Lecture 2:

Models of the Policy Process I: Voting

The Economic Environment

- There are N citizens who have to make a social decision about a set policies denoted by $x \in \mathcal{A}$, where $\mathcal{A}$ denotes the set of feasible policies.

- Citizen's preferences:

$$V^i(x, j) \,(\text{ where } i = 1, ..., N)$$

and j denotes the identity of the policy maker.

- Feasibility –
  - technological
  - information available to the policy maker.
  - It may also embody constitutional restrictions on policy instruments.

- **Example:** (One dimensional political science environment) The standard in the formal political science literature considers a set of policy alternatives $\mathcal{A}$ which is lie in m-dimensional Euclidean space with each citizen i having distance preferences over these alternatives with ideal point α_i; i.e., $V^i(x, j) = -\|\alpha_i - x\|$ for all $j = 1, .., N$.

- **Example: (**Negative Income Tax Model) A standard public economics example is where $x = (t, T)$ are an income tax rate, t, and an income guarantee level, T. Individuals have (identical) preferences over consumption, c, and labor supply, ℓ, denoted by $u(c, \ell)$ and differ in their wage rates (which are representative of earning abilities) denoted by a_i. In this case

$$V^i(t, T) = v(t, T, a_i) = \max_{c,\ell} \{u(c, \ell) : c = a_i \ell (1 - t) + T\}.$$

Let $\ell(a(1-t), T)$ denote the optimal labor supply and $c(a(1-t), T)$ the optimal consumption level of an individual of ability a. The feasible set of policies, $\mathcal{A}$, are the values of (t, T) which satisfy the government budget constraint

$$(1-t)\sum_{i=1}^{N} a_i \ell\left(a_i\left(1-t\right), T\right) = NT.$$

- **Condorcet Winner:** A particular policy outcome x_C is a (strict) Condorcet winner in the set $\mathcal{A}$ if there is no other policy $x \in \mathcal{A}/\{x_C\}$, which is (strictly) preferred to it by a majority of the population.

- The most common incarnation of a Condorcet winner is in cases where the median citizen's policy alternative is decisive over all others.

- In the first example preferences are single-peaked. If $m = 1$, i.e., there is one-dimension to the policy space, then the Condorcet winner is at the median ideal point. When $m > 1$, there is no guarantee that a median exists without further strong assumptions on the distribution of types

- For our second example, Roberts (1977) has shown that there is a Condorcet winner if $y(t, T, a) \equiv a\ell(a(1-t), T)$ is increasing in a for all

$(t, T) \in [0, 1] \times \Re$. The Condorcet winner in that instance is the level of redistribution preferred by the median ability group. Perturbing the model to give the government a second policy instrument, such as a public good or an income tax with more than one tax bracket, requires much more stringent assumptions.

- The existence of a Condorcet winner requires that the type space and/or the policy space to be severly restricted. A vast literature has grown up around the fact that Condorcet winners are not to be expected in most interesting economic environments.

- Perhaps the most straightforward and well-known environment in which a Condorcet winner does not exist is a game of pure distribution. Suppose that the government has to divide a cake of size one. In that case x is an element of the N-dimensional unit simplex, the latter being the set $\mathcal{A}$. It is easy to see that for any randomly selected alternative in $\mathcal{A}$, another can be found that beats it in a pairwise comparison under majority rule.

Representative Democracy

- **Policy Choice**

- After the election has been won by some candidate, he/she must choose which policy to implement.

- This depends upon what is assumed about candidate preferences and the possibility of commitment. Associated with each candidate will be a preferred policy stance

- Two different models:

- Each candidate is associated with some policy stance given by:

$$\widehat{x}_i = \arg\max_x \left\{ V^i(x) \middle| \, x \in \mathcal{A} \right\}. \tag{1}$$

We will suppose that this unique for each citizen.

- The policy outcome, however, may not be $\widehat{x}_i$ if the campaign announcements are binding. Let X_i denote the campaign announcement of candidate $i \in \mathcal{C}$.

- Actual policy outcome is

$$x_i^* = h\left(\widehat{x}_i, X_i\right).$$

- Full commitment, $x_i^* = X_i$.

- No commitment, $x_i^* = \widehat{x}_i$.

- Alesina (1988) models political competition in a repeated game where broken promises lead voters to punish politicians. Only for vanishingly small rates of discount would politicians be able to commit to policies that were not functions of their preferences.

- Given the policy selection convention, we can associate a utility imputation $(v_{1i}, ..., v_{Ni})$ associated with each candidate's election, where

$$v_{ji} = V^j(x_i^*, i)$$

is individual $j's$ utility if i is elected.

- If there are no candidates, we assume that a default policy x_0 is selected. We denote the utility imputation in this case as $(v_{10}, ..., v_{N0})$, where $v_{j0} = V^j(x_0, 0)$.

- **Voting**

- Given a candidate set $\mathcal{C} \subset \mathcal{N}$, and a policy announcements for each candidate $X = \{X_i\}_{i \in \mathcal{C}}$, for $X_i \in \mathcal{A}$, each citizen j makes a voting decision.

- He may vote for any candidate in $\mathcal{C}$ or he may abstain. Let $\alpha_j \in \mathcal{C} \cup \{0\}$ denote his decision.

- If $\alpha_j = i$ then citizen j casts his vote for candidate i, while if $\alpha_j = 0$ he abstains.

- A vector of voting decisions is denoted by $\alpha = (\alpha_1, ..., \alpha_N)$. Given $\mathcal{C}$ and α, let $P^i(\mathcal{C}, \alpha)$ be the probability that candidate i wins.

- Under plurality rule, this is the candidate with the most votes. We assume that ties are broken by randomly selecting from among the tying candidates.

- We assume that citizens correctly anticipate the policies that would be chosen by each candidate and act so as to maximize their expected utilities.

- In the language of the voting literature, therefore, we are "assuming" that voters vote *strategically* as opposed to sincerely.

- We define a *voting equilibrium* to be a vector of voting decisions α^* such that for each citizen $j \in \mathcal{N}$

- (i) α_j^* is a best response to α_{-j}^*; i.e.,

$$
\begin{aligned}
& \alpha_j^* (\mathcal{C}, X) && (2)\\
\in\ & \underset{\alpha_j \in \mathcal{C} \cup \{0\}}{\text{arg max}} \left\{ \sum_{i \in \mathcal{C}} P^i \left(\mathcal{C},\ \left(\alpha_j, \alpha_{-j}^* \right) \right) V^j (h (\widehat{x}_i, X_i)) \right\} && (3)
\end{aligned}
$$

and

- (ii) α_j^* is not a weakly-dominated voting strategy.

- The requirement that voters do not use weakly-dominated voting strategies is standard in the voting literature. It implies that citizens never vote for their least preferred candidate.

- Thus, in two candidate elections, it implies that citizens vote sincerely.

- It is straightforward to show that a voting equilibrium exists for any non-empty candidate set $\mathcal{C}$, although it need not be unique.

- Even when citizens have strict preferences over the available candidates, there can be multiple voting equilibria in elections with three or more candidates.

- **Campaigning**

- Each candidate can announce a proposed policy X_i to maximize their expected utility.

- There are two possible roles for these announcements.

- They may affect voting behavior or they can affect the policy outcome if the candidate wins.

- We look for a Nash equilibrium in such announcements. Formally for $i \in \mathcal{C}$, let $u^i(\mathcal{C}, \alpha(\mathcal{C}, X) = \sum_{j \in \mathcal{C}} P^j(\mathcal{C}, \alpha(\mathcal{C}, X)) V^i\left(h\left(\widehat{x}_j, X_j\right)\right)$, be the expected utility of a particular candidate, then for all non-empty candidate sets $\mathcal{C}$, let

$$\widehat{X}_i \in \text{arg max} \left\{ u^i(\mathcal{C}, \alpha(\mathcal{C}, X_i, X_{-i}) : X_i \in \mathcal{A} \right\}. \tag{4}$$

- An equilibrium collection of announcements $\widehat{X}(\mathcal{C}) = \left\{ \widehat{X}_i(\mathcal{C}) \right\}_{i \in \mathcal{C}}$ is such that (4) holds for all $i \in \mathcal{C}$.

- **Entry**

- We consider the possibility that only some sub-set of citizens (the *eligible* citizens) can stand for office.

- We will denote this set by $\mathcal{D} \subset \mathcal{N}$.

- There are D citizens in that set labeled $i = 1, ..., D$.

- We model entry as a game played between this sub-set of citizens.

- Such citizen's pure strategies are denoted $s^i \in \{0, 1\}$, where $s^i = 1$ denotes entry. A pure strategy profile is denoted by $s = (s^1, ..., s^D)$. Given s, the set of candidates in is $\mathcal{C}(s) = \{i \mid s^i = 1\} \subset \mathcal{D}$. There is a common cost (possibly small) of entering to become a candidate, denoted by δ.

- We will assume that entry decisions must form a Nash equilibrium.

- Let $\alpha(\mathcal{C}, \widehat{X}(\mathcal{C}))$ be the vector of voting decisions that citizens anticipate when the candidate set is $\mathcal{C}$. Given this, the expected payoff to any citizen i from a particular pure strategy profile s is given by:

$$
\begin{aligned}
& U^i(s;\alpha(\cdot)) && (5)\\
= & \sum_{j\in\mathcal{C}} P^j(\mathcal{C}(s),\alpha(\mathcal{C}(s),\widehat{X}\left(\mathcal{C}\left(s\right)\right)))v_{ij} + P^0(\mathcal{C}(s))v_{i0} \; - \delta s^i, && (6)
\end{aligned}
$$

where $P^0(\mathcal{C})$ denotes the probability that the default outcome is selected. Thus, $P^0(\mathcal{C})$ equals one if $\mathcal{C} = \emptyset$ and zero otherwise.

- Citizen i's payoff is therefore the probability that each candidate j wins multiplied by i's payoff from j's preferred policy, less the entry cost if he chooses to enter.

- To ensure the existence of an equilibrium, it is sometimes necessary to allow the use of mixed strategies.

- Let γ^i be a mixed strategy for citizen i, with the interpretation that γ^i is the probability that i runs for office.

- The set of mixed strategies for each citizen is then the unit interval $[0, 1]$.

- A mixed strategy profile is denoted by $\gamma = (\gamma^1, ..., \gamma^D)$ and citizen i's expected payoff from the mixed strategy profile γ is denoted by $u^i(\gamma; \alpha(\cdot))$.

- An *equilibrium of the entry game* is then a mixed strategy profile $\hat{\gamma}$ with the property that there is a voting equilibrium $\alpha(\mathcal{C})$ such that for all $i \in \mathcal{D}$, $\hat{\gamma}^i$ is a best response to $\hat{\gamma}_{-i}$.

- The entry game is a *finite* game so that we can apply the standard existence result due to Nash (1950) to conclude that an equilibrium exists.

- Equilibria can be of two types, pure strategy equilibria in which $\gamma = s$ for some $s \in \{0, 1\}^N$ and mixed strategy equilibria in which $\gamma^i \in (0, 1)$ for some citizen i.

Equilibrium

- A political equilibrium, is a collection of entry decisions γ, a function describing campaign announcements as a function of candidate sets $\widehat{X}(\mathcal{C})$, and a function describing voting behavior $\alpha\left(\mathcal{C}, \widehat{X}(\mathcal{C})\right)$ such that

- (i) γ is an equilibrium of the entry game given $\widehat{X}(\mathcal{C})$ and $\alpha\left(\mathcal{C}, \widehat{X}(\mathcal{C})\right)$,

- (ii) for all non-empty candidate sets $\mathcal{C}$, $\widehat{X}(\mathcal{C})$ is a campaign equilibrium and

- (iii) for all non-empty candidate sets $\mathcal{C}$, $\alpha\left(\mathcal{C}, \widehat{X}(\mathcal{C})\right)$ is a voting equilibrium.

- Existence of equilibrium can be a problem in certain specifications of the model, an issue to which we return below.

The Downsian Model

- Downs assumed that candidates cared exclusively about winning.
- Preferences of the candidates are

$$V^i(x_i, j) = \begin{cases} \Delta & if\ i = j \\ 0 & \text{otherwise.} \end{cases} \tag{7}$$

- We can interpret Δ as the rent from holding office.

- Downs focused on the case where there where only two candidates ($\#\mathcal{C} = 2$).

- The equilibrium choice of announcements (which are also policies in this model are):

$$\widehat{X_i} = \text{arg max}\left\{\Delta P_i\left(\mathcal{C}; \alpha\left(\mathcal{C}, X_i, X_{-i}\right)\right) : x \in \mathcal{A}\right\}. \tag{8}$$

is candidate i's preferred policy choice.

- We will work with the case where voter preferences do not depend upon j.

- Then, let x_c denote a Condorcet winner in $\mathcal{A}$ which for the remainder of this section will be assumed to exist.

Proposition 1 *Suppose that a Condorcet winner exists in $\mathcal{A}$. Then, the unique Nash equilibrium in campaign announcements $\left\{\widehat{X}_i\right\}_{i \in \mathcal{C}}$ has $\widehat{X}_i = x_c$ for all $i \in \mathcal{C}$.*

- Thus the Downsian model predicts convergence to a Condorcet winner.

- If there is no policy that beats every other in pairwise comparisons then there is no Nash equilibrium in pure strategies.

- The convergence result can be generalized to the case of more than two candidates if entry is costly; this is shown in Feddersen, Sened and Wright (1990).

- Their analysis restricts entry to Downsian candidates, i.e. those who have preferences of the form (7).

- Thus suppose that the set $\mathcal{D}$ contains only such candidates with $D = \#\mathcal{D}$. Since entry is costly, all candidates in the race must receive the same number of votes which implies that each candidate will win with equal probability.

- Thus, the payoff to a citizen who chooses to enter when the candidate set is $\mathcal{C}$ is $\frac{\Delta}{\#\mathcal{C}} - \delta$.

Proposition 2 *(Feddersen, Sened and Wright (1990)) In a Downsian model with entry, there is an equilibrium where each candidate chooses x_c and where the the number of candidates is the maximum of D or the largest integer d such that $\frac{\Delta}{d} - \delta > 0$.*

- Entry then serves purely as a rent dissipation device.

The Citizen-Candidate Model

- Two principal feautures of the citizen-candidate model.
  - $\mathcal{D} = \mathcal{N}$.
  - $x_i^* = \widehat{x}_i$.

- Equilibria of the citizen-candidate model can be in pure or mixed strategies.

Example: (Mixed Strategies with Non-Single Peaked Preferences)

- Three groups: rich, middle class and poor. (numbers are N_R, N_M, and N_P.)

- Assume that
$$\frac{N}{2} > N_M > Max\left\{N_R, N_P\right\} + 1$$
and $N_i \neq N_j$ for $i, j \in \{P, M, R\}$.

- Society must choose the level of public provision of a private good, such as public health care or education.

- The set of social alternatives is $\{0, q_L, q_H\}$. (Status quo is zero provision.)

- Preferences:

$$v_R(0) > v_R(q_L) > v_R(q_H)$$
$$v_M(q_H) > v_M(0) > v_M(q_L)$$
$$v_P(q_L) > v_P(q_H) > v_P(0)$$

- There is no Condorcet winner in this environment.

- Low quality would lose to zero provision; zero provision would lose to high quality; and high quality would lose to low quality.

- Payoff Matrix: (M choose the column, P chooses the row and R chooses the payoff matrix)

Middle Class

	$Enter$	$Not\ Enter$
$Enter$	$(v_R(q_H) - \delta, v_M(q_H) - \delta,$ $v_P(q_H) - \delta)$	$(v_R(0) - \delta, v_M(0),$ $v_P(0))$
$Not\ Enter$	$(v_R(q_H) - \delta, v_M(q_H) - \delta,$ $v_P(q_H))$	$(v_R(0) - \delta, v_M(0),$ $v_P(0))$

Poor:

Rich Enter:

Middle Class

	$Enter$	$Not\ Enter$
$Enter$	$(v_R(q_L), v_M(q_L) - \delta,$ $v_P(q_L) - \delta)$	$(v_R(q_L), v_M(q_L),$ $v_P(q_L) - \delta)$
$Not\ Enter$	$(v_R(q_H), v_M(q_H) - \delta,$ $v_P(q_H))$	$(v_R(0), v_M(0),$ $v_P(0))$

Poor:

Rich do not Enter:

The Appendix proves

- Equilibrium for small enough δ :

$$
\begin{aligned}
\gamma_P &= 1, \\
\gamma_M &= \frac{v_R(0) - v_R(q_L) - \delta}{v_R(0) - v_R(q_H)} \\
\gamma_R &= \frac{\delta}{v_M(q_H) - v_M(0)}.
\end{aligned}
$$

- As δ gets small, the probability of the poor individual being selected to choose policy goes to one.

- Pure Strategy Equilibria

- **One Candidate Equilibria**

- Let $\mathcal{A}^* \subset \mathcal{A}$ denote the set of (feasible) policies that are optimal for some citizen and let x_c^* to denote the Condorcet winner in this set (if it exists). (It is possible for x_c^* exists when x_c does not.)

Proposition 3 *(Besley and Coate (1997a)) Suppose that $V^i(x, j)$ is independent of j for all $i \in \mathcal{N}$, and that a Condorcet winner, x_c^*, exists in $\mathcal{A}^*$, then*

(i) if citizen i running unopposed is an equilibrium of the entry game for sufficiently small δ, $x_i^* = x_c^*$ and

(ii) if $x_i^* = x_c^* \neq x_0$ then citizen i running unopposed is an equilibrium of the entry game for sufficiently small δ.

- This establishes an essential equivalence between the policy outcome being a Condorcet winner in $\mathcal{A}^*$ and a one candidate equilibrium for the case where citizens are motivated purely by purely policy concerns.

- Suppose that:

$$V^i(x_i, j) = \begin{cases} v^i(x) + \Delta & if\ i = j \\ v^i(x) & \text{otherwise.} \end{cases} \tag{9}$$

Proposition 4 *Suppose that preferences are as in (9), then there is a political equilibrium of the citizen-candidate model where each candidate chooses x_c^* and the equilibrium number of candidates is the maximum of M and the largest integer m such that $\frac{\Delta}{m} - \delta > 0$.*

- **Two Candidate Equilibria**

- Two candidate equilibria of the citizen-candidate model exist under reasonable weak condition as demonstrated in Besley and Coate (1997a, Proposition 3).

- Two candidate equilibria have two properties.

  - (i) None of the two candidates in the race should wish to exit (both have a positive probability of winning).

  - (ii) No candidate should be able to enter and beat either of the candidates in the race.

- * This depends on the voting equilibrium played in the three candidate that would ensue were any third candidate to enter.

- This argument for the construction of two candidate equilibria does suggest that Duverger's hypothesis that there is something special about two candidate competition under plurality rule has merit.

Comments

- Downsian Model is Restrictive – existence of equilibrium only under very strong conditions
  - cannot handle multi-dimensional policy making environments
- Citizen-candidate models – permissive in terms of existence and can handle multi-dimensional environments with ease.
  - but result in multiplicity of equilibria rather than non-existence.
- But perhaps the worst thing about Downsian models is that they give no insight into why political instututions matter.

- Citizen candidate model can be used to study the impact of institutions and endogenous institutions (e.g. parties)

Probabilitistic Voting Models

- Here, I will take a citizen-candidate approach to these models in a simple two-dimensional environment.

- This is based on Besley-Coate (2001/2003).

- The Model

– There are two issues: public spending $g \in \Re^{+}$ and regulation $r \in \{0, 1\}$.

– Net benefit from public spending level g is $b(g; k)$. (The function $b(\cdot; k)$ is single-peaked with a unique maximum $g^{*}(k) > 0$.)

– A citizen of type t obtains a net benefit θ_t when the regulation is enacted, where $\theta_1 > 0 > \theta_0$.

– Each citizen is either left or right on public spending $\left(g_L^* > g_R^*\right)$ and either pro- or anti-regulation. Thus there are basically four groups of citizens.

– The fraction of citizens of type (k, t) is denoted by γ_t^k : $\gamma^k = \gamma_0^k + \gamma_1^k$ and $\gamma_t = \gamma_t^L + \gamma_t^R$

– Assume that $\gamma_0 < \min\{\gamma^L, \gamma^R\}$: the anti-regulation citizens are a minority.

– There are two parties (labelled A and B) who select candidates to choose policy. Parties are divided by their views on public spending with party A being left wing.

– Each party contains a mixture of pro and anti regulation citizens with λ_J denoting the fraction of members of Party J who are pro-regulation.

– Let t_J^* denote the regulatory attitude of the majority of Party J's members; i.e., $t_J^* = 1$ if $\lambda_J > \frac{1}{2}$ and $t_J^* = 0$ if $\lambda_J < \frac{1}{2}$.

– Each party selects the candidate a majority of its members prefers.

There are two kinds of voters

– A fraction μ are *rational voters* who anticipate the policy outcomes each candidate would deliver and vote for the candidate whose election would produce their highest policy payoff.

– A rational voter of type (k, t) faced with candidates of types (k_A, t_A) and (k_B, t_B) will vote for Party A's candidate if $b(g^*(k_A), k) + \theta_t t_A$ exceeds $b(g^*(k_B), k) + \theta_t t_B$. Rational voters indifferent between two candidates abstain.

– A fraction η of the noise voters vote for Party A's candidate, where η is the realization of a random variable with support $[0, 1]$ and cumulative distribution function $H(\eta)$.

– We assume that H is symmetric so that for all η, $H(\eta) = 1 - H(1-\eta)$.

– Let the ω be the difference between the fraction of citizens obtaining a higher utility from the policy choices generated by Party A's candidate and the fraction obtaining a higher utility from Party B's candidate.

– Party A's candidate will win if $\eta > \frac{-\mu\omega}{2(1-\mu)} + \frac{1}{2}$.

– The probability that Party A's candidate will win is $\psi(\omega)$ where $\psi(\omega) = 0$ if $\omega \leq \frac{-(1-\mu)}{\mu}$, $\psi(\omega) = 1$ if $\omega \geq \frac{1-\mu}{\mu}$, and $\psi(\omega) = 1 - H(\frac{-\mu\omega}{2(1-\mu)} + \frac{1}{2})$ otherwise.

– Assume throughout that $\left|\gamma^L - \gamma^R\right| < \frac{1-\mu}{\mu}$.

– A candidate from party J is denoted (k_J, t_J) with k being their public spending type and t being their regulatory type.

– A pair of candidates (k_A, t_A) and (k_B, t_B) is an equilibrium if type (L, t_A^*) citizens prefer a type (k_A, t_A) candidate to any other type of candidate given that Party B is running a type (k_B, t_B) candidate and, conversely, type (R, t_B^*) citizens prefer a type (k_B, t_B) candidate to any other type of candidate given that Party A is running a type (k_A, t_A) candidate.

Three Sources of Non-majoritarian Outcomes

Source 1: Political Non-Salience

– Suppose that for each type of citizen (k, t), the gain from achieving their preferred level of public spending exceeds the gain from achieving their preferred regulatory outcome. i.e., for $k \in \{L, R\}$ $\Delta b(k) = b(g^*(k), k) - b(g^*(-k), k) > |\theta_t|$. Then we say that regulation is not politically salient.

– Then the party members can choose whichever regulatory outcome they would like without affecting their electoral chances. Regulation coincides with the majority preferred outcome only if party members reflect majority preferences. Otherwise there is a divergence.

Assumption 1: *For* $k \in \{L, R\}$, $\psi(\gamma^k - \gamma^{-k})\Delta b(k) > [\psi(\gamma_1 - \gamma_0) - \psi(\gamma^k - \gamma^{-k})]\theta_1$.

– This assumption prevents convergence on the public spending issue. Then we have:

Proposition 1: *Suppose that for each type of citizen, regulation is non-salient. Then, under Assumption* 1*, the regulatory outcome will be* t_A^* *with probability* $\psi(\gamma^L - \gamma^R)$ *and* t_B^* *with probability* $1 - \psi(\gamma^L - \gamma^R)$.

Thus, party members can dictate the policy outcome. If they are not in step with majority opinion, you have a non-majoritarian outcome.

Source 2: An Intense Minority

– Our second argument works if regulation is salient for the minority of voters who oppose the regulation, but is not for voters who favor it. (Gun control is a good example of this in the United States.) Thus, the minority will vote for whichever party puts up an anti-regulation candidate.

– Formally, for each $k \in \{L, R\}$, $\theta_1 < \Delta b(k) < |\theta_0|$.

Assumption 2: For $k \in \{L, R\}$ (i) $\psi(\gamma^k - \gamma^{-k})\Delta b(k) > \psi(\gamma_1 - \gamma_0)\theta_1$, and

(ii) $[\psi(\gamma^k - \gamma^{-k}) - \psi(\gamma_1^k - (\gamma_0^k + \gamma^{-k}))]\Delta b(k) > \psi(\gamma_1^k - (\gamma_0^k + \gamma^{-k}))\theta_1$.

Part (i) of the assumption ensures that neither party has an incentive to put forward a candidate with the opposing party's public spending preferences but the majoritarian regulatory attitude. Part (ii) ensures that neither party wishes to switch to a candidate with non-majoritarian regulatory preferences.

Proposition 2: *Suppose that the majority of each party's members are pro-regulation and that regulation is salient only for those who oppose it. Then, under Assumption* 2*, an equilibrium exists in which the regulatory outcome will be non-majoritarian with probability one.*

– Basically, Assumption 2 embodies the condition under which both parties will have an incentive to sell out to the intense minority on the regulatory dimension.

Source 3: Special Interests

– To incorporate interest group influence, we assume that a group of citizens who oppose the regulation are organized as an interest group which makes contributions to the campaigns of anti-regulation candidates.

– These contributions are used to "buy" the votes of noise voters and enhance the election chances of the favored candidates.

– Contributions are given after the parties have selected candidates and parties anticipate lobbying activities when selecting candidates.

– An equilibrium now consists of (i) functions describing the interest group's optimal contribution to each party's candidate for any given pair of candidate types, and (ii) a pair of candidate types that are majority preferred by the members of each party given the interest group's contribution behavior.

– Consider an election in which the difference between the campaign expenditures of the two parties' candidates is z.

– Then the fraction of noise voters voting for Party A's candidate, η, is a random variable with support $[0, 1]$ and cumulative distribution function $H(\eta; z)$. (H is twice continuously differentiable and satisfies: $H_z(\eta; z) < 0$ for all (η, z) and for all η and $z > 0$, $H_{zz}(\eta; z) > 0$, with $H(\eta, z) = 1 - H(1 - \eta, -z)$.)

– Assume that a fraction $\xi < 1$ of those opposing the regulation belong to the interest group which maximizes $\xi\gamma_0\theta_0 r - x$ where r denotes the regulatory outcome.

– Generalizing the earlier analysis, let $\widehat{\psi}(\omega, z)$ be the probability that Party A's candidate wins when the difference between the two candidates' campaign expenditures is z.

– Then the interest group contributes $x^*(\omega)$ to Party A's candidate, where

$$x^*(\omega) = \arg\max\{\widehat{\psi}(\omega, x)\xi\gamma_0\,|\theta_0| - x : x \geq 0\}.$$

Assumption 3: For $k \in \{L, R\}$ (i) $\psi(\gamma^k - \gamma^{-k})\Delta b(k) > \widehat{\psi}(\gamma_1 - \gamma_0, -x^*(\gamma_0 - \gamma_1))\theta_1$, and

(ii) $[\psi(\gamma^k - \gamma^{-k}) - \widehat{\psi}(\gamma^k - \gamma^{-k}, -x^*(\gamma^{-k} - \gamma^k))]\Delta b(k) > \widehat{\psi}(\gamma^k - \gamma^{-k}, -x^*(\gamma^{-k} - \gamma^k))\theta_1$.

Part (i) ensures that neither party has an incentive to put forward a candidate with the opposing party's public spending preferences but the majoritarian regulatory attitude. Part (ii) ensures that neither party wishes to switch to a candidate with non-majoritarian regulatory preferences. Thus we have:

Proposition 3: *Suppose that there is an anti-regulation interest group, the majority of each party's members are pro-regulation, and that regulation is non-salient. Then, under Assumption* 3, *an equilibrium exists in which the regulatory outcome will be non-majoritarian with probability one.*

Summary and Discussion

– The arguments above are well-known although sometimes not very clearly articulated – e.g. broad-brush reference to elites.

– It is useful to see them spelled out in a unified framework so that the comparative logic is clear.

– The modeling also gives some sense of the auxiliary conditions that need to hold for the arguments to go through.

– It is clear that their force will vary issue by issue and that this is consistent with the empirical evidence.

Citizens' Initiatives

– Suppose that any citizen can put a proposal on the ballot regarding the regulation at a cost of δ.

– Timing

- Parties select candidates.
- Citizens decide whether or not to put initiatives on the ballot.
- If active, the interest group chooses how much to contribute to the candidates and/or the initiative campaigns.

- Voters vote.

- Winner chooses policy.

Our key result is:

Proposition 4: *Suppose that the constitution permits citizens' initiatives on the regulatory issue. Then, for sufficiently small* δ*, any equilibrium produces the majority-preferred regulatory outcome with probability* $\widehat{\psi}(\gamma_1 - \gamma_0, -x^*(\gamma_0 - \gamma_1))$ *and the non-majoritarian outcome with probability* $\widehat{\psi}(\gamma_0 - \gamma_1, x^*(\gamma_0 - \gamma_1))$.

– What this says is that the outcome will be exactly as if the two-dimensions of political competition were unbundled.

– This does *not* say that policy will be majoritarian. However, it must be (weakly) more majoritarian than outcomes described above where the policy followed the minoritarian outcome.

– If $\gamma_1 - \gamma_0 > \frac{1-\mu}{\mu}$, (which says that uninformed voting is sufficiently unimportant), then there is a majoritarian outcome.

– Note that the result also holds only as δ goes to zero, which is very unrealistic.

We also have the following "existence" result:

Proposition 5: *Suppose that the constitution permits citizens' initiatives on the regulatory issue. Then, for sufficiently small* δ*, there exists an equilibrium in which Party* A *selects a type* $(L, 1)$ *candidate, Party* B *selects a type*

$(R, 1)$ *candidate and the anti-regulation initiative is proposed if and only if* $\gamma_1 - \gamma_0 < \frac{1-\mu}{\mu}$.

– Note that initiatives affect the equilibrium outcome even if they are not actually proposed in the equilibrium.

– One interesting feature of this equilibrium is that initiatives are only proposed by minority groups and are defeated more than half the time (which is consistent with the US evidence).