Appendix-I: A Formal (Decision-Theoretic) Model of Institutional Targeting

Following law and economics theories of adjudication and settlement (for reviews, see Cooter and Rubinfeld, 1989; Lanjouw and Lerner, 1998; Spier, 2005), assume P_W and T_W are the firm's expected chances of winning its dispute and the benefit (transfer) it receives if it wins, respectively, and C is its adjudication cost. If the dispute is adjudicated, the firm's expected payoff in venue 1 is $\left(P_{W1}T_{W1} - C_1\right)$. By comparing the expected payoffs between two venues, a simple decision rule for venue choice is:

$$\textit{If} \quad \left(P_{W1}T_{W1} - C_1\right) > \left(P_{W2}T_{W2} - C_2\right) \quad \textit{choose Venue 1, else choose Venue 2} \qquad \ldots. \qquad \text{(i)}$$

In essence result (i) suggests that firms target institutional venues that are less expensive to adjudicate and give them a higher expected transfer. Despite its intuitive appeal, this rule is naïve because it does not incorporate the possibility of settlement before adjudication. If they settle, the parties can share the bargaining surplus, which is simply the total (joint) loss in costs to both parties if they pursue the dispute through adjudication. Using lower case for the rival firm's expectations of P_W and T_W, the bargaining surplus in venue 1 at the time of filing suit is $BS_1 = \left[C_1 + c_1 - \left(P_{W1}T_{W1} - p_{W1}t_{W1}\right)\right]$. Any settlement outcome involves a negotiated division of this bargaining surplus between the parties, or more precisely, a division of that fraction of the bargaining surplus that has not yet been consumed in adjudication. As the parties progress through procedural stages at each venue, the bargaining surplus BS gets attenuated as costs are incurred, leaving less on the table for the parties to negotiate over. Thus, the earlier and more likely the expected settlement, the higher the expected remaining surplus $F(BS)$. Similarly, if we consider the costs of bargaining to arrive at a settlement, the higher the expected joint bargaining costs $E\left(BC\right)$ in a venue, the lower the expected remaining surplus. Thus, in venue "1", the firm's expected payoff is:

$$\left(P_{W1}T_{W1} - C_1\right) + SH\left(\max\{F(BS_1) - E\left(BC_1\right), 0\}\right) \qquad \ldots. \qquad \text{(ii)}$$

Since the firm always has the option of seeking adjudication, in expectation this payoff (ii) should be no less than the payoff from adjudication $\left(P_{W1}T_{W1} - C_1\right)$, which is indicated by the $\max\{\bullet\}$ function. However, the function $SH\left(\bullet\right)$ can add a share of the bargaining surplus (less dissipated bargaining costs)

to this payoff, and captures the bargaining power between the two parties. Using (ii), we obtain a revised decision rule for venue choice as follows.

$$\textit{If } \{[P_{W1}T_{W1} - P_{W2}T_{W2}] - [C_1 - C_2]\} + \{SH(\bullet)_1 - SH(\bullet)_2\} > 0 \quad \textit{choose 1, else choose 2 } \ldots \text{ (iii)}$$

This decision rule leads us to two simple propositions. First, like our more naïve model of venue choice in (i), higher expected transfers $P_W T_W$ and lower costs C increase the likelihood that a given venue is chosen by the firm. Second, the expected surplus available to be shared in settlement $\{F(\bullet) - E(\bullet)\}$ can also affect venue choice. All else being equal, the higher (lower) the expected surplus (bargaining costs) in a venue, the more likely the firm will be to choose it. As we note above, the expected surplus is higher if the likelihood and expected speed of settlement is higher. Our approach here is similar to the explanation for "negative expected value suits" (Bebchuk, 2000), where the firm's expected payoff from a lawsuit (pursued through final adjudication) is negative. As Bebchuk notes, it only makes sense for plaintiffs to file such suits because they expect, with some positive probability, to settle and not go to trial.

Intuitively, our result is easy to understand by considering extreme cases – if the surplus shared through settlement is zero (no probability of settlement), the last term in the decision rule (iii) becomes zero, and venue choice is driven entirely by differences in expected adjudication costs and transfers. Conversely, if the surplus is almost fully conserved (very high probability of early settlement), then expectations about settlement outcomes and bargaining costs also affect venue choice, and can potentially reverse the effects of adjudication costs and transfers. Relative to disputes where the surplus is not conserved (i.e. unlikely to be settled), patentees would be more likely to take such disputes to a more costly (general-purpose) venue. Moreover, parties that expect to settle will be more likely to choose a venue with lower bargaining costs (or more flexibility for settlement).

Additional References:

Bebchuk, L. A. (2000). "Suits with Negative Expected Value." The New Palgrave Dictionary of Economics and the Law, Vol. 3, pp. 551-554, University of Chicago Press.

Appendix II:

The Targeting of both Specialized and General Purpose Tribunals

In these analyses we provide empirical evidence for the robustness of our findings to the inclusion of a "third" alternative – namely, the decision to target both types of venues. We also briefly discuss some theoretical motivations for targeting both specialized and general purpose venues simultaneously. As will quickly become evident, these explanations do not revolve around the relative specialization of the alternative tribunals. Let us begin by highlighting that 6% or fewer of the patent disputes in our empirical context are targeted at both the ITC and district courts.[1] We included these disputes as a separate third category (which comprise about one in seven disputes in our "matched + both" sample) in a multinomial logit model (McFadden, 1974) and report the estimates below (see Table A). The results reported in Table A show that the targeting of both venues is not associated with any of the independent variables examined in our research paper. However, there are potentially at least three other explanations for this targeting decision.

[Table A about here]

First, consistent with the results shown in Table A, firms are more likely to target both venues for disputes involving higher valuation. In essence, these are disputes in which the total expected transfers to the plaintiff (patentee) are relatively high. In Table A, the choice of both venues is associated with patents that have large numbers of forward citations and are in larger (4-digit SIC) industries, both indicators of higher value. Pursuing adjudication at both venues can be very expensive, and the benefits are marginal if decisions at one venue have precedential value for the other. In our empirical context, adjudication by a district court precludes re-adjudication by the ITC (by the doctrine of *res judicata*), and

[1] As we note in the paper, identifying potential "matched" disputes from the district courts is an extremely time-consuming process and we only have detailed information for the USPTO sub-sample of district court suits. Therefore this estimate is based on the set of suits in 1991 that were readily identifiable as meeting the criteria for filing in the ITC. Using this approach, we calculate that potential "matched" district court suits potentially number over 1000 for the entire time period of analysis. Since the 75 suits filed in both venues are identified by starting with ITC suits, this number remains unchanged, and the percentage of "both venue" disputes by this somewhat conservative metric works out to about 6%.

ITC decisions may only have (some) precedential value for district court decisions (Krupka et al., 1996). So, targeting both venues can be justified if a firm would like to continue with district court adjudication in the event of an unfavorable ITC decision, despite the somewhat slim chance that the district court would rule differently. This strategy is therefore only likely for very high value disputes, where even this small probability of a different ruling is worth the additional cost. We should note that high value is different from our theorized mechanism of high strategic stakes – high stakes imply difficulties in contracting over rents rather than the size (value) of the rents themselves. For example, a firm seeking a large financial settlement for patent infringement (high value) may target both venues, but a firm seeking to retain some measure of exclusivity in a (potentially small) product market would target the specialized venue (ITC).

A second potential reason to target both venues is to put pressure on rivals by increasing their costs. It should be noted however that this strategy also increases the firm's own costs, so it is not immediately obvious that it increases the total returns to the firm. However, if the rival firm has higher costs of capital or is simply more inconvenienced by pursuing dispute resolution in multiple venues, this can accrue to the firm's advantage in settlement negotiations.

Third, firms may target both venues with the objective of influencing decision making by the adjudicators themselves. As described in prior research, firms may influence one non market institution – such as a rule making agency – by targeting another institution operating in the same policy domain – such as a court – whose decisions can have an impact on decision making by the former institution (De Figueiredo & De Figueiredo, 2002; Holburn & Vanden Bergh, 2004; 2008). Although neither tribunal in our research setting has explicit hierarchical control over the other, adjudicators are generally sensitive to having their decisions undermined by a different ruling at another tribunal, and may therefore be influenced by the likely decisions of other venues. By targeting more than one venue, firms can put some pressure on adjudicators in this way and influence their decision-making.

In sum, while we advance three potential explanations for the targeting of both types of tribunals, we note again that none of these explanations draw on tribunal specialization per se and as such constitute

de novo theoretical arguments that may apply more generally to multiple-venue targeting outside the specialized versus general purpose tribunal setting as well.

Table A: Multinomial Logit Estimates for Choosing the ITC Venue or Both Venues over the District Court Venue

	Model (1)		Model (2)		Model (3)		Model (4)		Model (5)	
Targeting Choice:	ITC	Both	ITC	Both	ITC	Both	ITC	Both	ITC	Both
Strategic Stakes			0.035**	-0.007					0.032***	-0.009
			(0.014)	(0.017)					(0.012)	(0.015)
Competitor Inst. Distance					0.670***	0.132			0.629***	0.108
					(0.155)	(0.214)			(0.160)	(0.219)
ITC Experience							0.003**	0.002	0.003**	0.001
							(0.001)	(0.002)	(0.001)	(0.002)
District Court Experience							0.000	0.000	0.000	0.000
							(0.000)	(0.000)	(0.000)	(0.000)
Log of Total Citations	-0.009	0.323**	-0.160	0.394**	-0.006	0.320**	-0.032	0.307*	-0.171	0.380**
	(0.113)	(0.160)	(0.129)	(0.191)	(0.115)	(0.159)	(0.114)	(0.159)	(0.129)	(0.187)
Number of Claims	-0.007	-0.005	-0.008	-0.004	-0.004	-0.005	-0.007	-0.005	-0.005	-0.005
	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)
Patent Age	0.031	0.027	0.030	0.030	0.037	0.030	0.033	0.029	0.037	0.033
	(0.024)	(0.031)	(0.024)	(0.031)	(0.024)	(0.031)	(0.024)	(0.031)	(0.024)	(0.031)
Log Firm Size	-0.028	0.023	-0.048	0.027	-0.009	0.026	-0.062	0.004	-0.056	0.011
	(0.044)	(0.053)	(0.045)	(0.053)	(0.044)	(0.054)	(0.046)	(0.054)	(0.048)	(0.055)
Competitor Cultural Distance	0.009***	0.008**	0.009***	0.008**	0.007***	0.008**	0.008***	0.008**	0.007***	0.008**
	(0.003)	(0.004)	(0.003)	(0.004)	(0.003)	(0.004)	(0.003)	(0.004)	(0.003)	(0.004)
Log SIC Shipments	0.134	0.317*	0.144	0.326*	0.145	0.331**	0.113	0.318*	0.133	0.341**
	(0.124)	(0.166)	(0.126)	(0.170)	(0.128)	(0.168)	(0.130)	(0.168)	(0.133)	(0.173)
Imports Fraction	-1.928**	-1.020	-1.853**	-1.071	-2.112***	-0.921	-1.930**	-0.966	-2.061**	-0.956
	(0.795)	(1.157)	(0.822)	(1.190)	(0.792)	(1.145)	(0.806)	(1.158)	(0.825)	(1.177)
Employment Fraction	1.663	-3.303	1.606	-3.230	2.296	-3.035	2.037	-2.977	2.400	-2.634
	(2.076)	(3.210)	(2.114)	(3.232)	(2.104)	(3.182)	(2.136)	(3.191)	(2.175)	(3.169)
Log Distance to ITC	0.225	0.114	0.207	0.130	0.145	0.078	0.223	0.124	0.129	0.124
	(0.240)	(0.283)	(0.244)	(0.283)	(0.249)	(0.279)	(0.235)	(0.287)	(0.243)	(0.285)
Foreign Patentee	-2.315***	-1.885***	-2.387***	-1.848***	-1.777***	-1.772**	-2.232***	-1.829***	-1.820***	-1.701**
	(0.512)	(0.706)	(0.534)	(0.704)	(0.563)	(0.743)	(0.513)	(0.707)	(0.577)	(0.746)
Foren. Patentee * Post 1988	1.825**	1.807**	1.962**	1.741*	1.817**	1.781*	1.769**	1.802*	1.900**	1.730*
	(0.814)	(0.913)	(0.833)	(0.913)	(0.832)	(0.913)	(0.856)	(0.921)	(0.873)	(0.922)
Constant	-1.313	-2.966**	-0.963	-3.253***	-1.952**	-3.064**	-1.294	-3.024**	-1.522	-3.441***
	(0.942)	(1.207)	(0.953)	(1.256)	(0.977)	(1.208)	(0.928)	(1.206)	(0.961)	(1.269)
Observations	456		456		456		456		456	
Log Likelihood	-416		-409.8		-404.9		-410.7		-395.3	
Wald Chi-square	85.67		90.88		101.83		90.56		111.84	

Robust standard errors in parentheses (clustered by patent) * significant at 10%; ** significant at 5%; *** significant at 1%