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**PRIVATE POLITICS AND PRIVATE POLICY:
A THEORY OF BOYCOTTS**

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Abstract

Public policies such as regulation, antitrust, and international trade are the result of public politics—a competition over who gets what with government the arbiter of that competition. Policies are also chosen by private parties without the command or sanction of government. Private policies often result from pressure from interest groups that can be independent of government. Such activity and the responses to it represent private politics—a competition over who gets what that takes place outside the arenas of government. This paper provides a theory of private politics focusing on an activist that generates a boycott to induce a firm to change its policies. The model consists of two games. In the first members of the public decide when and how must to boycott the firm based on information they receive. A person's action reveals information, which represents a public good, and that person has an incentive to act early so as to lead others to act. In the second game the activist and the firm bargain to settle the boycott, and the settlement represents a private policy. The equilibrium of the games provides an industrial organization of activist groups, their targets, and the issues that attract boycotts.

Private Politics and Private Policy: A Theory of Boycotts¹

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I. Introduction

Public policies such as regulation, antitrust, and international trade affect the behavior of firms and other economic agents. These policies are the result of public politics—politics that takes place in the arenas of government institutions. Public politics is a competition over who gets what, and the arbiter of that competition is government. Policies are also chosen by private parties without the command or sanction of government. For example, firms self regulate in the hope of avoiding future government commands. Some policies, however, are chosen independently of the threat or actuality of government command. Firms choose such private policies based on both internal and external considerations. Internal considerations include normative principles, as when a firm chooses to meet the same environmental standards in both developing and developed countries. Private policies also are motivated by external pressure that may be independent of government. This pressure may be spontaneous as in local NIMBY movements or it may reflect a strategy of an organized interest or activist group. Such activity and the responses to it represent private politics. That is, private politics is a competition over who gets what that takes place outside the arenas of government.² The outcome of private politics is private policy.

Organized groups that take direct action against economic agents will be referred to as activists to distinguish them from the larger class of NGOs. Activists may have a choice between pursuing their objectives through public politics or through private politics often in the arena of public sentiment. Many of their targets are quite effective in government arenas through their lobbying, contributions, and grassroots strategies. This has led some activist groups to pursue their objectives through private politics. Commenting on the campaign against Exxon Mobil for its stance on global climate change, Paul Gilding, former

¹ This research was supported by NSF Grant No. SES-0111729. David Ahn and William Minozzi provided valuable assistance in this project.

² Baron (2002)(2001a), respectively, presents a perspective on private politics and a model of direct competition between an activist and a firm.

head of Greenpeace, said, “The smart activists are now saying, ‘OK, You want to play markets—let’s play.’ [Lobbying government] takes forever and can easily be counter-lobbied by corporations. No, no, no. They start with consumers at the pump, get them to pressure the gas stations, get the station owners to pressure the companies and the companies to pressure governments. After all, consumers do have choices where they buy their gas, and there are differences now. Shell and BP Amoco (which is also the world’s biggest solar company) both withdrew from the oil industry lobby that has been dismissing climate change.”³

Just as the significance of the presidential veto is much greater than that reflected by the small number of bills vetoed, the influence of activist challenges is likely much greater than that indicated by the number of observed challenges. Firms that are susceptible to activist campaigns and public pressure may proactively change their policies in the hope of avoiding private politics. Issues including the environment, human rights, discrimination, privacy, safety of employees and customers, endangered species, animal testing, and redistribution attract activist attention and can be the focus of both private politics and proactive policies.

This paper offers a theory of private politics focusing on a challenge by an activist to the policies of a firm. The instrument of the challenge will be referred to as a boycott, and the objective of the boycott is to cause the firm to change its policies. The term boycott will be used to refer to a variety of means by which activists pressure firms through the public.⁴ Those means include boycotts, demonstrations, public chastisement, damage to the firm’s reputation, criticism of the leaders of the firm, adverse media coverage, etc. The activist is assumed to be small, so the pressure on the firm to change its policies comes from the public.⁵ The actors in the theory thus are an activist, a firm, and members of the public, who, for example, may decide not to purchase from the firm because of its policies.

³ *The New York Times*, June 2, 2001.

⁴ The empirical literature on boycotts among the public is limited and inconclusive particularly as to the magnitude of their effects. See Baron (2002).

⁵ Activist challenges differ in a number of ways from strikes by labor unions. First, activists may have no instrument to directly harm the firm. Second, a labor union and a firm have a long-term relationship, whereas an activist and its target generally do not. Third, laws govern labor relations and bargaining, whereas activist-firm interactions are usually not structured by the law.

The theory is based on two models. One represents the public’s response to information about the policies of the firm. That response is assumed to take the form of a boycott of the firm’s products. The second model represents bargaining between the activist and the firm to resolve the issue and end the boycott. The players in the first model are the members of the public, since the activist is small and cannot mount a boycott itself. The players in the second model are the activist and the firm, since the public is not involved in the bargaining to resolve the issue. The two models are tied together through the expectations of the public about the bargaining outcome. Both the activist and the firm may have alternatives not captured in the model, and those alternatives will be considered as outside options.

The theory uses relatively simple formulations so that the comparative statics of the equilibria can be studied. This yields a set of predictions about the timing and strength of boycotts and the resolution of those boycotts based on the bargaining strengths of the activist and the firm. The models can be used to study not only the policies resulting from the private politics but also the organization of private politics. The theory thus provides insight into the “industrial organization” of two industries and a market. One industry is that of activists, and the theory provides an industrial organization based on characteristics that affect the effectiveness of activists. The other industry is targets—the firms that might be challenged by activists. The theory provides an industrial organization of targets based on their susceptibility to boycotts and their strength in bargaining over the outcome. The theory also provides insight into the market for boycottable issues; i.e., it identifies characteristics of issues that may attract a boycott. Such issues must appeal to the concerns of the public.

The next section introduces the model of boycotts, and the following section presents a model of the resolution of the boycott and the conflict between the activist and the firm. The penultimate section considers the industrial organization of activists, targets, and the market for issues. Conclusions are offered in the final section.

II. A Model of Boycotts

A. Activists and Boycotts

An activist challenge to a firm has several components: identification of the issue,

choice of the activist’s objective, the activist’s choice of public or private politics, selection of a strategy (e.g., boycott, litigation, lobbying, etc.), selection of a target firm, communication to the public, and bargaining and resolution. As an example, activists and union leaders identified the issue of abusive working conditions in overseas apparel and footwear factories and sought to improve those conditions as well as preserve union jobs in the United States by raising overseas costs. Private politics was chosen because U.S. laws did not cover working conditions in other countries, and public politics could too easily be blocked in Congress. The strategy chosen was a boycott plus public chastisement, and this required the involvement of the public. Nike was selected as the target because it was the largest company and the most visible. The activist’s communications strategy involved attracting the attention of the news media, framing its messages (e.g., sweatshops), and countering the communications strategy of Nike and the industry. Subsequently, bargaining began on resolving the conflict, initially under the auspices of the Clinton administration. Resolution took nearly six years, and in some quarters the conflict continues today.⁶

B. The Public and Boycotts

The objective is not to explain why citizens might boycott a firm targeted by an activist campaign but instead is to explore why there might be concerted action against the firm even if there is no cooperation or coordination among members of the public.⁷ A boycott is the result of individual actions taken by citizens in their roles as consumers. These citizen consumers are located in the market for the firm’s products and may be separate from those directly impacted by an issue such as the work practices. Some citizen consumers may be concerned about abusive workplace practices and others may not be concerned. Each has limited information about whether the practices are indeed abusive, and a natural model is one in which each citizen receives through media coverage information about the seriousness of the issue. This information may be person-specific or may represent a common signal with different interpretations depending on citizens’ characteristics. The information received is costless to the citizens; i.e., the cost of providing the information is borne by the media.

Citizens may also learn from the behavior of others. In the model a citizen infers that

⁶ See Baron (2003, pp. 806-9).

⁷ The term “citizens” is used to refer to people who have concerns about what transpires in their country or society.

if another citizen acts quickly after the issue becomes public, the other must have received a signal that the issue is quite serious. And, if the other citizen does not act for some considerable time, the issue cannot be that serious. Combining that information with her own, the first citizen decides when to act and how strong an action to take. Consequently, a citizen is more likely to boycott the firm if she sees others boycott the firm, and if others are not boycotting the firm, she may infer that the issue is not very serious.

A citizen has three considerations in deciding when and how much to boycott the firm. The first is that the longer she delays acting the longer the current situation continues. This delay is costly because, for example, the work practices continue, and that cost is higher the more serious is the issue. Second, because another citizen's action can provide information, a citizen has an incentive to wait before acting to see what she can learn from the actions of others. Since a citizen does not want to make a mistake by boycotting too much when the issue is not serious or boycotting too little when it is serious, she has an incentive to wait and watch what others do. Third, a citizen may also have an incentive to act early so as to provide information to others and thereby lead them to act. The timing and strength of a citizen's action thus depend on both her own information and the information inferred from observing the actions of other citizens. Since one citizen's action may result in others acting, their actions can cluster. A boycott then consists of the clustering of individual actions of citizens. Clustering resembles coordinated action, but it is individual actions that are timed strategically.

The action of a citizen provides two public goods. This first is preference-based and results because each citizen prefers a larger boycott. The second is information-based since one's action provides information to other citizens. This public good produces the opposite of a free-rider effect. Each citizen has an incentive to act earlier so as to reveal her information to others. This leads others both to act earlier than they otherwise would and to take a stronger action. This will be referred to as the "leadership" effect.

The citizens are assumed to be sophisticated about the boycott game they play but not about the bargaining game they do not play. They understand that their boycott can affect change in the work practices, but the resolution of the boycott is determined by the activist and the firm that not only play complex strategies but have private information about their types. Since the citizens will not be a part of any bargaining over the resolution

of the issue, they will be assumed to have simple expectations about the resolution that do not depend directly on their strategy. These expectations are assumed to be rational in the sense that they correspond to the distribution of outcomes of the bargaining between the activist and the firm.

To represent the citizens' boycott actions, a variation on the clustering model of Gul and Lundholm (1995) will be used. At time 0 citizen i receives a private signal s_i about how serious the issue is. The citizens are assumed to be unable to credibly reveal their information to each other; e.g., the information is soft and they are unable to convey fully their information through cheap talk.⁸ To convey their information, citizens must act. The seriousness S of the issue is assumed to be the average of the signals received by the citizens; i.e., $S = \frac{1}{n} \sum_{i=1}^n s_i$, where n is the number of citizens. The signals are assumed to be independent and uniformly distributed on $[0, z]$, where z could depend on the news media coverage and the prior communication strategies of the activist and the firm. Those communication strategies and the news media are not incorporated into the model.

Citizen i would like to act in response to S , but she only observes s_i and not the signals of the other citizens. Citizen i , however, can observe whether the other citizens act, and she may be able to infer their information. To do so citizen i , however, must wait for them to act, and waiting is costly because the perceived harm from the firm's practices continues. To provide a tractable model, the citizens are assumed to be identical except for the information they receive. Two citizens, denoted $i = 1, 2$, will be considered, and extensions to more citizens are discussed below.

The citizens could be concerned about the harm to themselves, as in the case of NIMBY actions, or they could be concerned about the harm to others. The exposition here will be in terms of the perceived harm to others; e.g., due to work practices in overseas factories. When the citizens have not acted, the disutility from the perceived harm H at each instant is specified as $H = -hS$, where $h > 0$. In this formulation S could represent how many people are affected by the issue and h represent the perceived harm per person.

⁸ Cheap talk could transmit information, since citizen's have aligned preferences. In this case, the signal received by a citizen could include whatever information is obtained through cheap talk messages. The resulting information could differ among citizens because they interact with different subsets of citizens or because citizens may interpret information differently as a result of their past experiences, knowledge, and background. It may also represent information received from different sources.

If both citizens boycott the firm, the disutility H_1 as perceived by citizen 1 is

$$H_1 = -Sh(1 - g(b_1 + b_2)),$$

where g is a positive constant and b_i is the boycott of $i = 1, 2$. The boycott may be thought of as the reduction in i 's purchases from the firm, e.g., citizen consumers decrease their purchases of Nike products. The parameter g represents the marginal effect of a citizen's action and hence corresponds to the citizens' consequentialist valuation of their actions.⁹ If citizens believe that their actions do not reduce the harm, then $g = 0$. Note that if $g > 0$ one citizen's action provides a public good to the other citizen.

In addition to the reduction in harm due to boycotting, a citizen may have a utility of acting morally in response to the issue. This utility may be based on considerations such as rights that are independent of the consequences. It could also represent retributive justice for the perceived harm caused by the firm in the past. This will be represented by a moral gain mSb_i for citizen i , where $m \geq 0$.¹⁰ For example, S could represent the number of people whose rights are allegedly violated, m is the marginal utility from standing up for their rights, and b_i is how tall citizen i stands. Note that a citizen's moral gain results only from her own action.

Boycotting the firm is assumed to be costly to a citizen with the cost given by $\frac{\gamma}{2}b_i^2$. This cost could represent the loss of consumer surplus from reducing purchases of the firm's product. The cost could also include switching costs. The parameter γ depends on factors such as whether there are close substitutes for the firm's products. If there are close substitutes (γ low), it is less costly to stop purchasing from the firm than if there are no substitutes.

Citizen i 's utility U_i when she and the other citizen act is thus

$$U_i = -S(h(1 - g(b_i + b_j)) - mb_i) - \frac{\gamma}{2}b_i^2, \quad i = 1, 2, \quad j \neq i, \quad (1)$$

where U_i represents a flow. To simplify the model, a citizen is assumed to be committed to her action until the activist and the firm have reached a settlement and the boycott is called off; e.g., she does not buy Nike products until the issue is resolved.

⁹ The parameters are assumed to be such that $g(b_1 + b_2) \leq 1$.

¹⁰ A means of aggregating consequences and rights is assumed to be available.

When citizens plan their actions, they are uncertain about whether other citizens will actually act.¹¹ That is, there is a distribution $\tilde{\eta}$ with a probability η that j will act and a probability $1 - \eta$ that j will not act. This could reflect random factors that intervene in j 's intentions or could represent a type not known to the citizen until she is ready to act. For example, a citizen could care about the issue in principle but not in practice (with probability $1 - \eta$) or care both in principle and in practice (with probability η), and she discovers this only when she is ready to act. Alternatively, there could be fixed costs associated with acting that are recognized only when the person is ready to act. These costs could be (prohibitively) high or low (e.g., zero) with probability $1 - \eta$ and η , respectively. Thus, when citizen j plans to act at time $t_j(s_j)$, there is an η probability that j will actually act. The parameter η could reflect factors such as the extent of communitarianism in the society. That is, the higher is η the lower is the probability that other factors intervene and cause the citizen not to provide the public goods to other citizens.

If the bargaining between the activist and the firm results in the boycott being called off, the marginal harm is assumed to be reduced to $h^o \in [0, h]$ and the marginal moral utility to $m^o \in [0, m]$. If the boycott is called off, the citizen can choose a post-boycott action b_i^o , and her utility U_i^o when both act is

$$U_i^o = -S(h^o(1 - g^o(b_i^o + b_j^o)) - m^o b_i) - \frac{\gamma}{2}(b_i^o)^2, \quad i = 1, 2, \quad j \neq i, \quad (2)$$

where g^o is the post-boycott effectiveness. The utility in (2) continues indefinitely as does that in (1) if the boycott is never resolved. Note that if $m^o > 0$ a citizen may continue to boycott even if the issue is fully resolved ($h^o = 0$). For example, even if Exxon made full reparations for the Exxon Valdez oil spill, a citizen could continue not to purchase Exxon gasoline.

If the activist and firm settle the boycott, the information S is assumed to be revealed, so the citizens become fully-informed. The remaining harm h^o , moral utility m^o , and the effectiveness g^o are functions of the bargaining outcome x . That outcome and the duration T of the bargaining are realized when the boycott ends, but are uncertain before it ends. The formation of expectations about (x, T) is relatively simple, since as indicated in the

¹¹ This uncertainty is assumed to be exogenous rather than private information of citizen j . An extension to the case of private information is discussed below.

model of boycott resolution, the set of bargaining outcomes has only three elements, and these are the common knowledge types of the activist and the firm plus no resolution. Citizens are assumed to have rational expectations, and since citizens do not participate in the bargaining, these expectations are assumed to be *ex ante*. That is, they are not conditioned on what transpires in the boycott game.¹² This is consistent with the timing strategy characterized in the next section, which is chosen *ex ante*. These expectations are denoted by $\rho(x, T)$ and will be identified from the equilibrium of the bargaining game.

C. Characterization of the Equilibrium

A strategy for citizen i is an action b_i , a time t_i at which she takes that action, and an action b_i^o taken when the boycott is resolved, where each is a function of i 's information. If the timing strategy $t_i(s_i)$ is strictly monotone in s_i , another citizen observing that i acted at time t can infer the signal s_i . Citizen j thus can base his action on both his own signal and what he learns from citizen i 's action. This, of course, is only possible if i moves before j , so the citizens find themselves in a game of timing. The hypothesis is that $t_i(s_i)$, $i = 1, 2$, is strictly decreasing, so the more serious is the issue based on i 's signal the sooner i will act. Observing when citizen i acts is sufficient to infer his information, so the other citizen need not observe the strength of i 's boycott.

Suppose that both citizens will act and citizen 2 acts first. Since $t_2(s_2)$ is strictly decreasing in s_2 , citizen 1 learns s_2 from citizen 2's action. Together with her own signal citizen 1 is fully-informed about the seriousness of the issue, and since the harm continues if she delays, she acts immediately after 2 acts. She then chooses \hat{b}_1 as

$$\hat{b}_1 \in \arg \max_{b_1} -S(h(1 - g(b_1 + b_2)) - mb_1) - \frac{\gamma}{2}b_1^2,$$

so

$$\hat{b}_1(s_1 + s_2) = \frac{(hg + m)}{2\gamma}(s_1 + s_2). \quad (3)$$

This is strictly increasing in S , so the more serious the issue the stronger is the action by the second mover. Note that this is independent of b_2 , so there is no free-rider problem.

¹² If the expectations were conditional on the information of the citizen, a closed-form characterization of the equilibrium as in (8) cannot be obtained, although the equilibrium is still characterized by (7).

Suppose next that citizen 1 with signal s_1 acts first at $t_1(s)$, where s is a choice variable. She does not know s_2 when she acts, but she knows that if she acts first at $t_1(s)$ citizen 2 must have seen an s_2 such that $s_2 < \bar{s}_2 = t_2^{-1}(t_1(s))$. The boycott \bar{b}_1 of citizen 1 when she moves first at time $t_1(s)$ is thus

$$\bar{b}_1\left(s_1 + \frac{\bar{s}_2}{2}\right) = \frac{(hg + m)}{2\gamma}\left(s_1 + \frac{\bar{s}_2}{2}\right), \quad (4)$$

where $\frac{\bar{s}_2}{2}$ is the conditional expectation of s_2 given that 1 acted first at $t = t_1(s)$.¹³ When 1 acts at $t_1(s)$, with probability η the other citizen acts immediately with $\hat{b}_2(s + s_2) = \frac{(hg+m)}{2\gamma}(s + s_2)$ and with probability $1 - \eta$ does not act.

If the boycott is settled after a bargaining duration T , both citizens are assumed to know S as a result of the resolution, and a citizen's post-settlement action $b_i^o(S)$ is

$$b_i^o(S) = \frac{h^o g^o + m^o}{\gamma} S, \quad i = 1, 2. \quad (5)$$

If the boycott is expected to be fully-resolved to the satisfaction of the citizens, then $h^o = m^o = 0$ and $b_i^o(S) = 0$.

A symmetric Nash equilibrium is sought in which both citizen consumers use the same timing strategy $t(\cdot) = t_1(\cdot) = t_2(\cdot)$. These strategies are chosen at time 0 before receiving the signal s_i , and the discounted expected utility $EU_1(s_1)$ of citizen 1 takes into account the probability η that citizen 2 will actually act. When citizen 1 plans to act at t , given a

¹³ Similarly, the action of player 2 when he goes first at time $t_2(\sigma)$ is $\bar{b}_2(\frac{\bar{s}_1}{2} + s_2) = \frac{(hg+m)}{2\gamma}(\frac{\bar{s}_1}{2} + s_2)$, where $\bar{s}_1 = t^{-1}(t_2(\sigma))$. In equilibrium, $\sigma = s_2$.

signal s_i , her expected utility is

$$\begin{aligned}
EU_1(s_1) = & \int_s^z \left[E_\rho \int_{t(s_2)+T}^\infty e^{-r\tau} d\tau \left(-S(h^o(1 - \eta g^o(b_1^o(s_1 + s_2) + b_2^o(s_1 + s_2))) - \eta m^o b_1^o(s_1 + s_2)) \right. \right. \\
& \left. \left. - \eta \frac{\gamma}{2} b_1^o(s_1 + s_2)^2 \right) + E_\rho \int_{t(s_2)}^{t(s_2)+T} e^{-r\tau} d\tau \left(-S(h(1 - \eta g(\hat{b}_1(s_1 + s_2) + \bar{b}_2(\frac{s_2}{2} + s_2))) \right. \right. \\
& \left. \left. - \eta m \hat{b}_1(s_1 + s_2)) - \eta \frac{\gamma}{2} \hat{b}_1(s_1 + s_2)^2 \right) + \int_0^{t(s_2)} e^{-r\tau} d\tau (-hS) \right] \frac{ds_2}{z} \\
& + \int_0^s \left[E_\rho \int_{t(s)+T}^\infty e^{-r\tau} d\tau \left(-S(h^o(1 - g^o(b_1^o(s_1 + s_2) + \eta b_2^o(s_1 + s_2))) - m^o b_1^o(s_1 + s_2)) \right. \right. \\
& \left. \left. - \frac{\gamma}{2} b_1^o(s_1 + s_2)^2 \right) + E_\rho \int_{t(s)}^{t(s)+T} e^{-r\tau} d\tau \left(-S(h(1 - g(\bar{b}_1(s_1 + \frac{s}{2}) + \eta \hat{b}_2(s + s_2))) \right. \right. \\
& \left. \left. - m \bar{b}_1(s_1 + \frac{s}{2})) - \frac{\gamma}{2} \bar{b}_1(s_1 + \frac{s}{2})^2 \right) + \int_0^{t(s)} e^{-r\tau} d\tau (-hS) \right] \frac{ds_2}{z},
\end{aligned} \tag{6}$$

where $r \in (0, \infty)$ is a common discount rate and E_ρ denotes the expectation with respect to ρ . The first integral represents those events in which citizen 2 acts, which occurs with probability η , before citizen 1. The second integral represents those events in which citizen 1 acts first and citizen 2 acts with probability η . The integrands represent the three time periods: before the boycott begins ($\tau \in [0, t(\cdot))$), the boycott ($\tau \in [t(\cdot), t(\cdot) + T)$), and its resolution ($\tau \in [t(\cdot) + T, \infty)$).

The optimal timing strategy of citizen 1 given the timing strategy $t(s_2)$ of citizen 2 is determined by substituting the optimal boycotts (3), (4), and (5) into (6), maximizing $EU_1(s_1)$ with respect to s , and evaluating the first-order condition at $s = s_1$. The first-order condition after simplification and canceling $\frac{s_1^2}{z} e^{-rt(s_1)}$ is

$$\begin{aligned}
& -E_\rho \frac{1}{r} (1 - e^{-rT}) \left[\frac{3(hg + m)^2}{32\gamma} - \eta hg \frac{5(hg + m)}{8\gamma} \right] + (1 - \eta) E_\rho \frac{1}{r} e^{-rT} \frac{(h^o g^o + m^o)^2}{2\gamma} \\
& + rt'(s_1) E_\rho \left[e^{-rT} \frac{3}{4} (h^o - h) - s_1 \left((1 - e^{-rT}) \left(\frac{9(hg + m)^2}{32\gamma} + hg\eta \frac{7(hg + m)}{12\gamma} \right) \right. \right. \\
& \left. \left. + e^{-rT} \left(\frac{7(h^o g^o + m^o)^2}{24\gamma} + h^o g\eta \frac{7(h^o g + m^o)}{12\gamma} \right) \right) \right] = 0.
\end{aligned} \tag{7}$$

This is a differential equation in $t(\cdot)$ and has the solution given in the following proposition, which is established in the Appendix.

Proposition 1: The unique symmetric perfect Nash equilibrium $t(s_i)$, $i = 1, 2$, is given in

(8)-(11) when $\theta > 0$,¹⁴

$$t(s_i) = \frac{\theta}{\beta} \ln\left(\frac{\alpha + \beta z}{\alpha + \beta s_1}\right), \quad i = 1, 2, \quad (8)$$

where

$$\theta = \frac{1}{r^2} E_\rho \left[\left(1 - e^{-rT}\right) \left(\frac{3(hg + m)^2}{32\gamma} - hg\eta \frac{5(hg + m)}{8\gamma} \right) - (1 - \eta)e^{-rT} \frac{(h^o g^o + m^o)^2}{2\gamma} \right] \quad (9)$$

$$\alpha = E_\rho e^{-rT} \frac{3}{4} (h - h^o) \geq 0 \quad (10)$$

$$\beta = E_\rho \left[\left(1 - e^{-rT}\right) \left(\frac{9(hg + m)^2}{32\gamma} + hg\eta \frac{7(hg + m)}{12\gamma} \right) + e^{-rT} \left(\frac{7(h^o g^o + m^o)^2}{24\gamma} + h^o g^o \eta \frac{7(h^o g^o + m^o)}{12\gamma} \right) \right] > 0. \quad (11)$$

If $\theta \leq 0$, the equilibrium timing strategy is

$$t(s_i) = 0, \quad \forall s_i \in [0, z], \quad i = 1, 2. \quad (12)$$

A necessary condition for $\theta > 0$ is

$$3(hg + m) > 20\eta hg.$$

Note that citizens may delay acting even if there is no consequentialist harm ($h = 0$) or if their action has no impact ($g = 0$) on the harm. Also, if η is large so that this inequality is not satisfied, the citizen acts immediately at $t = 0$. This reflects the leadership effect.

Note that $t(z) = 0$, so the most serious signal results in immediate action regardless of the sign of θ . Also, if citizens anticipated an immediate resolution ($T = 0$) of the boycott, then $\theta < 0$ and each citizen acts immediately at $t = 0$. As indicated in the bargaining model, immediate resolution can result, but not with probability 1.

When $\theta > 0$, the timing strategy is strictly decreasing in s_i . Consequently, the more serious is the issue according to a citizen's own information the earlier she acts. The incentives to act earlier are threefold. The first is to reduce the harm through one's own action. The second is to lead the other citizen to act earlier, since a citizen's action provides a public good. The third is to reveal her information to the other citizen, since that causes

¹⁴ There are also asymmetric equilibria in which one citizen acts at time 0 regardless of her signal and the other citizen delays indefinitely before going first. These equilibria have the same behavior as if the sequence of citizens' actions was exogenous.

the other citizen to take a stronger action; i.e., $\hat{b}_2(s_1 + s_2) > \bar{b}_2\left(\frac{s_2}{2} + s_2\right)$ when $s_1 \geq s_2$. The leadership effect is the result of the second and third incentives.

The timing strategy is also strictly convex, so less serious information results in proportionately greater delay before acting. This results from an externality between one citizen's information and her beliefs about the other citizen's information, given that the other citizen has not acted. That is, if citizen 1 acts first at $t(s'_1 = s_1 - \delta)$, $\delta > 0$ rather than at $t(s_1)$, her expectation of the seriousness of the issue is $s_1 + \frac{s_1 - \delta}{2}$ rather than $s_1 + \frac{s_1}{2}$.

To indicate why citizens delay before acting, suppose that 2 has not acted and 1 acts at $t(s_1)$. Then, 1's action is $\bar{b}_1\left(s_1 + \frac{s_1}{2}\right) = \frac{hg+m}{2\gamma} \frac{3}{2}s_1$. If 1 delays acting until $t(s_1 - \delta)$, and 2 does not act in the interval $[t(s_1), t(s_1 - \delta))$, then 1's action is $\bar{b}_1\left(s_1 + \frac{s_1 - \delta}{2}\right) = \frac{hg+m}{2\gamma} \left(\frac{3}{2}s_1 - \frac{\delta}{2}\right)$. If 2 acts in that interval, then 1's action is $\hat{b}_1(s_1 + s_2) \approx \frac{hg+m}{2\gamma} (s_1 + s_1 - \delta)$, where $s_2 \approx s_1 - \delta$. The loss from waiting is of order $-\frac{\delta}{2}$, whereas the gain is of order $\frac{1}{2}s_1 - \frac{\delta}{2}$. Weighted by the probability of 2 acting in this interval, 1 can prefer to delay. Each citizen thus has an incentive (when $\theta > 0$) to delay before acting in the hope of becoming better informed and making a better decision.

The incentive to delay to make a better decision depends on the marginal utility of acting. Consider the case in which the boycott is expected to be fully resolved ($h^o = m^o = 0$) after bargaining for time T . Consider an increase in the moral utility m . It is straightforward to show that $\frac{dt(s_i)}{dm} > 0$, so a greater moral utility results in greater delay. The citizens delay more as the moral utility increases because they have a stronger incentive to get their action right by waiting for the other citizen to reveal his information.

The citizens thus find themselves in a timing dilemma in that each prefers to delay in the hope that the other will act and reveal information that allows a better decision to be made. This timing dilemma results in a smaller expected boycott than if both citizens could commit to acting at time 0. Because a citizen may not act, the boycott is a random variable $\tilde{B}(s_1, s_2)$ with realization $B(s_1, s_2)$ and distribution, for $s_1 > s_2$,

$$B(s_1, s_2) = \begin{cases} \bar{b}_1\left(s_1 + \frac{s_1}{2}\right) + \hat{b}_2\left(s_1 + s_2\right) & \text{if both act (probability } \eta^2) \\ \bar{b}_1\left(s_1 + \frac{s_1}{2}\right) & \text{if 1 acts } (\eta(1 - \eta)) \\ \bar{b}_2\left(\frac{s_2}{2} + s_2\right) & \text{if 2 acts } ((1 - \eta)\eta) \\ 0 & \text{if neither acts } ((1 - \eta)^2) \end{cases} \quad (13)$$

The expected boycott conditional on (s_1, s_2) is $\bar{B}(s_1, s_2) = \eta^2(\bar{b}_1 + \hat{b}_2) + (1-\eta)\eta\bar{b}_1 + (1-\eta)\eta\bar{b}_2$ and the *ex ante* expected boycott is

$$E_{s_1, s_2} \bar{B}(s_1, s_2) = \eta \frac{hg + m}{2\gamma} \left(\frac{3}{2} + \frac{\eta}{2} \right) z,$$

where E_{s_1, s_2} denotes the expectation with respect to (s_1, s_2) . If the citizens were to act independently and myopically at $t = 0$, each would choose the action $b_i^-(s_i) = \frac{hg+m}{2\gamma}(s_i + \frac{z}{2})$, which yields an expected boycott $E_{s_1, s_2} B^- = \eta \frac{hg+m}{\gamma} z$. The timing game thus results in a smaller expected boycott when $\eta < 1$.

The equilibrium of the boycott game yields a relation between the strength of the boycott and its timing. If both citizens will act, the time at which the boycott breaks out is $t^* = t(\max\{s_1, s_2\})$, and the strength of the boycott is $B(s_1, s_2)$. The former is a decreasing function and the latter an increasing function of the seriousness of the issue, so there is a negative correlation between the timing of a boycott and its strength. A more serious issue results in a stronger boycott, and it occurs earlier. Stated differently, stronger boycotts break out earlier, and boycotts that take more time to develop are weaker. The latter explains why some issues generate little activity. Conversely, the citizens get it more or less right; i.e., if a strong boycott breaks out, it is because the issue is serious. Less serious information results in weaker and later action.

D. Comparative Statics: Timing

The comparative statics of the equilibrium timing strategy for $\theta > 0$ depend on the parameters directly as well as indirectly through their effect on the expectations about the outcome and duration of the bargaining between the activist and the firm. Those expectations are taken as exogenous by citizens, so the comparative statics will be analyzed holding expectations fixed.

The *ex ante* potential seriousness of the issue is represented by z , and $t(s_1)$ is increasing in z for all $s_1 < z$. That is, the more serious the issue could be, the more important is the other citizen's information for making the right boycott decision. Hence, each citizen has a stronger incentive to delay her action in the hope that the other will act first and reveal his information.

The parameter η represents how likely a citizen is to act. The greater is η the stronger can be the incentive to act earlier both to convey information to others and to induce

them to act earlier by eliminating their incentive to wait for information to be revealed. Offsetting this, however, is a stronger incentive to delay, since the higher is the probability that the other citizen will act first provides a greater opportunity to make a better decision by delaying. To determine which incentive is stronger, differentiate (8) to obtain

$$\frac{dt(s_1)}{d\eta} = \left[\frac{1}{\theta} \frac{d\theta}{d\eta} - \frac{1}{\beta} \frac{d\beta}{d\eta} \right] t(s_1) + \frac{d\beta}{d\eta} \frac{\theta}{\beta} \frac{\alpha(z - s_1)}{(\alpha + \beta z)(\alpha + \beta s_1)}, \quad (14)$$

where $\frac{d\beta}{d\eta} > 0$. The derivative $\frac{d\theta}{d\eta}$ is

$$\frac{d\theta}{d\eta} = \frac{1}{r} E_\rho \left[-(1 - e^{-rT}) h g \frac{5(hg + m)}{8\gamma} + e^{-rT} \frac{(h^o g^o + m^o)^2}{2\gamma} \right],$$

which is negative if T is expected to be large or the settlement favorable to the citizens; i.e., $h^o g^o + m^o$ is small relative to $hg + m$. The derivative in (14) is zero at $s_1 = z$, and differentiating (14) with respect to s_1 yields

$$\frac{d^2 t(s_1)}{d\eta ds_1} = t'(s_1) \left[\frac{1}{\theta} \frac{d\theta}{d\eta} - \frac{s_1}{\alpha + \beta s_1} \frac{d\beta}{d\eta} \right],$$

which is positive if $\frac{d\theta}{d\eta} < 0$. Then, $\frac{dt(s_1)}{d\eta} < 0$ for all $s_1 < z$. Consequently, the leadership effect is dominant for all s_1 when $\frac{d\theta}{d\eta} < 0$. The numerical analysis discussed below indicates that $\frac{dt(s_1)}{d\eta} < 0$. Then, if η reflects the extent of concern in the society about the issue, greater concern leads to earlier action; i.e., boycotts break out more quickly. This concern could reflect the degree of communitarianism in the society.

The moral utility m affects both the magnitude and timing of a boycott. The greater is m the greater is the boycott $\hat{b}_1(s_1 + s_2)$ if the citizen acts second and the greater is $\bar{b}_1(s_1 + \frac{s_2}{2})$ if the citizen acts first. Differentiating (8) yields

$$\frac{dt(s_1)}{dm} = \left(\frac{1}{\theta} \frac{d\theta}{dm} - \frac{1}{\beta} \frac{d\beta}{dm} \right) t(s_1) + \frac{1}{\beta} \frac{d\beta}{dm} \frac{\theta \alpha(z - s_1)}{(\alpha + \beta z)(\alpha + \beta s_1)}, \quad (15)$$

where $\frac{d\theta}{dm} > 0$ and $\frac{d\beta}{dm} > 0$, so the second term in (15) is positive. As indicated above, if $h^o = m^o = 0$, the first term in (15) is also positive, indicating that an increase in the moral utility results in greater delay. For $h^o, m^o > 0$, the first term can also be shown to be positive. The intuition underlying this result is that at the margin a citizen prefers to delay to be able to make a more informed and stronger action. That is, as m increases the citizens delay acting to make better decisions.

An increase in the marginal cost γ of boycotting decreases the time to acting. Differentiating (8) yields

$$\frac{dt(s_1)}{d\gamma} = \left(\frac{1}{\theta} \frac{d\theta}{d\gamma} - \frac{1}{\beta} \frac{d\beta}{d\gamma} \right) t(s_1) + \frac{1}{\beta} \frac{d\beta}{d\gamma} \frac{\theta \alpha (z - s_1)}{(\alpha + \beta z)(\alpha + \beta s_1)}. \quad (16)$$

Evaluating the derivatives in the first term indicates that

$$\frac{1}{\theta} \frac{d\theta}{d\gamma} = -\frac{1}{\gamma} = \frac{1}{\beta} \frac{d\beta}{d\gamma},$$

so the first term in (16) is zero. The second term is negative, yielding the result. Consequently, the closer are the substitutes for the firm's product; i.e., the lower is γ , the longer citizens delay acting. This results because the marginal gain from delaying in the hope of obtaining the other citizen's information exceeds the marginal continuing harm from the work practices.

These results are summarized in the following proposition.

Proposition 2: For $\theta > 0$, the time $t(s_i)$ at which citizen i acts is

- (a) increasing in the support z of the signals received by citizens;
- (b) decreasing in η if $\frac{d\theta}{d\eta} \leq 0$;
- (c) increasing in the marginal moral utility m ;
- (d) decreasing in the marginal cost γ of boycotting.

The comparative statics on the other parameters (h, g, r, ρ) cannot be conclusively determined analytically, so the equilibrium has been evaluated numerically. The numerical analysis involves computing the equilibrium for the boycott and the bargaining games using as expectations in the boycott game the distribution of outcomes in the bargaining game, as identified in the next section. The numerical analysis indicates that for $\theta > 0$, $t(s_i)$ is (a) decreasing in η , h , g , and r and (b) increasing in h^o , m^o , g^o , and T , when each is treated as deterministic. Greater effectiveness g of a citizen's action in reducing harm causes the citizen to act earlier, and the greater is the harm h the earlier citizens act. In addition, the more impatient are the citizens the earlier they act so as to reduce the harm. Similarly, the more favorable the anticipated resolution of the boycott the earlier citizens act. The comparative statics will be interpreted further in Section IV.

E. Comparative Statics: Boycott Strength

The strength of the individual actions $(\bar{b}_i, \hat{b}_i, b_i^o)$ is an increasing function of the seriousness s_i of the issue, the harm h , the reduction g in harm from the actions of citizens, and the moral gain m from acting. Stronger moral concerns thus lead to stronger boycotts, and the greater the harm the stronger is the boycott. The strength of the boycott is decreasing in the cost γ of acting, so if there are close substitutes for the firm's products, the boycott would be strong. Conversely, if the product had few close substitutes, the boycott would be expected to be weak. The expected boycott is increasing in η , so the more likely citizens are to act on the issue, or the more communitarian is the society, the greater is the expected boycott.

F. Extensions

The formulation studied here assumes that η represents random factors or unknown characteristics that affect whether citizens act. The model can be extended to the case of private information in which each citizen cares about the issue (with probability η) and will act or does not care (with probability $1 - \eta$) and will never act. The analysis proceeds as above with each citizen making an inference regarding both the signal s_j and the type of the other citizen. For example, letting ϕ_2 denote the type of citizen 2 that cares, the probability that citizen 2 cares when she has not acted through time t is

$$Pr(\phi_2 \mid t = t_2(s_2)) = \frac{\eta s_2}{\eta s_2 + (1 - \eta)z},$$

which is increasing in s_2 . Consequently, as time passes without action a citizen lowers her belief that the other citizen cares about the issue. A symmetric Nash equilibrium is characterized by a condition similar to (7), but a closed form characterization of the equilibrium cannot be obtained.

Extending the model to more than two citizens is conceptually straightforward but considerably more complex. The citizen who acts last has the same problem as above except that the inference problem may be more complicated. For example, if there are three citizens and the first and second act at the same time, the third citizen may not learn the information of the second citizen. The citizen who moves second, however, may not act at the same time as the citizen who moves first, so a boycott may have spurts of new activity. These spurts are strategic as citizens weigh the leadership incentives and the incentives to delay to obtain information from the actions of others.

The model could also be extended to a large population of pairs of citizens each of which observes only the action of the other member of the pair. The law of large numbers then yields a distribution of the boycott that closely approximates $\bar{B}(s_1, s_2)$.

III. Bargaining to Resolve the Boycott

A. The Boycott and Its Resolution

The bargaining between the activist and the firm is over improvements in the workplace practices. The outcome of that bargaining is intended to correspond to workplace practices that are sustainable in the sense that the firm does not shirk on those standards and the activist does not resume the boycott.¹⁵ A resolution occurs when either the firm or the activist accepts the other's offer. The activist then calls off the boycott, although citizens can continue to act if there is remaining harm or moral concern.

The bargaining model must be consistent with the boycott strength, and the no-resolution payoffs must correspond to a continuing boycott and workplace practices. A simple model will be used to represent the preferences of the firm. Let x denote improvements in workplace practices, and assume that such improvements increase the marginal cost of production. More specifically, let the initial marginal cost of production be \bar{c} , and assume that improvements increase the marginal cost to $c(x)$, where $c(\cdot)$ is strictly increasing and convex with $c(0) = \bar{c}$. Let the demand function after resolution of the boycott be $q(p, B^o(x))$, where p denotes price and $B^o(x)$ is the post-settlement action that depends on the remaining harm $h^o(x)$, effectiveness $g^o(x)$, and moral utility $m^o(x)$ after the boycott is called off (o) and corresponds to the realization in (13); i.e.,

$$B^o(x) = \begin{cases} b_1^o(s_1 + s_2) + b_2^o(s_1 + s_2) & \text{if } B(s_1, s_2) = \bar{b}_1(s_1 + \frac{s_1}{2}) + \hat{b}_2(s_1 + s_2) \\ b_1^o(s_1 + s_2) & \text{if } B(s_1, s_2) = \bar{b}_1(s_1 + \frac{s_1}{2}) \\ b_2^o(s_1 + s_2) & \text{if } B(s_1, s_2) = \bar{b}_2(\frac{s_2}{2} + s_2) \\ 0 & \text{if } B(s_1, s_2) = 0. \end{cases} \quad (17)$$

The profit $\pi^o(p; x)$ of the firm when the bargaining outcome is x is

$$\pi^o(p; x) = (p - c(x))q(p, B^o(x)).$$

¹⁵ See Baron (2001b) for an analysis of sustainable policies.

Then, $\pi^o(x)$ defined by

$$\pi^o(x) \equiv \max_p \pi^o(p, x)$$

represents the firm's profit as a function of the bargaining outcome x . This function is assumed to be strictly decreasing in x . As an illustration, let $q(p, B^o(x)) = a - \xi B^o(x) - yp$, $a, \xi, y > 0$, where the parameter ξ may reflect damage to the "brand" of the firm in addition to the remaining action $B^o(x)$. The price is $p(x) = \frac{1}{2y}(a - \xi B^o(x) + yc(x))$, and the profit is

$$\pi^o(x) = \frac{1}{4y}(a - \xi B^o(x) - yc(x))^2, \quad (18)$$

which is strictly decreasing in x if $c'(x) > -\frac{\xi}{y}B^{o'}(x)$.

The profit $\pi(0)$ of the firm during the bargaining and in the absence of a settlement is for the example

$$\pi(0) = \frac{1}{4y}(a - \xi B(s_1, s_2) - yc(0))^2, \quad (19)$$

where $B(s_1, s_2)$ is the boycott in (13). Letting \hat{x} satisfy $\pi^o(\hat{x}) \equiv \pi(0)$, the firm will not accept any resolution $x > \hat{x}$.

The activist is assumed to have induced preferences over the perceived harm from the work practices and may have its own assessment of the seriousness of the issue. To simplify the notation, the activist will be assumed to know S .¹⁶ If the activist does not call off the boycott, the work practices remain at $x = 0$ and the boycott continues. The resulting expected utility $H(0)$ is

$$H(0) = -Sh(1 - gB(s_1, s_2)). \quad (20)$$

¹⁶ If the activist does not know S , it can infer it from observing the boycott and the time at which it breaks out. For example, if there is no boycott, the activist knows that neither citizen acted, and hence the best estimate of S is $\frac{z}{2}$. If there is a boycott at time t , the activist knows that at $t = t(s_i)$ citizen i took action \bar{b}_i in (4). Then, if the boycott equals \bar{b}_i , the activist knows that $\frac{1}{2}(s_i + \frac{s_i}{2})$ is the best estimate of S . If the boycott is greater than \bar{b}_i , then both citizens must have acted in which case $B = \frac{hg+m}{2\gamma}(s_i + \frac{s_i}{2} + s_i + s_j)$, $j \neq i$, where i acted first at $t = t(s_i)$. Then, the activist's best estimate \bar{S} of S is

$$\bar{S} = \frac{\gamma B}{hg + m} - \frac{3}{4}t^{-1}(t) = \frac{\gamma B}{hg + m} - \frac{3}{4}s_i.$$

If the activist calls off the boycott in exchange for workplace improvements x , the utility $H^o(x)$ is assumed to be increasing in x . For example, let $h^o = \omega h(x^* - x)$, $g^o = g$, and $m^o(x) = \omega m(x^* - x)$, so $b_i^o = w(x^* - x)\hat{b}_i$, where x^* could be interpreted as the workplace practices in developed countries. The post-settlement utility $H^o(x)$ then is

$$\begin{aligned} H^o(x) &= -Sh^o(1 - g^o B^o(x)) \\ &= -S\omega h(x^* - x)(1 - g\omega(x^* - x)\hat{B}), \end{aligned} \tag{21}$$

where \hat{B} is defined as in (17) with \hat{b}_i replacing b_i^o . This is strictly convex and is strictly increasing in x if $1 - 2g\omega(x^* - x)\hat{B} > 0$.

Note that the activist is assumed to be concerned only with reducing the perceived harm and not with the cost borne by consumers in their boycotts nor in their moral utility from acting. More generally, the activist could have preferences over these factors and over other factors such as attracting members, generating contributions, and enhancing its reputation.

B. Rational and Intransigent Types

A continuing boycott is costly to the firm because demand may be reduced and its brand damaged. A continuing boycott is also costly to the activist because the perceived harm continues. Both the activist and the firm thus have incentives to bargain to resolve the conflict. In some cases one party concedes immediately, whereas in other cases the conflict may last indefinitely. The boycott led by the Rainforest Action Network (RAN) against Mitsubishi Motor Sales and Mitsubishi Electric lasted 8 years, and the boycott against Nike lasted 6 years.

One reason for the variation in the duration of bargaining is that the parties may have little experience with each other. The activist and the firm may not have repeated encounters, since the activist may have a broad set of targets. Moreover, some firms appear to be taken by surprise by an activist challenge. For example, RAN's boycott centered on deforestation, and neither Mitsubishi Motors Sales nor Mitsubishi Electric had any involvement in deforestation. They were targeted because a trading company in the Mitsubishi *keiretsu* was involved in trading rainforest timber. The trading company did not have consumer products, whereas the two targets were consumer products companies.

The absence of repeated encounters and the element of surprise may mean that the activist and the firm do not know each other well. In particular, a player may not know the resoluteness of the other player. For example, Greenpeace has two factions both referred to as “suits.” The wetsuits favor dramatic, high-profile campaigns with aggressive objectives such as stopping oil exploration, whereas the business suits favor working toward practical solutions to environmental problems. A firm targeted by Greenpeace may be unsure which faction is in charge. Similarly, an activist group may be unsure whether CEO Phil Knight or another person is responsible for Nike’s strategy for addressing the work practices issue. This incomplete information will be represented by uncertainty about the type of the other player, where “type” refers to whether the player is rational or intransigent. (See Myerson (1991) and Abreu and Gul (2000).) A rational type acts optimally at every instant in time given the observed history of play. An intransigent type always makes a particular demand and rejects any offer that does not meet that demand. To simplify the analysis, each player is assumed to have only one intransigent type.¹⁷ The intransigent types are to be interpreted as extremists; i.e., an activist that makes an extreme demand and a firm that will not make any significant concession to the activist.

The model of bargaining is intended to predict the outcome of the boycott, but it also provides predictions about the likely success of activists in obtaining their objectives. For example, in the model a more extreme activist (in a sense to be made precise below) has a smaller likelihood of success than a more moderate activist. However, the “tougher” the activist in the sense of a stronger reputation for being intransigent the greater is the likelihood of success. This likelihood of success can be undermined if the other player has an outside option that renders the intransigent type strategically inconsequential (Compte and Jehiel (2002)). These properties provide some initial insight into the industrial organization of activists.

C. The Bargaining Model

The bargaining model is based on Abreu and Gul (2000).¹⁸ The parameters of the model are the types of each player, the corresponding probabilities of those types, time

¹⁷ The logic of the equilibrium characterized in the next section continues to hold with more intransigent types.

¹⁸ This model is closely related to Kreps and Wilson (1982).

preferences, and the magnitude of the boycott. The model has the property that the equilibrium is invariant to the details of the bargaining protocol when the players can make offers sufficiently frequently. The bargaining game has an initial stage in which at time 0 the players make and accept or reject offers, where bargaining time 0 is when the boycott begins. If the conflict is not resolved at that point, the players begin a war of attrition, since neither wishes to concede to the other. The bargaining game corresponds to a realization (s_1, s_2) and to the corresponding boycott. If $B(s_1, s_2) = 0$, there is no bargaining game.

The demand by the intransigent type of the activist is denoted by x^A , and the demand by the intransigent type of the firm is x^F . The prior probability that a player is intransigent is denoted by $\mu^i \in (0, 1], i = A, F$. The demands are assumed to be feasible ($x^A \leq x^*$ and $x^F \geq 0$) and to be incompatible ($x^F < x^A$). The intransigent type of the activist thus is unwilling to accept the offer by the intransigent type of the firm and vice versa. If neither the firm nor the activist concedes, the boycott $B(s_1, s_2)$ and workplace practices $x = 0$ remain in effect.

A strategy for the activist depends on its type. If it is intransigent, it demands x^A , accepts any $x \geq x^A$, and rejects any other offer. A strategy for a rational type is a probability distribution $G^A(T)$ that it concedes to the firm by time T , where $G^A(0)$ is the probability that it concedes at time zero. Similarly, a strategy of the rational type of the firm consists of a probability distribution $G^F(T)$ that it concedes by time T , where $G^F(0)$ is the probability it accepts the activist's demand at $T = 0$. The intransigent type of the firm demands x^F , accepts $x \leq x^F$, and rejects $x > x^F$.

In the bargaining game if a player i reveals that it is rational rather than possibly intransigent; e.g., by demanding $x \neq x^i$, the other player immediately has all the bargaining power. That is, the logic of the Coase conjecture implies that the player revealing itself as rational (in effect) concedes to the other player.¹⁹ The rational type of each player thus must demand the same as the intransigent type. This means that the bargaining outcome will be either x^A or x^F or if both players are intransigent no resolution with $(B(s_1, s_2), x = 0)$ continuing indefinitely. The policy outcome is thus independent of the other parameters of the model. Those parameters affect the likelihood of the possible outcomes and the timing of any settlement.

¹⁹ See Gul, Sonnenschein, and Wilson (1986).

When the bargaining game begins, both the intransigent activist and the rational activist demand x^A . If the firm is intransigent, it rejects and demands x^F . If it is rational, with positive probability it rejects x^A and demands x^F , since otherwise it reveals that it is rational. The activist can then accept or reject the offer x^F . All this occurs at time zero, and if either player accepts the other's offer, the game ends. If the activist rejects the firm's offer, a war of attrition commences. Time preferences are represented by discount rates $r^i \in (0, 1), i = A, F$.

The profit $\Pi(t^o, x^A, x^F)$ of the firm is

$$\Pi(t^o, x^A, x^F) = \begin{cases} \int_0^{t^o} \pi(0)e^{-r^F\tau} d\tau + \int_{t^o}^{\infty} \pi^o(x^A)e^{-r^F\tau} d\tau & \text{if } F \text{ concedes at } t^o \text{ before } A \\ \frac{1}{2}(\pi^o(x^A) + \pi^o(x^F)) \left(e^{-r^F t^o} - e^{-r^F(t^o - \epsilon)} \right) & \text{if } F \text{ and } A \text{ concede simultaneously} \\ \int_0^{t^o} \pi(0)e^{-r^F\tau} d\tau + \int_{t^o}^{\infty} \pi^o(x^F)e^{-r^F\tau} d\tau & \text{if } A \text{ concedes at } t^o \text{ before } F, \end{cases}$$

where $\epsilon > 0$ is arbitrarily small.²⁰ The utility $U^A(t^o, x^A, x^F)$ of the activist is

$$U^A(t^o, x^A, x^F) = \begin{cases} \int_0^{t^o} H(0)e^{-r^A\tau} d\tau + \int_{t^o}^{\infty} H^o(x^F)e^{-r^A\tau} d\tau & \text{if } A \text{ concedes at } t^o \text{ before } F \\ \frac{1}{2}(H^o(x^A) + H^o(x^F)) \left(e^{-r^A t^o} - e^{-r^A(t^o - \epsilon)} \right) & \text{if } F \text{ and } A \text{ concede simultaneously} \\ \int_0^{t^o} H(0)e^{-r^A\tau} d\tau + \int_{t^o}^{\infty} H^o(x^A)e^{-r^A\tau} d\tau & \text{if } F \text{ concedes at } t^o \text{ before } A, \end{cases}$$

where $\epsilon > 0$ is arbitrarily small.

The expected utility U_T^F of the rational type of the firm if it concedes at time T is

$$\begin{aligned} U_T^F &= \int_0^T \left[\int_0^{t^o} \pi(0)e^{-r^F\tau} d\tau + \int_{t^o}^{\infty} \pi^o(x^F)e^{-r^F\tau} d\tau \right] g^A(t^o) dt^o \\ &\quad + \left[\int_0^T \pi(0)e^{-r^F\tau} d\tau + \int_T^{\infty} \pi^o(x^A)e^{-r^F\tau} d\tau \right] (1 - G^A(T)) \\ &= \frac{1}{r^F} \int_0^T \left[\pi(0)(1 - e^{-r^F t^o}) + \pi^o(x^F)e^{-r^F t^o} \right] g^A(t^o) dt^o \\ &\quad + \frac{1}{r^F} \left[\pi(0)(1 - e^{-r^F T}) + \pi^o(x^A)e^{-r^F T} \right] (1 - G^A(T)), \end{aligned} \tag{22}$$

where $g^A(T) = \frac{d}{dT} G^A(T)$. The first integral in (22) represents the events in which the activist concedes, and the second integral represents the firm conceding to the activist at T provided that the activist has not already conceded.

²⁰ The probability that the firm and the activist concede simultaneously is 0.

D. Characterization of the Equilibrium

A perfect Bayesian equilibrium in mixed strategies exists, and at each T the distribution $G^A(T)$ must make the firm indifferent between conceding and continuing. This implies from (22) that $\frac{dU_T^F}{dT} = 0$ for all T or

$$\frac{dU_T^F}{dT} = \frac{1}{r^F} e^{-r^F T} \left[(\pi^o(x^F) - \pi^o(x^A)) g^A(T) + r^F (\pi(0) - \pi^o(x^A)) (1 - G^A(T)) \right] = 0.$$

This is a differential equation in $G^A(T)$ and has the solution

$$G^A(T) = 1 - \kappa^A e^{-\lambda^A T}, \quad (23)$$

where

$$\lambda^A = \frac{r^F (\pi^o(x^A) - \pi(0))}{\pi^o(x^F) - \pi^o(x^A)} \quad (24)$$

is the concession rate and κ^A is a constant determined from the boundary conditions.²¹

In a similar manner the distribution $G^F(T)$ must at each time T leave the activist indifferent between conceding and continuing. Following the same procedure as for the firm, the equilibrium strategy is

$$G^F(T) = 1 - \kappa^F e^{-\lambda^F T}, \quad (25)$$

where

$$\lambda^F = \frac{r^A (H^o(x^F) - H(0))}{H^o(x^A) - H^o(x^F)} \quad (26)$$

and κ^F is a constant determined from the boundary conditions.

If the initial offers are rejected at $T = 0$ the beliefs of the players about their opponent are given by the posterior probabilities $\bar{\mu}^i(T = 0)$, $i = A, F$, which are

$$\bar{\mu}^i(0) = \frac{\mu^i}{\mu^i + (1 - \mu^i)(1 - G^i(T))|_{T=0}}. \quad (27)$$

During the bargaining the players update their beliefs based on the event that the other player did not concede. The posterior probability of the intransigent type given that the

²¹ If the intransigent demand of the activist is sufficiently extreme that $\pi(0) > \pi^o(x^A)$, then $\frac{dU_T^F}{dT} > 0$, and the firm never concedes. Then, if $H(0) < H^o(x^F)$, the rational type of the activist concedes immediately with probability one.

other player has not conceded eventually must equal 1, and the time T^i at which this occurs satisfies²²

$$1 - e^{-\lambda^i T^i} \equiv 1 - \mu^i, \quad i = A, F.$$

Consequently,

$$T^i = -\frac{\ln \mu^i}{\lambda^i}, \quad i = A, F. \quad (28)$$

The constants $\kappa^i, i = A, F$, depend on which player is in the weaker bargaining position in the war of attrition. Bargaining strength is determined by the concession rate and the initial probability of the intransigent type, and the stronger player is the one with the smaller T^i . Letting $T^o = \min\{T^A, T^F\}$, the player i with $T^i = T^o$ is the stronger and $\kappa^i = 1$. Since $T^i < T^j$ and the posterior probabilities must both equal 1 at $T = T^o$, the boundary condition for $j \neq i$ is²³

$$1 - \kappa^j e^{-\lambda^j T^o} = 1 - \mu^j.$$

This implies that

$$\kappa^j = \mu^j e^{\lambda^j T^o}, \quad (29)$$

so

$$G^j(T) = 1 - \mu^j e^{\lambda^j (T^o - T)}, \quad T \in [0, T^o]. \quad (30)$$

Since $\kappa^j < 1$, the probability that j concedes at time $T = 0$ is positive; i.e., $G^j(0) > 0$. Note that the probability that j concedes at $T = 0$ depends on T^o , the prior probability μ^j , and the concession rate λ^j . Only one player concedes at time 0, so the other player i has $G^i(0) = 0$. The theory thus predicts that boycotts can be resolved immediately after they

²² To show that the probability must equal 1, suppose that the firm rejects x^A now and bears a cost of waiting until the next opportunity to accept x^A . For waiting to be optimal, the firm must believe that the activist will reveal itself as rational with positive probability during that time. The probability that the activist reveals itself thus cannot be vanishing. Similarly, the firm could wait until T^F and get x^F , and to prevent it from doing so, the activist must concede with significant probability.

²³ Both posterior probabilities of the irrational types must reach 1 at the same time T^o . If they did not, the constant concession rate condition in (24) or (26) would be violated. Suppose $T^A < T^F$ but the probability of the rational type of the firm is positive at $T = T^A$. Then, the firm would concede at T^A with positive probability. But then the activist would not concede with positive probability just before T^A because it would prefer to wait for the firm to concede at T^A . Then, the activist's concession rate would not be constant.

begin with probability $G^j(0) > 0$, can extend for some considerable time (to T^o), or last indefinitely (with probability $\mu^A \mu^F$).

The rational player with $T^i = T^o$ is stronger than the other player because it is able to build a reputation for intransigence more quickly. From (27) this reputation is built through the higher concession rate λ^i required to keep the other player indifferent between conceding or continuing. The player with $T^j > T^o$ has more difficulty building a reputation and thus concedes at $T = 0$ with positive probability. Similarly, as will be made more precise in the next section, the more extreme is the intransigent type of a player, the weaker is the rational type of that player. That is, it is more costly for a player to concede to a more extreme type of the other player, so it is easier for the former to build a reputation.

The expected utility of the firm can be determined by substituting $G^A(T)$ and λ^A into (22), which yields $U_T^F = \frac{1}{r^F} \pi^o(x^A)$, $\forall T \in (0, T^o]$. Then, the expected utility EU^F is

$$EU^F = \frac{1}{r^F} \pi^o(x^F) G^A(0) + \frac{1}{r^F} \pi^o(x^A) (1 - G^A(0)). \quad (31)$$

The expected utility EU^A for the activist is

$$EU^A = \frac{1}{r^A} H^o(x^A) G^F(0) + \frac{1}{r^A} H^o(x^F) (1 - G^F(0)). \quad (32)$$

The bargaining is inefficient for two reasons. First, delay is costly as reflected in EU^F and EU^A . To illustrate this, suppose that $T^A = T^F$, so $EU^F + EU^A = \frac{1}{r^F} \pi^o(x^A) + \frac{1}{r^A} H^o(x^F)$. Second, x^A and x^F do not maximize the aggregate utility of the players.

The bargaining equilibrium is summarized in the following proposition.

Proposition 3: A perfect Bayesian equilibrium of the bargaining game is characterized by (23)-(26), $T^o = \min\{T^A, T^F\}$ from (28), beliefs given by Bayes' rule as in (27), and $\kappa^i = 1$ if $T^i = T^o$ and κ^i in (29) if $T^j > T^o$.

E. Comparative Statics

The bargaining strengths of the players depend on three principal factors. The first is the usual notion of strength in a war of attrition; i.e., the more patient player is stronger. The second is the prior probability that a player is intransigent. The greater is that probability the stronger is the rational type of that player. The third is how extreme is the

intransigent type. An extreme type is weaker than a moderate type in a sense to be made precise below.

The effect of the model parameters on the bargaining strengths of the activist and the firm and on the bargaining outcomes is both direct and indirect. The direct effects are on the bargaining holding constant the expectations of the public. The indirect effects are through the public's expectations of the bargaining outcomes. Only the direct effects are considered here.

To simplify the notation and the exposition, consider the case in which $T^o = T^A$, so the activist is stronger than the firm. The comparative statics depend on the effects of the model parameters on λ^i and $T^o = T^A$, and the following properties determined from (24), (26), and (28) hold:

$$\begin{aligned} \frac{d\lambda^A}{dr^F} &> 0; \quad \frac{d\lambda^A}{dr^A} = 0; \quad \frac{d\lambda^A}{d\pi(0)} < 0; \quad \frac{d\lambda^A}{dx^F} > 0; \quad \frac{d\lambda^A}{dx^A} < 0 \\ \frac{d\lambda^F}{dr^A} &> 0; \quad \frac{d\lambda^F}{dr^F} = 0; \quad \frac{d\lambda^F}{dH(0)} < 0; \quad \frac{d\lambda^F}{dx^A} < 0; \quad \frac{d\lambda^F}{dx^F} > 0 \\ \frac{dT^o}{d\lambda^A} &< 0; \quad \frac{dT^o}{d\lambda^F} < 0; \quad \frac{dT^o}{d\mu^A} < 0; \quad \frac{dT^o}{d\mu^F} = 0; \quad \frac{dT^o}{dx^F} < 0; \quad \frac{dT^o}{dx^A} > 0. \end{aligned}$$

The concession rate λ^F is increasing in the activist's discount rate and constant in its own discount rate. The concession rate is also decreasing in $H(0)$, the extremism of the activist's intransigent demand, and in the extremism (lower x^F) of its own intransigent type. The concession rate λ^A for the activist has analogous properties. An increase in the extremism x^A of the intransigent type of the activist reduces the concession rate of the firm because it is more costly for the firm to concede to a more extreme demand. It is thus easier for the firm to build a reputation for intransigence. An increase in x^A also decreases the concession rate of the activist, since the activist has a stronger incentive to wait in the hope that the firm will concede yielding the activist a better outcome.

The time $T^o = T^A$ at which the activist is known to be intransigent is decreasing in the activist's concession rate and in the firm's concession rate. Similarly, T^i is decreasing in the initial probability μ^i , so a higher probability of its intransigent type (weakly) increases i 's bargaining strength. The time $T^j, j \neq i$, is independent of μ^i . The bargaining duration T^A is decreasing in x^F and x^A , so greater extremism (lower x^F or higher x^A) results in longer bargaining.

To identify the effect of the boycott strength on the bargaining, consider an increase in the boycott $B = B(s_1, s_2)$. The profit $\pi(0)$ of the firm is decreasing in B , and $H(0)$ is increasing in B , since a stronger boycott reduces the expected harm. Then,

$$\frac{dG^F(T)}{dB} = -\mu^F \lambda^F (T^o - T) e^{\lambda^F (T^o - T)} \left[\frac{1}{\lambda^F} \frac{d\lambda^F}{dB} + \frac{1}{T^o - T} \frac{dT^o}{dB} \right] > 0,$$

since $\frac{d\lambda^F}{dB} = \frac{d\lambda^F}{dH(0)} \frac{dH(0)}{dB} < 0$ where $\frac{d\lambda^F}{dH(0)} < 0$, and $\frac{dT^o}{dB} = \ln(\mu^A) \left(\frac{1}{(\lambda^A)^2} \frac{d\lambda^A}{dB} \right) < 0$, since $\frac{d\lambda^A}{dB} = \frac{d\lambda^A}{d\pi(0)} \frac{d\pi(0)}{dB} > 0$. Consequently, a stronger boycott increases the probability that the firm concedes by any time $T \in [0, T^o]$. More serious issues (higher S) thus result in outcomes more favorable to the activist. A boycott is thus an effective instrument for the activist.

To illustrate the effect of impatience, consider increases in the discount rates such that T^o continues to equal T^A . Then,

$$\frac{dG^F(T)}{dr^A} = -\mu^F (T^o - T) e^{\lambda^F (T^o - T)} \frac{d\lambda^F}{dr^A} < 0$$

$$\frac{dG^A(T)}{dr^F} = -\mu^F \lambda^F e^{\lambda^F (T^o - T)} \frac{\ln(\mu^A)}{(\lambda^A)^2} \frac{d\lambda^A}{dr^F} > 0,$$

since $\frac{d\lambda^F}{dr^A} > 0$ and $\frac{d\lambda^A}{dr^F} > 0$. Greater impatience on the part of the activist reduces its bargaining strength, and the firm concedes by time T with smaller probability. Greater impatience on the part of the firm reduces $T^o = T^A$ and hence increases the bargaining strength of the activist, and the firm concedes with higher probability for every time T . This results because a higher discount rate for the firm requires the activist to concede at a higher rate λ^A to leave the more impatient firm indifferent between conceding and continuing. The activist thus more quickly builds a reputation for being intransigent, and the firm responds to that stronger reputation by conceding with a higher probability $G^F(T)$. Establishing a stronger reputation has a cost to the activist, however, since $G^A(T)$ is also increasing in the impatience r^F of the firm.

The prior probabilities of the intransigent types also affect the probabilities of concession. The greater is the probability μ^F that the firm is intransigent, the smaller is the probability that it concedes by time T , and if μ^F becomes sufficiently high, the activist may concede at time 0; i.e., T^o becomes T^F . The bargaining strength of the firm thus is greater the more likely it is to be intransigent. The greater is the prior probability μ^A that the

activist is intransigent, the greater is the probability that the firm concedes by time T .²⁴ A player's bargaining strength thus is increasing in the probability that it is intransigent.

The effect of the intransigent demands on the equilibrium occurs at two levels. The first and more important is in determining the relative bargaining strength of the activist and the firm as identified by which has the smaller T^i . To identify the effect of the intransigent demands on the T^i , suppose that the model is symmetric with $\mu^F = \mu^A$, $H^o(x^A) - H^o(x^F) = \pi^o(x^F) - \pi^o(x^A)$, $H^o(x^F) - H(0) = \psi x^F$ and $\pi^o(x^A) - \pi(0) = \psi(x^* - x^A)$, where $\psi > 0$. Then, $T^A < T^F$ requires $\lambda^A > \lambda^F$, which requires $x^* - x^A > x^F$. This means that the player in the stronger bargaining position is the one with the more moderate intransigent demand.

The implication of this can be seen by examining the expected utilities in (31) and (32). For $T^A < T^F$, $G^A(0) = 0$ and from (31) $EU^F = \frac{1}{r^F} \pi^o(x^A)$. The firm thus obtains only what it would obtain by accepting the activist's demand at time 0. The expected utility EU^A in (32) depends on $G^F(0)$, which from (30) is approximately one when μ^F is small. The expected utility of the activist is then $EU^A \approx \frac{1}{r^A} H^o(x^A)$, so the activist achieves nearly the expected utility corresponding to its intransigent demand. Consequently, the player with the more moderate intransigent demand is the stronger and has the more favorable outcome.

Given that one player is in a stronger bargaining position, the second effect of a (small) change in an intransigent demand can be determined by considering the probabilities of concession. When $T^A < T^F$, greater extremism (lower x^F) of the firm decreases the probability of concession by the activist, since the activist more easily builds a reputation for intransigence. Greater extremism (higher x^A) of the activist also decreases the probability it concedes, since the gain to the firm from conceding is lower. The effect of an intransigent demand on the probability of concession by the firm has two components. First, it affects the concession rate λ^F , and second, it affects the time T^o at which the activist is revealed to be intransigent.

To evaluate this second effect, numerical analysis has been used. The specifications in (18)-(21) have been used, and the analysis indicates that $G^F(T)$ is decreasing in both x^F and x^A . Greater extremism of the activist reduces the probability of concession of

²⁴ The derivative is $\frac{dG^F(T)}{d\mu^A} = \frac{\mu^F}{\mu^A} \frac{\lambda^F}{\lambda^A} e^{\lambda^F(T^o - T)} > 0$.

the firm, and greater extremism of the firm increases the probability of concession. The probability of obtaining one's intransigent demand is thus decreasing in the extremism of one's own intransigent demand. This second effect, however, is conditioned on $T^A < T^F$, and the primary effect of extremism is on which player is in the stronger bargaining position.

For $T^A < T^F$, the expected utility of the firm EU^F in (31) is decreasing in x^A and constant in x^F . Numerical analysis indicates that the expected utility of the activist EU^A in (32) is increasing in x^A and x^F . Consequently, greater extremism on the part of the player in the stronger bargaining position increases that player's expected utility and decreases the expected utility of the other player, provided that player remains in the stronger bargaining position. Greater extremism on the part of the weaker bargainer does not affect its expected utility but makes the stronger bargainer worse off. These effects are second order.

The comparative statics are summarized in the following proposition.

Proposition 4: A player is more likely to be in the stronger bargaining position if it has a moderate intransigent demand or a greater probability of intransigence. For $T^o = T^A < T^F$ the probability $G^F(T)$ that the firm concedes by T is:²⁵

- (a) increasing in the strength of the boycott,
- (b) increasing in the impatience of the firm and decreasing in the impatience of the activist,
- (c) decreasing in the prior probability μ^F that the firm is intransigent and increasing in μ^A ,
- (d) (locally) increasing in the extremism of the firm's intransigent demand and (locally) decreasing in the extremism of the activist's intransigent demand (numerical analysis).

F. The Public's Expectations

The outcomes of the bargaining are workplace practices $x \in \{x^A, x^F, 0\}$ and a time T of resolution determined from the distributions $G^A(T)$ and $G^F(T)$. These distributions depend on the probabilities of the types of the activist and firm and on the boycott $B(s_1, s_2)$ in (13). The boycott depends on the realizations of $\tilde{\eta}$ that determine whether citizens act and on their information (s_1, s_2) . The expectations of citizens are the unconditional distribution $\rho(x, T)$ formed from these distributions. Thus, $\rho(x, T)$ is the *ex ante* distribution

²⁵ Analogous properties hold for the activist.

of outcomes as viewed by citizens at the time they choose their timing strategy at the beginning of the boycott game.

Given the boycott $B(s_1, s_2)$ the probabilities that the outcome is x^A or x^F when $T^o = T^A$ are²⁶

$$\begin{aligned} Pr(x^A) &= G^F(0) + \frac{\lambda^F \mu^F}{\lambda^A + \lambda^F} e^{\lambda^F T^o} \left(1 - e^{-(\lambda^A + \lambda^F) T^o}\right) \\ &= 1 - \frac{\lambda^F \mu^A \mu^F}{\lambda^F + \lambda^A} - \frac{\lambda^A \mu^F}{\lambda^F + \lambda^A} e^{\lambda^F T^o} \\ Pr(x^F) &= \frac{\lambda^A \mu^F}{\lambda^A + \lambda^F} e^{\lambda^F T^o} \left(1 - e^{-(\lambda^A + \lambda^F) T^o}\right) \\ &= \frac{\lambda^A \mu^F}{\lambda^A + \lambda^F} \left(e^{\lambda^F T^o} - \mu^A\right). \end{aligned}$$

The probability of no resolution is $\mu^A \mu^F$. The probability $Pr(x^F)$ is decreasing in μ^A reflecting the stronger bargaining position of the activist, and increasing in μ^F , reflecting the stronger bargaining position of the firm. Similarly, $Pr(x^A)$ is decreasing in μ^F and increasing in μ^A . Consequently, the higher is the probability that a player is intransigent the higher is the probability that it receives its demand. Numerical analysis indicates that $Pr(x^A)$ is decreasing and $Pr(x^F)$ is increasing in x^F and x^A . Consequently, greater extremism reduces the probabilities of achieving the players' intransigent demands.

G. Outside Options

In addition to the alternatives incorporated into the bargaining model, the activist and the firm could have other means of obtaining their objectives. The activist might be able to turn to public politics rather than private politics. It might, for example, be able to challenge the firm in court or seek legislation regulating the practices of the firm. The firm, of course, could counteract such moves. The activist might also be able to take its challenge to another country where the public might be more sympathetic, or it could resort to more aggressive actions than a boycott, such as personal criticism of the executives of the firm or even to violence. In the case of the activist challenge to the apparel and footwear industries, the labor union that backed the boycott split from the other activists and formed a rival group to continue the protests against the firms.

²⁶ Note that these probabilities are conditioned on (s_1, s_2) and the outcomes of the process $\tilde{\eta}$.

The firm may also have alternatives such as sourcing its products in countries with better workplace standards, supporting new legislation or regulation that would be less onerous than the activist's demand, or seeking protection from a friendly government. For example, footwear and apparel manufacturers could shift their sourcing from Indonesia to China, where U.S. labor unions have less freedom to operate. The firm also could stop producing the product or sell it to another firm. For example, General Electric sold its nuclear weapons unit while it was the subject of protests by activists and a boycott of its medical devices. A sale, however, makes little sense if the buyer would be subject to the same boycott as the seller faced. A sale thus would have to be to a firm that was less susceptible to a boycott, which in the context of the boycott model would be a firm whose products have higher switching costs (higher γ) for its customers or have a smaller g . For example, General Electric's nuclear weapons business could be sold to an industrial products company whose products have few close substitutes, such as a defense contractor.²⁷

In the context of the bargaining model, these alternatives can be represented as outside options. Compte and Jehiel (2002) showed that an outside option, even if it is only slightly better than the intransigent demand of the other player, can render that intransigent demand innocuous. Consider the case in which the firm is known to be rational and the activist can be either rational or intransigent. If the firm has an outside option with payoffs (π^*, H^*) to the firm and activist, respectively, that are at least as good for the firm as the activist's intransigent demand; i.e., $\pi^* > \pi^o(x^A)$, and worse for the activist, e.g., $H^* < H^o(x^A)$, the firm prefers at any point in time to exercise the outside option rather than concede to the activist's demand. The rational type of the activist then will conclude that there is no point in building a reputation for being intransigent and will reveal itself as rational at time 0. That is, the rational type of the activist knows that it will never obtain x^A , so it must bargain under certainty. The outside option itself does not affect the payoffs if it yields a payoff to the firm below that which can be obtained through bargaining with complete information.²⁸

If the firm also has a positive probability of being intransigent, the outside option can

²⁷ In 1993 General Electric sold its aerospace business, which included its nuclear arms unit, to Martin Marietta.

²⁸ This is the same logic as in the Rubinstein (1982) bargaining model with outside options (Binmore, Shaked, and Sutton (1989)).

not only render innocuous the intransigent demand of the activist but can also lead the activist to concede at time 0 to the firm's intransigent demand x^F . If both the firm and the activist have outside options that render each's intransigent demand innocuous and lead both to reveal themselves as rational, they again bargain under complete information.

If there were many possible intransigent types of the activist or firm, an outside option could render some but not all of them innocuous. In that case the strategy of the rational type is to mimic with positive probability the intransigent types that yield at least as much as the other player's outside option. The equilibrium would be as characterized in the previous section.

IV. Industrial Organization

This section draws implications from the theory of boycotts and their resolution for the industrial organization of activists, targets, and the market for boycotts and boycottable issues. These predictions pertain to the case in which $T^o = T^A < T^F$ and are to be understood as holding all other factors constant.

A. The Industrial Organization of Activists

Because less effective activists would over time be expected to be selected out in favor of more effective activists, the organizing principle for this industrial organization is the effectiveness of activists in obtaining their objectives.

1. More patient activists are more effective for two reasons. First, greater patience increases T^F , making it more likely that the firm is in the weaker bargaining position. Second, greater patience reduces λ^F which increases the probability $G^F(T)$ that the firm concedes.
2. Activists with a stronger reputation for being intransigent (higher μ^A) are more effective because they are more likely to be in the stronger bargaining position.
3. Activists that have expertise on issues with greater potential seriousness (higher z), high perceived harm h , or substantial moral content (higher m), e.g., the environment, health and safety, and human rights, are more effective because the boycott will be larger and the bargaining outcome more favorable.
4. Moderate activists are more effective than more extreme activists, since they are more likely to be in a stronger bargaining position than the firm. Conversely, more extreme activists must pick more attractive issues or weaker targets to be successful.

5. Activists that can establish their reputation prior to launching a campaign against a firm will choose moderate intransigent demands but be resolute.
6. Activists that have attractive outside options, e.g., of engaging in public politics, can be more effective if they can nullify the leverage of the intransigent demand of the firm.
7. Activists that can tap into more communitarian publics (higher η) are more effective because the boycott is more likely to break out sooner and be stronger. Communitarianism strengthens the leadership effect.

B. The Industrial Organization of Targets

This section provides an industrial organization based on the susceptibility of firms as targets of activists.

1. More impatient firms are better targets because they are more likely to be in a weaker bargaining position and have a more difficult time establishing a reputation for intransigence.
2. Firms with customers whose switching costs are low are better targets because customers will mount stronger boycotts, leading to a higher probability of concession. Consumer products companies are thus better targets than industrial products companies. Industrial products companies that also have consumer product lines are better targets than industrial products companies without consumer product lines.
3. Firms with a weak prior reputation for intransigence (low μ^F) are better targets because they are more likely to be in the weaker bargaining position and have higher probabilities of concession. Tough (resolute) firms are worse targets.
4. Firms that have more extreme positions (lower x^F) make better targets because they are more likely to be in the weaker bargaining position and it is then easier for the activist to establish a reputation for intransigence. Extremists make better targets because their corresponding rational type is more likely to concede in the bargaining.
5. Firms that have unattractive outside options are better targets because they are less able to render innocuous the rational activist's strategy of building a reputation as intransigent.
6. Firms whose practices result in greater perceived harm (higher h), have greater consumer

influence (higher g), or stronger moral concerns (higher m) are better targets because the boycott is stronger and the probability that the firm concedes is higher.

7. Firms are more susceptible if they are associated with potentially more serious issues (higher z).

8. Firms with valuable brands are better targets because profits are more responsive to boycotts (higher ξ), and hence the probability of concession is higher.

9. Firms that operate in more communitarian societies are better targets because boycotts develop more quickly and are stronger.

C. The Industrial Organization of the Market for Boycotts and Boycottable Issues

Issues that are more likely to attract boycotts are identified by the theory.

1. More serious issues (higher S or higher z) generate larger boycotts and break out earlier than less serious issues. Boycotts are thus a “normal good.”

2. Boycotts are responsive to extreme information. More extreme signals lead to larger and earlier boycotts; i.e., extreme information strengthens boycotts. For example, $(s_1 = 9, s_2 = 1)$ implies $B \propto 11.75$, and $(s'_1 = s'_2 = 5)$ implies $B' \propto 8.75$.

3. The strength of a boycott and the time it takes to develop are negatively correlated. Boycotts that take longer to develop are weaker than boycotts that develop quickly because the seriousness of the issue is lower.

4. The private policy response is stronger (e.g., higher $G^F(T)$) the stronger is the boycott $B(s_1, s_2)$. Private policy is thus responsive to the actions of citizen consumers.

5. Issues for which the leadership effect is stronger are more likely to attract activists and boycotts.

6. Independently of their seriousness, issues in more communitarian societies (high η) generate boycotts more quickly and those boycotts are stronger. Communitarian societies are more responsive to issues.

7. Issues that raise moral concerns are more likely to attract a boycott than issues without moral concerns. Boycotts are stronger but take longer to develop. Such issues might include the environment, health and safety, and human rights.

8. Issues involving a product with low switching costs will experience a larger boycott but it will break out later.
9. Issues on which the actions of citizens can have greater impact (higher g) have larger boycotts and are more likely to attract activists and boycotts.
10. Issues involving firms with extreme types or weaker reputations are attractive because the targets are weaker bargainers. The locus of boycotts thus depends on characteristics of the issue and the target.

V. Conclusions

Firms and other private parties choose policies in response to politics in both public and private arenas. Activists in the fields of health, safety, human and animal rights, and the environment are numerous, well-organized, and in some cases well-financed. They have developed an array of strategies for affecting private and public policies, and some are increasingly emphasized private politics. Private politics often takes place in the arena of public sentiment, and activists have become skilled in framing issues to speak to the public on both self-interest and more principled grounds. Many of their actions are directed at firms with the objective of changing their policies and in some cases forcing redistribution from firms to the clients of the activists as well as to segments of the public whose interests they advocate. Some of the changes may increase social well-being by addressing externalities and other market imperfections, but private politics also has the objective of redistribution. Private politics, however, is unlikely to be successful unless a significant proportion of the public has sentiments consistent with the changes sought by the activists. Private policy is responsive to the concerns of citizens.

The theory of private politics presented here begins with the concerns of citizens and the information they receive about an issue. Citizens' action sets are limited to when to act and the strength of their actions. Their actions are positively related to the seriousness of the issue, so their actions are consistent with the perceived harm. More serious issues lead to stronger boycotts, and they begin earlier. Citizens can exhibit leadership; i.e., a citizen has an incentive to act earlier so as to reveal her information to others. This leads others to act earlier and to take stronger action. The bargaining over the resolution of the boycott begins earlier the more serious the issue, and the activist is in a stronger bargaining

position, other things equal. The outcome is then more likely to favor the activist. The strength of activists thus derives from the concerns of citizens.

Private politics can be independent of public politics, but in many cases an activist or its target may have a choice between private and public politics. In the model considered here, the opportunity to engage in public politics has been treated as an outside option, but more generally the players may have a choice between private and public politics. The choice could be exercised at the beginning when the issue is identified or sequentially in response to developments.

A theory of private politics should also include the opportunity to act proactively; e.g., for a firm to change its work practices before the issue becomes public and it is selected as a target. Much of the impact of private politics may be the result of firms, or potential targets more generally, acting to avoid private politics.

The theory of the resolution of a boycott treats as exogenous the intransigent demands of the activist and the firm and the prior probabilities of intransigence. A broader theory of private politics would explain how those intransigent demands and reputations are established. To illustrate one of the considerations in such a theory, suppose there were a stage prior to information transmittal to the public. Also, suppose the firm were unaware of that stage, i.e., the firm might not have encountered this or any other activist in the past, so the challenge may be a surprise. A rational activist then would have an incentive to develop a reputation for being intransigent at a demand x^A that is immune to a known outside option of the firm. The bargaining to resolve a boycott provides three incentives for moderation in the prior positions taken by the players. First, establishing a reputation for moderate intransigent demands reduces the effectiveness of an outside option of the other player. Second, the more moderate demand strengthens the bargaining position of the player. Third, players may find it easier to develop a prior reputation for being moderate than extreme.

A broader theory would also include as an active player the news media. At a minimum the news media provides a low cost means for activists and others to communicate their messages to the public and government officeholders. In his study of boycott campaigns, Friedman (1999, pp. 181-195) found that nearly all were directed at the news media. The news media may be more than a transmitter of information, however. The media may

take a position on an issue, advocate a particular outcome, or reflect the preferences of the journalists who run the media organization. In particular, if they recognize that the public has concerns about the practices of a firm, the news media may advocate actions consistent with those concerns. The news media may also have a bias in favor of certain interests and against others. A theory should clarify the role of the news media in private politics as well as public politics.

A broader theory would also explain why some citizens become activists. Such an explanation could be found in a labor theory of citizens with different abilities, but the theory presented here suggests that there may be other explanations. For example, from the model of boycotts a citizen who receives a high signal acts early and leads others to act by conveying her information to them. This citizen thus behaves like an activist. Similarly, citizens in communitarian societies may act early and others follow with stronger actions. In the context of this model, activists may develop from among those citizens who receive extreme information and who understand their opportunity to lead others to act.

Appendix

When $\theta > 0$, the differential equation in (7) may be rewritten as

$$(\alpha + \beta s_1)t'(s_1) + \theta = 0.$$

Integrating yields

$$t(s_1) = -\frac{\theta}{\beta} \ln(\alpha + \beta s_1) + k, \tag{A1}$$

where k is a constant. To determine k , substitute $t(s_1)$ from (A1) into (6) evaluated at $s = s_1$ and differentiate with respect to k . The derivative is

$$\frac{dEU_1}{dk} = -re^{-rt(s_1)}s_1^2(\alpha + \beta s_1),$$

which is negative for $s_1 > 0$. This implies that k must be as small as possible, but k is constrained by $t(s_1) \geq 0, \forall s_1 \in [0, z]$. Since $t(s_1)$ is strictly decreasing in s_1 , this constraint is binding at $s_1 = z$, which implies that

$$k = \frac{\theta}{\beta} \ln(\alpha + \beta z).$$

Then, $t(s_1)$ is given in (8).

The proof that $t(s_i)$ in (8) and (12) constitutes an equilibrium is the same as that in Gul and Lundholm and will not be repeated here. To indicate why it is perfect, consider a time $\hat{t} > 0$. If $t(\max\{s_1, s_2\}) \leq \hat{t}$, the game is over. If $t(\max\{s_1, s_2\}) > \hat{t}$, then citizen i believes that s_j is uniformly distributed on the interval $[0, t^{-1}(\hat{t})]$. Then, the expected utility looking forward is given in (6) with z replaced by $t^{-1}(\hat{t})$. The equilibrium $\hat{t}(s_i)$ is as characterized above, and since α, β, θ are the same, the equilibrium is

$$\hat{t}(s_i) = \frac{\theta}{\beta} \ln\left(\frac{\alpha + \beta t^{-1}(\hat{t})}{\alpha + \beta s_i}\right).$$

Now, suppose that i planned to act at $t(s_i)$ and that $t(s_i + \epsilon) = \hat{t}$. Then,

$$\begin{aligned} t(s_i + \epsilon) + \hat{t}(s_i) &= \frac{\theta}{\beta} \ln\left(\frac{\alpha + \beta z}{\alpha + \beta(s_i + \epsilon)}\right) + \frac{\theta}{\beta} \ln\left(\frac{\alpha + \beta(s_i + \epsilon)}{\alpha + \beta s_i}\right) \\ &= \frac{\theta}{\beta} \ln\left(\frac{\alpha + \beta z}{\alpha + \beta s_i}\right) \\ &= t(s_i). \end{aligned}$$

Consequently, the strategy $t(s_i)$ is optimal at every point in time.

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