A Spatial Model with Endogenous Linkage Strategies

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Abstract

This paper proposes a spatial model that combines both *programmatic* as well as *clientelistic* modes of vote-seeking. In the model political parties strategically choose: (1) their programmatic policy position, (2) the effort they devote to clientelism as opposed to the promotion of their programmatic position, and (3) the set of voters who are targeted to receive clientelistic benefits. I identify conditions under which the possibility for clientelistic appeals leads to infinite cycling between the competing linkage strategies; conditions under which parties compete on purely programmatic grounds and converge to the median voter's ideal policy; and conditions under which parties exert positive clientelistic effort. Among other findings, the model suggests that the relationship between clientelism and ideological polarization should be *curvilinear*: ideological moderation should accompany equilibria with both very high and very low levels of clientelistic effort, while ideological polarization should characterize equilibria at intermediate levels of clientelistic effort.

I. Introduction

In spatial models of political competition, political parties typically announce positions on one or more issue dimensions; voters then choose from among these parties according to their preferences over the same issue dimensions. Put otherwise, spatial models typically analyze *programmatic* elections in which the link between voter choice and elite behavior is consummated via policy issues resonant at the national level. A similar accountability mechanism underpins the 'Responsible Party Government' model, which dates at least to Lipsett and Rokkan (1967), and sees ties between political parties and voters as grounded in campaign and governance strategies on issues of national-level public policy (Powell 2004).

In contrast, a growing body of research in comparative politics and comparative political-economy investigates *clientelistic* linkages between citizens and elected officials. Such linkages are grounded not in national-level public policy debates, but rather in a direct and contingent exchange of votes (or other forms of political participation…) for tangible material or professional rewards. In such contexts, rather than evaluating political parties' policy stances on one or more programmatic issues, voters choose based on parties' ability to provide targeted inducements. These inducements take many forms: jobs in the public sector, access to the electric grid, washing machines, alcohol, fuel, etc. In contrast to programmatic politics, in clientelistic elections the welfare of a voter may depend directly on his or her voting decision, since targeted benefits often accrue only to those who supply parties with electoral support.[1]

[1] Of course, behind the notion that targeted benefits accrue only to a party's supporters is the assumption that politicians are able to monitor voters' decisions; and, potentially, able to punish voters who don't keep their end of the clientelistic bargain. Issues of monitoring, punishment, and enforcement are of central concern in the emerging literature on clientelistic politics.

A series of recent papers, reviewed in Section II below, have analyzed clientelism in a game theoretic setting. While all making valuable contributions to the literature on contingent electoral exchange, none explicitly introduces clientelistic concerns into the traditional spatial model, which has for decades been the work-horse in formal political theory. As a result, these papers tend to leave unanswered an important subset of questions regarding clientelistic linkage strategies. By what calculus do party leaders allocate scarce effort between clientelistic and programmatic electoral appeals? What is the relationship between clientelism and ideological extremism? Under what conditions will party leaders target their clientelistic efforts ‘narrowly’ to a small set of voters as opposed to ‘broadly’ to larger segments of the electorate?

This paper develops a spatial model in which political parties strategically choose: (1) their programmatic policy position, (2) the effort they devote to clientelism as opposed to the promotion of their programmatic position, and (3) the set of voters who are targeted to receive clientelistic benefits. Section III presents the model’s actors, their utility functions, and the actions which comprise their choice sets. Section IV then presents the criteria under which clientelistic campaigns generate theoretical instability (i.e. the absence of Nash Equilibria), as political parties cycle infinitely between competing linkage strategies.

Section V identifies a set of necessary conditions for the emergence of Nash Equilibria with positive levels of clientelism. One such condition is that parties’ potential clientelistic constituencies not perfectly overlap. Put otherwise, this condition states that different parties must have differential abilities to target distinct subsets of voters. A second criterion for equilibrium existence is that political parties face a *binding turnout* *constraint*. This condition states that some portion, however small, of the electorate must abstain when faced with a purely programmatic electoral campaign. When turnout is not a given, the need to balance one's interest in courting the electoral median with that in maintaining the support of one's ideological base leads, at times, to the adoption of positive equilibrium levels of clientelism.

As both of these necessary conditions are likely to obtain in most real world circumstances, Section V's results are those most amenable to future empirical analysis. These results capture a series of curvilinear intuitions as to the relationship between the extent of clientelism, political parties' ideological polarization, and the 'scope' of clientelistic constituencies. At the most general level, they state that *both* equilibria with very high levels of clientelism and those with very low levels of clientelism should generate ideological moderation. These same equilibria should also generate fairly 'inclusive' clientelistic appeals which target broad rather than narrow segments of the electorate. On the other hand, equilibria with intermediate levels of clientelism are characterized by both ideological polarization and fairly 'exclusive' clientelistic appeals. Section VI concludes with a discussion of these results' normative and empirical applications.

II. Formal Theories of Clientelism

A full review of past literatures on both spatial theory and political clientelism is beyond my current scope, though a more exhaustive review will appear in future iterations. So as to highlight this paper's specific contributions, here I briefly outline recent theoretical research on the causes of clientelism. In the Introduction to their edited volume, Kitschelt and Stevenson (2007) present an argument to explain the mix of clientelistic and programmatic appeals in politicians' vote production functions. Driving this mix is the interaction between economic development and electoral competitiveness.[2] At low levels of economic development politics is heavily clientelistic, and increasingly so as competitiveness increases. At high levels of economic development, politics is heavily programmatic and increasingly so as competitiveness increases. Finally, it is at intermediate levels of development that politicians invest more equitably in both forms of linkage. To complement these basic comparative statics, the authors also highlight the role of a publicly controlled political-economy and formal political institutions in conditioning the mix of linkage strategies.

In the same volume Magaloni et al. (2007) develop a decision-theoretic model to consider an incumbent politician's decision to generate public as opposed to clientelistic goods. Public goods offer the ability to target large number of voters, but are risky insofar as voters' response to public good proposals is uncertain. On the other hand, clientelistic goods allow politicians to gain smaller blocs of voter support with certainty. The optimal allocation of clientelistic effort thus increases in: a.) voters' relative preferences for small-scale targeted policy goods (for which economic development should be a reasonable proxy); b.) the relative uncertainty of vote returns to public good provision; and c.) politicians' risk aversion.

These papers emphasize the role of economic development, electoral competitiveness, and incumbents' risk profile in conditioning politicians' optimal mix of clientelistic and programmatic electoral appeals. They do not, however, investigate the

[2] Competitiveness is a notably tricky concept to precisely define and operationalize. Different authors have assigned the concept different empirical referents. Kitschelt and Stevenson (2007) define competitive elections as those in which "…elections are close between rival blocs of parties…and there is market of uncommitted voters sufficiently large to tip the balance in favor of one or another bloc." (pg. 28)

relationship between clientelistic appeals and the relative extremism or moderation of political parties' programmatic stances; nor the processes by which candidates choose which segments of the electorate to target with clientelistic goods. Finally, they do not embed the linkage decision in a strategic context such that one parties' electoral strategies are an explicit function of their competitors' decisions.

A series of recent game theoretic models begin to address these issues. Medina and Stokes (2002) analyze a model in which incumbent patrons endowed with exclusive control over a monopoly good compete with a challenger over political office. In equilibrium, incumbent patrons offer an evenly-divided spread of monopoly resources to all voters, while challengers target just enough voters to secure a minimum-winning coalition. By offering an even spread of goods to all voters incumbent patrons increase the challenger's cost of securing a minimum-winning coalition, and thus increase their own likelihood of re-election. One of the model's basic implications is that incumbents should not favor high tax rates (i.e. clientelism is not heavily redistributive), because higher tax rates provide challengers more revenue with which to put together a minimum-winning coalition.

Stokes (2005) analyzes an infinitely-repeated prisoner's dilemma played between an incumbent politician and a potential supporter, where the incumbent decides between providing a benefit 'B' and the potential supporter decides to vote for the incumbent or a challenger candidate. In equilibrium, clientelistic relationships of vote targeting are more likely to arise when: a.) the benefit B is large; b.) voters are 'moderate' supporters of the incumbent, i.e. not heavily biased for or against the incumbent's programmatic policy stances; and c.) when the ideological distance between the incumbent party and her competitor shrinks. Nichter (2008) analyzes a similar model with one major distinction: the game is played between an incumbent politician and a potential voter whose basic decision is not who to choose but whether or not to turnout. Rather than targeting 'moderate' supporters, politicians who use clientelism to increase turnout are more likely to do so among 'strong' ideological supporters. As well, the likelihood of clientelism effectively inducing turning out is no longer a function of the ideological distance separating incumbent and challenger candidates.

This first set of game theoretic papers has made valuable contributions to research on the nature of parties' clientelistic constituencies, i.e. the particular voters or subsets of voters to which parties' devote their clientelistic efforts. However, it does not address the question asked by Kitschelt and Stevenson (ibid) and Magaloni et al. (ibid), namely "What is politicians' optimal mix between clientelistic and programmatic campaign strategies?" Furthermore, it does not address the relationship between a party's linkage strategies and the relative extremism of its programmatic stances. Indeed, models by Stokes (ibid) and Nichter (ibid) stipulate political parties' spatial positions as exogenously fixed, and from these fixed positions identify the subsets of 'moderate' and 'strong' party supporters. In model derived below the choice of programmatic stances is explicit, such that the identity of 'moderate' and 'strong' party ideological supporters arises as an endogenous outcome of strategic competition.

Keefer and Vlaicu (2008) adapt Persson and Tabellini's political-economic model (2000) to the comparative study of fiscal policy under alternative credibility environments. Politicians in their model choose: a.) a level of public good provision; b) a level of targeted good provision; c.) the set of districts to which targeted goods will be allocated; and d.) rent extraction levels. Not unlike Stokes (ibid), the authors find that clientelism will be targeted to electoral districts with low levels of ideological bias, i.e. those districts in which voters are more effectively swayed by targeted policy appeals. They also find that a ‘broader’ segment of the electorate will be targeted as parties devote more overall effort to clientelistic appeals, i.e. targeting becomes more ‘inclusive’ as clientelistic effort increases. Finally, they argue that such appeals will be more prevalent in systems where national-level politicians lack credibility on matters of economic governance; and that they will tend to open the door to rent-seeking by public officials.[3]

Though employing different theoretical techniques and obtaining distinct formal results, Keefer and Vlaicu (ibid) come closest to addressing the set of questions tackled in the proceeding Sections. That said, as with the above reviewed research, parties in their model do not choose explicit programmatic positions, which in turn implies an exogenous stipulation of electoral districts which are ‘more’ or ‘less’ ideologically biased. Not only is the strategic relationship between clientelism and ideological extremism important in and of itself; as well, parties’ programmatic positioning should exert a significant influence on the particular segment of the electorate they choose to target. Put otherwise, in the spatial model developed below clientelistic coalitions’ relative ‘inclusiveness’ is a function of parties’ programmatic choices.

III. Actors and Utility Functions

The game contains two types of actors: candidates and voters. Label candidates with the marker P and assume throughout that only two candidates compete, such that

[3] However they also note that it is not patron-client ties themselves that generate less than ideal fiscal policy, but rather national officials’ lack of credibility. Indeed, in a world without such credibility the presence of local patrons actually *improves* voter welfare as compared to one without such local intermediaries.

$P \in \{1,2\}$. Candidates' decision processes are interdependent, i.e. candidate 1's optimal action is contingent on candidate 2's campaign strategy and vice versa. In contrast voters are non-strategic: they simply choose the candidate whose campaign platform they find most attractive. In the Downsian spatial model campaign platforms consist of what I will label *programmatic* policy proposals. Consider a simple uni-dimensional policy continuum $x \in [0,1]$ such that the policy $x = 0$ is the most 'leftist' policy available to candidates and the policy $x = 1$ is the political spectrum's most 'right' policy option. Candidates' action-set in most spatial models consists of a platform choice x_P somewhere in the continuum $x \in [0,1]$. Having chosen campaign platforms, voters then choose based on their evaluation of candidates' policy proposals.

In the traditional spatial model voter preferences are completely determined by parties' national-level policy proposals; they are not impacted by parties' more mundane efforts to secure votes with material, personal, or professional benefits targeted to individuals or narrowly defined social groups. To imbed clientelistic linkage strategies in the traditional spatial model, assume that both candidates must divide *expendable political effort* between promoting and implementing their proposals on issues of national-level public policy, and providing targeted goods to individuals and small social groups. More particularly assume that both candidates have a *single unit* of campaign effort which they must divide between promoting their programmatic stances (labeled G_P) and providing clientelistic benefits (labeled C_P). This implies the effort constraint $G_P + C_P = 1$. They must thus choose not only a spatial position x_P, but also the effort levels G_P and C_P which they will devote to two distinct modes of vote-seeking. As we will see below, to the extent that candidates engage in clientelistic campaign strategies voters will discount their national-level policy proposals, and vice versa.

The final question which candidates must answer in devising a comprehensive campaign strategy is "To whom shall I target my clientelistic effort?" In other words, beyond choosing the overall level of effort to be expended on clientelism C_P, candidates must also choose the subset of voters who will benefit from C_P. This subset may, at least in the abstract, range anywhere from the entire electorate all the way down to a single voter. These extremes, however, are unlikely to be observed in the empirical world, where politicians tend to target more than a single citizen but less than the entire citizenry with clientelistic inducements.

To make this more concrete, consider our model of the electorate. Voters are defined first and foremost by their *ideal point*, i.e. their most-preferred policy on the continuum $x \in [0,1]$. Define x_i as voter i's ideal point such that, roughly speaking, a voter i with ideal point $x_i < .5$ ($x_i > .5$) most prefers a policy on the political 'left' ('right'). For simplicity, assume throughout that ideal points are distributed uniformly in the policy space $x \in [0,1]$ (i.e. $x_i \sim$ uniform [0,1]), which implies that each policy point on the spectrum $x \in [0,1]$ is most-preferred by an equal number of voters, and in turn that both the *mean* and *median* of the voter preference distribution are located at $x_m = .5$.

Electoral candidates must choose from this distribution of voters those which they will target with clientelistic inducements. For example, a party might target all voters on the political 'left', i.e. whose most-preferred policy is $x_i < .5$; or only the most 'leftist' quartile of voters in the range $x_i \in$ [0,¼]; or all voters from the political center in the range $x_i \in$ [¼,¾]; and so on. Define the set of voters targeted by party *P* as the this party's *target set*, and denote the target set as Θ_P. We make the following assumptions as to the nature of clientelistic vote-seeking:

* **Assumption 1:** The target set Θ_P must be <u>continuous</u> in $x \in [0,1]$.
* **Assumption 2:** Clientelistic effort C_P is <u>evenly distributed</u> among all members of the target set Θ_P.

The first assumption prohibits candidates from choosing a target set with 'breaks' in the distribution of voter preferences. For example, it precludes a strategy in which party *P* targets *both* ideologues on the right in the range $x_i \in$ [¾,1] and those on the left in the range $x_i \in$ [0,¼]. Similarly it precludes a strategy in which party *P* targets ideologues on the right from the range $x_i \in$ [¾,1] and 'moderates' on the left in the range $x_i \in$ [¼,½]. On the other hand, it does not prevent party *P* from choosing a target set which contains both 'left' and 'right' voters, so long as these voters come from a continuous range of the preference distribution $x \in [0,1]$ (as when the target set includes all 'moderates' in the range $x_i \in$ [¼,¾]). The second assumption precludes candidates from providing more clientelistic goods to certain members of their target set than to others. All voter types who find themselves contained within a candidate's target set are assumed to receive an equal amount of the benefits resulting from C_P.[4]

Let $\mathbf{v}_P$ represent a *strategy vector* for the candidate from party *P*, i.e. a complete catalogue of his or her campaign decisions. From the above discussion we now know that

[4] Both assumptions are primarily technical, and simplify the model immensely. As well, both are plausible: it seems quite natural to eliminate the possibility of an electoral strategy in which parties attempt to include extremists from both sides of the political spectrum in their target set. That said, Assumptions 1 and 2 do eliminate from candidates' action sets a series of campaign strategies which may, at least in theory, be observed empirically. In future iterations I will examine the consequences of relaxing both assumptions.

$\mathbf{v}_P$ is four-dimensional and can be written as follows: $\mathbf{v}_P = \{x_P, G_P, C_P, \Theta_P\}$. This fourfold action set exhaustively defines a candidate's available choices in employing both programmatic and clientelistic vote-seeking strategies. Compared to the traditional spatial approach, this model substantially expands the set of campaign strategies available to electoral candidates. On the other hand, I adopt the Downsian assumption that candidates are exclusively *office-seeking*, i.e. their only goal in devising campaigns is political incumbency, implying the following utility function for candidate *P*:[5]

$$U_P = \pi_P \cdot \beta \quad \textbf{(1)}$$

The marker π_P represents *P*'s probability of winning the election, and will emerge endogenously as a function of both candidates' campaign strategies (by construction $\pi_1 = 1 - \pi_2$). The marker $\beta > 0$ represents the value candidates attach to winning office. Built into this model of voter preferences is a tradeoff between clientelistic and programmatic targeting. To see this note that $G_P = (1 - C_P)$: any and all effort not expended on programmatic campaign appeals will be allocated to clientelism. In a model without rent-seeking in which politicians receive utility only from gaining political incumbency, all effort will be spent on vote-seeking (i.e. the effort constraint will be binding). Every additional increment of effort devoted to programmatic linkage formation is thus, by definition, taken away from a candidate's clientelistic effort, and vice versa.

[5] The purely office-seeking assumption is the simplest of all candidate preference models. More recent research has extended the traditional spatial model to situations in which candidates also care about the policies which are implemented as a result of democratic elections (e.g. Wittman 1983; Calvert 1985). Strom (1990) represents an early attempt to explain why some candidates might be primarily office- and/or vote-seeking while others might be primarily policy-seeking.

Just as candidates may employ both forms of electoral linkage, voters too have preferences over both programmatic policy issues and targeted material, professional, or personal inducements. Begin with the natural assumption that voters discount candidates' programmatic policy stances to the extent that candidates engage in clientelistic linkage strategies. For example, holding all else constant a voter with ideal point x_i would prefer that *P* choose a policy $x_P = x_i$ rather than a policy further removed from her ideal point. That said, *even if* P chooses the policy $x_P = x_i$, voter i will attribute little or no value to this policy when G_P is very low and C_P is very high. Put simply, if candidates exert little effort in promoting and/or implementing their programmatic policy stances, voters will discount these stances accordingly. To operationalize this notion, consider the following specification of a voter's *programmatic utility* for party *P*:

$$u_{i,P}\ (\text{prog}) = G_P \cdot (1 - abs[x_P - x_i]). \qquad \textbf{(2)}$$

The term $abs[\cdot]$ denotes the absolute value function such that, holding G_P constant, as x_P moves further from x_i voter i's programmatic utility for *P* decreases. Similarly, holding x_P constant, as G_P decreases so does voter i's programmatic utility for *P*.[6] As a

[6] The functional form in (2) implies that voters' programmatic utility for *P* will always be increasing in G_P. However, might it not be the case that voters actually prefer lower levels of G_P when parties' choose policy positions far-removed from their own ideal point? For example, if a party promotes a pro-life stance on the issue of abortion, pro-choice voters may prefer that said party devote less rather than more effort to implementing this policy. In the current model, the dimension x_P is a public good continuum; differing ideal points on x_P represent distinct preferences as to the ideal nature of public goods. Some voters may prefer national security, some environmental protection, and others free access to social services. That said, voters benefit from increased public good provision even when the nature of the good provided is not their most-preferred. Voters who prefer national security to environmental protection will nonetheless, all else held constant, benefit from reduced pollution. In addition, formal models of public good provision often assume that voters are risk averse; if we were to assume that higher levels of G_P reduce the uncertainty surrounding parties' ability to implement national-level policies, voters' programmatic utility for *P* would again increase with G_P. As a result, equation (2) captures the type of programmatic utility of interest to this paper.

result of this functional form, the maximum programmatic utility that any voter will have for candidate *P* is '1'; this occurs when $G_P = 1$ and $x_i = x_P$.

In expressing voter i's *clientelistic utility* for candidate *P*, it is important to first distinguish between voters who are in *P*'s target set and those who are not. We will assume that voters who are not targeted by a particular candidate simply receive a clientelistic utility of '0' from that candidate's policies. So, if candidate 1 chooses the target set Θ_1 = [¼,½], then all voters with ideal points x_i < ¼ or x_i > ½ will receive a clientelistic utility of '0' from 1's campaign. What about voters who find themselves within a candidate's target set? Consider the following functional form:

$$\forall\, [i : x_i \in \Theta_P], \qquad u_{i,P}\ \text{(client)} \;=\; \left\{ \frac{C_P{}^{\eta}}{\delta + \Theta_P} \right\}. \qquad \textbf{(3)}$$

Beginning with (3)'s numerator, the parameter η is an exponent which will assume to be less than or equal 1 (i.e. $\eta \le 1$). While voter i's utility will always increase with C_P, his or her marginal utility for an unit of additional clientelistic effort (weakly…) decreases as clientelistic effort increases. For example, when $\eta = ½$ the numerator of (3) becomes the square root function: $\sqrt{C_P}$. The notion that citizens' marginal utility for targeted policy benefits is decreasing with the extent of targeting appears frequently in political-economic models (e.g. Keefer and Vlaicu ibid). Operationally, it implies that the provision of targeted goods becomes less efficient in extremely large amounts. As we will see below, the model yields parallel comparative static results without assuming that heavily clientelistic campaigns generate high 'dead-weight-loss' (i.e. when $\eta = 1$).

Moving to (3)'s denominator, we have already defined Θ_P as candidate *P*'s target set. Since Θ_P appears in the denominator, holding C_P constant voter i's clientelistic utility $u_{i,P}$ (client) will always decrease with the size of *P*'s target set. As candidates target more and more voters the effort level C_P must be distributed among a larger and larger population, thus reducing the *per capita* clientelistic consumption of all beneficiaries. The exogenous parameter δ represents the rate at which voters *discount* clientelistic appeals. When the discount rate δ is large, members of *P*'s target set will receive little utility from clientelistic benefits, *even if* these benefits are extensive and narrowly targeted. When δ is small, members of *P*'s target set may receive substantial utility from clientelistic benefits, *even if* the effort C_P is minimal and broadly targeted.

Voters' responsiveness to clientelistic appeals has many possible empirical determinants, including but not limited to one's income, profession, and cultural environment. As a first cut, in this paper we will assume that δ is invariant across voters, i.e. that all voters in an electorate are similarly responsive to clientelistic appeals.[7] Also as a first cut we assume δ to be exogenous to the game itself.[8] Ultimately, translating the theoretical framework developed here into an empirical framework for the study of democratic accountability will require a careful treatment of δ's endogenous and exogenous determinants, as well as its potential for subnational variation. Nonetheless, the assumption of an invariant and exogenous δ allows us to identify a first set of

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[7] Of course, empirically this is unlikely to be the case: voters within a given electorate will likely exhibit some degree of differentiation according to their socio-economic and cultural status.

[8] The model may eventually be extended to situations in which δ is endogenously determined by the set of candidate campaign strategies and voter choices. For example, one might envision δ as assuming high values among moderate voters when both parties choose extremist policies in $x_i \in [0,1]$: the alienation which arises from political extremism may make moderates particularly susceptible to more 'cynical' electoral appeals.

comparative static arguments which differentiate between national electorates based on their *median voter's responsiveness to clientelistic campaigns*.

The preceding presentation allows us to exhaustively express a voter i's utility for party *P* as follows:

$$u_{i,P}(\mathbf{v}_P) \quad = \quad \begin{cases} G_P \cdot (1 - abs[x_i - x_P]) + \left\{ \dfrac{C_P{}^{\eta}}{\delta + \Theta_P} \right\} & if \quad x_i \in \Theta_P \\ \\ G_P \cdot (1 - abs[x_i - x_P]) & if \quad x_i \notin \Theta_P \end{cases} . \qquad \mathbf{(4)}$$

In addition to voting for one or the other candidate, we will allow voters the option of abstaining from the electoral contest altogether. Define μ as a *reservation utility* which needs to be met for any citizen to turnout and vote.[9] Put otherwise, a voter i will only turnout if *at least one* of the two candidates proposes a set of policies $\mathbf{v}_P$ such that $u_{i,P}(\mathbf{v}_P) \geq \mu$. If neither candidate platform surpasses this reservation level, then voter i will abstain from the election.[10] If at least one platform $\mathbf{v}_P$ yields i a utility higher than μ, then i will turnout and choose the candidate whose policies yield he or she the highest utility according to (4). If the turnout constraint is satisfied and candidates propose policies that yield i identical payoffs, then i will randomize between the two in an unbiased way (i.e. choose each candidate with a probability of ½).

Thus, while our approach to modeling campaign strategies and voter preferences is substantially more complex than that found in the traditional spatial model, the game itself is not. In a first stage both candidates choose a set of actions $\mathbf{v}_P = \{x_P, G_P, C_P, \Theta_P\}$

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[9] As with the parameter δ we will assume that μ is invariant and exogenous. Many of the qualifications made above as to the importance of relaxing the assumption that δ is invariant and exogenous apply with equal force here.

[10] The spatial literature on voter turnout refers to this form of abstention as due to *alienation*.

so as to maximize (1) above, given their opponent's actions. In a second stage voters evaluate these actions and make their turnout and choice decisions accordingly. In the last and final stage each candidate's votes are counted. Define s_P as the set of all voters who choose party *P*. Formally, this implies that:

$$s_P = [\, i: \; u_{i,P}(\mathbf{v}_P) \geq \mu \;\; \text{and} \;\; u_{i,P}(\mathbf{v}_P) > u_{i,\sim P}(\mathbf{v}_{\sim P}) \;\; \forall \;\; (P, \sim P) \in \{1,2\}\,]. \qquad \textbf{(5)}$$

We assume throughout that the election's plurality winner is declared the victor, which implies that $\pi_1 = 1$ if $s_1 > s_2$ ($\pi_2 = 1$ if $s_2 > s_1$) and $\pi_1 = 0$ if $s_1 < s_2$ ($\pi_2 = 0$ if $s_2 < s_1$). Finally if $s_1 = s_2$ then each candidate wins with probability ½ ($\pi_1 = \pi_2 =$ ½). Thus given any set of policy choices by both parties π_P will always take one of three possible values: party *P* either wins with probability 1 $(\pi_P = 1)$, wins with probability 0 $(\pi_P = 0)$, or wins with probability ½ ($\pi_P =$ ½).

IV. The Clientelistic Instability Theorem

The paper's remaining Sections present and describe the model's theoretical results at representative levels of η and μ. A more technical working paper currently under construction (Kselman 2009) contains general solutions. On an individual basis all such solutions are available upon request, and their logic and strategic foundation will be clear from the below examples. Define $\mathbf{v}_P^*$ as a *Nash Equilibrium* strategy vector and $\mathbf{v}_{mp} = \{x_m, 1, 0, \varnothing\}$ as the *median-voter programmatic* strategy vector. The latter is a strategy vector which essentially replicates the equilibrium choice made in Downs' original model, i.e. to choose the median voter's most-preferred policy position without any effort devoted to clientelistic appeals. In the traditional spatial model the absence of clientelism is by construction; here it emerges at times as a Nash Equilibrium.

Begin with a *clientelistic instability theorem* which applies to situations in which candidates are completely unrestricted in their capacity to target voters with clientelistic inducements, i.e. in which both candidates can target any continuous subset of voters, including entire electorate if they so choose (in which case $\Theta_P = [0,1]$). Although still constrained by Assumptions 1 and 2 from above, this allows both candidates nearly total freedom in choosing Θ_P. The Theorem is grounded in the following theoretical Lemma:

* **Lemma 1:** When candidates can choose any continuous range of voter ideal points as a potential target set, in any Nash Equilibrium each candidate must win with probability ½ (i.e. in any Nash Equilibrium $\pi_1 = \pi_2 =$ ½).

The proof of Lemma 1 is straight-forward. Consider a case in which some candidate has a greater than ½ probability of winning, implying that the opposing candidate has a less than ½ probability of winning. In such a case, the lower probability candidate will always have an optimal deviation: they can improve their chances of winning to at least ½ by simply altering $\mathbf{v}_P = \{x_P, G_P, C_P, \Theta_P\}$ such that their policy proposals mimic perfectly those of their opponent, in which case all voters are indifferent between the two parties and election is essentially decided by a coin flip. As such, as long as candidates are unrestricted in choosing target sets, Lemma 1 obtains. ■

I now demonstrate the impossibility of Nash Equilibria with positive levels clientelism in these unrestricted environments, first presenting the general Theorem and then providing an expository proof of the Theorem for the case in which $\mu = 0$, which implies that all voters turnout.

* **Theorem 1:** When candidates can choose any continuous range of voter ideal points as a potential target set, there **never** exists a Nash Equilibrium set of campaign strategies in which $C_P > 0$ for either party.

*** Proof of Theorem 1 when $\mu = 0$:**

-Define $\underline{x}_P$ and $\bar{x}_P$, respectively, as the left and right endpoints of Θ_P, such that $\Theta_P = [i : \underline{x}_P \leq x_i \leq \bar{x}_P]$. Consider a situation in which party P chooses a strategy profile $\mathbf{v}_P$ with $C_P > 0$ and target set $\Theta_P = [\underline{x}_P, \bar{x}_P]$. As stated above, by definition given any such strategy profile party P either wins with probability 1 $(\pi_P = 1)$, with probability 0 $(\pi_P = 0)$, or with probability ½ $(\pi_P = ½)$. By Lemma 1, we know that any strategy vector which makes $(\pi_P = 1)$ or $(\pi_P = 0)$ will induce defection by whichever party is slated to lose the election.

-What about a vector $\mathbf{v}_P$ with $C_P > 0$ and target set $\Theta_P = [\underline{x}_P, \bar{x}_P]$ at which $\pi_P = ½$, which implies that both candidates win with 50% probability? In this case *P*'s opponent $\sim P$ could choose an identical level of effort $C_{\sim P} = C_P$, an identical policy position $x_{\sim P} = x_P$, and a nearly identical target set such that $\Theta_{\sim P} = [i : \underline{x}_P \leq x_i \leq (\bar{x}_P - \varepsilon)]$, where $\varepsilon \to 0$. In so doing, *P*'s opponent will win the support of all voters in $\Theta_{\sim P}$ (since $C_{\sim P}$ will be distributed over a slightly narrower target set than C_P). As well, all voters not in either target set will randomize, since both parties choose identical policy positions and programmatic effort levels. Trivially, this implies that $\pi_{\sim P} > ½$ (algebra omitted), i.e. that $\sim P$ can increase her probability of winning whenever $C_P > 0$ and $\pi_P = ½$.

-Finally, what about a vector $\mathbf{v}_P$ with $C_P > 0$ and target set $\Theta_P = x_i$ (i.e. a target with only one voter type) at which $\pi_P = ½$, which implies that both candidates win with 50% probability? In this case *P*'s opponent $\sim P$ could choose the median-voter programmatic strategy vector $\mathbf{v}_{mp}$ and secure more than half of all electoral votes: since only one voter is contained in Θ_P, most voters will choose based on their programmatic utility for the respective parties. If $\sim P$ chooses $\mathbf{v}_{mp}$, then no less than a majority of voters will prefer $\sim P$'s programmatic offer than *P*'s. As a result, if $C_P > 0$ and $\Theta_P = x_i$ then $\sim P$ will always have an optimal deviation to the median-voter programmatic strategy vector $\mathbf{v}_{mp}$.

-Taken together, these arguments demonstrate that there is no Nash Equilibrium with positive levels of clientelism when parties are unrestricted in choosing target sets. ■

In words, when both candidates can target any continuous subset of voters, any choice of $C_P > 0$ induces a string of deviations in which candidates choose overlapping but not identical target sets; each of these deviations leads to an increase in the deviating candidate's probability of winning. This strategic process is displayed in Figure 1.

(Figure 1 here)

Such jockeying for ever smaller target sets may continue until only the voter $\underline{x}_P$ is contained in candidates' target sets. At this point, either candidate will have the incentive to deviate and choose the median-voter programmatic strategy vector $\mathbf{v}_{mp}$: by choosing this strategy profile the candidate will win the support of a majority of voters (since no other voters of are members of candidate target sets, and will support whichever party provides the best programmatic option).

Theorem 1 does not imply that the game in its most general form has no Nash Equilibrium; just that it has no clientelistic Nash Equilibrium. For sufficiently high levels of δ the median-voter programmatic outcome $\mathbf{v}_{mp}$ will be the game's unique Nash Equilibrium (i.e. $\mathbf{v}_1^* = \mathbf{v}_2^* = \mathbf{v}_{mp}$). Since at the median-voter programmatic outcome both parties choose identical campaign strategies, all voters find themselves indifferent between the two candidates and randomize, which makes $\pi_1 = \pi_2 = ½$. As such, any deviation from the outcome $\mathbf{v}_1 = \mathbf{v}_2 = \mathbf{v}_{mp}$ which yields party P a vote share $s_P > ½$, implying that $\pi_P = 1$, will be preferred to choosing $\mathbf{v}_{mp}$ and winning the election with probability $\pi_P =$ ½.

As an example I now derive the conditions under which $\mathbf{v}_1^* = \mathbf{v}_2^* = \mathbf{v}_{mp}$ when $\mu = 0$ and $\eta = 1$. The latter implies that voters' clientelistic utility is increasing linearly in C_P, i.e. that clientelistic effort is no less efficient in large amounts than effort devoted to the production of broad-based public goods G_P. I first establish a series of Lemmas which identify, for any allocation of effort to G_P and C_P, a *locally optimal policy* *deviation* $\hat{x}_P(G_P)$ from the outcome at $\mathbf{v}_1 = \mathbf{v}_2 = \mathbf{v}_{mp}$ and a *locally optimal target set deviation* $\hat{\Theta}_P(G_P)$ from the outcome at $\mathbf{v}_1 = \mathbf{v}_2 = \mathbf{v}_{mp}$. These local optima are defined as the policy and target set choices which, for any allocation $G_P + C_P = 1$, generate a deviation from $\mathbf{v}_1 = \mathbf{v}_2 = \mathbf{v}_{mp}$ in the *widest possible range of exogenous circumstances* (over the widest range of δ).

Note, not all such locally optimal deviations will in fact represent payoff-improving moves away from the median-voter programmatic outcome. Indeed if, given some allocation of G_P and C_P, choosing $\hat{x}_P(G_P)$ and $\hat{\Theta}_P(G_P)$ is insufficient to increase one's chances of winning vis a vis one's chances at the outcome $\mathbf{v}_1 = \mathbf{v}_2 = \mathbf{v}_{mp}$, then *there is no* payoff-improving deviation from $\mathbf{v}_1 = \mathbf{v}_2 = \mathbf{v}_{mp}$ for that particular allocation of G_P and C_P. In turn, if there does not exist any allocation of G_P and C_P such that choosing $\hat{x}_P(G_P)$ and $\hat{\Theta}_P(G_P)$ increases one's chances of winning vis a vis these chances at the outcome $\mathbf{v}_1 = \mathbf{v}_2 = \mathbf{v}_{mp}$, then this median-voter programmatic outcome is the game's unique Nash Equilibrium: $\mathbf{v}_1^* = \mathbf{v}_2^* = \mathbf{v}_{mp}$. The following Lemma establishes $\hat{x}_P(G_P)$ and $\hat{\Theta}_P(G_P)$ for all values of $G_P \leq ½$:

*** Lemma 2:** When $\mu = 0$ and $G_P \leq ½$, the locally optimal policy is $\hat{x}_P(G_P) = x_m$ and the locally optimal target set $\hat{\Theta}_P(G_P)$ is any target set that includes a bare plurality of voters (i.e. $\hat{\Theta}_P(G_P)$ includes [50%+1] of the electorate).

This Lemma states that, when deviating from the outcome $\mathbf{v}_1 = \mathbf{v}_2 = \mathbf{v}_{mp}$ by choosing a level of $G_P \leq ½$ (which implies a level of $C_P \geq ½$), one's optimal policy choice will continue to be choosing the median voter's ideal point; and one's optimal target set will be any target set that includes 50% + 1 of the electorate.

*** Proof of Lemma 2:**

-If $G_P \leq ½$ and *P*'s opponent ~*P* chooses $\mathbf{v}_{mp}$, it will be impossible to for *P* to persuade any voters on programmatic grounds. To see this note that, when $G_P \leq ½$, **no** voter will have a purely programmatic utility for *P* greater than ½ (i.e. $u_{i,P}$ (prog) $\leq ½$ for all voters). As well, note that **all** voters have a programmatic utility of at least ½ for any party ~*P* which chooses $\mathbf{v}_{mp}$: the voters least satisfied with the median voter's ideal policy are those with ideal points $x_i = 1$ and $x_i = 0$, and for these voters $u_{i,\sim P}$ (prog) = ½ for any party ~*P* which chooses the median voter programmatic vector $\mathbf{v}_{mp}$.

-As a result, when $G_P \leq ½$ and *P*'s opponent ~*P* chooses $\mathbf{v}_{mp}$, party *P* will only gain the support of voters who are in its target set. In turn, any deviation from the outcome $\mathbf{v}_1 = \mathbf{v}_2 = \mathbf{v}_{mp}$ will need to involve a target set of at least half the electorate in order to give *P* a chance of winning. Furthermore, any target set greater than a bare plurality contains more voters than necessary to win the election, and thus represents a non-locally optimal use of clientelistic resources (recall above definition of local optimality). This establishes that, when $\mu = 0$ and $G_P \leq ½$, the locally optimal target set deviation $\hat{\Theta}_P(G_P)$ is any target set that includes a bare plurality of voters. ■

-The median voter is the voter whose allegiance will be most difficult to gain, since the opposing party ~*P* chooses $\mathbf{v}_{mp}$, i.e. chooses the median voter's ideal point and devotes all effort to programmatic policies. It is straight-forward to see that, if the median voter prefers a strategy vector with a bare majority target set to the strategy vector $\mathbf{v}_{mp}$, then so do all other members of the bare majority target set (since such members are easier to sway than the median voter). In turn, it follows that $\hat{x}_P(G_P) = x_m$. ■

To summarize, when $G_P \leq ½$ and *P*'s opponent chooses the median-voter programmatic strategy vector $\mathbf{v}_{mp}$, all voters not included in candidate *P*'s target set will choose *P*'s opponent on purely programmatic grounds. As such *P* will have to target clientelistic inducements C_P to at least half of the electorate in order to have a chance of winning. Among all strategies which involve targeting at least one half of the electorate, those which generate a deviation from $\mathbf{v}_1 = \mathbf{v}_2 = \mathbf{v}_{mp}$ over the widest range of δ are those in which *P* adopts the median voter's ideal point x_m. Importantly, Lemma 2 does not imply that, when $G_P \leq$ ½, a payoff-enhancing deviation from $\mathbf{v}_1 = \mathbf{v}_2 = \mathbf{v}_{mp}$ exists *if and only if* the target set is a bare majority and *P*'s programmatic platform is x_m; many other payoff-enhancing deviations may also exist. However it does imply that, if for some $G_P \leq$ ½ no bare majority/median-voter deviation exists, then for that level of G_P there does not exist *any* payoff-increasing deviation from the median-voter programmatic outcome $\mathbf{v}_1 = \mathbf{v}_2 = \mathbf{v}_{mp}$.

While the locally optimal programmatic stance when $G_P \leq ½$ is always $\hat{x}_P(G_P) = x_m$, for values of $G_P > ½$ this locally optimal stance $\hat{x}_P(G_P)$ may begin to diverge from the median voter's ideal point. As well, the locally optimal target set $\hat{\Theta}_P(G_P)$ may no longer comprise a plurality of voters. When $G_P > ½$ there exist programmatic deviations to the ideological right or left which allow candidates to court ideologues with more extreme policy proposals while courting centrists with more narrowly targeted clientelistic inducements. Continuing with the expository case in which $\mu = 0$, in what follows I derive the necessary condition for there to be a payoff-increasing ideological deviation from $\mathbf{v}_1 = \mathbf{v}_2 = \mathbf{v}_{mp}$ to the political right; the necessary condition for a parallel deviation on the ideological left is identical.

* **Lemma 3:** For any $G_P > \frac{1}{2}$ and $x_P > \frac{1}{2}$, the locally optimal policy deviation is $\hat{x}_P(G_P) = \frac{3}{2} - G_P$ and the locally optimal target se deviation is $\hat{\Theta}_P(G_P) = [x_m, (\frac{3}{2} - G_P)]$.

This Lemma, proven in Appendix A, tells us that for any $G_P \geq$ ½ the locally optimal programmatic deviation on the political right is $\hat{x}_P(G_P) = (\frac{3}{2} - G_P)$ and the locally optimal target set comprises all voters in the range $\Theta_P = [x_m, (\frac{3}{2} - G_P)]$. For example, when $G_P = .8$ the locally optimal programmatic stance will be $\hat{x}_P(.8) = .7$, and the $C_P = .2$ units of clientelistic effort will be targeted to voters in the range $\hat{\Theta}_P(.8) = [.5, .7]$. As shown in the exhaustive proof, when $\hat{x}_P(G_P) = (\frac{3}{2} - G_P)$ and *P*'s opponent chooses $\mathbf{v}_{mp}$, all voters with ideal points to the right of $\hat{x}_P(G_P)$ will vote for party *P* *even if* they are not included in *P*'s target set. These voters prefer *P*'s programmatic stance to that of her opponent even though $G_P < 1$, as this lower level of programmatic effort is compensated for by a more satisfying (i.e. more extreme…) policy platform. On the other hand, without added clientelistic inducements voters with ideal points between the median voter's ideal point x_m and $\hat{x}_P(G_P) = (\frac{3}{2} - G_P)$ will choose *P*'s opponent. Lemma 3 thus implies that clientelistic inducements will be targeted only to voters whose support depends on these efforts.

One implication of Lemmas 2 and 3 is that a locally optimal deviation from $\mathbf{v}_1 = \mathbf{v}_2 = \mathbf{v}_{mp}$ will represent a payoff-enhancing deviation if and only if the median voter chooses *P* when *P* adopts this deviation while her opponent ~*P* chooses $\mathbf{v}_{mp}$ (Appendix A). The median voter receives a utility of '1' from $\mathbf{v}_{mp}$ (see (4) above). As such, a payoff-enhancing deviation from $\mathbf{v}_1 = \mathbf{v}_2 = \mathbf{v}_{mp}$ exists if and only if there is some level of G_P such that the median voter's utility for *P* given the strategy vector

$\mathbf{v}_P = \{\hat{x}(G_P), G_P, C_P, \hat{\Theta}(G_P)\}$ is greater than 1. For the case in which $\mu = 0$ and $\eta = 1$, Proposition 1 demonstrates that no such deviation exists for any value of $\delta \geq ½$:

*** Proposition 1:** If $\mu = 0$ and $\eta = 1$, then $\mathbf{v}_1^* = \mathbf{v}_2^* = \mathbf{v}_{mp}$ as long as $\delta \geq ½$.

Appendix A contains the proof. For any value of $\delta < ½$ at least one payoff-enhancing locally optimal deviation exists. Once *P* adopts such a deviation, her competitor $\sim P$ will have the immediate incentive to choose a strategy vector which perfectly mimics $\mathbf{v}_P = \{\hat{x}(G_P), G_P, C_P, \hat{\Theta}(G_P)\}$, since $\sim P$ prefers winning with probability ½ to winning with probability 0. This sets in motion the strategic dynamic uncovered in Theorem 1, by which both parties continually cut into one another's target sets, until both parties eventually end up back at the median-voter programmatic strategy vector $\mathbf{v}_{mp}$. This in turn sets in motion another series of locally optimal deviations, and so on *ad infinitum*. As such, when $\delta < ½$ the two parties cycle infinitely between the competing linkage strategies. While numerically different, the same qualitative implications obtain regardless of the values of μ and η: at high levels of δ the game's Nash Equilibrium will be $\mathbf{v}_1^* = \mathbf{v}_2^* = \mathbf{v}_{mp}$, and at lower levels the game will have no Nash Equilibrium.

V. Nash Equilibria with Clientelism

The absence of Nash Equilibria with positive levels of clientelism in the most general model arises from the fact that candidates can continually usurp their opponent's clientelistic supporters by adopting overlapping but distinct target sets. For the paper's remainder, we will examine the consequences of an additional restriction on the choice of Θ_P which may eliminate this instability. Consider the following assumption:

> * **Assumption 3:** Candidate 1 has the option of targeting all voters on the political left (i.e. $x_i \leq .5$) with clientelistic goods, candidate 2 has the option of targeting all voters on the political right ($x_i \geq .5$), but **not vice versa.**

This implies that the only voter potentially in both parties' target sets is the median voter.[11] Despite this additional restriction, Theorem 2 (Appendix B) demonstrates that the game continues to lack Nash Equilibria with positive levels of clientelism when $\mu \leq .5$:[12]

* **Theorem 2:** When candidates 1 and 2 are restricted by Assumption 3 but $\mu \leq .5$, there **never** exists a Nash Equilibrium set of campaign strategies with positive levels of clientelistic effort (i.e. $C_P > 0$).

The proof in Appendix B demonstrates that, for values of $\mu \leq .5$, any deviation from the median-voter programmatic outcome leads to a competitive vote jockeying for the median voter's clientelistic loyalties. For example, suppose for argument's sake that *P* has an optimal deviation from the strategy vector $\mathbf{v}_1 = \mathbf{v}_2 = \mathbf{v}_{mp}$ characterized by an effort allocation of $G_P = .8$ (such that $C_P = .2$), a policy position $x_P = .7$, and a target set $\Theta_P = [.5,.7]$. In response to this deviation *P*'s opponent $\sim P$ could choose an identical allocation effort $G_{\sim P} = .8$ and $C_{\sim P} = .2$, a policy position $x_{\sim P} = .3$, and a target set $\Theta_{\sim P} = [(.3+\varepsilon), x_m]$, where $\varepsilon \to 0$. By doing so, $\sim P$ will the median voter's support since its effort $C_{\sim P}$ is distributed over a slightly narrower target set than *P*'s effort C_P. In turn, *P* can respond similarly, and so on such that both parties pursue the median voter's support by continually shrinking the target set of which this median voter is a part. Such

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[11] In future work it will be important to generalize this assumption such that, rather than a strict distinction between 'left' and 'right' constituencies which leaves only the median voter to be targeted by both parties, there exists larger subsets of voters which may be targeted by both parties.

[12] When $\mu \leq .5$ and $\mathbf{v}_1 = \mathbf{v}_2 = \mathbf{v}_{mp}$ all voters turnout: voters with ideal points $x_i = 1$ and $x_i = 0$ receive a utility of $u_{0,P} = u_{1,P} = .5$. When $\mu \leq .5$, this implies that even the voters *least* inclined to turn out when $\mathbf{v}_1 = \mathbf{v}_2 = \mathbf{v}_{mp}$ will in fact turn out, since their reservation utility is met.

jockeying proceeds until both candidates include only the median voter in their target sets, at which point either party can deviate to the median-vote programmatic strategy vector $\mathbf{v}_{mp}$ and win the election with probability 1. The cycle then recommences.[13]

Up to this point in the analysis, clientelism has had a profoundly destabilizing impact on electoral competition. Indeed, in the cases studied to this point, the moment clientelism enters into parties' action set the game reverts to an infinite cycle. The instability in Theorem 2 arises due to the fact that competitive parties can continually alter their campaign strategy so as to concentrate greater and greater emphasis on the median-voter's desires, without having to concern themselves with the turnout of more ideological voters. When the parameter $\mu > .5$ the game's turnout constraint becomes 'binding', insofar as some subset of voters on the ideological extremes will abstain from the election when $\mathbf{v}_1 = \mathbf{v}_2 = \mathbf{v}_{mp}$. This stricter turnout constraint implies that policies which cater too closely to the median voter's interests may alienate extremist voters whose participation is uncertain. If Assumption 3 is operative and $\mu > .5$, the need to balance one's interest in courting the electoral median with that in maintaining the support of one's ideological base leads at times to the adoption of positive equilibrium levels of clientelism.

Before presenting a series of examples which expose the equilibrium comparative static relationships between δ, clientelistic effort, ideological polarization, and the 'inclusiveness' of target sets, it is worth noting that both Assumption 3 and the assumption that $\mu > .5$ are likely to approximate conditions in the empirical world. In

[13] Proposition 2 in Appendix B also establishes that necessary conditions for the emergence of median-voter programmatic equilibria under Assumption 3 are identical to those derived in Proposition 1.

particular the assumption of a binding turnout constraint seems more than plausible: one would be hard-pressed to identify an empirical situation in which programmatic campaigns were expected to generate *perfect* turnout. Assumption 3 formalizes the notion that parties have differential abilities to target distinct subsets of voters. Case-level work on clientelism recognizes that, while some portion of the electorate can indeed be targeted by multiple parties, individual organizations also have privileged relationships with particular social elements. For example, Turkey's moderately Islamic Justice and Development Party, Austria's Social Democrats, and Argentina's Peronists all have long-standing ties to particular social organizations which enhance their capacity, vis a vis other parties, to target these groups with clientelistic goods. While Assumption 3 should be generalized in future research (see ftn 11), its restriction likely comes closer to empirical reality than the notion that all parties can compete with equal strength for the clientelist support of all voters.

If one accepts the reasonability of both Assumption 3 and a binding turnout constraint, then the following results are arguably the paper's most empirically relevant. The particular nature of Nash Equilibria when Assumption 3 is operative and $\mu > .5$ depends on the level of δ. To exhibit the model's comparative static properties, I now present equilibria at different levels of δ for the game when $\mu = .75$ and $\eta = ½$. First assume that δ is very high, say δ = 2. At this level it is straight-forward to demonstrate that $\mathbf{v}_1^* = \mathbf{v}_2^* = \mathbf{v}_{mp}$ is the game's unique Nash Equilibrium, i.e. there is no deviation from the median-voter programmatic outcome (Proposition 3, Appendix C).

On the other hand, when $\delta = 1/2$ the game's unique Equilibrium is for candidate 1 to choose strategy vector $\mathbf{v}_1^* = \{x_m,\ ¾,\ ¼,\ \Theta_1 = [\,½,1]\}$ and candidate 2 to choose

$\mathbf{v}_2^* = \{x_m, \frac{3}{4}, \frac{1}{4}, \Theta_1 = [0, \frac{1}{2}]\}$ (Proposition 4, Appendix C). Both candidates thus target their entire potential target set with ¼ units of effort, and choose the median-voter's ideal point as a programmatic platform. Figure 2 displays this equilibrium visually.

(Figure 2 here)

Finally, when $\delta = \frac{1}{10}$, the game's unique Nash Equilibrium is for candidate 1 to choose the strategy vector $\mathbf{v}_1^* = \{x_1 \cong .788, G_1 \cong .952, C_1 \cong .048, \Theta_1 \cong [\frac{1}{2}, .576]\}$ and for candidate 2 to choose the strategy vector $\mathbf{v}_2^* = \{x_2 \cong .212, G_2 \cong .952, C_2 \cong .048, \Theta_2 \cong [.424, \frac{1}{2}]\}$ (Proposition 5, Appendix C). Figure 3 displays this equilibrium visually.

(Figure 3 here)

Based on these results, we can examine the comparative static consequences of moving from high to low values of δ. Begin with a hypothesis which caries a grain of counter-intuition: the model's equilibrium level of clientelistic targeting is *not* monotonically related to the size of δ. In fact, overall levels of clientelism are higher when δ assumes intermediate values (e.g. $\delta = \frac{1}{2}$) than when δ assumes extremely low values (e.g. $\delta = \frac{1}{10}$). Put otherwise, higher voter susceptibility to targeted goods does not always lead to higher overall levels of clientelistic effort. The intuition behind this result is as follows: when δ is very small, the median voter's high responsiveness to targeting increases her preference that candidates announce *small target sets*. Indeed, the equilibrium when $\delta = \frac{1}{10}$ is characterized by much smaller target sets than those which emerge when $\delta = \frac{1}{2}$. In the latter, parties target clientelist effort to all voters on their respective sides of the political spectrum; in the former parties cater only to a small set of centrist supporters at or near the electoral median.

When target sets are small, in order to win the election candidates must ensure that some subset of voters not included in their target set nonetheless provides them with electoral support. In equilibrium this forces candidates to choose significant levels of G_P. It also forces them adopt increasingly polarized policy positions: since only centrists are included in parties' target sets, extremists must be placated in order to gain their votes. Indeed, not only does the equilibrium when $\delta = 1/10$ represent the paper's first in which parties choose programmatic positions other than the median voter's ideal point; it is a highly polarized equilibrium in which both parties occupy ideological positions well-removed from the electoral median. That said, when δ is sufficiently small the median voter will nonetheless prefer that candidates keep their target sets narrow, *even if* it means devoting less overall effort to clientelistic targeting and choosing more polarized programmatic stances.

Embedded in this logic are a series of curvilinear intuitions. Firstly, as already noted, the extent of a political system's clientelist linkage efforts display a 'hump-shaped' relationship with δ, such that programmatic policy appeals are most prevalent at very high and very low levels of δ. Similarly, ideological polarization should display a 'hump-shaped' relationship with the extent of a political system's clientelist linkage efforts: parties' programmatic positions should approximate the median voter's ideal point at both very low and very high levels of clientelist effort, and should be more polarized at intermediate levels of clientelist effort. Finally, the 'inclusiveness' of parties' target set should bear a 'quasi U-shaped' relationship to clientelist effort. At very low levels of clientelist effort policy is purely programmatic and centrist, i.e. parties have no target sets ($\Theta_P = \varnothing$); at intermediate levels of clientelist effort parties have narrow target sets concentrated near the electoral median; and at high levels of clientelism parties have broad target sets which cater to all voters of their ideological orientation. This body of comparative static relationships is summarized in Figures 4 and 5.

(Figures 4 and 5 here)

VI. Empirical and Normative Implications

While for reasons of time and space this paper only analyzes clientelistic equilibria when $\mu = .75$ and $\eta = ½$, the comparative static hypotheses presented in Section V are in fact generalizable to all cases in which Assumption 3 holds and the game's turnout constraint is binding. These hypotheses constitute the paper's most empirically relevant theoretical results. Information collected via an Expert Survey on Citizen-Politician Linkages (ESCPL), developed and administered by Duke University political scientists with World Bank support, provides data on a number of the above model's basic parameters in a contemporary cross-section of 90 world democracies. First of all, the ESCPL will allow us to estimate the intensity of efforts that parties expend on clientelism vis-à-vis programmatic competition. Secondly, it provides data on the relative moderation or extremism of political parties' programmatic positions. Finally, it also provides data about the target sets of clientelistic parties: expert respondents in all countries were asked to identify the interest groups parties target with clientelist goods (profession, religion, socioeconomic status etc) as well as whether targeted goods are distributed to party loyalists or swing voters.

Although this newly emerging data set may permit empirical testing of the paper's main claims, it must be admitted that the above results are limited in their empirical applicability in a number of important ways. Firstly, the equilibrium results above all come in the form *symmetric* strategy profiles. The symmetry of parties' policy decisions arises from the symmetry of their strategic situations: both parties face identical budget constraints, have access to equally-sized target sets, and face an ideologically unbiased electorate. Ideally, future work will extend the current model to situations in which parties have distinct strategic options, which in turn might lead to equilibria in which one party is clientelistic while the other is not; one party is extreme while the other is not, etc. Furthermore, the model contains only two political parties, which endows the median voter with a pivotal role in establishing the game's equilibrium outcomes. Whether the above comparative static hypotheses are robust to multi-party situations in which the median voter's role is reduced is a question left to future research.

Beyond the paper's empirical implications, its results carry implications for the normative debate on clientelism's viability as a democratic linkage mechanism. It is not unusual to hear arguments in both academic and policy circles which criticize clientelism as a flawed form of accountability with perverse consequences for political governance, economic growth, and the consolidation of democratic norms and practices. There is undoubtedly much to this position. However, a growing current in studies of clientelism offers a more nuanced normative appraisal of clientelistic linkage. Keefer and Vlaicu (ibid) note that the presence of local patrons, capable of serving as intermediaries between average citizens and elected officials, often improves aggregate social welfare in environments without credible elected officials. Fernandez and Pierskalla (2009) find that clientelism's political-economic consequences are not as clear cut as we might have expected; clientelist countries in fact outperform their counterparts on select dimensions of economic and human development (e.g. infant mortality and literacy). Finally, my own work on the governance consequences of electoral institutions (Kselman 2008) suggests that, in the absence of an exogenous legal and bureaucratic infrastructure capable of constraining self-interested politicians, electoral rules associated with personalistic politics actually *improve* governance when compared to less personalistic rules. Stated another way, in countries where public institutions are insufficient to constrain political rent-seeking, personalistic accountability is, while certainly imperfect, better than the total *absence* of accountability.

Though in different contexts, these papers share the undercurrent that at times clientelistic linkage may serve as a 'second-best' option when the exogenous environment is not conducive to more normatively palatable forms governance and accountability. This paper's results imply a similarly toned appraisal. Recalling the functional relationships hypothesized in Section V, it becomes problematic to associate increasing levels of clientelism with a reduction in the normative viability of democratic competition. Indeed, highly clientelistic systems in this model are also associated with ideological moderation and political inclusiveness, values which many consider laudable in and of themselves. On the other hand, systems with intermediate levels of clientelism tend to generate extremism and 'exclusiveness', which many consider perilous for democracy. Thus, not only will future empirical analysis of this model's predictions serve to identify its predictive capacity; as well it will provide information germane to the debate on clientelism's normative status.

Figure 1: Clientelistic Instability

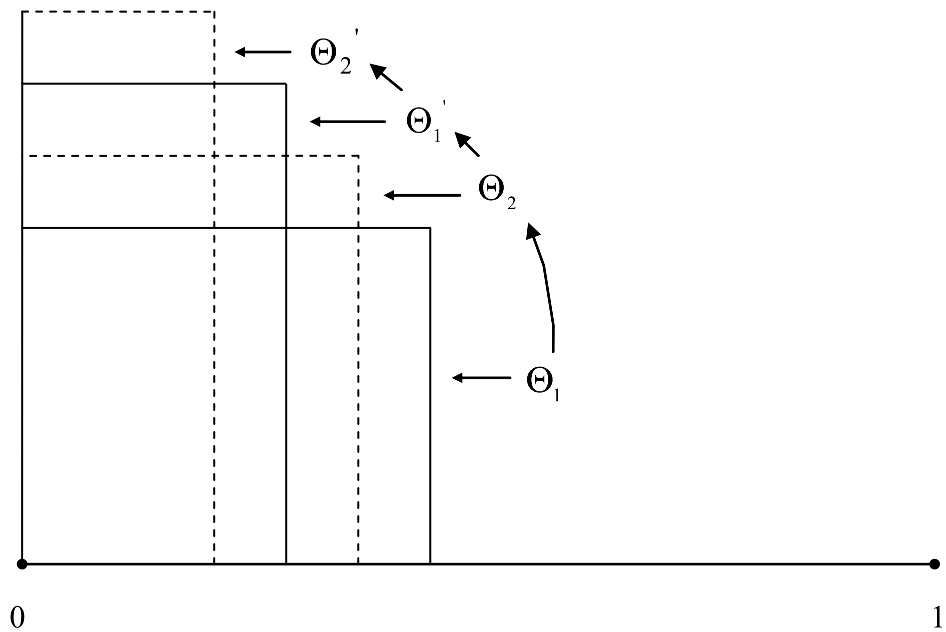


Figure 2: Nash Equilibrium at Intermediate levels of δ

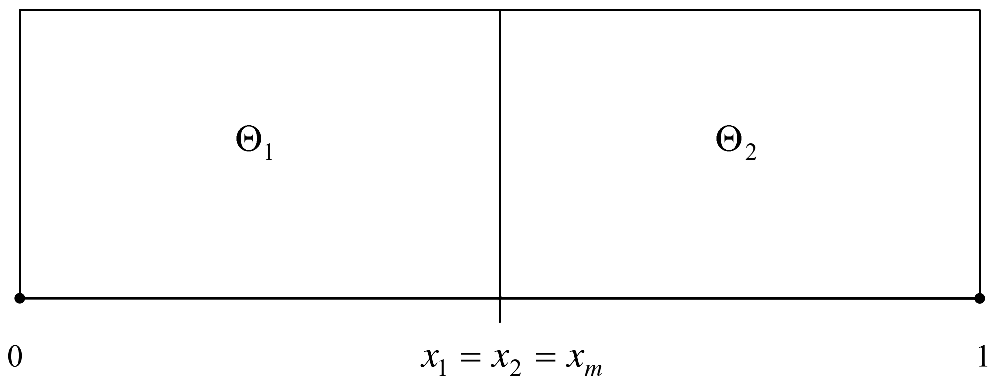


Figure 3: Nash Equilibrium at Low levels of δ

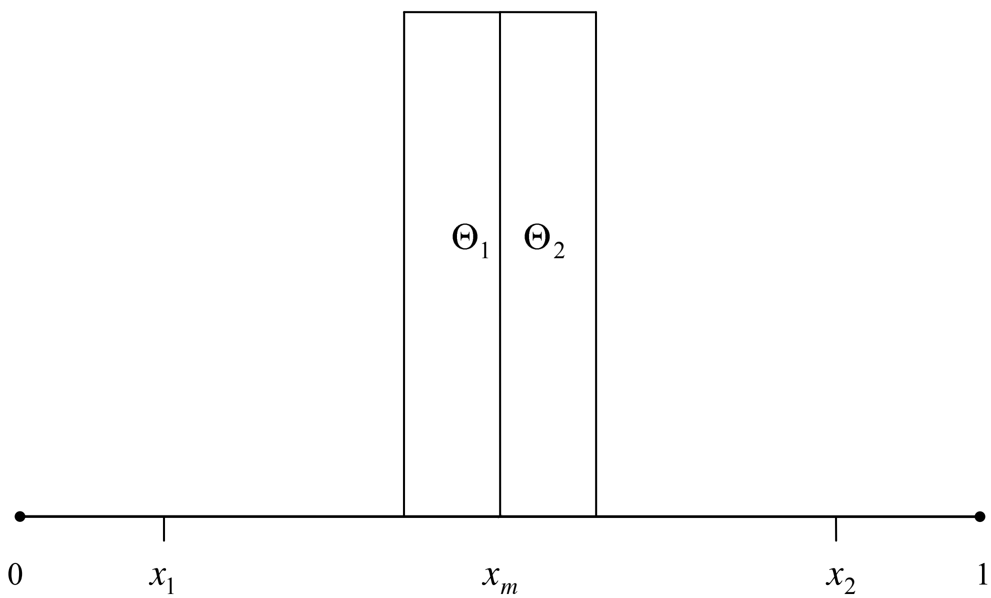


Figure 4: Susceptibility (δ), Clientelism, and Polarization

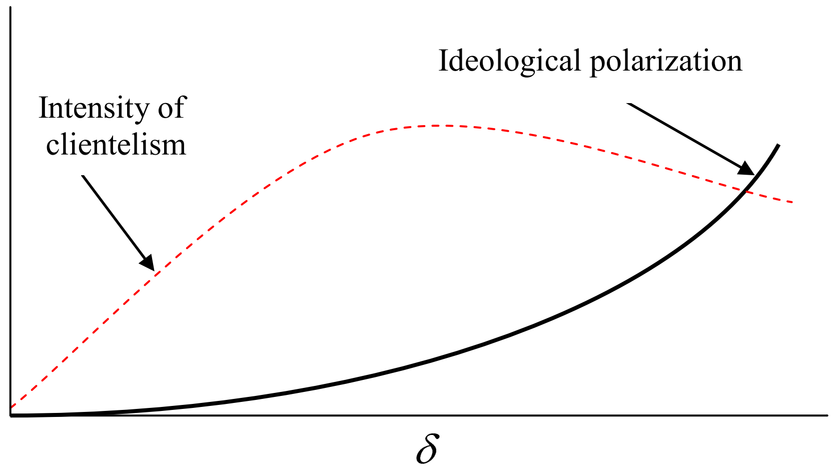
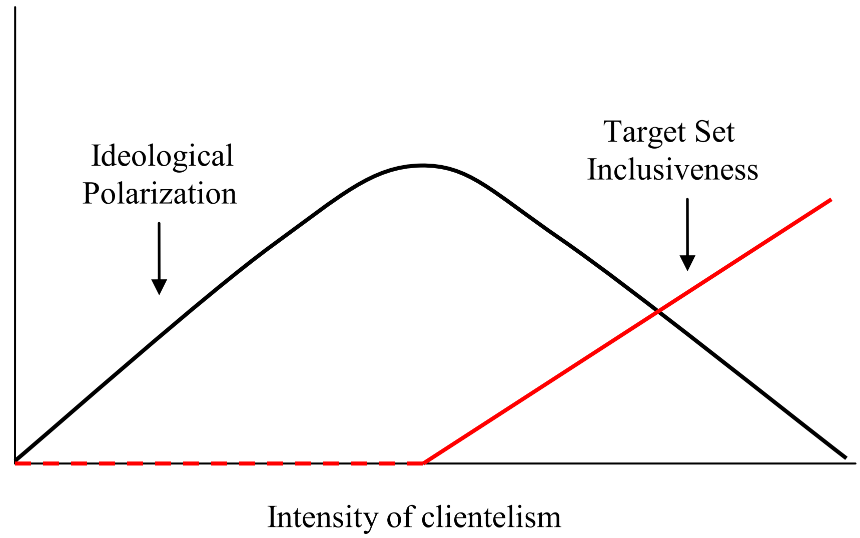


Figure 5: Clientelism, Extremism, and Inclusiveness



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Appendix A: Nash Equilibria with Unrestricted Target Sets

A.) <u>The Ideological Swing Voter</u>

-When party $\sim P$ chooses the median-voter programmatic strategy vector $\mathbf{v}_{mp}$ and her opponent P chooses $G_P < \frac{1}{2}$, then <u>all</u> voters by definition receive a higher programmatic utility from $\sim P$ than from P (see Lemma 2 in the text).

-When one party $\sim P$ chooses the median-voter programmatic strategy vector $\mathbf{v}_{mp}$ and her opponent P chooses $G_P > \frac{1}{2}$, then some subset of voters may prefer P to $\sim P$ on purely programmatic grounds despite the fact that $G_{\sim P} = 1 > G_P$. Define x_S as a <u>swing ideological voter</u>, a voter whose programmatic utility for party P is the same as his or her programmatic for party $\sim P$. Recalling equation **(4)** from the text, this implies that:

$$u_{S,P}\ (\text{prog}) = u_{S,\sim P}\ (\text{prog}) \quad \Rightarrow \quad G_P \cdot (1 - abs[x_P - x_S]) = 1 - abs[x_P - x_S]. \qquad \textbf{(A1)}$$

-We will now identify, for any $G_P > \frac{1}{2}$, the swing ideological voter x_S when $\sim P$ chooses $\mathbf{v}_{mp}$ and P chooses $x_P > \frac{1}{2}$, i.e. when P chooses an ideological deviation on the political right. An identical process applies for deviations on the political left.

-Note first that swing ideological voters may exist both in the range $[\frac{1}{2}, x_P]$ and in the range $[x_P, 1]$, i.e. both voters to the left and to the right of x_P may be indifferent between the parties' respective programmatic stances (voters with ideal points $x_i < \frac{1}{2}$ will all have a higher programmatic utility for $\sim P$ than for P since: (a.) they are located closer to $\sim P$ in policy space, and (b.) $G_{\sim P} = 1 > G_P$).

-Define $\underline{x}_S$ as a swing ideological voter in the range $[\frac{1}{2}, x_P]$. Given our specification of programmatic utility $u_{i,P}$ (prog), for any $G_P > \frac{1}{2}$ the following expression implicitly defines $\underline{x}_S$ when $\sim P$ chooses $\mathbf{v}_{mp}$ and P chooses $x_P > \frac{1}{2}$:

$$1 - (\underline{x}_S - \tfrac{1}{2}) = G_P \cdot \{1 - (x_P - \underline{x}_S)\}\ . \qquad \textbf{(A2)}$$

-This can be rewritten as:

$$\underline{x}_S = \frac{\frac{3}{2} - \{G_P \cdot (1 - x_P)\}}{1 + G_P}. \qquad \textbf{(A3)}$$

-Based on **(A3)** I establish the following Sublemma:

*** Sublemma 1:** For any $G_P > \frac{1}{2}$, when $\sim P$ chooses $\mathbf{v}_{mp}$ and P chooses $x_P > \frac{1}{2}$, there is no swing voter ideological voter $\underline{x}_S$ in the range $[\frac{1}{2}, x_P]$ for values of $x_P < \frac{3}{2} - G_P$.

*** Proof of Sublemma 1:**

-We are looking for swing ideological voters in the range $[\frac{1}{2}, x_P]$. As such, if **(A3)** generates a value $\underline{x}_S > x_P$, then there is no swing ideological voter $\underline{x}_S$ in the range $[\frac{1}{2}, x_P]$. To see this, note that **(A2)** above applies only to voters in the range $[\frac{1}{2}, x_P]$. In turn, if **(A3)** generates a value $\underline{x}_S > x_P$, we know that the indifference conditions for a swing voter in the range $[\frac{1}{2}, x_P]$ are not satisfied for voters in the applicable range, such that there is no swing voter ideological voter $\underline{x}_S$ in the range $[\frac{1}{2}, x_P]$. It is then straightforward to establish that (algebra omitted), for any $G_P > \frac{1}{2}$:

$$\underline{x}_S \;=\; \frac{\frac{3}{2} - \{G_P \cdot (1 - x_P)\}}{1 + G_P} \;>\; x_P \quad \textit{if and only if} \quad x_P < \frac{3}{2} - G_P. \qquad \blacksquare$$

-In turn, for any $G_P > \frac{1}{2}$ Sublemma 1 allows to express $\underline{x}_S$ as follows:

$$\underline{x}_S \;=\; \begin{cases} \varnothing & \text{if} \quad \frac{1}{2} < x_P < \frac{3}{2} - G_P \\ \dfrac{\frac{3}{2} - \{G_P \cdot (1 - x_P)\}}{1 + G_P} & \text{if} \quad x_P > \frac{3}{2} - G_P \end{cases} . \qquad \textbf{(A4)}$$

-We now move to identifying ideological swing voters $\bar{x}_S$ in the range $[x_P, 1]$. Given our specification of programmatic utility $u_{i,P}$ (prog), for any $G_P > \frac{1}{2}$ the following expression implicitly defines $\bar{x}_S$ when $\sim P$ chooses $\mathbf{v}_{mp}$ and P chooses $x_P > \frac{1}{2}$:

$$1 - (\bar{x}_S - \tfrac{1}{2}) = G_P \cdot \{1 - (\bar{x}_S - x_P)\}. \qquad \textbf{(A5)}$$

-This can be rewritten as:

$$\bar{x}_S = \frac{\frac{3}{2} - \{G_P \cdot (1 + x_P)\}}{1 - G_P}. \qquad \textbf{(A6)}$$

-Based on **(A6)** we can establish the following Sublemmas:

*** Sublemma 2:** For any $G_P > \frac{1}{2}$, when $\sim P$ chooses $\mathbf{v}_{mp}$ and P chooses $x_P > \frac{1}{2}$, there is no swing voter ideological voter $\bar{x}_S$ in the range $[x_P, 1]$ for values of $x_P < \frac{1}{2G_P}$.

*** Sublemma 3:** For any $G_P > \frac{1}{2}$, when $\sim P$ chooses $\mathbf{v}_{mp}$ and P chooses $x_P > \frac{1}{2}$, there is no swing voter ideological voter $\bar{x}_S$ in the range $[x_P, 1]$ for values of $x_P > \frac{3}{2} - G_P$.

*** Proof of Sublemma 2:**

-We are looking for swing ideological voters in the range $[x_P, 1]$. By definition, if **(A6)** generates a value $\bar{x}_S > 1$, then there is no swing ideological voter $\bar{x}_S$ in the range $[x_P, 1]$: no voters in the applicable range satisfy the indifference condition in **(A6)**. It is then straightforward to establish that (algebra omitted):

$$\bar{x}_S \;=\; \frac{\frac{3}{2} - \{G_P \cdot (1 + x_P)\}}{1 - G_P} \;>\; 1 \quad \textit{if and only if} \quad x_P < \frac{1}{2G_P}. \qquad \blacksquare$$

*** Proof of Sublemma 3:**

-We are looking for swing ideological voters in the range $[x_P, 1]$. By definition, if **(A6)** generates a value $\bar{x}_S < x_P$, then there is no swing ideological voter $\bar{x}_S$ in the range $[x_P, 1]$: no voters in the applicable range satisfy the indifference condition in **(A6)**. It is then straightforward to establish that (algebra omitted),

$$\bar{x}_S \;=\; \frac{\frac{3}{2} - \{G_P \cdot (1 + x_P)\}}{1 - G_P} \;<\; x_P \quad \textit{if and only if} \quad x_P > \frac{3}{2} - G_P. \qquad \blacksquare$$

-Sublemmas 2 and 3 allow us to express $\bar{x}_S$ as follows:

$$\bar{x}_S \;=\; \begin{cases} \varnothing & \textit{if} \;\; \frac{1}{2} < x_P < \frac{1}{2G_P} \\ \dfrac{\frac{3}{2} - \{G_P \cdot (1 - x_P)\}}{1 + G_P} & \textit{if} \;\; \frac{1}{2G_P} < x_P < \frac{3}{2} - G_P \\ \varnothing & \textit{if} \;\; x_P > \frac{3}{2} - G_P \end{cases}. \qquad \textbf{(A7)}$$

-Taken together, expressions **(A4)** and **(A7)** tell us that, for any $G_P > \frac{1}{2}$, when $\sim P$ chooses $\mathbf{v}_{mp}$ and P chooses $x_P > \frac{1}{2}$ the game never has more than one swing voter, i.e. the existence conditions stipulated in Sublemmas 1, 2, and 3 are never simultaneously satisfied for both $\underline{x}_S$ and $\bar{x}_S$. Furthermore, they allow us to precisely identify the swing ideological voter for any $G_P > \frac{1}{2}$ and $x_P > \frac{1}{2}$:

$$x_S \;=\; \begin{cases} \varnothing & \textit{if} \;\; \frac{1}{2} < x_P < \frac{1}{2G_P} \\ \bar{x}_S & \textit{if} \;\; \frac{1}{2G_P} < x_P < \frac{3}{2} - G_P \\ \underline{x}_S & \textit{if} \;\; x_P > \frac{3}{2} - G_P \end{cases}. \qquad \textbf{(A8)}$$

-In words, when $\frac{1}{2} < x_P < \frac{1}{2G_P}$ the game has no swing ideological voters. At such moderate values of x_P, all voters have a higher programmatic utility for party $\sim P$ than for party P, because the latter has not sufficiently distinguished her programmatic stance from the median voter policy adopted by $\sim P$.

-In contrast, at intermediate values of x_P ($\frac{1}{2G_P} < x_P < \frac{3}{2} - G_P$) the game's <u>unique</u> swing ideological voter will be $\bar{x}_S \in [x_P, 1]$, and the subset of extremist voters in the range $[\bar{x}_S, 1]$ will have a higher programmatic utility for P than for $\sim P$ despite the fact that $G_{\sim P} = 1 > G_P$.

-Finally, at more extreme values of $x_P > \frac{3}{2} - G_P$, the game's <u>unique</u> swing ideological voter will be $\underline{x}_S \in [\frac{1}{2}, x_P]$, and all voters in the range $[\underline{x}_S, 1]$ will have a higher programmatic utility for P than for $\sim P$ despite the fact that $G_{\sim P} = 1 > G_P$.

B.) <u>Proof of Lemma 3</u>

-This analysis of swing ideological voter profiles now serves as the core input to the proof of Lemma 3 from the text:

*** Lemma 3:** For any $G_P > \frac{1}{2}$ and $x_P > \frac{1}{2}$, the locally optimal policy deviation from $\mathbf{v}_1 = \mathbf{v}_2 = \mathbf{v}_{mp}$ is $\hat{x}_P(G_P) = \frac{3}{2} - G_P$ and the locally optimal target set deviation is $\hat{\Theta}_P(G_P) = [x_m, (\frac{3}{2} - G_P)]$.

Proof of Lemma 3:

-Note from the above swing voter analysis that, for any value of $x_P > \frac{1}{2G_P}$, voters with ideal points in the range $[x_S, 1]$ have a higher programmatic utility for party P than for party $\sim P$. It follows immediately from **(A8)** that, for any $G_P > \frac{1}{2}$, the programmatic position $x_P = \frac{3}{2} - G_P$ is the position which maximizes the range of $[x_S, 1]$, i.e. maximizes the number of voters who prefer P on purely programmatic grounds.

-Recall also that, in order for some set of policies x_P, G_P, C_P, and Θ_P to represent a payoff-enhancing deviation from the strategy set $\mathbf{v}_1 = \mathbf{v}_2 = \mathbf{v}_{mp}$, it must secure party P no less than a bare majority of 50% + 1 voters. For any $G_P > \frac{1}{2}$ and $x_P > \frac{1}{2}$, this bare majority constraint will force party P to target clientelistic goods to some subset of voters with ideal points $x_i < x_S$, since those with ideal points $x_i > x_S$ can be counted on to choose P on purely programmatic grounds.

-Again define the locally optimal policy and target set deviations as those choices which, for any allocation $G_P > \frac{1}{2}$ and $x_P > \frac{1}{2}$, generate a payoff-enhancing deviation from $\mathbf{v}_1 = \mathbf{v}_2 = \mathbf{v}_{mp}$ in the widest possible range of exogenous circumstances, i.e. over the widest range of δ.

-Given this definition, it follows that the locally optimal policy deviation is $\hat{x}_P(G_P) = \frac{3}{2} - G_P$: this is the policy position which maximizes the number of P's ideological supporters, and in turn minimizes the size of Θ_P to which P's clientelistic efforts will need to be targeted so as to secure a bare majority. For any $G_P > \frac{1}{2}$, the policy $\hat{x}_P(G_P) = \frac{3}{2} - G_P$ is thus the most conducive on the political right to payoff-enhancing deviations, and will generate such deviations over widest range of δ. ■

-When P chooses $\hat{x}_P(G_P) = \frac{3}{2} - G_P$, it is straightforward to see from **(A8)** above that the game's swing ideological voter has ideal point $x_S = \frac{3}{2} - G_P$, i.e. that the swing ideological voter is the voter whose ideal point is identical to P's programmatic position. All voters with ideal points $x_i < \frac{3}{2} - G_P$ prefer $\sim P$ to P on purely programmatic grounds, and vice versa for voters with ideal points $x_i > \frac{3}{2} - G_P$.

-In turn, given that $\hat{x}_P(G_P) = \frac{3}{2} - G_P$ it is straightforward to show that $\hat{\Theta}_P(G_P) = [x_m, (\frac{3}{2} - G_P)]$, i.e. that target set most conducive to securing a bare majority victory, is that which targets all voters between the median ideal point and the swing voter $x_S = \hat{x}_P(G_P) = \frac{3}{2} - G_P$ (algebra omitted). ■

-Importantly, Lemma 3 does not imply that, when $G_P > \frac{1}{2}$ and $x_P > \frac{1}{2}$, a payoff-enhancing deviation from $\mathbf{v}_1 = \mathbf{v}_2 = \mathbf{v}_{mp}$ exists *if and only if* P's target set is $\hat{\Theta}_P(G_P) = [x_m, (\frac{3}{2} - G_P)]$ and its programmatic platform is $\hat{x}_P(G_P) = \frac{3}{2} - G_P$; many other payoff-enhancing deviations may also exist. However it does imply that, if for some $G_P > \frac{1}{2}$ the choices $\hat{x}_P(G_P) = \frac{3}{2} - G_P$ and $\hat{\Theta}_P(G_P) = [x_m, (\frac{3}{2} - G_P)]$ do not constitute payoff-enhancing deviations on the political right, then for that level of G_P there does not exist *any* payoff-increasing deviation on the political right from the median-voter programmatic outcome at $\mathbf{v}_1 = \mathbf{v}_2 = \mathbf{v}_{mp}$.

-An identical analysis can be undertaken to derive symmetric locally optimal policy and target set deviations on the political left. The following Proposition 1 is unchanged by whether or not we use 'right' or 'left' deviations as our baseline for comparison.

C.) <u>Proof of Proposition 1</u>

*** Proposition 1:** If $\mu = 0$ and $\eta = 1$, then $\mathbf{v}_1^* = \mathbf{v}_2^* = \mathbf{v}_{mp}$ as long as $\delta \geq \frac{1}{2}$.

*** Proof of Proposition 1:**

-In order to identify conditions for the existence of median-voter programmatic equilibria ($\mathbf{v}_P^* = \mathbf{v}_{\sim P}^* = \mathbf{v}_{mp}$), I must identify conditions under which the policy choices $\hat{x}_P(G_P)$ and $\hat{\Theta}_P(G_P)$ do not yield payoff-enhancing deviations at any level of $G_P \in [0,1]$. It is straight-forward to show that, for any level of $G_P \in [0,1]$, the choices $\hat{x}_P(G_P)$ and $\hat{\Theta}_P(G_P)$ generate payoff-enhancing deviations if the median voter prefers this set of actions to the set of actions $\mathbf{v}_{\sim P} = \mathbf{v}_{mp}$.

-The median voter receives a utility of '1' from the set of actions $\mathbf{v}_{mp}$. On the other hand, Lemma 2 in the text tells us that, when $\eta = 1$, the median voter's utility for locally optimal deviations when $G_P < \frac{1}{2}$ will be:

$$u_{m,P}(\hat{x}(G_P,),\hat{\Theta}_P(G_P)) = \; G_P + \left(\frac{1-G_P}{\delta + \frac{1}{2}} \right) \; . \qquad \textbf{(A9)}$$

-When $G_P > \frac{1}{2}$, party P can consider both locally optimal deviations with a bare majority is target set and the median policy stance (Lemma 2), or locally optimal deviations to the political right or left (Lemma 3). If the former, the median voter's utility for locally optimal deviations when $\eta = 1$ will be **(A9)**. If the latter, the median voter's utility for locally optimal deviations when $\eta = 1$ will be:

$$u_{m,P}(\hat{x}(G_P,),\hat{\Theta}_P(G_P)) = \; (G_P)^2 + \left(\frac{1-G_P}{\delta + 1 - G_P} \right) \; . \qquad \textbf{(A10)}$$

-By construction $\eta = 1$ for Proposition 1. To prove this Proposition I first establish that, for any $G_P > \frac{1}{2}$, the median voter will always receive a higher utility from the deviation stipulated in Lemma 2 than that stipulated in Lemma 3: **(A9) > (A10)** (algebra omitted).

-Therefore, to identify the conditions under which $\mathbf{v}_1^* = \mathbf{v}_2^* = \mathbf{v}_{mp}$ we need only identify values of δ for which **(A9)** does not, for any $G_P \in [0,1]$, yield the median voter a utility greater than 1. Is it straightforward to see that **(A9)** > 1 *if and only if* $\delta < \frac{1}{2}$. ■

Appendix B: Nash Equilibria under Assumption 3

*** Proof of Theorem 2 when $\mu = 0$:**

-The proof is grounded in the following Lemma:

*** Lemma 4:** There is no Nash Equilibrium in which party P chooses a policy position in the range of ideal points which represent the competing party $\sim P$'s potential target set (proof omitted for reasons of time and space). As such, in any equilibrium party 1 chooses a policy $x_1 \leq ½$ and party 2 chooses a policy $x_2 \geq ½$.

-Now consider a situation in which party P chooses a strategy profile $\mathbf{v}_P$ with $C_P > 0$ and target set $\Theta_P = [\underline{x}_P, \bar{x}_P]$. As stated above, by definition given any such strategy profile party P either wins with probability 1 $(\pi_P = 1)$, with probability 0 $(\pi_P = 0)$, or with probability ½ $(\pi_P = ½)$. By Lemma 1, we know that any strategy vector which makes $(\pi_P = 1)$ or $(\pi_P = 0)$ will induce defection by whichever party is slated to lose the election.

-What about a vector $\mathbf{v}_P$ with $C_P > 0$ and target set $\Theta_P = [\underline{x}_P, \bar{x}_P]$ at which $\pi_P = ½$, which implies that both candidates win with 50% probability? Consider first a situation in which P's target set <u>does not</u> include the median voter. If this is the case, by Lemma 4 the competing party $\sim P$ can always secure an electoral plurality by choosing the median-voter programmatic strategy vector $\mathbf{v}_{mp}$ (algebra omitted).

-Now consider a vector $\mathbf{v}_P$ with $C_P > 0$ and target set $\Theta_P = [\underline{x}_P, \bar{x}_P]$ such that $\pi_P = ½$ and P's target set <u>does</u> include the median voter. At any such vector P's opponent $\sim P$ could choose an identical level of effort $C_{\sim P} = C_P$, a symmetric policy position $x_{\sim P} = 1 - x_P$, and a nearly symmetric target set such that $\Theta_{\sim P}$ such that this target set contains the median voter, but is infinitesimally smaller than $\Theta_P = [\underline{x}_P, \bar{x}_P]$. In so doing, P's opponent will win the support of all voters on her 'side' of political spectrum, including the median voter (since $C_{\sim P}$ will be distributed over a slightly narrower target set than C_P). Trivially, this implies that $\pi_{\sim P} = 1$, i.e. that $\sim P$ can increase her probability of winning whenever $C_P > 0$ and $\pi_P = ½$. In turn, no such situation can be yield a stable Nash Equilibrium. ■

-For the case in which Assumption 3 holds, $\mu = 0$, and $\eta = 1$ Proposition 2 replicates the result from Proposition 1:

*** Proposition 2:** If Assumption 3 holds, $\mu = 0$, and $\eta = 1$, then $\mathbf{v}_1^* = \mathbf{v}_2^* = \mathbf{v}_{mp}$ as long as $\delta \geq ½$.

*** Proof of Proposition 2:**

-The proof of Proposition 2 is nearly identical to that of Proposition 1 (and thus omitted), first establishing that Lemmas 2 and 3 are equally applicable to the case in which Assumption 3 holds, with the only exception being that parties cannot choose 'any' bare majority target sets (as in Lemma 2), since by Assumption 3 they in fact have only one bare majority target set at their disposal. With these parallels to Lemmas 2 and 3 in place, we can establish that no payoff-enhancing deviation from $\mathbf{v}_1^* = \mathbf{v}_2^* = \mathbf{v}_{mp}$ exists when $\delta \geq ½$.

Appendix C: Clientelistic Nash Equilibria

-Due to constraints of time and space, rather than a complete proof this Appendix presents an expository description of Nash Equilibrium derivations for the case in which Assumption 3 holds, $\mu = .75$, and $\eta = ½$. Note first that Lemma 4 from Appendix B applies with equal force here, i.e. in equilibrium parties choose programmatic positions from the subset of voter ideal points which comprise their potential target set.

-Note second that any Nash Equilibrium with positive levels of clientelism must be a <u>symmetric equilibrium</u> (proof omitted) in which $G_P = G_{\sim P}$, $x_{\sim P} = 1 - x_P$, and parties' target sets are mirror images of one another, i.e. 'reflections' around the median voter's ideal point (for example, if $\Theta_1 = [.3, ½]$ then $\Theta_2 = [½, .7]$).

-When $\mu = .75$, any choice of $G_P < .75$ implies that no voter will be sufficiently satisfied to turnout and vote for P based purely their programmatic utility for P. As a result, for values of $G_P < .75$, voters not included in party P's target set Θ_P will never turnout and vote for P.

-It can then be shown that, when Assumption 3 holds, $\mu = .75$, and $\eta = ½$, for any $G_P < .75$ a symmetric Nash Equilibrium can only exist if both parties target all voters on their side of the political spectrum ($\Theta_1 = [0, ½]$ and $\Theta_2 = [½, 1]$) and both parties choose the median voter's ideal point as a programmatic stance ($x_1 = x_2 = x_m = ½$). For any $G_P < .75$, any set of actions which does not meet these two criteria will not be a Nash Equilibrium.

-When $\mu = .75$, for any $G_P > .75$ some subset of P's supporters will be sufficiently satisfied to turn out based purely their programmatic utility for P. In turn, Nash Equilibria may no longer require parties to target all voters on their side of the political spectrum. More precisely, we can show that for any $G_P > .75$, a symmetric set of strategy vectors in which parties do not target their entire sides of the political spectrum must involve party 2 choosing $x_2 = \mu / G_P$ and $\Theta_2 = [½, (\frac{2\mu}{G_P} - 1)]$.

-Based on these facts I now present Propositions 3, 4, and 5:

*** Proposition 3:** When Assumption 3 holds, $\mu = .75$, and $\eta = ½$, the game's unique Nash Equilibrium will be $\mathbf{v}_1^* = \mathbf{v}_2^* = \mathbf{v}_{mp}$ when $\delta = 2$.

-In this case, neither symmetric Nash Equilibria in which parties target their entire target sets nor those in which they target smaller subsets of their supporters is a Nash Equilibrium, because both parties have an incentive to deviate to the median-voter programmatic strategy vector $\mathbf{v}_{mp}$; and furthermore no optimal deviation exists from the set of strategies $\mathbf{v}_1^* = \mathbf{v}_2^* = \mathbf{v}_{mp}$.

* **Proposition 4:** When Assumption 3 holds, $\mu = .75$, and $\eta = \frac{1}{2}$, but $\delta = \frac{1}{2}$ the game's unique Nash Equilibrium will be for party 1 to choose strategy vector $\mathbf{v}_1^* = \{x_m$, ¾, ¼, $\Theta_1 = [\,½,1]\}$ and party 2 to choose $\mathbf{v}_2^* = \{x_m$, ¾, ¼, $\Theta_1 = [\,0,½]\}$.

-When $\delta = \frac{1}{2}$ there exists at least one payoff-enhancing deviation from the strategy vector $\mathbf{v}_1 = \mathbf{v}_2 = \mathbf{v}_{mp}$. Furthermore, there are no symmetric Nash Equilibria in which parties target some subset of their supporters rather than their entire supporter bass: at any set of strategy vectors for which $x_2 = \mu/_{GP}$, $\Theta_2 = [\frac{1}{2}, (\frac{2\mu}{GP} - 1)]$, and party 1 chooses a symmetric strategy vector, either party could deviate to $\mathbf{v}_P^*$ as stipulated in Proposition 4 and win with certainty. This is the case because, when $\delta = \frac{1}{2}$, the median voter prefers a strategy vector in which her ideal point is the programmatic stance and clientelistic efforts are targeted broadly to a strategy vector with an extreme programmatic stance in which clientelistic efforts are targeted narrowly.

* **Proposition 5:** When Assumption 3 holds, $\mu = .75$, and $\eta = \frac{1}{2}$, but $\delta = \frac{1}{10}$ the game's unique Nash Equilibrium will be for party 1 to choose the strategy vector $\mathbf{v}_1^* = \{x_1 \cong .788, G_1 \cong .952, C_1 \cong .048, \Theta_1 \cong [\frac{1}{2}, .576]\}$ and for party 2 to choose the strategy vector $\mathbf{v}_2^* = \{x_2 \cong .212, G_2 \cong .952, C_2 \cong .048, \Theta_2 \cong [.424, \frac{1}{2}]\}$.

-When $\delta = \frac{1}{10}$ there exists at least one payoff-enhancing deviation from the strategy vector $\mathbf{v}_1 = \mathbf{v}_2 = \mathbf{v}_{mp}$. Furthermore, there are no symmetric Nash Equilibria in which parties target their entire subset: at any such set of strategy vectors, either party could deviate to $\mathbf{v}_P^*$ as stipulated in Proposition 5 and win with certainty. This is the case because, when $\delta = \frac{1}{10}$, the median voter prefers an extreme programmatic stance in which clientelistic efforts are targeted narrowly to a strategy vector in which her ideal point is the programmatic stance and clientelistic efforts are targeted broadly.