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A Model of Rights

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Abstract

In this paper, we develop a simple model of the rights a government provides its citizenry. Rights are treated as public goods and taken as primitives in agents utility functions; each agent has preferences over the entire policy vector. We model the interaction among citizens and the government as a game in which an exogenous lobbying set makes contributions to the government to influence policy formulation in the matter of rights. When examining contribution schedules comprising truthful Nash strategies, we find that members of the lobbying set obtain rights closer to their most-preferred bundle, while the rights of non-lobbyists further diverge from their most-preferred bundle. Further, if the lobbying set comprises the entire population, the government's allocation of rights does not differ from the allocation achieved in the absence of contributions.

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1 Introduction

The rights a government allocates to an individual, whether *positive* in that they permit some action or *negative* in that they protect the individual from the trespasses of others, are goods. Further, rights have the character of public goods insofar as the rights of specific individuals or groups of individuals are more broadly observed (read: consumed) by the entire citizenry. By treating rights as goods, we open the door to economic analyses of their formulation in, and distribution throughout, an economy.

The first issue any prospective model must tackle is the nature of individual preferences over rights. Historical struggles for rights, in the U.S. in particular, suggest that individuals have a particular reference point for the rights they desire from the government. For example, in the U.S. during the 19th century, women in numbers began to voice their desire for the right to vote. This, however, was a part of a drive toward a larger set of rights comprised in a notion of gender equality, a reference point far beyond the limited sphere of equal rights to participate in voting. Because individuals and groups appear to desire progress toward some *ideal* allocation of rights, we will suppose that each individual has preferences over their own rights that contain a (single) peak at their most-preferred rights. The Hotelling (1929) location model of horizontal product differentiation is useful in this regard. In the analysis that follows, we will interpret the linear interval of the Hotelling model as a space representing an individual's preferences over her own rights. In this sense, then, an individual's location on $[0, 1]$ represents her most-preferred right (or collection of rights) and the government chooses the rights it provides its citizens by selecting each right's (or collection's) location. Downs (1957) includes a related interpretation of the Hotelling model where voters are distributed over an interval according to their political preferences and political parties select platform locations to maximize the number of votes they receive.

The second issue any prospective model must confront is the public goods nature of rights. In particular, an economic model of rights needs to specify how the rights of a particular individual or group affect the well-being of others. We achieve this by supposing that rights have externalities of a particular sort. More specifically, we develop a model of rights with externalities where each individual cares about her own rights and how others' rights deviate from a maintained *norm* about what those rights should be.

A third, and final, issue any prospective model must face is the way in

which individuals or groups of individuals participate in the political process that determines the ultimate allocation of rights in an economy. In reality, whether regarding their own rights or, often, the rights of others, many individuals seek to influence government policy rather than playing the passive role of political spectator. The pioneering work of Grossman and Helpman (1994) provides a framework to formalize these ideas. In this model of special-interest politics, some individuals belong to lobby groups that use contributions to influence government policy-making. We adopt the Grossman and Helpman (1994) framework and synthesize it with the Hotelling (1929) location model to arrive at a model of rights with externalities and contributions. A preliminary model of *pure* rights without externalities will aid in formalizing the ideas discussed thus far.

2 Preliminaries: A Simple Model of Rights

Consider a set I of individuals (each i) populating an economy. Further, suppose that we may partition I into two sets A and B , where $\text{card}(A) = a > 0$, $\text{card}(B) = b > 0$, $A \cap B = \emptyset$, and $A \cup B = I$.¹ Imposing restrictions on the relationship between a and b is not necessary for the subsequent analysis. In the discussion that follows, we consider the individuals in sets A and B to comprise unique “groups” in the economy. Following Hotelling (1929), we suppose that the unit interval represents a continuum of personal characteristics and an individual’s location on it represents their preference for a particular right granted by the government; i.e., an individual located at x has a most-preferred right located at x . Groups emerge as masses of the population find themselves sharing a particular location on the interval. Thus, by modeling the allocation of rights using a model of location, we depart from Hotelling (1929) by supposing that a discrete distribution function describes the distribution of individuals over the interval rather than a continuous distribution function. In particular, we assume that the individuals in group A are located at $\overline{r_{AA}} = 0$ and that the individuals in group B are located at $\overline{r_{BB}} = 1$ as shown in Figure 1. By employing such a location model for the granting of rights, we are effectively assuming that we can dis-

¹Note that sets A and B are disjoint. The ideas central to the models we develop in this paper extend to settings including n such sets of individuals and we will discuss this further as a topic for future research. For now, we restrict the analysis to two groups for simplicity.

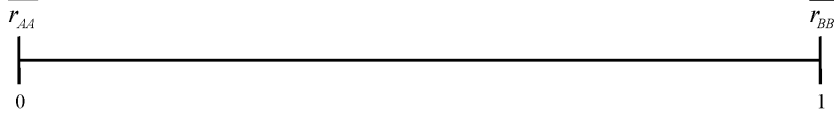


Figure 1: Most-Preferred Own-Rights for Members of Groups A and B

tinguish between individuals or groups of individuals by some unidimensional criterion (e.g., race in the matter of civil rights or sexual preference in the matter of same-sex marriage). Such a formulation seems reasonable in that history affords numerous examples of individuals banding together in groups to pursue the institution of a right that they believe is relevant to them.

We assume that individuals within a particular group have the same preferences represented by the utility functions

$$U_A = x_A - \delta_{AA}(r_A - \overline{r_{AA}})^2 \quad (1)$$

and

$$U_B = x_B - \delta_{BB}(r_B - \overline{r_{BB}})^2 \quad (2)$$

for members of group A and B, respectively. In the above formulation, each individual cares about their consumption of a private good (x_i) and the location of the right (r_i) granted to the group. We interpret $\delta_{ii} > 0$ as reflecting how strongly an individual feels about the way in which her right deviates from her ideal point. Note that group A's ideal location for its right is $\overline{r_{AA}} = 0$ while group B's ideal location for its right is $\overline{r_{BB}} = 1$; rights deviating from a particular group's ideal point causes disutility for its constituent individuals. This is the familiar interpretation of transportation costs as disutility of distance first mentioned in Hotelling (1929) and included in any model of location that treats the location space as representing individual preferences.² Further, note that we represent each individual's disutility of distance as quadratic. Assuming that an individual's utility decreases at an increasing rate as her rights deviate further from her ideal point seems reasonable if one supposes that individuals would be increasingly unhappy with a state of affairs (here, the allocation of a personal right, or a collection of rights) differing from the ideal they envision. Moreover, several real-world

²For an introductory review of economic models of location, see Tirole (2003, Chapter 7).

examples of individuals struggling toward the realization of a right in the face of increasing costs suggest that the formulation of utility as above in equations (1) and (2) is appropriate.³

Each individual faces a budget given by

$$y_i = x_i + \tau, i = A, B, \quad (3)$$

where y_i is an individual's exogenous income depending upon whether she is a member of group A or B and τ is the tax an individual pays to the government. We are assuming that individuals belonging to a particular group have the same income and that all individuals pay the same (lump-sum) tax to the government regardless of their group affiliation. We envision the tax as serving to defray the administrative costs the government faces when providing and protecting the rights of its citizens. Perhaps the fact that each individual makes such a transfer to the government makes it reasonable to suppose that they would demand the government to provide them rights of some sort.

As a first approximation, suppose that the government selects an allocation of rights to a maximize a Benthamite social welfare function; this problem is equivalent to the government minimizing the aggregate disutility of distance subject to its budget. The government selects (r_A, r_B) to maximize

$$\begin{aligned} W &= \sum_{i \in A} U_i + \sum_{i \in B} U_i \\ &= a[y_A - \tau - \delta_{AA}(r_A - \bar{r}_{AA})^2] + b[y_B - \tau - \delta_{BB}(r_B - \bar{r}_{BB})^2] \end{aligned} \quad (4)$$

subject to

$$(a + b)\tau = c(r_A + r_B) \quad (5)$$

where $c > 0$ is the government's marginal cost of setting its rights policy. The first-order conditions are

$$\frac{\partial W}{\partial r_A} = -2a\delta_{AA}(r_A - \bar{r}_{AA}) - c = 0 \quad (6)$$

and

$$\frac{\partial W}{\partial r_B} = -2b\delta_{BB}(r_B - \bar{r}_{BB}) - c = 0. \quad (7)$$

³The civil rights movement in the United States in the 1950s through the 1960s provides a particularly vivid example of a group of individuals pursuing a gradual movement toward an ideal set of rights often at increasing costs to themselves.

The solutions are $\tilde{r}_A = \overline{r_{AA}} - c/2a\delta_{AA}$ and $\tilde{r}_B = \overline{r_{BB}} - c/2b\delta_{BB}$. But for the cost to the government of setting its rights policy, each individual would receive the rights she most prefers. In other words, abstracting from the costliness of formulating policy—setting $c = 0$ above—the government would allocate “personalized rights” to members of groups A and B by locating each group’s rights at the group’s own location on the unit interval, $(\tilde{r}_A, \tilde{r}_B) = (\overline{r_{AA}}, \overline{r_{BB}})$. This result is not entirely surprising as the best the government can do in this case is to eliminate any disutility of distance an individual may experience and it can do so without any cost; so, the government provides each distinct group of individuals with the rights they perceive as ideal. However, it must be the case that no real-world government grants such personalized rights because under such a policy we would not observe the (often heated) political exchanges over the allocation of personal rights that we do in reality. Further, it seems unreasonable to suppose that, in the majority of cases, it is solely resource constraints keeping individuals from obtaining the rights they most prefer. Such a model also fails to capture the ways in which individuals can influence how the government allocates rights. The reality that we envision above ignores the fundamentally public nature of individual rights. That is, individual rights have the character of public goods in that, when the government provides them, the broader population consumes the rights despite their particular relevance (read: value) to a particular group of individuals. In the subsequent discussion, we consider this point at length.

3 A Model of Rights with Externalities

Individual rights have a public goods character that any economic analysis cannot fail to ignore. Although a particular right may be relevant for a specific individual or group of individuals—for example, women’s right to vote as codified in the 19th Amendment to the U.S. Constitution or their right to have an abortion from the 1973 *Roe v. Wade* U.S. Supreme Court decision—it is more broadly consumed by the entire citizenry upon its enactment. Thus, in the language of the location model we developed in the last section, the government’s chosen location for a particular group’s right affects the welfare of the members of the other group. In this sense, then, the location and consumption of rights produces an externality. Such externalities may have negative effects on the utilities of the third parties to

the location and consumption of a right. That is, the location of the rights of one individual or group of individuals may enter negatively into the utility function(s) representing the preferences of another individual or group. Preferences exhibiting malice and envy as discussed by Brennan (1973) and further developed by Mui (1995) operate in such a case.⁴ Of course, we may have the opposite case of positive externalities as well. Though such a case provides a somewhat sunnier view of the world, we do not consider it in the discussion that follows. If the rights of other individuals generated solely positive externalities to third parties, we would not witness the continual struggles of individuals and groups for particular rights throughout history. If it were the case that rights produced purely beneficial externalities, then the government would not have much of a problem to solve; if maximizing aggregate welfare, it would simply provide personalized rights to all individuals and groups located at the different points on $[0, 1]$. Again, however, experience suggests that the matter is not so simple and free of discord.

A recent example of public and political conflict over a particular right may prove instructive. In the U.S., the proposed right for same-sex marriage has been, and continues to be, a topic of intense political debate. Proponents tout the issue as part of an ongoing struggle for the civil rights due gay individuals, (the strongest) opponents seek a constitutional ban on same-sex marriage, and moderates seek civil unions but not recognized marriage as a compromise. Opponents of same-sex marriage cite that the enactment of such a right would run against their perceived moral values and, further, would ruin the value of their own (heterosexual) marriages. Clearly, then, the issue of same-sex marriage is an example where the allocation of a particular right seems to detract from the welfare of certain members of society. This scenario fits into the model we developed above in the following stylized way: heterosexuals (group A) have the right to marry, r_A is located with them at $\overline{r_{AA}} = 0$; gays and lesbians (group B) do not have the right to marry, the government has not yet located $r_B = \overline{r_{BB}} = 1$, or something “close” to it, on the interval; and, further, r_B enters into the utilities of group A members in some negative fashion.

We can enrich the model from the previous section by extending it toward the allocation of rights with externalities. In doing so, we synthesize the

⁴Falk et al. (2001) as well as Fehr and Fischbacher (2002) refer to such preferences as “spiteful.” Falk et al. (2001) provides experimental evidence on the presence of spitefulness in the interactions of subjects participating in laboratory games.

notions of malice and envy in Brennan (1973) with the commentary of Ostrom (2000), Fehr and Gächter (2000b), and Fehr and Fischbacher (2002) on social preferences and social norms. Here, for the same reasons as we argued above, we suppose that the rights allocated to other groups enter negatively into the utility functions representing the preferences of members of a particular group. Further, we interpret a social norm not as a behavioral rule but as a reference point for each group's preferences. The formulation of the utilities of individuals in groups A and B, respectively, make these ideas more explicit:

$$U_A = x_A - \delta_{AA}(r_A - \bar{r}_{AA})^2 - \delta_{AB}(r_B - \bar{r}_{AB})^2 \quad (8)$$

and

$$U_B = x_B - \delta_{BB}(r_B - \bar{r}_{BB})^2 - \delta_{BA}(r_A - \bar{r}_{BA})^2. \quad (9)$$

Here, x_i , r_i , and δ_{ii} have the same interpretations as above in the previous section. The novelty lies in $\bar{r}_{ij}$ and $\delta_{ij} > 0$, $i \neq j$. We interpret $\bar{r}_{ij}$ as the norm that members of group i hold about the location of the rights of group j members. For example, if the government provides a right to members of group A that differs from group B's norm $\bar{r}_{BA}$, then the members of group B suffer a disutility. With the same arguments as we offered above, we suppose that deviations from the norm enter the utility functions in a quadratic way. We interpret δ_{ij} to reflect how strongly members of group i feel about the extent to which the rights allocated to members of group j deviate from the group i norm. Finally, we note that each individual faces the budget given above in equation (3).

We again suppose that the government selects an allocation of rights to maximize a Benthamite social welfare function; this problem is equivalent to the government minimizing the aggregate disutility of distance subject to its budget. The government selects (r_A, r_B) to maximize

$$\begin{aligned} W &= \sum_{i \in A} U_i + \sum_{i \in B} U_i \\ &= a[y_A - \tau - \delta_{AA}(r_A - \bar{r}_{AA})^2 - \delta_{AB}(r_B - \bar{r}_{AB})^2] \\ &\quad + b[y_B - \tau - \delta_{BB}(r_B - \bar{r}_{BB})^2 - \delta_{BA}(r_A - \bar{r}_{BA})^2] \end{aligned} \quad (10)$$

subject to its budget given above in equation (5). The first-order conditions are

$$\frac{\partial W}{\partial r_A} = -2a\delta_{AA}(r_A - \bar{r}_{AA}) - 2b\delta_{BA}(r_A - \bar{r}_{BA}) - c = 0 \quad (11)$$

and

$$\frac{\partial W}{\partial r_B} = -2a\delta_{AB}(r_B - \bar{r}_{AB}) - 2b\delta_{BB}(r_B - \bar{r}_{BB}) - c = 0. \quad (12)$$

Solving the first-order conditions for r_A and r_B , we obtain the solutions

$$\begin{aligned} r_A^* &= \frac{2a\delta_{AA}\bar{r}_{AA} + 2b\delta_{BA}\bar{r}_{BA} - c}{2a\delta_{AA} + 2b\delta_{BA}} \\ &= \frac{2b\delta_{BA}\bar{r}_{BA} - c}{2a\delta_{AA} + 2b\delta_{BA}} \end{aligned} \quad (13)$$

and

$$\begin{aligned} r_B^* &= \frac{2a\delta_{AB}\bar{r}_{AB} + 2b\delta_{BB}\bar{r}_{BB} - c}{2a\delta_{AB} + 2b\delta_{BB}} \\ &= \frac{2a\delta_{AB}\bar{r}_{AB} + 2b\delta_{BB} - c}{2a\delta_{AB} + 2b\delta_{BB}}. \end{aligned} \quad (14)$$

It is immediately apparent that r_A^* differs from $\bar{r}_{AA}$ and that r_B^* differs from $\bar{r}_{BB}$ due to both the government's resource constraint and the norms each group holds about the rights allocated to the other group. In this scenario, the government accounts for individual own-rights preferences and the externalities arising from the way in which the allocated rights deviate from the perceived norms individuals hold. Thus, we do not observe personalized rights in the sense discussed earlier unless the government's policy-making is costless and the most-preferred rights of one group *exactly* coincide with the norms held by the other group. Such felicitous agreement, however, seems to fly in the face of historical fact, thus we will continue to maintain that the two groups continue to "disagree" in the sense that $\bar{r}_{AB} < 1$ and $\bar{r}_{BA} > 0$.

Our model of rights with externalities is substantially richer than the preliminary model lacking such qualities. As we argued above, a model that ignores the public goods character of the rights a government allocates to its citizens is unsatisfactory. Modeling rights as having negative externalities in the form of malice and envy conceived by Brennan (1973) has the advantage of pushing our extremely simple framework closer to explaining the stylized facts history provides on individual and group struggles for rights. However, we can extend the model of rights with externalities further into a setting that provides what is arguably a more realistic account of government policy-making. Specifically, we build upon the seminal contribution of Grossman and Helpman (1994) on special-interest politics. This line of research envisions diverse lobby groups contributing to the government with the aim of influencing policy formulation.

4 A Model of Rights with Externalities and Contributions

The above model of rights with externalities may be instructive, but remains fundamentally limited. In particular, the model developed in the previous section views the citizenry as passive observers of the government's decision on the allocation of rights in the economy. This is clearly unrealistic; it is clear that individuals and groups often seek to influence how their government formulates policy, and frequently do so quite vocally and vigorously. Individuals and groups may use contributions to the government, particular campaign funds, or political action committees (PACs) to influence the policy-making process. The work of Bernheim and Whinston (1986a, 1986b) formalizes these ideas. The Bernheim and Whinston (1986a) model of *common agency* envisions the scenario of several principals competing with one another to influence the behavior of a single agent. In the Bernheim and Whinston (1986b) *menu auction* model, suppliers seek to influence the actions of an auctioneer by submitting menus of offers contingent upon the auctioneer's selected action.

The seminal work of Grossman and Helpman (1994) extends these ideas to the political arena in which the government is a common agent and some of its citizens form lobby groups and contribute to influence the government's trade policy. More specifically, members of each lobby group own a sector-specific factor and seek trade subsidies for their sector and taxes on other (unorganized) sectors. In this model, the government's policy-making is the equilibrium of a two-stage game. In the first stage, the lobby groups make contributions to the government taking all other groups' contributions as given and anticipating the government's policy response to the contributions. In the second stage, the government selects a vector of trade taxes and subsidies to maximize its objective function (a weighted sum of contributions and aggregate welfare gross of contributions) and payoffs are realized.

While the model of Grossman and Helpman (1994) focuses specifically on trade policy, it has become a "workhorse" model for understanding the ways in which citizens and lobby groups sway policy outcomes in their favor by contributing to the government. Grossman and Helpman (1996) provide an explicit microeconomic foundation to their earlier model of common agency and contributions. Dixit (1996) and Dixit et al. (1997) extend the modeling framework to endogenous commodity taxation. Aidt (1998) applies the

model to the formulation of an environmental policy of output and input taxes-cum-subsidies in which some lobby groups seek to curb pollution. Finally, Dharmapala (1999) utilizes the common agency framework to analyze the impact of legislative structure on the government's choice of tax expenditures versus direct subsidies in response to contributing lobbies.

The Grossman and Helpman (1994) model of special-interest politics presents a tractable and widely used framework for understanding how individuals and groups may affect government policy. Thus, we synthesize a simplified version of the Grossman and Helpman (1994) framework with our model of rights with externalities. As before, the utilities of members of groups A and B, respectively, are:

$$U_A = x_A - \delta_{AA}(r_A - \bar{r}_{AA})^2 - \delta_{AB}(r_B - \bar{r}_{AB})^2 \quad (15)$$

and

$$U_B = x_B - \delta_{BB}(r_B - \bar{r}_{BB})^2 - \delta_{BA}(r_A - \bar{r}_{BA})^2. \quad (16)$$

We assume that only members of group A choose to contribute to the government while members of group B do not. Thus, the budgets for members of each group are:

$$y_A = x_A + \tau + C_A(r_A, r_B) \quad (17)$$

and

$$y_B = x_B + \tau \quad (18)$$

where $C_A(r_A, r_B)$ represents the contributions each member of group A makes to the government contingent upon its choice of rights (r_A, r_B) . Note that, as is the case with all of the models reviewed above, our model says nothing about how group A forms itself into a contributing lobby group seeking to influence the government. We quite simply suppose that group A's members have found some way to overcome the free-riding problem that would shatter such collective action. Though, we do note that the work of numerous researchers—Fehr and Schmidt (1999), Ostrom (2000), Fehr and Gächter (2000a, 2000b), and Fehr and Fischbacher (2002)—attests to the theoretical and empirical plausibility of “norm-using” individuals whose behavior departs from the standard assumption of rational self-interestedness and thereby overcome the free-riding problem to attain cooperation in public goods situations both theoretical and experimental.

Following the standard assumption made in models of common agency contributions, we suppose that the government selects rights to maximize a

weighted sum contributions and aggregate welfare. Thus, the government's problem is to select (r_A, r_B) to maximize

$$G = \sum_{i \in A} C_i(r_A, r_B) + \theta W \quad (19)$$

subject to

$$(a + b)\tau = c(r_A + r_B) \quad (20)$$

where W is aggregate welfare gross of contributions as defined above in equation (10) and $\theta \geq 0$ is the weight the government places on the value of social welfare relative to contributions (from group A). We make the further assumption that the contribution schedules tendered by members of group A are differentiable and *everywhere truthful* in the sense that the contributions from members of group A exactly reflect the added benefit (above and beyond some baseline utility level) from the government's policy choice.⁵ For the policy vector $\mathbf{r} = (r_A, r_B)$, contribution schedules that are differentiable and everywhere truthful feature $\nabla_{\mathbf{r}} C_i(\mathbf{r}) = \nabla_{\mathbf{r}} U_i(\mathbf{r})$ for all $i \in A$, the lobbying set. Under such conditions, the government's problem becomes one of selecting rights to maximize a weighted sum of utilities given by

$$\begin{aligned} G' &= \sum_{i \in A} U_i + \theta \left(\sum_{i \in A} U_i + \sum_{i \in B} U_i \right) \\ &= a(1 + \theta)[y_A - \tau - \delta_{AA}(r_A - \bar{r}_{AA})^2 - \delta_{AB}(r_B - \bar{r}_{AB})^2] \\ &\quad + b\theta[y_B - \tau - \delta_{BB}(r_B - \bar{r}_{BB})^2 - \delta_{BA}(r_A - \bar{r}_{BA})^2] \end{aligned} \quad (21)$$

subject to its budget given above in equation (20). The first-order conditions are

$$\frac{\partial G'}{\partial r_A} = -2a(1 + \theta)\delta_{AA}(r_A - \bar{r}_{AA}) - 2b\theta\delta_{BA}(r_A - \bar{r}_{BA}) - (1 + \theta)c = 0 \quad (22)$$

and

$$\frac{\partial G'}{\partial r_B} = -2a(1 + \theta)\delta_{AB}(r_B - \bar{r}_{AB}) - 2b\theta\delta_{BB}(r_B - \bar{r}_{BB}) - (1 + \theta)c = 0 \quad (23)$$

⁵Such assumptions are standard and, furthermore, are reasonable given the present environment of complete information. For more on "local truthfulness" and "truthful strategies" more generally, see Bernheim and Whinston (1986b), Grossman and Helpman (1994), and Dixit et al. (1997).

which we solve for r_A and r_B and obtain the solutions

$$\begin{aligned} r_A^{**} &= \frac{2a(1+\theta)\delta_{AA}\bar{r}_{AA} + 2b\theta\delta_{BA}\bar{r}_{BA} - (1+\theta)c}{2a(1+\theta)\delta_{AA} + 2b\theta\delta_{BA}} \\ &= \frac{2b\theta\delta_{BA}\bar{r}_{BA} - (1+\theta)c}{2a(1+\theta)\delta_{AA} + 2b\theta\delta_{BA}} \end{aligned} \quad (24)$$

and

$$\begin{aligned} r_B^{**} &= \frac{2a(1+\theta)\delta_{AB}\bar{r}_{AB} + 2b\theta\delta_{BB}\bar{r}_{BB} - (1+\theta)c}{2a(1+\theta)\delta_{AB} + 2b\theta\delta_{BB}} \\ &= \frac{2a(1+\theta)\delta_{AB}\bar{r}_{AB} + 2b\theta\delta_{BB} - (1+\theta)c}{2a(1+\theta)\delta_{AB} + 2b\theta\delta_{BB}}. \end{aligned} \quad (25)$$

The solutions possess insightful comparative statics properties, which we will review in what follows. Recall the assumption of *ceteris paribus* implicit in our comparative statics exercise, and note that members of group A have most-preferred own-rights located at $\bar{r}_{AA} = 0$ and group B at $\bar{r}_{BB} = 1$.

As the norm group B holds about the rights allotted group A increases, the rights allocated to the members of group A diverge further from their most-preferred location at $\bar{r}_{AA}$,

$$\frac{\partial r_A^{**}}{\partial \bar{r}_{BA}} = \frac{2b\theta\delta_{BA}}{2a(1+\theta)\delta_{AA} + 2b\theta\delta_{BA}} > 0.$$

Increasing disagreement over the rights the government provides to group A leads to a set of own-rights less-desired by members of group A. An increase in the number of individuals belonging to group A moves the group's rights closer to $\bar{r}_{AA}$,

$$\frac{\partial r_A^{**}}{\partial a} = \frac{-2(1+\theta)\delta_{AA}[2b\theta\delta_{BA}\bar{r}_{BA} - (1+\theta)c]}{[2a(1+\theta)\delta_{AA} + 2b\theta\delta_{BA}]^2} < 0.$$

As group A increases in size relative to group B, its representation becomes more effective in the sense that the government selects a set of own-rights relatively more favorable for members of the group. In a similar fashion, as the number of individuals belonging to group B increases, the rights allocated to group A depart further from $\bar{r}_{AA}$,

$$\frac{\partial r_A^{**}}{\partial b} = \frac{4a(\theta + \theta^2)\delta_{AA}\delta_{BA}\bar{r}_{BA} + 2c(\theta + \theta^2)\delta_{BA}}{[2a(1+\theta)\delta_{AA} + 2b\theta\delta_{BA}]^2} > 0.$$

When the members of group A exhibit relatively more intense preferences over how their own rights deviate from those they prefer most, the government locates rights closer to them,

$$\frac{\partial r_A^{**}}{\partial \delta_{AA}} = \frac{-2a(1+\theta)[2b\theta\delta_{BA}\bar{r}_{BA} - (1+\theta)c]}{[2a(1+\theta)\delta_{AA} + 2b\theta\delta_{BA}]^2} < 0.$$

When the members of group B exhibit relatively stronger preferences over how group A's rights deviate from the group B norm, the rights allocated to group A diverge further from $\bar{r}_{AA}$,

$$\frac{\partial r_A^{**}}{\partial \delta_{BA}} = \frac{4ab(\theta + \theta^2)\delta_{AA}\bar{r}_{BA} + 2bc(\theta + \theta^2)}{[2a(1+\theta)\delta_{AA} + 2b\theta\delta_{BA}]^2} > 0.$$

Lastly, the rights the government provides to group A further diverge from their members' most-preferred location, $\bar{r}_{AA}$, as the government places a heavier weight on aggregate social welfare relative to contributions from group A; that is,

$$\frac{\partial r_A^{**}}{\partial \theta} = \frac{4ab\delta_{AA}\delta_{BA}\bar{r}_{BA} + 2bc\delta_{BA}}{[2a(1+\theta)\delta_{AA} + 2b\theta\delta_{BA}]^2} > 0.$$

This is not entirely surprising for, as θ increases, members of group A receive relatively *less* weight in the government's objective than do members of group B; that is, $\partial[(1+\theta)/\theta]/\partial\theta < 0$.

Similar comparative statics results obtain for r_B^{**} , the rights the government provides to members of group B. As the norm group A holds about the rights allocated to group B increases, the rights allocated to the members of group B move closer to their most-preferred own-rights at $\bar{r}_{BB}$,

$$\frac{\partial r_B^{**}}{\partial r_{AB}} = \frac{2a(1+\theta)\delta_{AB}}{2a(1+\theta)\delta_{AB} + 2b\theta\delta_{BB}} > 0.$$

Decreasing disagreement over the rights allotted group B leads to a more favorable set of own-rights for members of group B. An increase in the number of individuals belonging to group A moves group B's rights away from $\bar{r}_{BB}$,

$$\frac{\partial r_B^{**}}{\partial a} = \frac{4b(\theta + \theta^2)\delta_{AB}\delta_{BB}(\bar{r}_{AB} - 1) + 2c(1+\theta)^2\delta_{AB}}{[2a(1+\theta)\delta_{AB} + 2b\theta\delta_{BB}]^2} < 0.$$

As group A increases in size relative to group B, the government selects a set of own-rights relatively more favorable for members of group B. In a similar

manner, as the number of individuals belonging to group B increases, the rights allocated to group B move toward $\overline{r_{BB}}$,

$$\frac{\partial r_B^{**}}{\partial b} = \frac{4a\theta\delta_{AB}\delta_{BB}(1 - \overline{r_{AB}}) + 2c(\theta + \theta^2)\delta_{BB}}{[2a(1 + \theta)\delta_{AB} + 2b\theta\delta_{BB}]^2} > 0.$$

When the members of group B exhibit relatively stronger preferences over how their own rights deviate from those they most prefer, the government locates rights closer to them,

$$\frac{\partial r_B^{**}}{\partial \delta_{BB}} = \frac{4ab(\theta + \theta^2)\delta_{AB}(1 - \overline{r_{AB}}) + 2bc(\theta + \theta^2)}{[2a(1 + \theta)\delta_{AB} + 2b\theta\delta_{BB}]^2} > 0.$$

When the members of group A exhibit relatively more intense preferences over how group B's rights deviate from the group A norm, the rights allocated to group B diverge further from $\overline{r_{BB}}$,

$$\frac{\partial r_B^{**}}{\partial \delta_{AB}} = \frac{4ab(\theta + \theta^2)\delta_{BB}(\overline{r_{AB}} - 1) + 2ac(1 + \theta)^2}{[2a(1 + \theta)\delta_{AB} + 2b\theta\delta_{BB}]^2} < 0.$$

Lastly, the rights the government provides to group B move toward their members' most-preferred location, $\overline{r_{BB}}$, as the government places a heavier weight on aggregate social welfare relative to contributions from group A; that is,

$$\frac{\partial r_B^{**}}{\partial \theta} = \frac{4ab\delta_{AB}\delta_{BB}(1 - \overline{r_{AB}}) + 2bc\delta_{BB}}{[2a(1 + \theta)\delta_{AB} + 2b\theta\delta_{BB}]^2} > 0.$$

Again, this is not entirely surprising for, as θ increases, members of group B receive relatively *more* weight in the government's objective than do members of group A; that is, $\partial[\theta/(1 + \theta)]/\partial\theta > 0$.

It is worthwhile to make three concluding remarks. It is clear that if members of both groups A *and* B contributed in the manner we described above, they would effectively *neutralize* one another and we would have the results of the prior section found in the expressions for r_A^* and r_B^* in equations (13) and (14), respectively. That is, if the entire population contributed to the government, it would allocate rights in the same manner as if no one contributed.

Do members of the lobbying set—in this case, members of group A—obtain policy that is *closer* to their most-preferred allocation of $(\overline{r_{AA}}, \overline{r_{AB}})$ relative

to when they do not contribute to the government? The answer is yes. First, use equations (13) and (24) to write

$$\frac{r_A^{**}}{r_A^*} = \frac{2b\theta\delta_{BA}\bar{r}_{BA} - (1+\theta)c}{2b\delta_{BA}\bar{r}_{BA} - c} \times \frac{2a\delta_{AA} + 2b\delta_{BA}}{2a(1+\theta)\delta_{AA} + 2b\theta\delta_{BA}}.$$

It is easy to see that $r_A^{**}/r_A^* < 1$ so long as $-c < 2a\delta_{AA}\bar{r}_{BA}$, which is always the case since $c > 0$ and $2a\delta_{AA}\bar{r}_{BA} > 0$. Thus, it is clear that $r_A^{**} < r_A^*$, and so r_A^{**} is closer to $\bar{r}_{AA} = 0$ than is r_A^* . Second, use equations (14) and (25) to write

$$\begin{aligned} r_B^* - \bar{r}_{AB} &= \frac{2b\delta_{BB}(1 - \bar{r}_{AB}) - c}{2a\delta_{AB} + 2b\delta_{BB}}, \\ r_B^{**} - \bar{r}_{AB} &= \frac{2b\theta\delta_{BB}(1 - \bar{r}_{AB}) - (1+\theta)c}{2a(1+\theta)\delta_{AB} + 2b\theta\delta_{BB}}, \end{aligned}$$

and

$$\frac{r_B^{**} - \bar{r}_{AB}}{r_B^* - \bar{r}_{AB}} = \frac{2b\theta\delta_{BB}(1 - \bar{r}_{AB}) - (1+\theta)c}{2b\delta_{BB}(1 - \bar{r}_{AB}) - c} \times \frac{2a\delta_{AB} + 2b\delta_{BB}}{2a(1+\theta)\delta_{AB} + 2b\theta\delta_{BB}}.$$

It is easy to see that $(r_B^{**} - \bar{r}_{AB})/(r_B^* - \bar{r}_{AB}) < 1$ so long as $-c < 2a\delta_{AB}(1 - \bar{r}_{AB})$, which is always the case since $c > 0$ and $2a\delta_{AB}(1 - \bar{r}_{AB}) > 0$. Thus, it is clear that $(r_B^{**} - \bar{r}_{AB}) < (r_B^* - \bar{r}_{AB})$, and so r_B^{**} is closer to $\bar{r}_{AB}$ than is r_B^* . Thus, when members of group A contribute to the government to influence its policy-making, they obtain an allocation of rights, (r_A^{**}, r_B^{**}) , that is relatively closer to their most-preferred allocation of $(\bar{r}_{AA}, \bar{r}_{AB})$ than the allocation that emerges when they do not.

Do members of group B—in this case, individuals outside of the lobbying set—obtain policy that *further diverges* from their most-preferred allocation of $(\bar{r}_{BA}, \bar{r}_{BB})$ relative to when no one contributes to the government? The answer is yes. First, use equations (13) and (24) to write

$$\begin{aligned} r_A^* - \bar{r}_{BA} &= \frac{-2a\delta_{AA}\bar{r}_{BA} - c}{2a\delta_{AA} + 2b\delta_{BA}}, \\ r_A^{**} - \bar{r}_{BA} &= \frac{-2a\delta_{AA}\bar{r}_{BA} - 2a\theta\delta_{AA}\bar{r}_{BA} - (1+\theta)c}{2a\delta_{AA} + 2a\theta\delta_{AA} + 2b\theta\delta_{BA}}, \end{aligned}$$

and

$$\frac{r_A^* - \bar{r}_{BA}}{r_A^{**} - \bar{r}_{BA}} = \frac{2a\delta_{AA}\bar{r}_{BA} + c}{2a\delta_{AA}\bar{r}_{BA} + 2a\theta\delta_{AA}\bar{r}_{BA} + (1+\theta)c} \times \frac{2a\delta_{AA} + 2a\theta\delta_{AA} + 2b\theta\delta_{BA}}{2a\delta_{AA} + 2b\delta_{BA}}.$$

It is easy to see that $(r_A^* - \bar{r}_{BA}) / (r_A^{**} - \bar{r}_{BA}) < 1$ so long as $2a\delta_{AA}\bar{r}_{BA} + c > 0$, which is always the case since $2a\delta_{AA}\bar{r}_{BA} > 0$ and $c > 0$. Thus, it is clear that $(r_A^* - \bar{r}_{BA}) < (r_A^{**} - \bar{r}_{BA})$, and so r_A^{**} diverges further from $\bar{r}_{BA}$ than does r_A^* . Second, use equations (14) and (25) to write

$$\frac{r_B^{**}}{r_B^*} = \frac{2a(1 + \theta)\delta_{AB}\bar{r}_{AB} + 2b\theta\delta_{BB} - (1 + \theta)c}{2a\delta_{AB}\bar{r}_{AB} + 2b\delta_{BB} - c} \times \frac{2a\delta_{AB} + 2b\delta_{BB}}{2a(1 + \theta)\delta_{AB} + 2b\theta\delta_{BB}}.$$

It is easy to see that $r_B^{**}/r_B^* < 1$ so long as $2a\delta_{AB}(\bar{r}_{AB} - 1) < c$, which is always the case since $2a\delta_{AB}(\bar{r}_{AB} - 1) < 0$ and $c > 0$. Thus, it is clear that $r_B^{**} < r_B^*$, and so r_B^{**} diverges further from $\bar{r}_{BB} = 1$ than does r_B^* . Thus, when members of group A contribute to the government to influence its policy-making, members of group B, the non-lobbying set, obtain an allocation of rights, (r_A^{**}, r_B^{**}) , that diverges further from their most-preferred allocation of $(\bar{r}_{BA}, \bar{r}_{BB})$ than the allocation that emerges when no one contributes to the government.

5 A Brief Remark on Voting and Rights

In all of the models we discussed above, we did not include an explicit treatment of the voting processes likely at work in the allocation of rights throughout an economy. A fuller model of rights, however, would likely benefit from enhanced richness by including an analysis of how individuals' voting behavior determines the rights a government grants to its citizens. The often animated and vocal political struggles for rights suggest that voting is one of many ways individuals or groups of individuals may strive to influence the rights allotted them by their government. Here, we briefly discuss an application of a well-known model of voting to the model of rights with externalities.

Suppose again, as above, that the individuals of groups A and B have preferences represented by the utility functions

$$U_A = x_A - \delta_{AA}(r_A - \bar{r}_{AA})^2 - \delta_{AB}(r_B - \bar{r}_{AB})^2 \quad (26)$$

and

$$U_B = x_B - \delta_{BB}(r_B - \bar{r}_{BB})^2 - \delta_{BA}(r_A - \bar{r}_{BA})^2 \quad (27)$$

respectively; and, each individual faces a budget given by

$$y_i = x_i + \tau, i = A, B. \quad (28)$$

Note that each individual has preferences that are single-peaked in rights, r_A and r_B . In particular, members of group A have a peak at $(\overline{r_{AA}}, \overline{r_{AB}})$ and members of group B have a peak at $(\overline{r_{BA}}, \overline{r_{BB}})$.

The median voter theorem applies to the model of rights with externalities when we assume that each member of group A and B has the right to vote and exercises it in pairwise majoritarian voting over rights. Note that at the outset we assumed that group A was of size a and group B of size b . Suppose that, without loss of generality, $a > b$. Thus, in this case, a member of group A is the median voter, and the ultimate outcome of our stylized voting process is an allocation of rights that maximizes

$$U_A = x_A - \delta_{AA}(r_A - \overline{r_{AA}})^2 - \delta_{AB}(r_B - \overline{r_{AB}})^2 \quad (29)$$

subject to

$$y_A = x_A + \tau \quad (30)$$

and

$$(a + b)\tau = c(r_A + r_B). \quad (31)$$

The first-order conditions are

$$\frac{\partial U_A}{\partial r_A} = -2\delta_{AA}(r_A - \overline{r_{AA}}) - \frac{c}{a + b} = 0 \quad (32)$$

and

$$\frac{\partial U_A}{\partial r_B} = -2\delta_{AB}(r_B - \overline{r_{AB}}) - \frac{c}{a + b} = 0 \quad (33)$$

and the solutions are clearly

$$\tilde{r}_A = \overline{r_{AA}} - \frac{c}{2(a + b)\delta_{AA}} \quad (34)$$

and

$$\tilde{r}_B = \overline{r_{AB}} - \frac{c}{2(a + b)\delta_{AB}}. \quad (35)$$

In this scenario, the median voter theorem has group A dominating the political agenda in the matter of individual rights. Thus, when we abstract from the government's cost of policy-making, it is not entirely surprising that the members of group A obtain their most-preferred rights and assert their norm about the rights allocated to members of group B as the status quo; that is, for $c = 0$, $(\tilde{r}_A, \tilde{r}_B) = (\overline{r_{AA}}, \overline{r_{AB}})$.

6 Conclusion and Directions for Further Research

The models we develop throughout this paper are clearly stylized, and extremely simplified, pictures of a more complex reality. In fact, even our adaptation of the modeling framework developed in Grossman and Helpman (1994) is a grossly simplified version of a model of common agency and contributions in that we divide the economy into two distinct groups of individuals, each with homogeneous preferences and budgets, and explicitly consider a rather particular case where only one group contributes to the government to influence its (locational) choice of the rights it allocates to both groups. A useful direction for further research would generalize the above framework to n such groups seeking particular rights and experiencing externalities from the rights the government provides to other groups. A further extension could consider an *organized* fraction of the n groups contributing to the government to influence policy and the impact that would have on the distribution of rights in an economy. Ultimately, it will likely prove useful to adapt the above n groups formulation to diverse preferences and budgets both within- and across-groups of individuals in our locational model of rights.

The analysis above is a merely a first step toward the goal of a more general economic model of rights. Conflicts over how governments provide rights to various individuals and groups have been, and will likely continue to be, a centerpiece of socio-political debate and deliberation. Thus, any steps taken toward enhancing our understanding of the key issues at play in the allocation of rights will pay off handsomely. To better understand, for example, how governments allocate rights to their (often diverse) citizenry, how individuals form norms about the rights provided to them and to others, and how, as well as why, individual citizens organize in groups to obtain the rights they desire will bolster both the contemporary and future relevance of economics (and the social sciences more generally) in ongoing policy debates over effectively managing the diverse forces at work in any free society.

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