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RENT SEEKING AND JUDICIAL BIAS IN WEAK LEGAL SYSTEMS

by

Peter Bardsley
&
Quan Nguyen

Department of Economics
The University of Melbourne
Melbourne Victoria 3010
Australia.

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Peter Bardsley and Quan Nguyen
The University of Melbourne

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Abstract

We model rent seeking in litigation in weak legal systems as a Tulloch contest in which litigators may seek to influence the court directly through bribery as well as through the merit of the legal case that they bring. If the local firm has a competitive advantage in influencing the court then there is a strategic asymmetry between the players: the local firm regards expenditure by the foreign firm as a strategic complement, but the foreign firm regards local expenditure as a strategic substitute. This leads to different attitudes to commitment: the local firm would like to commit to a high level of effort to influence the court, the foreign firm to a low one. There is also an asymmetry in the commitment technology. It is not easy to commit to a low level of bribery, but it is feasible to commit to a high one: once a payment is made it cannot easily be recovered. We model the interaction as a two stage game: the players simultaneously commit to a minimum level of effort, then they play a simultaneous Tulloch influence game. We find a continuum of equilibria. An equilibrium selection argument selects a unique equilibrium that is outcome equivalent to the Stackelberg equilibrium of a simple Tulloch contest in which the local firm moves first. We thus find an argument for endogenous timing: the local firm moves first and secures a first mover advantage.

Key Words judicial corruption, Tulloch contest, strategic asymmetry, commitment games, endogenous timing

JEL Codes D73, D86, K41

Most economic models of litigation focus on the behavior of litigants playing a game whose rules are set by the legal institutions within which the game is played. At the end of the game, after all the players' decisions are made and their actions taken, the outcome of the legal process is determined by a perfectly impartial judge who weighs the evidence in a balanced and even-handed manner (see for example the survey by Kobayashi and Parker [10]).

However in many parts of the world, courts are far from perfect. In weak legal systems influence, bribery, corruption and bias are prevalent. These defects can be expected to have far reaching implications for the conduct of litigation; for the decision to litigate, to settle, or to use informal or private dispute resolution mechanisms; and for the incentive to create, or to avoid creating, disputes.

Mui [12] presents evidence from Peru, Taiwan, Russia and the United States on "the ubiquity of judicial corruption and judicial favoritism in many societies." Busaglia [**?**] provides detailed evidence of the prevelance of detailed corruption in a number of South American countries, Gong [8] discusses the evidence with respect to China, and Linnan [11] presents a notorious Indonesian case study. Judicial corruption is placed within the context of the broader literature on corruption in the surveys of Bowles [1] and Kaufman and Wei [9].

In this paper we follow Farmer and Pecorino [6] in modelling litigation as a Tullock [13] rent seeking game. Justice is often portrayed as a blind goddess weighing the evidence in a pair of scales. Here we allow the possibility that not only evidence (the raw facts) may be placed in the scales but also a small bag of coins. We also allow that the scales may be biased in one direction or the other. In the context that we have in mind, namely weak legal systems in third world countries, disputes are likely to arise between a local and a foreign firm. In this case a bias towards the local firm is very possible, and has been documented in many instances. This bias may arise from cultural sympathies and even through government policy. The local firm, which may expect to deal repeatedly with the local legal system, has a natural incentive to invest in building a favorable long term relationship with the court. The foreign firm may not have the same incentive, it may not be linked into the social infrastructure that can facilitate the creation of such relationships, and it may face legal sanctions in the international community that discourage it from engaging in corrupt practices.

There are two key observations that lie behind our analysis. The first is that the presence of even a small degree of judicial bias breaks the symmetry between the two disputing firms, and their strategic incentives become quite different. From the point of view of the local firm, expenditures in judicial influence are strategic complements (Bulow, Geanakoplos and Klemperer 1993 [4]). The local firm has an incentive to play aggressively, ratcheting up expenditures. From the point of view of the foreign firm, expenditures are strategic substitutes. The foreign firm has an incentive to play cautiously, limiting if possible the expenditures of both firms. (A somewhat similar point is made by Dixit [5] in his analysis of sporting contests and patent races). This strategic asymmetry, which arises purely from the structure of the game, means that the two firms have quite different attitudes about committing to expenditure.

Our second observation is about an asymmetry in the commitment technology. It is relatively easy to commit to a high level of expenditure. This can be done by paying a bribe; once that is done, it is very difficult to take it back. On the other hand, the promise not to pay a bribe is not so credible if it may later become advantageous to do so. This asymmetry means that the local firm is favorably placed with respect to its ability to commit to its preferred position[1].

[1] It is interesting to note that the US Foreign Corrupt Practice Act and the OECD Convention on Combating Bribery of Foreign Public Officials in International Business Transactions make it a crime for US or OECD firms to bribe foreign government officials. One effect of this legislation is to improve a foreign firm's ability to commit to its preferred low bribery

In Section 1 we study a simple one stage judicial influence game in which both players move simultaneously to influence the court. We also consider Stackelberg games, where one or the other firm has the opportunity to move first. In Section 2 we study a two stage game; in the first stage both players may make an irreversible commitment; in the second they play the influence game, subject to a constraint that their expenditure may be greater, but not less, than their prior commitment. We find a continuum of equilibria. In Section 3 we apply an equilibrium selection argument based on Cournot learning which selects a unique outcome.

1 Influencing the Court

We consider a dispute that has arisen between two firms F (the "foreign" firm) and L (the "local firm") over an asset whose value we will normalise to 1. The dispute has been brought before the court; we model the court's decision as the outcome of a simple Tullock contest that weighs the claim f brought by the foreign firm and the claim l brought by the local firm. It decides in favour of F with probability $\frac{f}{l+f}$, and in favour of L with probability $\frac{l}{l+f}$. The claim $f = f_0 + f_1 + f_2 + \dots$ is made up of a number of components. For example f_0 might be the intrinsic merit of the case (including the evidence), f_1 might be investment in legal work to present the case, and f_2 might be the payment of a bribe to influence the court. The case l will be composed of a similar number of components. The court places the bags f_0, f_1, f_2, ... and l_0, l_1, l_2, ... in the scales, and the odds of deciding in favour of either party are proportional to the total weight in either side of the scales.

The contestents will choose f and l through their investment in influencing the outcome of court. We will not specify the precise nature of this investment — since we are interested in weak legal systems, the investment that we have principally in mind is bribery. Even if they make no attempt to influence the court, their case may still carry some weight, due to its intrinsic merit. Thus the intrinsic merit of the case can be represented by a constraint on the decision variables: $f \geq f_0$ and $l \geq l_0$. For the moment we will ignore the existence of such constraints (effectively setting $f_0 = l_0 = 0$). We assume, for reasons set out in the introduction, that the local firm can influence the court at lower cost than can the foreign firm. We thus consider the following expected profit functions for the two firms:

$$\pi^F = \frac{f}{l+f} - f \tag{1}$$

$$\pi^L = \frac{l}{l+f} - kl \tag{2}$$

where $k \leq 1$ is a constant representing the cost advantage of the local firm in influencing the court.

strategy.

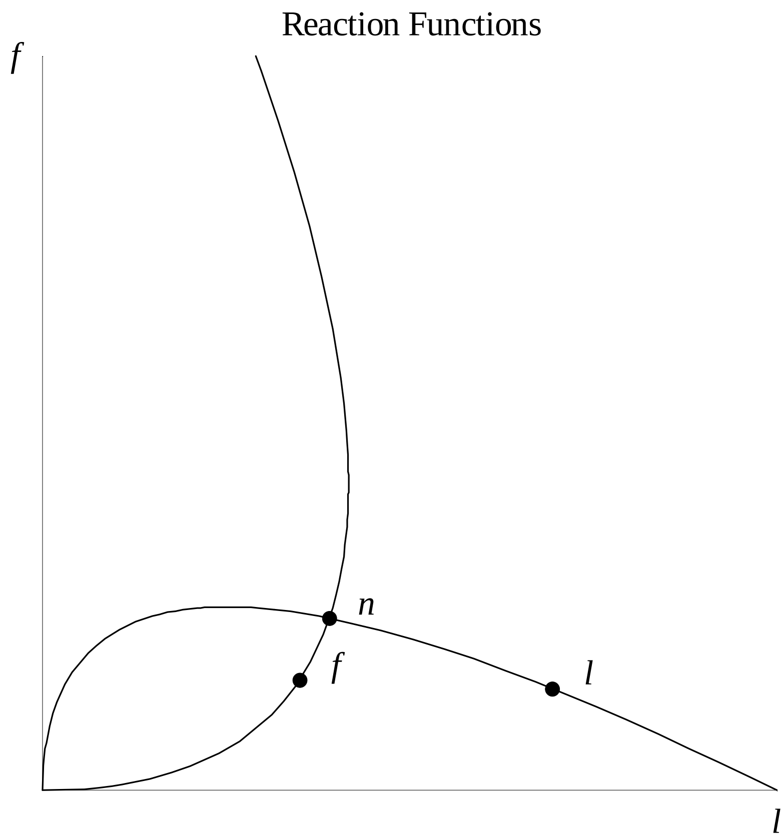

Figure 1: The One Shot Influence Game

We adopt this simple functional form for simplicity in exploring the nature of the rent seeking that may occur. More complicated specifications of the contest function, and other ways of specifying bias in favour of the local firm do not lead to any new insights. In the absence of a full decision theoretic model of the court's behaviour, the simplest model seems to be the most appropriate.

We consider first a simultaneous move game, in which the two firms choose f and l to maximise their objectives (1), (2). We will denote $n = (f_n, l_n)$ the equilibrium actions. A simple calculation shows that this equilibrium is as follows.

Proposition 1 (Simultaneous Influence Game) *If both players move simultaneously, the best response functions are*

$$\begin{aligned} \hat{f}(l) &= \sqrt{l} - l \\ \hat{l}(f) &= \sqrt{\frac{f}{k}} - f \end{aligned}$$

yielding equilibrium actions and profits

$$\begin{aligned} f_n &= \frac{k}{(1+k)^2} \\ l_n &= \frac{1}{(1+k)^2} \\ \pi_n^F &= \frac{k^2}{(1+k)^2} \\ \pi_n^L &= \frac{1}{(1+k)^2}. \end{aligned}$$

It is clear that in this simple contest that $l_n > f_n$, and that $\pi_n^L > \pi_n^F$; the local firm influences the court more aggressively, and earns higher profits by doing so. We note, in particular, that the slopes of the reaction curves at the equilibrium point are

$$\begin{aligned} \hat{f}'(l_n) &= \frac{k-1}{2} < 0 \\ \hat{l}'(f_n) &= \frac{1-k}{2k} > 0 \end{aligned}$$

so we confirm that the local firm has a downward sloping reaction curve, while the foreign firm has an upward sloping reaction curve.

It is interesting to consider what these firms would do if they had perfect commitment power, moving first in a Stackelberg version of the contest.

Proposition 2 (Local Firm Moves First) *If the local firm moves first, it chooses its preferred position on the foreign reaction curve, yielding equilibrium actions and profits*

$$\begin{aligned} f_l &= \frac{2k-1}{4k^2} \\ l_l &= \frac{1}{4k^2} \\ \pi_l^F &= \frac{(2k-1)^2}{4k^2} \\ \pi_l^L &= \frac{1}{4k}. \end{aligned}$$

Proposition 3 (Foreign Firm Moves First) *If the foreign firm moves first, it chooses its preferred position on the local reaction curve, yielding equilibrium* *actions and profits*

$$\begin{aligned} f_f &= \frac{k}{4} \\ l_f &= \frac{2-k}{4} \\ \pi_f^F &= \frac{k}{4} \\ \pi_f^L &= \frac{(2-k)^2}{4}. \end{aligned}$$

We note that the local firm would like to play aggressively, committing to a high level of expenditure. By doing so it not only increases its influence with the court, it induces the foreign firm to reduce its expenditure, since the foreign reaction curve is downward sloping. On the other hand, the foreign firm would like to play cautiously, reducing its expenditure in the knowledge that the local firm then has an incentive to do the same, since the local reaction curve is upward sloping. Figure 1 shows the reaction curves and the three equilibria.

2 Commitment

We now consider a two stage game. In the first stage the firms simultaneously commit to expenditures (L, F); we imagine them doing so by paying a bribe. In the second stage, they play the simultaneous move influence game described above, subject to the constraints $l \geq L$ and $f \geq F$. That is to say, we model commitment as a reduction in the strategy space available in the second stage game. We seek subgame perfect equilibria of this two stage game. For a more abstract approach to commitment games see Bade et al [14] and Renou [15].

It is easy to check that, at the second stage, the reaction curves are the same as in the one shot game, but truncated below by the precommitted expenditure (see Figure 2).

Proposition 4 (Equilibrium in the Second Stage Game) *Given the pre-commitments (L, F), the equilibrium in the second stage influence game is*

$$(l, f) = \begin{cases} (l_n, f_n) & \text{if } L \leq l_n \text{ and } F \leq f_n \\ \left(L, \hat{f}(L)\right) & \text{if } L > l_n \text{ and } F \leq \hat{f}(L) \\ \left(\hat{l}(F), F\right) & \text{if } F > f_n \text{ and } L \leq \hat{l}(F) \\ (L, F) & \text{if } L > \hat{l}(F) \text{ and } F > \hat{f}(L). \end{cases}$$

Proof. In each case it is necessary to check that the proposed equilibrium satisfies the fixed point conditions

$$\begin{aligned} l &= \max\left(L, \hat{l}(f)\right) \\ f &= \max\left(F, \hat{f}(l)\right). \end{aligned}$$

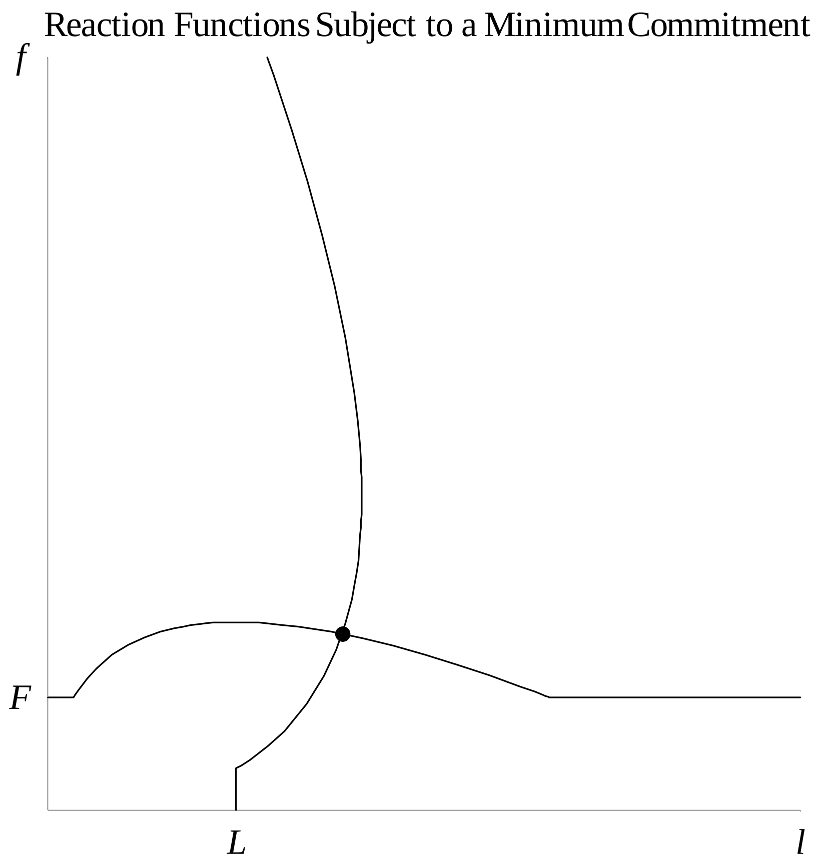

Figure 2: The Second Stage Influence Game

As an example we check the second case. We need to verify that

$$\begin{aligned} L &= \max\left(L, \hat{l}\left(\hat{f}(L)\right)\right) \\ \hat{f}(L) &= \max\left(F, \hat{f}(L)\right) \end{aligned}$$

if $L > l_n$ and $F \leq \hat{f}(L)$. The second condition holds directly by the assumption that $F \leq \hat{f}(L)$. To establish the first condition it is necessary to consider the slopes of the reaction curves. Since $L > l_n$, $\hat{f}(L) < f_n$. But $\hat{l}(f)$ is monotonic increasing in this range, so $\hat{l}\left(\hat{f}(L)\right) < \hat{l}(f_n) = l_n$, and $l_n < L$ by assumption, so $\max\left(L, \hat{l}\left(\hat{f}(L)\right)\right) = L$. ■

The mapping from the first stage strategy (L, F) to the second stage equilibrium (l, f) is illustrated in Figure 3. The precommitment is indicated by a

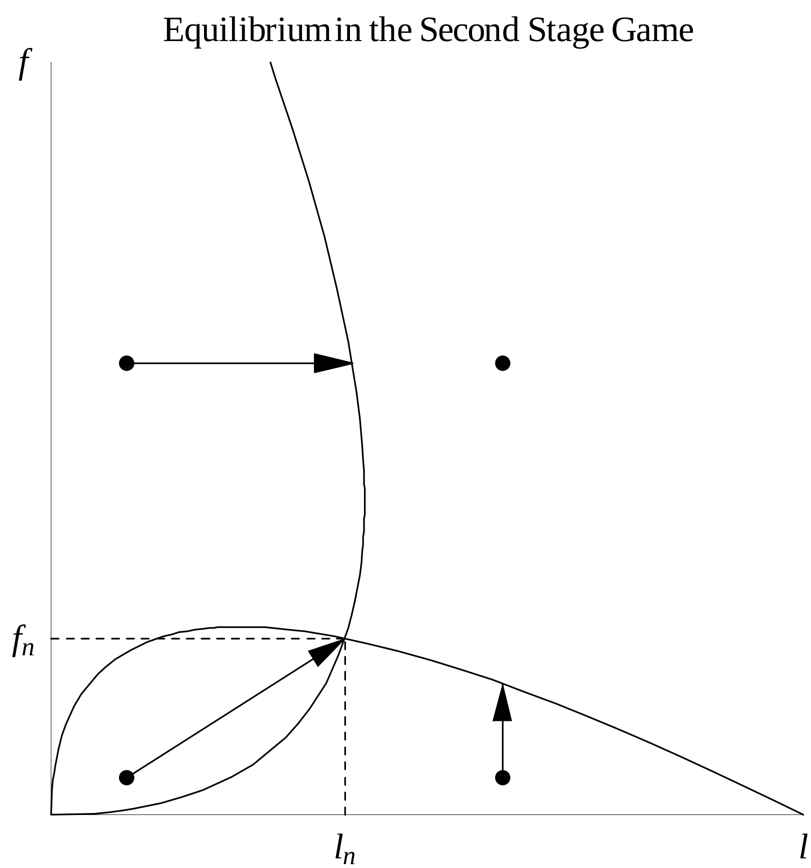

Figure 3: Equilibrium in the Second Stage

dot; the resulting equilibrium by the head of the arrow.

Working back, we can now compute reaction correspondednces and the equilibrium correspondence in the first stage commitment game.

Proposition 5 (The Commitment Game) *The reaction functions in the commitment game are*

$$\hat{F}(L) = \begin{cases} [0, f_n] & \text{if } 0 \leq L \leq l_n \\ \left[0, \hat{f}(L)\right] & \text{if } l_n \leq L \end{cases}$$

$$\hat{L}(F) = \begin{cases} l_l & \text{if } 0 \leq F \leq f_l \\ \hat{f}^{-1}(F) & \text{if } f_l \leq F \leq f_n \\ \left[0, \hat{l}(F)\right] & \text{if } F \geq f_n. \end{cases}$$

where by $\hat{f}^{-1}(F)$ we mean the inverse image of F under the downward sloping *portion of the foreign reaction curve; that is, the unique point $l \geq l_n$ such that $\hat{f}(l) = F$. The equilibrium correspondence is the union of three lines: the horizontal line $[0, l_n] \times \{f_n\}$, the vertical line $\{l_l\} \times [0, f_l]$, and the segment of the F reaction curve between L and n : $\left\{\left(l, \hat{f}(l) : l_n \leq l \leq l_l\right)\right\}$.*

Proof. Let us first consider the foreign firm. If $0 \leq L \leq l_n$ then, referring to Proposition 4 and Figure 4, the foreign firm can choose the simultaneous Nash point n, by choosing $F \in [0, f_n]$, or points on the local reaction curve which lie above the Nash point by choosing $F > f_n$. Since the foreign Stackelberg point lies below f_n, it will clearly make the former choice. If $L > l_n$, then the foreign firm can secure $\hat{f}[L]$, which is by definition its preferred point, by choosing $F \in \left[0, \hat{f}(L)\right]$.

Now consider the local firm. If $0 \leq F \leq f_l$ then this firm can achieve its preferred commitment point by choosing $L = l_l$. If $f_l \leq F \leq f_n$ than it can achieve any point on the foreign reaction curve between $\left(\hat{f}^{-1}(F), F\right)$and the Nash point; or by choosing $L > \hat{f}^{-1}(F)$ it can choose any point on the interval $\left[\hat{f}^{-1}(F), \infty\right) \times F$, which is to the right of the reaction curve. However the local firm's payoff is continuously decreasing over this range so it will not make the latter choice. Among the points on the reaction curve that it can choose, it will wish to bee as close as possible to its Stackelberg commitment point. It can do this by choosing $L = \hat{f}^{-1}(F)$. Finally, if $F \geq f_n$ then the analysis is foreign form's problem, and any $L \in \left[0, \hat{l}(F)\right]$ will be optimal. ■

These reaction correspondences, and the equilibrium correspondence, are shown in Figure 4.

We are now in a position to summarise the subgame perfect equilibria that can arise in this two stage came of commitment and judicial influence. Any point (L, F) on the foreign firm's reaction curve betweeen the simultaneous move Nash point and the local firm's Stackelberg point can arise as an equilibrium. Both firms commit in the first stage of the game to (L, F), and then make no further expenditure in the second stage of the game. There are two further types of equilibria, occuring at the ends of the interval, which are of little interest. In one, the foreign firm commits fully to the Nash expenditure f_n, and the local firm commits only partially to expenditure $l < l_n$. However the local firm raises its expenditure to the Nash level at the second stage; the outcome is little different to if it had fully committed in the first place. There is a similar equilibrium at the other end of the interval, with the local firm fully committing to the Stackelberg point, and the foreign firm only partially committing, but then raising its expenditure in the second stage.

So far we have assumed that the court is influenced only by the efforts made by the firms. However the case presumably has some intrinsic merit, determined by the facts and the law, even before any attempts to influence the court. The most straight forward way to model this is to assume that the firms start with some endowment (L_0, F_0) of influence reflecting the nature of the dispute. We are thus lead to consider the following three stage game.

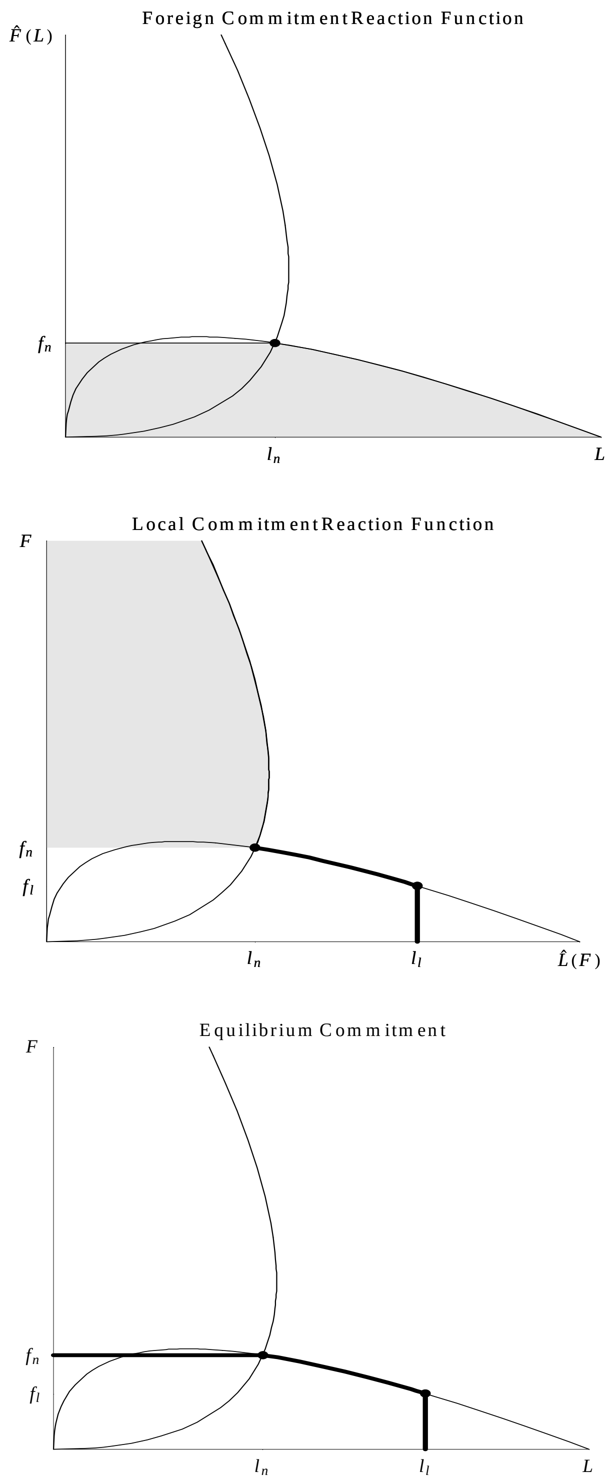
Foreign CommitmentReaction Function
$\hat{F}(L)$
f_n
l_n
L
Local CommitmentReaction Function
F
f_n
f_l
l_n
l_l
$\hat{L}(F)$
Equilibrium Commitment
F
f_n
f_l
l_n
l_l
L

Figure 4:

Stage 1 Nature chooses the endowment (L_0, F_0)

Stage 2 The firms simultaneously commit to $L \geq L_0$, $F \geq F_0$.

Stage 3 The firms simultaneously exert efforts $f \geq F$ and $l \geq L$, at costs $f - F_0$ and $k(l - L_0)$.

The court then decides the case using the Tullock rule. Since the firm profits are

$$\pi^F = \frac{f}{l+f} - (f - F_0) \tag{3}$$

$$\pi^L = \frac{l}{l+f} - k(l - L_0) \tag{4}$$

we see that the endowment changes the total profit but not the marginal profit. It may thus affect which disputes are brought to litigation, but not the strategy once they are brought before the court, except through the constraints $L \geq L_0$, $F \geq F_0$.Thus this game may be analysed simply by introducing these constraints into commitment game studied previously.

It is easy to check that the constraint $L \geq L_0$ binds if and only if the endowment point (L_0, F_0) lies to the right of the $\hat{L}(F)$ reaction correspondence shown in Figure 4, and that the constraint $F \geq F_0$ binds if and only if the endowment point (L_0, F_0) lies above the $\hat{F}(L)$ reaction correspondence. Thus we have

Proposition 6 (The Commitment Game with Endowment) *Let (L_0, F_0) be the initial endowment of influence with the court.*

1. *If $L_0 \leq l_l$ and $F_0 \leq \min\left(f_n, \hat{f}(L_0)\right)$ then neither constraint binds and the equilibrium correspondence is as in Prop 5. This occurs if the endowment point lies inside the equilibrium correspondence in Figure 4.*

2. *If $L_0 > l_l$ and $F_0 \leq \min \hat{f}(L_0)$ then the local firm is constrained and sets $l = L = L_0$; the foreign firm reacts by setting $f = F = \hat{F}(L_0)$. This occurs if the endowment point lies to the right of the equilibrium correspondence, and under the foreign reaction curve.*

3. *If $F_0 > f_n$ and $L_0 \leq \hat{l}(F_0)$ then the foreign firm is constrained and sets $f = F = F_0$; the local firm reacts by setting $l = L = \hat{l}(F_0)$.This occurs if the endowment point lies above the equilibrium correspondence, and to the left of the local reaction curve.*

4. *In the remaining case both the constraints bind, and $l = L = L_0$, $f = F = F_0$.*

3 Equilibrium Selection

Is it possible to select among the equilibria of the commitment games of Propositions 5 and 6? In this section we consider a simple learning mechanism based on Cournot dynamics , and show that with probability 1 that it converges to the Stackelberg outcome. For simplicity we discuss a version of the commitment game of Proposition 5; the case with an endowment is similar.

Since there is a unique Nash equilibrium in the second stage of the commitment game, we apply backward induction to consider the following one stage truncated version of the game: the players simultaneously choose commitments (L, F) and receive the equilibrium payments from the subsequent subgame. The best reply correspondences for this truncated game are shown in Figure 4.

The players repeatedly play this truncated game, but they do so myopically , responding optimally to the opponent's previous play:

$$\begin{aligned} L_{k+1} &\in \hat{L}(F_k) \\ F_{k+1} &\in \hat{F}(F_k). \end{aligned}$$

Where the best response is multiple valued, we assume that all possible best responses are played with equal probability. For a discussion of such Cournot dynamics in the context of learning and equilibrium selection see Fudenberg and Levine [7].

Proposition 7 (Cournot Dynamics in the Commitment Game) *With probability 1 the sequence of play converges to the Stackelberg outcome.*

Proof. Consider Figure 5. Let $a_k \in [l_n, l_l]$ be a strictly increasing sequence of numbers such that $a_0 = l_n$ and $a_k \to l_l$, and let A_k be the rectangle with vertices $\left(a_k, \hat{f}(a_k)\right)$ and $\left(l_l, \hat{f}(l_l)\right)$. The area of this rectangle is $\alpha_k = (l_l - a_k)\left(\hat{f}(l_l) - \hat{f}(a_k)\right)$. It is clear that that the sequence α_k is strictly monotonically decreasing to zero.

Consider a sequence of play (L_i, F_i), beginning with an arbitrary (L_0, F_0). It is clear from the reaction correspondences of Figure 4 that the sets A_k are absorbing: once play enters such a rectangle it can never leave. It is also clear that $L_k \leq f_n$ for $k \geq 1$, and that, with probability 1, $F_2 \geq l_n$. Thus with probability 1, $(L_2, F_2) \in A_0$. To simplify notation, we may assume without loss of generality that $(L_0, F_0) \in A_0$. We aim to show for any k that, with probability 1, eventually $(L_i, F_i) \in A_k$, and hence that with probability 1, $L_i \to l_l$.

Let us choose a fixed rectangle A_k, $k \geq 1$, and estimate an upper bound for the probability π_i that the point $(L_{i+1}, F_{i+1}) \notin A_k$, assuming that $(L_i, F_i) \notin A_k$. Since the probability of entering A_k is decreasing in both L_i and F_i, we may assume that $(L_i, F_i) = \left(l_n, \hat{f}(l_n)\right)$, which is at the top left corner of the rectangle A_0. From the reaction correspondences, the next point (L_{i+1}, F_{i+1}) will be chosen uniformly within the rectangle A_k. The probability that it lies

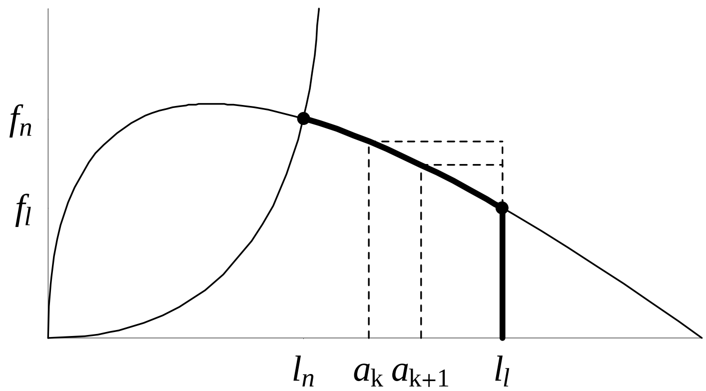

Figure 5:

within A_{k+1} is then given by the ratio of the areas of the two rectangles. Thus

$$\pi_i \leq \frac{\alpha_0 - \alpha_k}{\alpha_0} = 1 - \frac{\alpha_k}{\alpha_0} < 1.$$

The probability that the point has not entered the rectangle by play i is the product of these conditional probabilities: $\pi_1 \pi_2 \ldots \pi_i \leq \left(1 - \frac{\alpha_k}{\alpha_0}\right)^i \to 0$ as $i \to \infty$. Thus, with probability 1, the play must eventually enter A_k.

Now assume that $L_i \not\to l_l$. Then for some k, the sequence of play never enters A_k (for otherwise $L_i \to l_l$, because the sets A_k are nested). But this is the probability zero event. Thus the probability that $L_i \not\to l_l$ is the union of a countable collection of null events. ■

4 Conclusion

We model rent seeking in litigation in weak legal systems as a Tulloch contest in which litigators may seek to influence the court directly through bribery as well as through the merit of the legal case that they bring. We notice that there is a strategic asymmetry between the players if we assume that the local firm has a competitive advantage in influencing the court, and that this asymmetry means that the firms have different attitudes to commitment. The local firm would like to commit to a high level of bribery in order to induce the foreign firm to back down; the foreign firm would like to commit to a low bribery effort, as it knows that this low effort would be matched by the foreign firm.

We also notice that there is an asymmetry in the commitment technology available to the two firms. It is relatively easy to commit to a high effort; this can be done by paying a bribe, which cannot easily be undone. On the other hand, it is not so easy to credibly commit not to pay a bribe in the future if, when the decision point comes, it is advantageous to do so.

We model the interaction of these asymmetries through a two stage game. In the first stage firms play a commitment game in which the players simultaneously reduce their strategy spaces by commiting to a minimum bribery effort. In the second stage they play a Tulloch influence contest in which they may increase, but not decrease the bribery effort. We find a continuum of equilibria. By applying an equilibrium selection argument, we select a unique equilibrium that is outcome equivalent to the Stackelberg equilibrium of a simple influence contest in which the local firm moves first.

We thus find that the outcome is quite simple. The strategic asymmetry induced by even a small degree of comparative advantage in influencing the court leads to an endogenous resolution of the timing issue. In effect, the local firm moves first and is a Stackelberg leader in the contest to influence the court. If the firms engage in pre-trial negotiation, then we predict that the Stackelberg outcome will function as the threat point.

Since influence with the court, even if it is rarely used in practice, improves the negotiating strength of the local firm, we would expect to see the local firm investing in building up good relations with the judiciary, and creating or exploiting disputes of little merit to extract rents from the relationship with the foreign firm. Since it benefits from these rents, and is exposed to little risk if litigation is rare, the judiciary may well be compliant. The end result is to raise the cost of capital to countries with weak legal systems (on this point see Kaufman and Wei [9] and Mui [12]).

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