by Russia under President (now Prime Minister) Putin. A recent valance model by Schofield and Zakharov (2010) has shown that Putin had extremely high valence in the election of 2007. This appears to be the consequence of the price of oil and the status of Russia as an oil exporter.[25] However, the Russian stock market fell dramatically in mid September, 2008, partly as a consequence of the conflict with Georgia over South Ossetia and Abkhazia in 2008,[26] but more specifically as a result of the global economic crisis of late 2008. Such an event will obviously affect the stability of support coalitions and the valences of political leaders.[27]

On the other hand, an inference from this model is that the "equilibrium" position of an autocrat may be so far from the center that the opposition will attempt to remove the dictator, even in the face of bribes or punishment strategies. For example, Mugabe has been in power in Zimbabwe since 1980, and the country currently suffers from inflation of over a million percent. A month after Zimbabwe's election on March 29, 2008, the electoral body declared that Morgan Tsvangirai, the leader of the opposition party, had won more votes than President Robert Mugabe, but only 48%, not a majority, and that a runoff on June 27 would be necessary. Mugabe and his supporters initiated a process of murder and intimidation forcing Tsvangirai to withdraw, leaving Mugabe in

[25] The invasion of Georgia by Russia in early August,2008. and the problem over Russian gas prices and supplies in Eastern Europe and the Ukraine in January 2009 shows that Putin is ready and able to extend Russian power in its sphere of interest, especially in a situation where the United States has its military resources over-committed in Iraq and Afghanistan. See Lucas (2009).

[26] Vice-president Biden's visit to Tbilisi in July 2009 to meet with President Saakashvili is intended to reassure Georgia that the US is concerned about Russian expansion.

[27] Nonetheless, Putin was able to force through legislation in the Duma in January 2008 that potentially allows him to regain the office of President in the future.

power. On July 11, 2008, Russia and China vetoed a US led attempt in the U.N. Security Council to impose sanctions on Zimbabwe, and on July 26, the Bush administration announced new sanctions against Zimbabwe. Although the talks over power-sharing broke down on July 29, because of Mugabe's insistence that he remain president, the opposition candidate for Speaker of the Legislature, Lovemore Moyo, won the position by a vote of 110 to 98. On September 15, 2008, a power-sharing agreement set up a finely-balanced coalition government. The combined opposition will have a one-person majority in the cabinet, but it will be chaired by President Robert Mugabe. Morgan Tsvangirai will be Prime Minister and deputy chair of the cabinet, and will also chair a Council of Ministers, which will "oversee the formulation of government policies by the cabinet" and "ensure that the policies so formulated are implemented by the entirety of government." Mugabe's party, the Zanu-PF and the two opposition groups in the Movement for Democratic Change (MDC) agreed to "accept the irreversibility of Mugabe's seizure and redistribution of land." Nonetheless, there still appeared to be a deadlock in October, 2008, over Mugabe's insistence that he retain control of the police and security forces, as well as most of the crucial ministries. In November, Mugabe's decided to forbid a humanitarian visit by Mr. Jimmy Carter, Kofi Annan, the former United Nations Secretary General, and Graça Machel, Nelson Mandela's wife. However, the deadlock appeared to have broken on January 30, 2009, when Tsvangirai agreed to join the government in return for shared control over the police. Finally, Tsvangirai was sworn in as Prime Minister on February 11.

Not all autocrats are able to hold on to power as tenaciously as Mugabe. In Pakistan, the assassination of Benazir Bhutto, on 27 December, 2007, and the military's increasing fear of the power of the Taliban, led the way to the defeat of President Pervez Musharraf 's party in the election on February 18, 2008, and the creation of a coalition government consisting of the Pakistan Peoples Party (with 120 seats), chaired by Asif Ali Zardari (Bhutto's widower) and the Pakistan Muslim League-N (with 90 sets), led by Nawaz Sharif. The Pakistan Muslim League-Q, led by Chaudhry Shujaat Hussain, with only 51 seats in the 342 seat National Assembly, still supported Musharraf. (See Rashid, 2008, for the maneuvering between the United States and Musharraf in the period up to the election.)

On Monday, August 18, 2008, Musharraf was forced to resign from the Presidency, in order to avoid impeachment. The coalition broke up on August 25, and Yousaf Raza Gilani became Prime Minister. Zardari was elected President on September 6, 2008, apparently with Sharif's support. The army remained neutral in these various political contests, but on September 10, the day after Zardari's inauguration as President, the military chief, General Ashfaq Parvez Kayani, strongly criticized the United States for its incursions into the tribal areas of Pakistan to seek out the Taliban and Al Qaeda. Although Zardari is considered pro-American, he echoed Kayani's sentiments at his speech to Parliament on September 20. While the nature of the implicit compact between the military and the government is unclear, the army still owns or controls enormous wealth, land and much of the manufacturing capacity of the country, as well as

its nuclear arsenal. After the terrorist attack by Lashkar-e-Taiba (part of the Islamic Front, and linked to el Qaeda) on Mumbai, India, in late November, 2008, fears have been expressed that this attack was supported by elements of the Pakistan security forces, and designed to further destabilize Indian Pakistan relations. Since then, relations between Zardari and Sharif have soured. The Supreme Court, at Zardari's behest, disqualified Sharif from elective office. The Punjab, Sharif's stronghold, has been put under the rule of a governor and its provincial assembly dismissed. On the other hand, Zardari reinstated Chief Justice Iftikhar Chaudhry on March 16, and this move can be seen as an important step towards the rule of law.

In April, the Taliban struck a peace deal with Zardari, allowing them to control the Swat Valley and then the town of Bruner, only 65 miles from Islamabad. By May, this peace deal had broken down, and fighting between the Taliban and the military forces had caused refugees, estimated at 1.3 million, to leave the Swat Valley. Rashid (2009) suggests

> Pakistan is close to the brink, perhaps not to a meltdown of the government, but to a permanent state of anarchy, as the Islamist revolutionaries led by the Taliban abd their many allies take more territory, and state power shrinks.

In the election in Lebanon on June 7, 2009, the pro-Western coalition, led by Saad al-Hariri's anti-Syrian bloc, won 71 of out of 128 seats, against the 57 seats won by an opposition coalition of the Shi'ite factions, Hezbollah together with Amal, with Christian leader Michel Aoun.

On June 12, elections were held in Iran, and the reformist candidate, Mir Hussein Moussavi, was declared to have been beaten by Mahmoud Ahmadinejad in a Presidential election that was probably fixed. The establishment reacted violently to street demonstrations in support of Moussavi. On June 20, an innocent girl,Neda Agha-Soltan, was murdered in Tehran, allegedly by a militia man, although Ahmadinejad called the death "suspicious." On July 4, the former presidents, Mohammad Khatami and Ali Akbar Rafsanjani, together with an influential group of clerics, the Association of Researchers and Teachers of the holy city of Qum, came out against the establishment and Supreme Leader, Ayatollah Ali Khamenei. Eventually, on August 3, Khamenei approved Ahmadinejad as president, although the two former presidents still dissented. In December, major opposition demonstrations were still occurring. Some 4,000 people were arrested in connection with protests following the presidential election. At least three of the demonstrators died in prison, and in December, a number of prison guards were indited for murder.

In Afghanistan, in the first round election of August 20, 2009, the victory of the incumbent President, Hamid Karzai appeared to be the result of massive fraud, and the challenger, Abdullah Abdullah, withdrew from the second round. Under U.S. pressure, Karzai has promised to deal with corruption, but in retaliation for the pressure from the US, Karzai invited Ahmadinejad to Kabul

In Iraq after the election in March, Ayad al-Allawi's Iraqiya list was first with 91 seats; Prime Minister Maliki's State of Law coalition took 89 seats; the Shi'a

Iraqi National Alliance was third with 70 seats (40 seats of which were held by the Sadrist group led by Moktada al-Sadr); the Kurdistan Alliance was fourth with 43 seats. Other factions won 32 seats. Allawi will attempt to construct a majority coalition with 163 seats out of 325, and if he fails,.Maliki will try to form a coalition, presumably with the National Alliance.

These examples all show how elites can be fragmented in autocratic states, but must yet compete with each other for some degree of popular support. The possibly chaotic response of the mass of citizens seems to follow what have been called belief cascades (Karklins and Petersen, 1993; Lohmann, 1994; Schofield, 2006a).

Applying the formal model presented in this paper, it may be possible to pinpoint the logic of autocratic durability, by analyzing the complex relationships between leaders, the military, the people and, in countries like Afghanistan, warlords and religious activists. Schofield and Levinson (2008) used a simplified version of this model to examine three types of authoritarian regimes that have predominated in the twentieth-century: bureaucratic military dictatorship, fascist dictatorship, and the communist party dictatorship.

They argued that the theoretical prerequisites for regime change to democracy were sequentially harder to meet. These prerequisites included:

(1) enough economic and or political inequality to induce an oppositional underclass to demand that some power redistribution be formally institutionalized,

(2) not so much inequality in economic or political power that the authoritarian elite is willing to incur almost any cost to keep power,

(3) the ability of the regime's opponents to overcome the collective action problem inherent in organizing a revolution,

(4) for democracy to be achieved, reformers within the authoritarian bloc must align themselves with moderate opposition leaders to force authoritarian hardliners into accepting transition.

While these conclusions were drawn from an historical analysis of Franco's Spain, Argentina under the military Junta during 1976-1983 and the Soviet Union, they may also be valid for the partial democracies discussed above.

Extending this model to deal with complex polities, like Iran,Iraq, Pakistan and Russia would potentially involve three economic factor dimensions, as well as various political dimensions such as equality, nationalism, and religion. It is possible that the military will be strongly opposed to religious activists, as Schofield et al.(2009c) show is the case in Turkey. On the other hand, in Pakistan it would seem that the military is divided between those who support and those who fear religious fundamentalism. In Afghanistan and Iraq the situation is even more complex. The former country is, in a sense, partly governed by factious warlords, whose wealth depends on their control of trade in opium[28] and weapons, and who rightly fear that the Taliban threaten their power. In Iraq, the provincial elections in early February, 2009, showed that the electorate

[28] Rashid (2008) notes that in 2006 Afghanistan produced 93% of the world's heroin. There are also untapped reserves of oil, gas and many minerals.

is sharply and regionally divided between Sunni, Shia and Kurd, with a policy space characterized by religion and nationalism, just as in Turkey.

In June, 2009, the Presidential contest in Iran between the reformist Mohammad Khatami and current President, Mahmoud Ahmadinejad, turned on economic issues (oil), nationalism (the bomb) as well as the influence of religious activist groups. Meanwhile, the opposition to Turkish membership of the European Unionby President Sarkozy of France and Chancellor Merkel of Germany may cause Turkey to turn away from the West. In October, 2009, Erdogan visited Tehran and met with President Ahmadinejad of Iran. Turkey and Russia are also discussing the possibility of having Russian gas supplies transit through Turkey. The result of these moves by Turkey will affect the whole Middle East.

6 Land, Capital and Labor in a Democracy

This activist model presented here can be used to understand the conflict of land and capital that dominated US politics in the nineteenth and early twentieth centuries.

Schofield (2006a) argues that Britain's ability to fight the long eighteenth century war with France depended on a compact between land and capital that was put in place by Robert Walpole, in the 1720's, and lasted until the repeal of the Corn Laws in 1846. The compact was based on the protection of the agrarian interest by customs and excise, and required the disenfranchisement of most of the population until the First and Second Reform Acts of 1832 and 1867.[29]

The Declaration of Independence by the thirteen colonies in 1776 was, in turn, triggered by conflict over land, specifically because of the attempt by the British to remove the Ohio Valley from settlement though the Quebec Act of July 1774.[30] This Act led almost immediately to the First Continental Congress in October 1774, and was denounced in the Declaration itself.

In the United States, after independence in 1783, conflict between Federalists, represented particularly by Alexander Hamilton, and the Republicans, James Madison and Thomas Jefferson, focused on land versus capital. Hamilton's Reports of 1790-1 on Public Credit, Manufactures and The National Bank were all aimed at creating an American analogue of the British system of tariffs and excise. Since the United States exported land-intensive goods, the only feasible path to creating a commercial economy was to sustain manufactures either by tariff or by direct government assistance. Hamilton rejected the Madison-Jefferson view that the future of the U.S. economy lay principally in the cultivation of the land. Indeed, in the Report on Manufactures, Hamilton argued that that the U.S. could grow only through an increase of productivity as a result of manufacturing.

[29] The 1867 Act was the most extensive. See McLean (2001) and Schofield (2008b) for discussion.

[30] See Schofield (2002) and Simms (2008).

Madison and Jefferson believed that Hamilton's commercial empire in the United States would generate precisely the same phenomenon of immiseration and disenfranchisement as had occurred in Britain.[31] Hamilton's scheme would mean tariffs to raise revenue, increasing government debt, an extensive military establishment and corrupt "placemen." Jefferson's "Empire of Liberty" meant the exact opposite[32] and his election in 1800 saw the victory of the Democrat-Republican trade-oriented coalition of the slave-owning elite and free agrarian labor against the more urban north east.[33]

Until the election of Lincoln in 1860. the political coalition structure was "intersectional"of eastern Whigs against the agrarian Democrat south and west. Lincoln's election was the result of the collapse of the agrarian coalition, triggered by the Dred Scott opinion of the Supreme Court in 1857. Lincoln argued that this decision could lead to the expansion of slavery to the Pacific, against the interests of northern free labor. During the Civil War, the Tariff Acts of 1862 and 1864 were proposed as means to raise capital for the effort against the south, but as Taussig (1888) noted, in his classic treatise on the tariff,

> Great fortunes were made by changes in legislation urged and brought by those who were benefited by them.

By the Tariff Act of 1883, the average duty on aggregrate imports was of the order of 30%, mostly on manufactures.

The second half of the nineteenth century had seen an enormous growth of agrarian exports from the U.S to Great Britain. As Belich (2009) notes, grain exports increased from a million tons in 1873 to 4 million by 1900, with similar increases in dairy and meat products. However, by 1900, the Dominions (Canada, New Zealand and Australia) began to replace the United States as the agrarian suppliers for Britain. At the same time, the United States began its somewhat delayed process of industrial development, making use of the transport infrastucture, canals etc that had been put in place in the previous decades. Belich (2009) suggests that the decoupling of the United States from Britain took place about 1900, by which time the population of New York had reached 3.5 million.[34]

This decoupling sets the scene for the conflict between the manufacturing interests of the north east, and their preference for the protective tariff, against the free trade preference of the south and west of the country at the election of 1896. At this election, the Republican William McKinley, stood for the manufacturing interests, and barely defeated the Democrat, William Jennings

[31] See McLean (2001) and Schofield (2008b) for discussion.

[32] See the discussion of this period in Wood (2009)

[33] In this election, the Democrat-Republicans won 146 electoral college votes, with Jefferson and Burr, of New York, each receiving 73. The Federalists won 129 in total. Eventually Jefferson won the House with ten states to four for Burr. The three fifths weight given to unfree labor in the south had proved crucial.

[34] According to O'Rourke and Williamson (1999), the US economy grew rapidly in the period 1870-1913. Real wages, GDP per capita and GDP per worker hour increased by 46%, 115% and 126% respectively. These figures suggest that inequality increased.

Bryan, whose populist position for cheap money against the gold standard was strongly supported in the somewhat less populous agrarian south and west.[35]

The Smoot-Hawley Tariff Act of 1930 raised average tariffs to about 20% and is generally considered to have contributed to the dramatic fall in both imports and exports. By 1993, however, the massive economic growth of the post war years led to the North American Free Trade Agreement, in 1993, pushed forward by William Clinton. Even though populists, like Patrick Buchanan (1998) have hated the resulting globalization, it contributed to the period of rapid growth that came to such an abrupt end recently.[36]

Much discussion in recent years has focused on why North America was able to follow Britain in a path of economic development, but Latin America and the Caribbean islands, though generally far richer initially, fell behind in the nineteenth century. In their discussion of Latin American economic development, Sokoloff and Engerman (2000) have emphasized the different factor endowments of North and South America. In contrast, Przeworski and Curvale (2006) argue that while economic inequaltiy tended to persist and has been related to the degree of political inequality, many aspects of the developmental path appear highly contingent. Indeed whether Latin American economies grew, and the extent to which they have protected the factors of capital and labor, seems to be dependent on shifting balances of power between differing activist groups, as suggested by the formal model presented in this paper.

Galiani, Schofield and Torrens (2010) have applied the model presented here to elucidate the conflicts that exist between activist groups which are characterized by their control of different economic factors. They argue that Latin American economies are *diversified natural resource-rich economies,* which tend to have an important domestic industry that competes with the imports. In such a political economy, parties tend to diverge, and trade policy is likely to be more protectionist and unstable. They suggest that uncertainty in policy has been one cause of the slower development path of these economies.

Such an activist model can also, in principle be applied to study the political economy of resource rich countries like Iran.

This brief sketch of shifts in the dominant societal cleavages indicates how social choice in both developed and less developed polities will tend to be transformed as a result of essentially political changes in the balance of power between landed and capital elites, in coalition with different elements of enfranchised labor.

[35] McKinley won 51% of the popular vote but 60% of the electoral college, taking the entire northeast along with California and Oregon. Miller and Schofield (2003) have noted the major realignment that has occurred since 1896. The Republican northeast in 1896 became the Democrat stronghold for Democrat presidential candidates in the last three elections from 2000.

[36] As at the end of the nineteenth century, the recent period has been characterized by increasing income inequality.

7 Concluding remarks

This paper has applied a theoretical stochastic model to present a discussion of recent elections in the United States, as well of earlier realignments in the fundamental political configuration as the balance of the economy shifted to manufacturing in the late nineteenth century and early twentieth century.

This model has also been offered as the basis for discussion of the behavior of leaders in such partial democracies as Russia, Zimbabwe, Pakistan, Iran and Iraq. In such polities, while elections are utilized in order to maintain the pretence of legitimacy, the political leaders must also obtain resources from various political and economic elites, in order to maintain power. It is suggested that the logic of the electoral model also holds for autocrats: if their relative valence falls with respect to an opponent, then there may be a contest between the militaristic activist pull and the populist pull. Economic shocks may destroy the stability of the autocratic support coalition and this will have an effect on the willingness of the citizens to accept autocratic rule. Future work will attempt to apply this model to account for shifts in polities in Latin America from autocracy to democracy.

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Table 1 Convergence coefficients and Fragmentation

Country	Convergence	Political System	*env*	*env*	*ens*	*ens*
Poland	6.82 (1997)	Fragmented PR	5.5 (1997)	7.7 (2005)	3.1 (1997)	5.0 (2005)
Turkey	5.94 (2002)	PR, high cut off	7.7 (1999)	4.0 (2007)	5.0 (1999)	2.3 (2007)
Israel	3.98 (1996)	Fragmented PR	6.5 (1996)	10.0 (2009)	6.5 (1996)	10.0 (2009)
Netherlands	1.18 (1977)	PR, no cut off	4.2 (1977)	8.3 (2006)	4.0 (1977)	8.3 (2006)
Canada	1.26 (2004)	Parl.plurality	4.0 (2004)	4.1 (2008)	3.1 (2004)	3.5 (2008)
Russia	1.7 (2007)	Parl.plurality	2.3		2.0	
Britain	0.84 (2005)	Parl. plurality	3.2 (1997)	2.7 (2005)	2.2 (1997)	2.5 (2005)
U.S.	[0.40,1.1] (2000-8)	Pres. plurality	2.0		1.0	

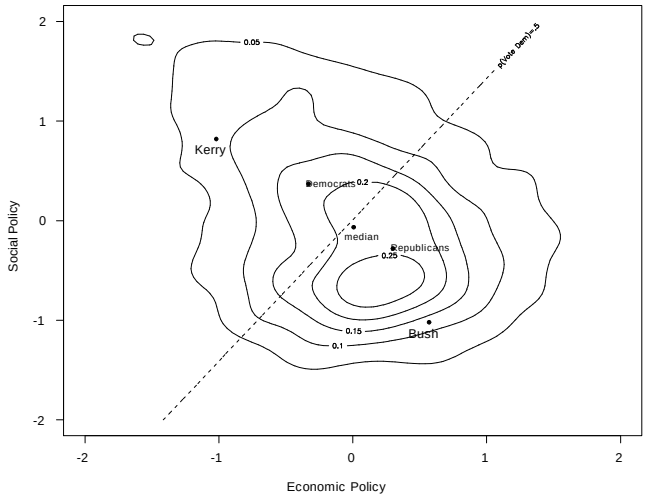

Figure 1: Electoral distribution and candidate positions in the United States in 2004

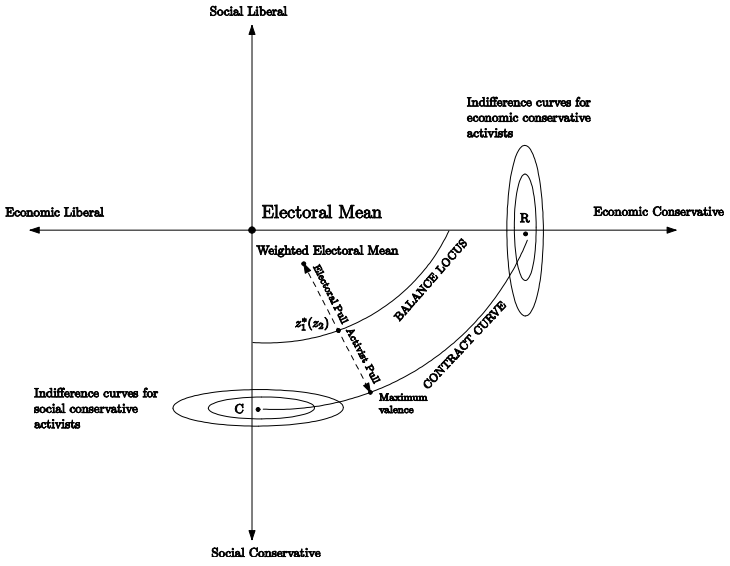

Figure 2: Optimal Republican position

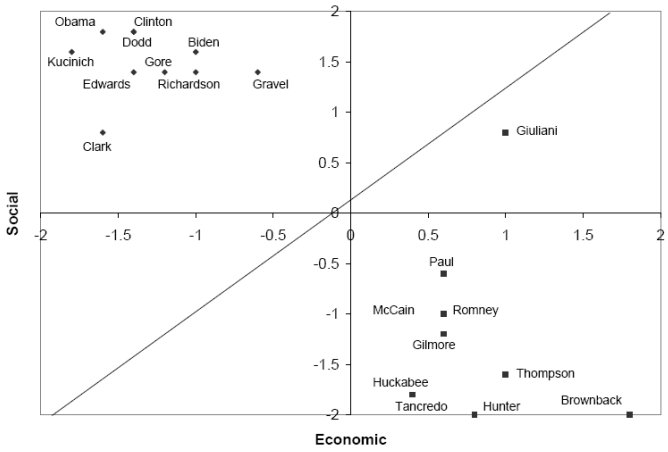

Figure 3: Positions of Republican and Democrat Candidates in 2008

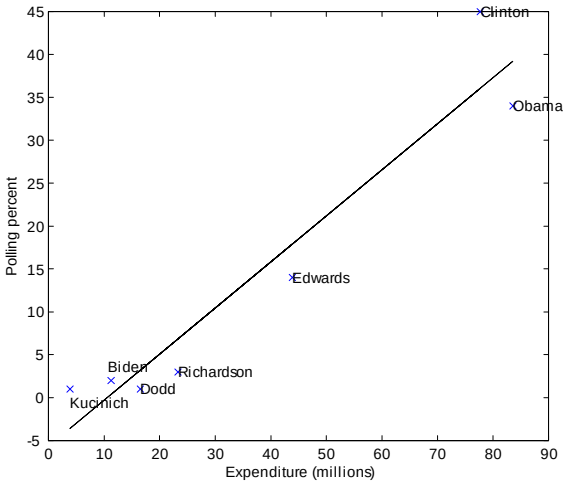

Figure 4: Democrat candidate spending and popularity, January 2008

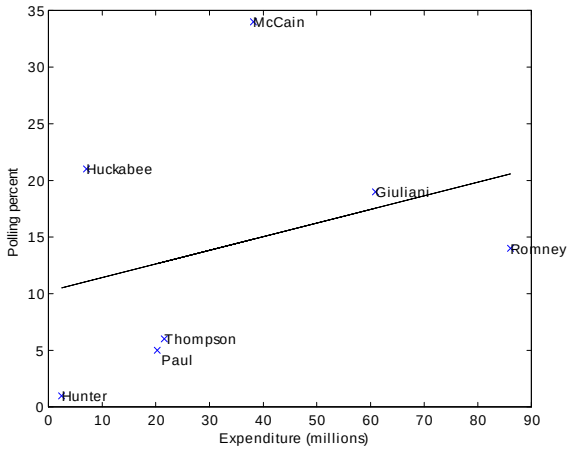

Figure 5: Republican candidate spending and popularity, January 2008

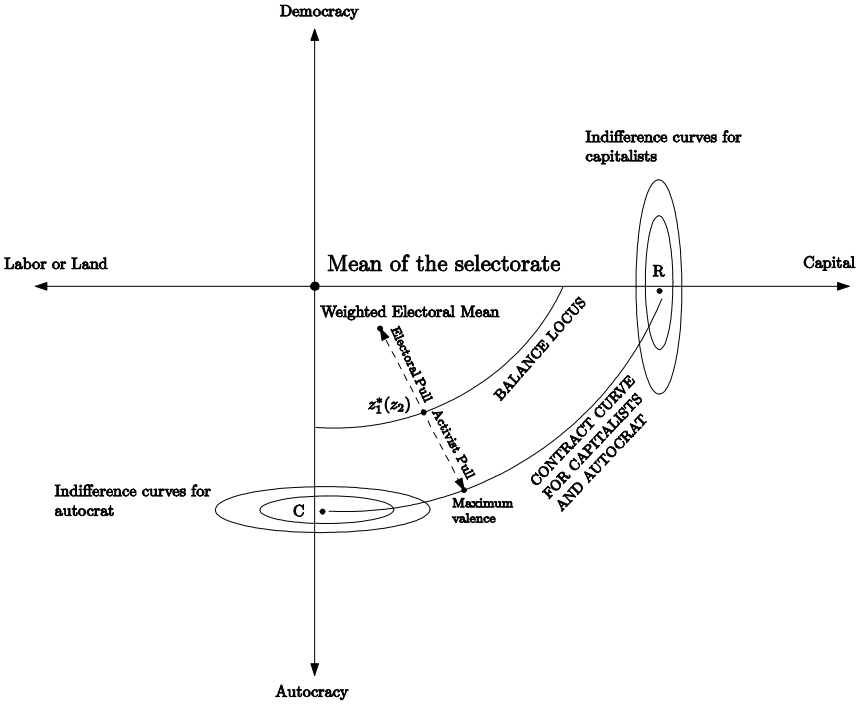

Figure 6: The autocrat balance locus