

# The Determinants of Tying Litigation, 1961-2001

Carson W. Bays<sup>1</sup>

## I. Introduction

Antitrust policy in the United States has gone through a variety of changes since its genesis in the Sherman Act over a century ago. The treatment of some types of actions, such as horizontal conspiracy, evolved toward a standard of per se illegality in a relatively straightforward fashion, with the exception of an infrequent aberrant decision such as *Appalachian Coals*<sup>2</sup>. Other areas of antitrust have changed in the opposite direction. Tolerance of certain types of mergers, for example, has increased significantly since the period of populist hostility that characterized many decisions of the Warren Court era. Change in the legal status of other types of business behavior appears to be cyclical. For example, enforcement against tying arrangements has ranged from relative leniency during the very early years, to per se illegality beginning in the 1950s, toward a de facto rule of reason in the mid-1980s, and then back toward a more stringent standard during the last ten years. The volume of tying litigation fluctuated substantially over the period in which standards were changing. This paper investigates these volume changes empirically and seeks to measure the influence of changes in Supreme Court precedent.

Most empirical analyses of antitrust activity date from Posner's massive statistical description of antitrust enforcement over the period 1890 through 1969<sup>3</sup>. Subsequent work has

---

<sup>1</sup> Professor of Economics, Harriot College of Arts and Sciences, East Carolina University, Greenville, NC 27858-4353, baysc@mail.ecu.edu

<sup>2</sup> 288 U.S. 344 (1933)

<sup>3</sup> Posner, R. A. 1970. "A Statistical Study of Antitrust Enforcement," 13 *Journal of Law & Economics*, 365-420.

focused on explaining the determinants of enforcement. Some have studied antitrust litigation in specific industries (Lean, Ogur, and Rogers; Preston and Connor), while others have concentrated on the role of the allocation of public enforcement resources (Long, Schramm, and Tollison; Siegfried; Asch; Coate and McChesney; Ghosal and Gallo), and the effect of macroeconomic variables upon the volume of litigation (Bachmeier, Gaughan, and Swanson; Donohue and Seigelman; Siegelman and Donohue). The political determinants of antitrust litigation have been studied by economists (Faith, Leavens, and Tollison; Amacher, Higgins, Shughart, and Tollison) and political scientists (Eisner and Meier). None of these papers, however, considered the possible influence of changes in Supreme Court precedent as a determinant of antitrust litigation.

The balance of this paper is organized as follows. Section II explains why changes in Supreme Court decisions would affect the volume of subsequent litigation and develops a simple model to develop testable predictions. Section III reviews the changing status of tying law and explains why tying provides a useful venue on which to test the model. The data and empirical results are presented and discussed in Section IV, and a final section gives concluding perspectives on the results.

## II. Why Does Precedent Matter?

The Supreme Court is the final arbiter of conflict between lower courts and its decisions help define and delimit the statutes created by the legislative branch. The power to set the rules has important implications for the efficiency of law enforcement and for the private and public costs of litigation. A strand of the law and economics literature suggests that common law legal systems tend toward an efficient set of rules through a kind of evolutionary selection. Laws that

are privately inefficient generate legal challenges from those who stand to gain from removal of the inefficiency. Efficient laws therefore will be subject to less litigation than will be inefficient ones, and the excess burden produced by the latter will eventually be minimized through changes in case law as litigation is provoked by the initial inefficiency. The Supreme Court can affect this process through the impact of its decisions on the level of legal uncertainty. A decision that establishes a clear precedent for future cases will lower the level of uncertainty faced by potential litigants. If, on the other hand, a Supreme Court decision is ambiguous or contradictory then potential litigants face new uncertainties regarding the meaning and reach of the law. Some of the variance in litigation volume over time therefore may reflect adjustment to changes in precedent.

All litigation takes place within a context of uncertainty that has multiple sources. The degree of guilt of the defendant, the likely actions of the judge and jury, the possible strategic initiatives of the opposing side, and the legal standard to be applied cannot be known or predicted with complete confidence. A new legal precedent can potentially affect potential litigants in at least two ways. First, rule changes can alter the types of cases that are brought to trial. Consider a change in liability rules that substantially increases the plaintiff's burden of proof, for example. Suppose further that the rule change is explicit and clearly understood by all potential plaintiffs and defendants so that the level of uncertainty is unchanged. Disputes that would have been litigated under the previous loser standard now will not result in suits or will be settled before trial. The cases that become subject to litigation under the stricter liability regime now will be drawn from those that likely would have resulted in a decision for the plaintiff under the loser standard and therefore would have been settled without trial.

A second way in which changes in legal precedent can affect litigation is by creating additional uncertainty if a new rule is ambiguous. A decision that is contradictory or that stipulates standards of proof that are untested and unfamiliar will increase the variance in the estimates of liability by potential litigants. The additional uncertainty may be transitory to the extent that it can be reduced by subsequent decisions.<sup>4</sup>

These ideas are illustrated below. Figure 1 contains two alternative probability density

[Figure 1 About Here]

functions over liability which differ with regard to the degree of legal uncertainty. Each distribution is centered on the plaintiff's estimate of the degree of liability of the defendant in a given case.<sup>5</sup> The decision rule specifies the degree of liability necessary for a finding of guilt and is assumed to be determined by the precedents established by previous court decisions. Possible decision rules are illustrated by vertical lines D and D\*. The proportion of the distribution lying to the right of the decision rule therefore represents the plaintiff's probability estimate, before trial<sup>6</sup>, that the defendant will be found guilty. A court decision that simply raised the standard of proof without increasing legal uncertainty would move the decision rule from D to D\* in panel A. The probability of a plaintiff win therefore would decrease, as shown by

---

<sup>4</sup> The distinction between permanent and transitory legal uncertainty follows Priest (1987).

<sup>5</sup> In a straightforward monopolization case, liability might be reckoned as a simple function of the defendant's market share. The uncertainty represented by the probability distribution would then mainly reflect the definition of the relevant market. Liability in more complex cases, such as tying, would be a composite of several variables.

<sup>6</sup> The means and variances of the probability estimates of both the plaintiff and defendant may change over time as the dispute moves from filing of a suit, to the discovery phase, through pre-trial negotiations, and finally perhaps to trial.

smaller shaded area under the curve to the right of  $D^*$ . The greater dispersion of the distribution in Panel B represents the result of an ambiguous or contradictory decision that engenders additional legal uncertainty among litigants. In this case the plaintiff's estimate of a probability of winning at trial is higher under either decision rule. Drawing conclusions about the impact of Supreme Court decisions on the volume of litigation, however, requires consideration of the interaction between plaintiff and defendant.

#### A. A Model of Antitrust Litigation

Most legal conflicts among private parties are resolved without going to court.<sup>7</sup>

Litigation reflects the failure of less formal conflict resolution. The standard approach to explanation within the law and economics literature has been to treat the parties as self-interested actors each attempting to maximize individual welfare within the constraints posed by the legal system. Total cost of litigation to the parties will typically exceed the total cost of settlement, so litigation will occur mainly in those situations in which the parties have asymmetric expectations about the outcome of a trial. If both parties assign the same expected value to the results of litigation and have the same stakes then settlement will increase their mutual welfare.

A simple model of litigation can be formulated as follows. Let the plaintiff's perspective be summarized by

$$V_p = P_p J_p - C_p + R_p \quad (1a)$$

and that of the defendant by

$$V_d = P_d J_d + C_d - R_d, \quad (1b)$$

---

<sup>7</sup> Landes reported that 80 per cent of criminal cases are resolved short of court action. Salop and White found that 88 percent of the over 2,000 antitrust cases included in the Georgetown Private Antitrust Litigation Project were settled before going to trial.

where the  $V$  represent the expected values of litigation to the plaintiff (p) and defendant (d) respectively; the  $P$  are the subjective probabilities of each party regarding the success of the plaintiff at trial; the  $J$  represent the expected values of a judgement at trial; and the  $C$  and  $R$  represent the costs of litigation and settlement, respectively. The two equations express the expected benefit (to the plaintiff) and expected cost (to the defendant) should the conflict proceed to trial. The opposite signs on the  $C$  and  $R$  variables reflect the contrary perspectives of the two parties.<sup>8</sup> The probability that a dispute will be settled without litigation is a function of the positive difference between (1b) and (1a):

$$\text{PrS} = f[(P_d J_d - P_p J_p) + (C_d + C_p) - (R_d + R_p)] + e, \quad (2)$$

where the bracketed terms on the right represent the surplus to be shared by the parties and  $e$  is a random disturbance term. Treating settlement as a random variable allows for the possibility of non systematic errors by parties regarding litigation. The likelihood of settlement increases as the defendant's estimate of a plaintiff victory increases relative to that of the plaintiff; as litigation costs increase; and as settlement costs decrease. The surplus also varies directly with the expected judgement, which plausibly changes directly with the defendant's ability to pay. This relation is invoked in the empirical tests described in Section IV.

The two possible ways in which a new precedent can affect the volume of litigation is illustrated in Figure 2. Panel A again represents a legal environment with less uncertainty than

[Figure 2 About Here]

---

<sup>8</sup> This specification is broadly consistent with that widely used in the litigation literature. See Gould; Landes; Posner (1973); Priest (1980); Priest and Klein; and the general survey by Cooter and Rubinfeld. The model abstracts from the sequential nature of litigation and ignores the damage multiplier.

that of panel B, and the decision rule  $D'$  ( $D'_a = D'_b$ ) again represents a stricter liability rule than does rule  $D$  ( $D_a = D_b$ ). Let the beliefs of both parties be represented by similar probability distributions. If the defense regards the probability of a plaintiff victory as higher than does the plaintiff, then the case likely will be settled without a trial. The probability of litigation increases as the distribution representing the plaintiff's expectations lies to the right of that of the defendant. These respective distributions are labeled as  $Y_p$  and  $Y_d$ . The probability of a trial is shown by the difference in areas between  $Y_p$  and  $Y_d$  to the right of the decision rule. The first way in which a new court decision can change litigation volume is by revising the decision rule without changing the level of legal uncertainty. Litigation volume would therefore change with the liability standard, with more stringent liability rules associated with less litigation. For example, in Figure 2 the probability of litigation unambiguously declines when the decision rules change from  $D$  to  $D'$  under either pair of probability distributions.

The second way in which a decision can affect litigation volume is by changing the level of legal uncertainty. Suppose a new decision is imprecise or contradicts prior precedent so that the uncertainty regarding the legal status of a practice increases. Such an increase in legal uncertainty raises the probability of a finding for the plaintiff should a case go to trial, but the likelihood of a case proceeding to trial depends on the *difference* between the expectations of the plaintiff and defendant before trial. Suppose a new court decision raises the level of uncertainty surrounding an issue, but the decision rule  $D'$ , which imposes the more stringent liability standard of proof on the plaintiff, does not change even though the probability distributions change from panel A to panel B. In this case the probability of litigation increases, as illustrated by the cross-hatched areas in the two panels. Suppose, instead, that the less stringent liability

rule D remains in effect. Then an increase in legal uncertainty would instead *decrease* the probability of litigation compared to that in panel A. Decomposing the impact of a change in precedent into these two separate effects is of course a convenience for exposition. A Supreme Court decision that contradicts prior precedent or contains internal inconsistencies plausibly could change both the decision rule and the level of uncertainty simultaneously. The general effect of precedent on litigation volume therefore is ambiguous in such a case.

This ambiguity complicates the empirical measurement of the possible impact of court decisions on the volume of litigation. It also has implications for common law efficiency notion that legal uncertainties are eventually reduced by the additional litigation they induce. The probability of litigation is increased by an ambiguous Supreme Court only for cases that are centered far from the decision standard. On the other hand, such a decision will decrease litigation for cases in which the probability distributions representing the parties' respective estimates of the strength of the evidence favoring the plaintiff are centered near the decision rule. These are the cases most likely to produce litigation before the contradictory precedent because the differences between the parties in their estimates of the plaintiff's chances of a win are the most disparate. The uncertainty created by a disruptive precedent eventually can be reduced as additional more definitive decisions are rendered, but the likelihood of litigation that would produce such clarifying decisions is reduced. In other words, a precedent that increases legal uncertainty will decrease the probability of litigation for cases that previously were more likely to proceed to trial, but will increase the probability of litigation of cases that previously were more likely to be settled without trial.

The ambiguous effects of court decisions that increase litigants' uncertainty have been

largely ignored in the previous literature. Landes and Posner, for example, regard new precedent as uniformly producing more litigation because of transitory legal uncertainty. This idea is implicit in much of the later work on litigation<sup>9</sup> and is consistent with the literature that regards common law as tending toward an efficient equilibrium<sup>10</sup>. The contention, however, is valid only for low probability cases and in some situations in which a new decision simultaneously increases legal uncertainty and changes the decision rule.

### III. An Application to Tying Law

A tie involves forcing a buyer to purchase a second product or service as a condition for purchase of the primary product. Tying is an appropriate area in which to test for the litigation effects of precedent changes because of the pattern in which the law has developed. The case law on tying initially evolved in a consistent manner from shortly after passage of the Clayton Act in 1914. The per se illegality of tying arrangements appeared firmly established by the decade of the 1960's so there was a minimum of legal uncertainty surrounding the practice. However, a series of four Supreme Court opinions, beginning in 1969, repeatedly introduced new uncertainties into the law by attempting to refine the scope of the per se rule as applied to tying.

Limiting the study to a narrow category of antitrust offenses such as tying avoids some of the confounding and contradictory empirical issues that would arise in an examination of broader legal categories, such as the more general classification of vertical restrictions. There may be

---

<sup>9</sup> E.g., Priest (1980; 1987); Priest and Klein; and Cooter.

<sup>10</sup> Most of this work derives from Posner (1973, 1975, 1977, 1979). See also Barton; Rubin; and Priest (1980, 1987). Goodman points out that the conclusion that inefficient rules always increase litigation implies severe restrictions on the probability functions describing the likely actions of potential litigants.

substantial variation in the legal status and litigation parameters of different business practices even when their economic bases are similar or identical.<sup>11</sup>

The analysis is also more narrowly focused than that of the previous empirical studies of antitrust activity in that the variable of interest is defined by court decisions, rather than by case filings or settlements. Decisions represent only a small nonrandom subset of all suits filed, but they comprise the cases in which the issues separating the parties are most disparate and where attempts at settlement obviously failed. Decisions therefore constitute a plausible index of the amount of resources devoted to antitrust enforcement.

The scope of the study is further narrowed by considering only litigation among private parties. Tying suits may be initiated by the Justice Department, the Federal Trade Commission, state attorneys general, or private party plaintiffs. There are substantial differences among these different groups in their incentives to file suit and it may not be sensible to attempt to capture them within a single model. The incentives of private parties to sue seem especially different from those of each of the other types of plaintiffs and they constitute the only group to which the model in Section II is applicable.<sup>12</sup>

#### A. The Economics of Tying

The most frequently cited explanation for tying arrangements has been price discrimination. By tying a primary product to another with which it is complementary in demand

---

<sup>11</sup> For example, the law on vertical mergers has frequently conflicted with that on tying arrangements even in those cases in which the economic dimensions of the practices are identical. See Blair and Kaserman.

<sup>12</sup> Litigated cases filed by the public sector account for less than four percent of the total tying cases over the sample period.

the seller gains control over what otherwise would be a parameter of the demand for the primary product, the price of its complement. Coordinated pricing can yield profit greater than that attainable through unitary monopoly pricing of the primary product. Without monitoring costs and the threat of entry, such a scheme can approach the profit level attainable by first degree price discrimination for the primary product alone.<sup>13</sup>

Several other motives for tying may exist either in combination or separately from price discrimination. A firm may tie to: avoid price control on the tied product; monitor price or quality cheating among members of a cartel; protect goodwill or monitor quality of the tied product; pool customers' risks when their demands are subject to stochastic variation; minimize transaction costs of goods of highly variable quality; and extend monopoly power through the vertical control of inputs.<sup>14</sup> There is now a large literature that also emphasizes nonpredatory exclusion of rivals via vertical restrictions, such as tying arrangements.<sup>15</sup>

#### B. Evolution of the Law Regarding Tying Arrangements

Contractual tie-ins among products or services have been a recurring focus of legal attention since the beginning of U. S. antitrust. The practice was alleged as anticompetitive in several early cases<sup>16</sup>, but the Supreme Court was hesitant to accept this contention until after the

---

<sup>13</sup> More exactly, the firm can approach first degree discrimination in the sale of the joint services of the two products.

<sup>14</sup> These rationales and case citations are considered in detail in Bays.

<sup>15</sup> The paper dealing most directly with tying is Whinston. See also Grimm, Winston, and Evans; Hart and Tirole; Krattenmaker and Salop; Ordover, Saloner, and Salop; Rosengren and Meehan; and Salinger.

<sup>16</sup> *Heaton-Peninsular Button-Fastener Co. v. Eureka Specialty Co.*, 77 F. 288 (6th Cir. 1896); *Leeds & Catlin Co. v. Victor Talking Machine Co.*, 213 U.S. 325 (1909); *Henry v. A.*

1914 passage of the Clayton Act and the Federal Trade Commission Act. These laws dealt with tying arrangements more explicitly than did the Sherman Act, but they gave the courts little guidance in establishing the precise boundaries of illegal behavior and structure. This succinctness left the breadth and reach of the statutes to be defined by case law. During the next fifty years the Supreme Court rendered a series of decisions that implicitly specified rules for evaluating ties. The rules added to the stock of legal capital by improving information and reducing legal uncertainty. By the decade of the 1960's, therefore, the Supreme Court had developed a set of systematic standards by which lower courts and potential litigants could assess the legality of tying arrangements in a straightforward manner.

But the consensus began to unravel in 1969 with the first of four significant Supreme Court decisions that repeatedly altered the general understanding of the legality of tying, *Fortner I*. The case involved a plaintiff contention that the financing to purchase a product was a separate entity from the product itself and that therefore the seller could not prevent the buyer from using the financing to buy products from the seller's competitors<sup>17</sup>. The appeals court affirmed the district court's summary dismissal, but the Supreme Court reversed and directed that the case proceed to trial. Justice Black, in writing for a five-person majority, endorsed the view that a product and the loan of funds to purchase it "involves a tying arrangement of the traditional kind."<sup>18</sup> The statement seemed little more than a dictum at the time, but it was a disruptive precedent. It changed the decision rule by potentially extending the reach of tying law to any

---

B. Dick Co., 224 U.S. 1 (1912).

<sup>17</sup> Fortner Enterprises v. United States Steel Corp., 394 U. S. 495 (1969) [Fortner I].

<sup>18</sup> Id. at 498.

firm that financed its customers' purchases. It also increased the level of uncertainty in the body of tying law, uncertainties which were reflected by a schism of opinion about the meaning and impact of the case among legal scholars.<sup>19</sup>

The case returned to the Supreme Court eight years later as *Fortner II*.<sup>20</sup> A now unanimous Court absolved the defendant United States Steel of the tying charge by concluding that it had insufficient market power in the tying market, credit, to constrain competition in the tied market, prefabricated steel houses. In doing so it effectively imposed a more stringent liability standard for plaintiffs to meet. In its *International Salt* decision, for example, it had found a 4 percent market share in the tying market sufficient for a finding of illegality.<sup>21</sup> However, the decision did not clearly delineate those circumstances in which tie-ins should be prohibited, so substantial legal uncertainty remained.

The third case of interest was decided by the Court in 1984. A New Orleans hospital was sued by an anesthesiologist who had been refused admitting privileges to the hospital because it already had an exclusive contract for such services with a group of physicians.<sup>22</sup> The Supreme Court unanimously rejected an appeals court conclusion that the hospital had sufficient market power in the tying product, hospital beds, to coerce purchases of the tied product,

---

<sup>19</sup> Compare, e.g., *Dam and Blake*.

<sup>20</sup> *United States Steel Corp. v. Fortner Enterprises, Inc.* 429 U. S. 610 (1977) [*Fortner II*]. After the Court's first decision, the district court determined that U. S. Steel possessed sufficient market power in credit to constitute a per se violation. This decision was affirmed by the Court of Appeals in *Fortner Enterprises, Inc. v. United States Steel Corp.*, 523 F.2d 961 (6th Cir. 1975).

<sup>21</sup> *International Salt Co. V. United States*, 332 U.S. 392 (1947).

<sup>22</sup> *Jefferson Parish Hospital District No. 2 v. Hyde*, 104 S. Ct. 1551 (1984).

anesthesiological services. It brought increased specificity to the decision rule regarding the critical market share by the determination that a 30 percent market share in the tying market was insufficient to invoke the per se rule against ties. But the impact of the decision on the overall level of legal uncertainty regarding tying was unclear because of the lack of unanimity on the Court regarding the future direction of the law. Justice O'Connor argued to redirect tying law away from the per se rule toward a rule of reason standard. She pointed out that the Court had evolved a cumbersome and costly variant of the per se rule: "tying doctrine incurs the costs of a rule of reason approach without achieving its benefits: the doctrine calls for the extensive and time-consuming economic analysis characteristic of the rule of reason, but then may be interpreted to prohibit arrangements that economic analysis would show to be beneficial."<sup>23</sup> The majority of her colleagues, however, refused to join in this redefinition so the Court formally continued to adhere to the tattered per se standard.

A fourth Supreme Court decision of interest is *Kodak*,<sup>24</sup> in 1992. The case dealt nominally with the narrow issue of appropriate standards for summary judgement. But in some respects it resembled the Court's first Fortner decision in that it had the eventual effect of extending the tying prohibition to a range of business activities previously not considered by the Court. The main economic question involved whether a seller with an insignificant market share in photomicrographic machines could exercise monopoly power with a tie to after-market service and parts to those machines. The plaintiffs contended that the market share in machines was irrelevant once machine purchasers were "locked-in" the parts and service market. This issue

---

<sup>23</sup> 104 S. Ct. (1984) at 1570 (O'Connor, J. concurring).

<sup>24</sup> Eastman Kodak Co. V. Image Technical Services, Inc. 112 S. Ct 2072 (1992)

was a topic of sharp division within the Court, and later among commentators. Not since *Fortner I* had a Supreme Court decision focusing on tying created so much professional commentary.<sup>25</sup> When the case proceeded to trial the jury awarded ten plaintiffs over \$71 million, after trebling, and the majority of the awards were sustained by the Ninth Circuit in a decision that the Supreme Court declined to review.<sup>26</sup>

These four decisions provide a basis for testing the effect upon the volume of litigation of new Supreme Court precedent. Note that the issue of interest here is not whether the rules are lenient or strict regarding tying, but whether they change and are clearly defined. The evolution of the per se doctrine toward an increasingly articulate decision rule for resolving tying disputes came to an abrupt halt with *Fortner I*. That ruling extended the per se rule to an area previously thought immune to charges of illegal tying: the joint sale of a product and its financing. This radical precedent created the potential for broad expansion of the tying prohibition into new areas, but it provided no guidance on the extent of that new reach and therefore introduced substantial new legal uncertainty. *Fortner II* resolved some of the ambiguities of the initial decision *Fortner I*, but it did not mark a simple return to the prior per se standard. The decision rule may have reverted to the status quo ante but subsequent courts and litigants still were subject to an uncertain standard of plastic meaning. In its *Jefferson Parish* decision the Court provided potential litigants with more specificity regarding the threshold market shares that might invoke the per se rule. The Court declined Justice O'Connor's invitation to completely abandon the per se standard and in doing so it also arguably decreased the level of uncertainty regarding tying

---

<sup>25</sup> See e.g., Grimes; Hay; Kattan; Lande; Shapiro; and Shapiro and Teece.

<sup>26</sup> 125 F.3d 1195 (1996); 523 U. S. 1094 (1998).

law. Finally, *Kodak* changed the decision rule once again by extending tying law into new areas and raised the level of uncertainty once again.

In the context of Figure 2, *Fortner I* was a movement from a position such as  $D'_a$  to one such as  $D_b$ . But it is not possible to predict the combined impact on litigation volume without accurate metrics of the specific decision rules and empirical proxies for the moments of the two probability distributions. However, the model predicts an decrease in litigation volume after *Fortner II* to the extent that it can be represented by a movement from position  $D_b$  to  $D'_b$ ; the decision rule was revised to a stricter standard but uncertainty was not reduced. The impact of *Jefferson Parish* on litigation volume likewise was ambiguous. To the extent that the decision rule was given greater specificity it reduced the level of uncertainty and therefore shifted from a point such as  $D'_b$  to one such as  $D'_a$ . This implies a decreased probability of litigation given the illustration in Figure 1. But like the case of *Fortner I* this conclusion cannot be justified without more specific measures of the precise shape of the distributions. The model likewise is agnostic regarding the effect on litigation volume of *Kodak*. If it is accurately described as a change from a position such as  $D'_a$  to one such as  $D_b$  then the impact on litigation volume is ambiguous.

Of the four cases considered therefore, only the second Fortner decision produces a distinct prediction regarding litigation volume.

#### IV. Empirical Tests

##### A. A Statistical Profile of Tying Litigation: 1961-2001

A Lexis-Nexis search of monopoly cases from 1961 through 2001 found 1,514 federal court decisions involving tying as either the primary or secondary issue. Most of these cases were from private plaintiffs: only 58 involved complaints filed by the U. S. Justice Department,

the Federal Trade Commission or state attorneys general.<sup>27</sup> Table 1 and Figure 3 display a summary of tying decisions and reveal substantial variability over this period.

[Table 1 and Figure 3 About here]

The above tabulations include tying cases in federal appeals courts. A new precedent may have little effect upon cases on appeal which have been active for some time whenever the change occurs. Most of the cost of litigation of such cases is sunk and the cost of continuing will be only a fraction of the total. If changes in precedent due to a Supreme Court decision have measurable effects upon subsequent litigation, it likely would be most noticeable in district court cases. The tests discussed below therefore consider only district court decisions regarding litigation among private plaintiffs, which were 936 in number.<sup>28</sup>

#### B. Specification of the Estimating Equation

The data were aggregated to produce a time series of national data on tying litigation between 1961 and 2001. The dependent variable is the natural logarithm of the annual number of tying decisions in district courts involving private plaintiffs. There are five time frames defined by the four Supreme Court decisions rendered over the sample period: 1961 through 1969; 1970 through 1977; 1978 through 1984; 1985 through 1991; and 1992 through 2001. These are delineated by the binary dummy variables **FORTNER I**, **FORTNER II**, **PARISH**, and **KODAK**. The model predicts a negative sign for *Fortner II*. The effects of *Fortner I*, *Jefferson Parish*, and *Kodak* on the volume of litigation are ambiguous, so no expectation is maintained

---

<sup>27</sup> A detailed list of cases is available on request.

<sup>28</sup> This number does not include any district court cases originating under the Bank Holding Company Act of 1970 which forbade certain tying arrangements highly specific to banks.

regarding the sign of the coefficient estimates of these variables.

Several other variables are added in an attempt to isolate any effect of precedent upon litigation. With regard to equation (2), settlement and litigation costs are assumed to be constant over time and the probability of settlement is treated as changing monotonically with the surplus. One of the arguments of the function is the expected judgement, which should vary directly with the defendant's ability to pay. If the error distribution is constant over time, then decreases in the level of firm profit and product demand will lower the probability of settlement by decreasing the surplus over which potential litigants can bargain. Litigation therefore will increase during recession and this business cycle effect will be independent of any impact of changes in Supreme Court precedent. Cyclical fluctuations are represented by two variables, **NSYE**, the annual New York Stock Exchange composite index, and **PROFIT**, the after-tax manufacturers' return on equity. The expected sign of each of these variable is negative

Some of the observed variation in the number of tying cases over time could simply result from the broader factors responsible for the substantial fluctuation in antitrust litigation in general during the sample period. The number of private antitrust cases of all types filed grew rapidly during the 1960's, more slowly during 1970's and reached a peak of over 1, 500 cases in 1977. Private antitrust litigation of all types then began falling in the early 1980's and stabilized during the 1990's at 500 to 750 cases per year. The variable **CASES** is included to account for the net effect of the broader factors affecting antitrust cases in general and is measured as the number of private antitrust cases other than tying filed each year.<sup>29</sup> The variable **TIME** is a time

---

<sup>29</sup> Data are from the *Annual Report of the Director of the Administrative Office of the United States Courts*, various years. Limiting this variable by excluding private cases that were follow-ons to major Justice or FTC cases does not affect the results.

trend variable entered to detect any temporal change in litigation frequency not accounted for by the other variables. Various lag structures on the business cycle and cases variables were tested to account for the delay between the genesis of a tying suit and the eventual decision. A logarithmic specification of the continuous variables fit the data better than did a linear one.

### C. Results

Table 2 displays the parameters of this model estimated by ordinary least squares as

[Table 2 About Here]

column 1. Several other specifications are listed as well. The variable measuring the overall extent of private antitrust litigation is the most robust over all specifications. Whatever omitted variables determine the ebb and flow of other types of private antitrust litigation affect tying cases as well. The time trend variable reveals significant growth of tying litigation over time, independently of other factors. Tying litigation activity has the expected inverse relationship with changes in the business cycle: both the stock market and profit variables are significant and negative.<sup>30</sup> Sluggish economic growth and depressed profit levels produces more litigation while more positive economic conditions makes settlement before trial more likely.

The results for the variables measuring changes in the Supreme Court decisions are consistent with expectations and provides limited support for the contention that litigation volume is affected by changes in precedent. In the most complete specification, column (1), only *Fortner II* has a significant impact on litigation.<sup>31</sup> For the alternative specifications in columns

---

<sup>30</sup> These business cycle variables were superior to other variables tested, such as the level and changes in gross domestic product and the business failure rate.

<sup>31</sup> The Kodak decision may be an imperfect test of the model as applied to tying law. As noted above, the Supreme Court decision dealt with the narrow issue of whether the summary

(2) through (6) no more than two dummy variable coefficient estimates attain significance and the estimates are unstable over different specifications.<sup>32</sup>

## V. Conclusion

The empirical results are broadly consistent with prior studies of the determinants of litigation in that fluctuations in tying litigation over time follow changes in overall economic activity in a logical and consistent manner. Declines in corporate profit and stock values reduce litigation activity by decreasing the surplus over which potential litigants can fight. Much weaker support is provided for the idea that litigation volume is affected by changes in the rules and level of uncertainty following Supreme Court decisions. The empirical results are consistent with expectations, but the model generates a specific prediction about only one of the four decisions.

---

dismissal of the complaint against Kodak by the original district court was correct. It did not find Kodak guilty of monopolization or tying but merely ordered that the issues should be considered. Moreover, plaintiffs dropped the claim that Kodak had illegally tied its parts supply to its service contract when the case finally went to trial. The jury then found Kodak guilty of, among other things, the parallel issue of “leveraging” of its patent-based monopoly power in repair parts for its machines into the service market. Much of the subsequent controversy over *Kodak* has focused on the inconsistency with other cases with regard whether patent protection provides immunity from charges of illegal monopoly. See *In re Independent Service Organizations Antitrust Litigation v. Xerox Corporation*, 203 F.3d 1322 (2000), cert. denied, 531 U.S. 1143 (2001).

<sup>32</sup> Several other specifications were tested as alternatives to the precedent variables presented: The endpoints of the time periods were specified as various years **after** each Supreme Court decision; the binary precedent variables were replaced by an incremental time variable which was reset to zero after each new decision; the slopes of all variables as well as the intercepts were allowed to vary between periods; and various periods were collapsed to form a smaller number of dummies. Finally, each of these specifications was tested with the dependent variable defined as the annual **change** in the number of tying decisions rather than as the yearly count. None of these experiments detected any additional statistical evidence for impact of Supreme Court decisions on subsequent tying litigation.

The notion that changes in Supreme Court decision rules should have measurable effects on the volume of cases subsequently litigated has an appealing plausibility and is consistent with the broader notion that common law legal systems are efficient. But detecting the impact of a new Supreme Court precedent is difficult when the effects of new rule are confounded with those of simultaneous changes in the legal uncertainty. It may still be possible to detect the litigation effects of Supreme Court decisions with sufficiently precise empirical measures of the "distance" between legal standards and the evidence in specific cases, and of the moments of the probability distributions describing the possible actions of potential litigants. But on the basis of the simple measures used here, Supreme Court decisions have less impact on the volume of litigation than do fluctuations in overall levels of economic activity.

## References

- Amacher, R., R. Higgins, W. Shughart II, and R. Tollison. 1985. "The Behavior of Regulatory Activity over the Business Cycle: An Empirical Test," 23 *Economic Inquiry* 7-19.
- Asch, P. 1975. "The Determinants and Effects of Antitrust Activity," 18 *Journal of Law & Economics*, 575-581.
- Bachmeier, L., P. Guaghan, and N. R. Swanson. 2004. "The Volume of Federal Litigation and the Macroeconomy," 24 *International Review of Law and Economics*, 191-207.
- Barton, J.H. 1972. "The Economic Basis of Damages for Breach of Contract," 1 *Journal of Legal Studies*, 277-291.
- Bays, C. W. 1989. "Tying Arrangements Should be Per Se legal," 26 *American Business Law Journal*, 625-663.
- Blair R. and D. Kaserman. 1978. "Vertical Integration, Tying, and Antitrust Policy," 68 *American Economic Review*, 397-402.
- Blake, H. M. 1973. "Conglomerate Mergers and the Antitrust Laws, 78 *Columbia Law Review*, 555-592.
- Block, M. K., F. C. Nold, and J. G. Sidak. 1981. "The Deterrent Effect of Antitrust Enforcement," 89 *Journal of Political Economy*, 429-445.
- Borenstein, S. J. K. MacKie-Mason, and J. S. Netz. 1995. "Antitrust Policy in Aftermarkets," 63 *Antitrust Law Journal*, 455-482.
- Cartwright, P. A. and D. R. Kamerschen. 1985. "Variations in Antitrust Enforcement Activity," *Review of Industrial Organization*, 1-31.
- Chen, Z. and T. W. Ross. July 1996. "Orders to Supply as Substitutes for Commitments to Aftermarkets," Unpublished Carleton University Working Paper 96-02.
- Coate, M. B. and F. S. McChesney. 1994. "Empirical Evidence on FTC Enforcement of the Merger Guidelines." 30 *Economic Inquiry*, 277-93.
- Cooter, R. D. 1987. "Why Litigants Disagree: A Comment on George Priest's 'Measuring Legal Change,'" 3 *Journal of Law, Economics, and Organization*, 227-234.

- \_\_\_\_\_ and D. L. Rubinfeld. 1989. "Economic Analysis of Legal Disputes and Their Resolution," 27 *Journal of Economic Literature*, 1067-1097.
- Dam, K. W. 1969. "Fortner Enterprises v. United States Steel: Neither A Borrower Nor A Lender Be," 3 *Supreme Court Review*, 1-40.
- Donohue, J. J. And P. Siegelman. 1993. "Law and Macroeconomics: Employment Discrimination Over the Business Cycle." 66 *University of Southern California Law Review*, 709-45.
- Eisner, M. A. And K. J. Meier. 1994. "Presidential Control versus Bureaucratic Power: Explaining the Reagan Revolution in Antitrust," 34 *American Journal of Political Science*, 269-93.
- Faith, R. L., D. R. Leavens and R. D. Tollison. 1982. "Antitrust Pork Barrel," 25 *Journal of Law & Economics*, 329-342.
- Ghosal V. And J. Gallo. 2001. "The Cyclical behavior of the department of Justice's Antitrust Enforcement Activity," 19 *International Journal of Industrial Organization*, 27-54.
- Gould, J. 1973. "The Economics of Legal Conflicts," 2 *Journal of Legal Studies*, 279-300.
- Goodman, J. C. 1978. "An Economic Theory of the Evolution of Common Law," 7 *Journal of Legal Studies*, 393-406.
- Grimes, W. 1994. "Antitrust Tie-In Analysis After Kodak: Understanding the Role of Market Imperfections," 62 *Antitrust Law Journal*, 263-325.
- Grimm, C. M., C. Winston, and C. A. Evans. 1992. "Foreclosure of Railroad Markets: A Test of Chicago Leverage Theory," 35 *Journal of Law & Economics*, 295-310.
- Hay, G. 1993. "Is the Glass Half Empty of Half Full?": Reflections on the Kodak Case," 62 *Antitrust Law Journal*, 177-191.
- Hart, O. and J. Tirole. 1990. "Vertical Integration and Market Foreclosure," 1990 *Brooking Papers on Economic Activity: Microeconomics*, 205-286.
- Jones, W. K. 1978. "The Two Faces of *Fortner*: Comment on a Recent Antitrust Opinion," 83 *Columbia Law Review*, 39-47.
- Kattan, J. 1993. "Market Power in the Presence of an Installed Base," 62 *Antitrust Law Journal*, 1-21.
- Klein, B. 1976. "Comment on Landes' 'Legal Precedent.'" 19 *Journal of Law & Economics*, 309-313.

- Krattenmaker, T. G. and S. C. Salop. 1986. "Anti-Competitive Exclusion: Raising Rivals' Costs to Achieve Power Over Price," 96 *Yale Law Journal*, 209-293.
- Lande, R. 1993. "Chicago Takes it on the Chin: Imperfect Information Could Play a Crucial Role in the Post-Kodak World," 62 *Antitrust Law Journal*, 193-202.
- Landes, W. M. and R. A. Posner. 1976. "Legal Precedent: A Theoretical and Economic Analysis," 19 *Journal of Law & Economics*, 249-307.
- \_\_\_\_\_. 1971. "An Economic Analysis of the Courts," 14 *Journal of Law & Economics*, 61-107.
- Lean, D. F., J. D. Ogur and R. P. Rogers. 1985. "Does Collusion Pay...Does Antitrust Work?" 51 *Southern Economic Journal*, 828-41.
- Long, W. F., R. Schramm and R. Tollison. 1973. "The Economic Determinants of Antitrust Activity," 16 *Journal of Law & Economics*, 351-64.
- McChesney, F. S. and W. F. Shughart II. 1995. *The Causes and Consequences of Antitrust*. Chicago: The University of Chicago Press.
- Lewis-Beck, M. S. 1979. "Maintaining Economic Competition: The Causes and Consequences of Antitrust," 41 *Journal of Politics*, 169-191.
- Ordober, J. A., G. Saloner, and S. C. Salop. 1990. "Equilibrium Vertical Foreclosure," 80 *American Economic Review*, 127-142.
- Posner, R. A., and W. M. Landes. 1979. "Should Indirect Purchasers Have Standing to Sue Under the Antitrust Laws?," 46 *University of Chicago Law Review*, 259-276.
- \_\_\_\_\_. 1977. *Economic Analysis of Law*. Boston: Little, Brown, and Company.
- \_\_\_\_\_. 1973. "An Economic Approach to Legal Procedure and Judicial Administration," 2 *Journal of Legal Studies* 399-421.
- \_\_\_\_\_. 1975. "The Economic Approach to Law," 53 *Texas Law Review*, 757-773.
- \_\_\_\_\_. 1979. "Some Uses and Abuses of Economics of Law," 46 *University of Chicago Law Review*, 281-304.
- Preston, W. P. And J. M. Connor. 1992. "An Economic Evaluation of federal Antitrust Activity in the Manufacturing Industries: 1980-1985," 37 *The Antitrust Bulletin*, 969-996.
- Priest, G. L. and B. Klein. 1984. "The Selection of Disputes for Litigation," 13 *Journal of*

- Legal Studies*, 1-55.
- \_\_\_\_\_. 1987. "Measuring Legal Change," 3 *Journal of Law, Economics, and Organization*, 193-225.
- \_\_\_\_\_. 1980. "Selective Characteristics of Litigation," 9 *Journal of Legal Studies*, 399-421.
- Rosengren, E. S. and J. W. Meehan, Jr.. 1994. "Empirical Evidence on Vertical Foreclosure," 32 *Economic Inquiry*, 303-317.
- Rubin, P. H. 1977. "Why is the Common Law Efficient?," 6 *Journal of Legal Studies*, 51-63.
- Salinger, M. J. 1988. "Vertical Mergers and Market Foreclosure," 103 *Quarterly Journal of Economics*, 345-356.
- Salop, S. C. and L. J. White. 1986. "Economic Analysis of Private Antitrust Litigation," 74 *Georgetown Law Journal*, 1001-1064.
- Siegelman, P. and J. J. Donohue. 1995. "The Selection of Employment Discrimination Disputes for Litigation: Using Business Cycle Effects to Test the Priest-Klein Hypothesis," 24 *Journal of Legal Studies*, 427-62.
- Shapiro, C. and D. Teece. 1994. "Systems Competition and Aftermarkets: An Economic Analysis of Kodak," 39 *The Antitrust Bulletin*, 135-162.
- \_\_\_\_\_. 1995. "Aftermarkets and Consumer Welfare: Making Sense of Kodak," 63 *Antitrust Law Journal*, 483-511.
- Siegfried, J. L. 1975. "The Determinants of Antitrust Activity," 23 *Journal of Law & Economics*, 559-74.
- Whinston, M. D. 1990. "Tying, Foreclosure, and Exclusion," 80 *American Economic Review*, 7y837-859.

<b>TABLE 1</b>				
<b>Federal Tying Cases 1961-2001</b>				
<b>Year</b>	<b>Total</b>	<b>District</b>	<b>Appeals</b>	<b>Supreme</b>
1961	6	2	4	0
1962	10	8	2	0
1963	9	6	2	1
1964	14	5	9	0
1965	12	4	6	2
1966	12	7	4	1
1967	10	7	3	0
1968	7	3	3	1
1969	8	5	2	1
1970	15	13	2	0
1971	20	10	9	1
1972	33	23	10	0
1973	55	47	8	0
1974	58	40	17	1
1975	60	40	20	0
1976	58	38	19	1
1977	48	31	16	1
1978	49	33	15	1
1979	40	28	11	1
1980	62	48	13	1
1981	61	43	18	0
1982	57	36	21	0
1983	64	41	23	0
1984	73	45	27	1
1985	54	32	20	2
1986	39	22	17	0
1987	56	38	18	0
1988	47	32	15	0
1989	41	27	14	0
1990	36	22	14	0
1991	22	11	11	0
1992	41	25	15	1
1993	36	28	8	0
1994	43	30	13	0
1995	42	33	9	0
1996	55	37	18	0
1997	45	28	17	0
1998	31	22	9	0
1999	35	27	8	0
2000	31	24	7	0
2001	19	14	5	0
<b>Totals</b>	<b>1,514</b>	<b>1,015</b>	<b>482</b>	<b>17</b>
<b>St. Dev.</b>	<b>19.371</b>	<b>13.816</b>	<b>6.572</b>	<b>0.591</b>

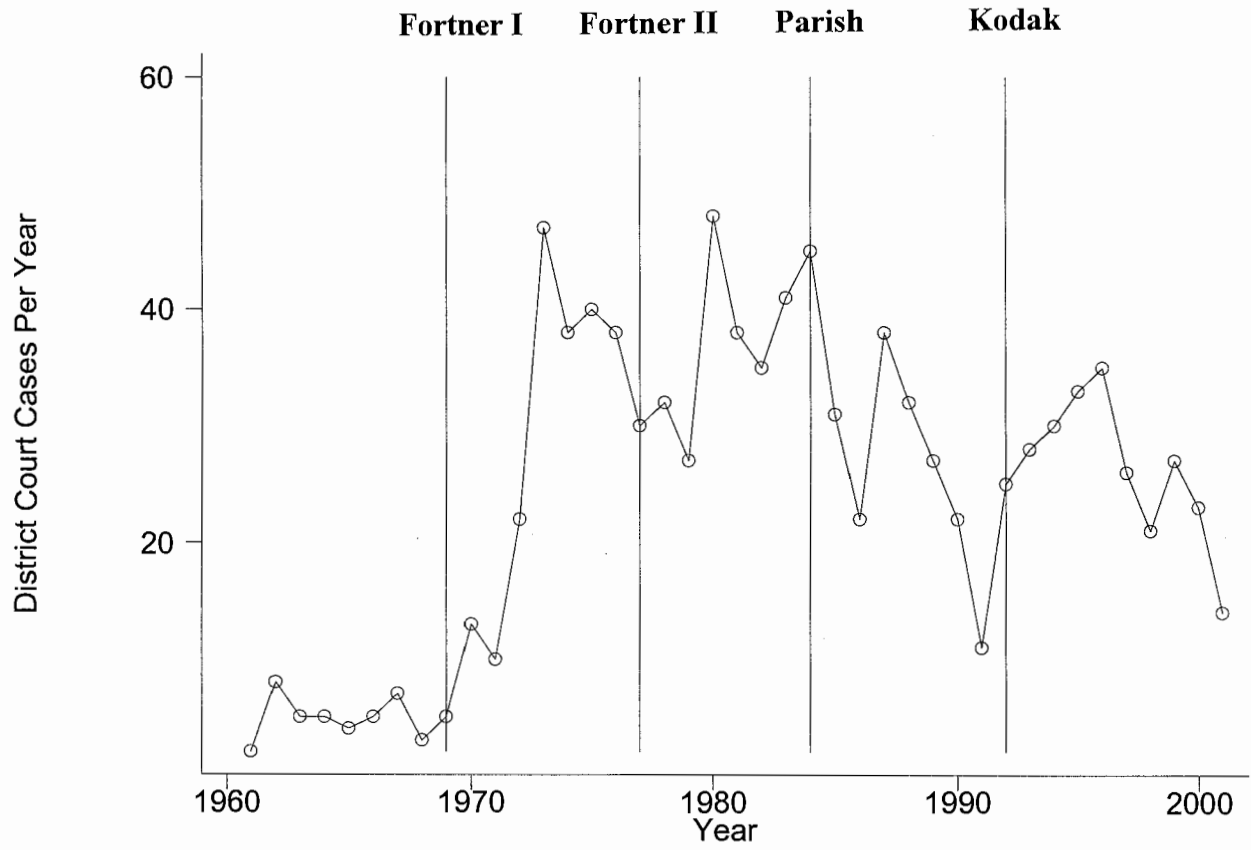
**FIGURE 3**

FIGURE 2

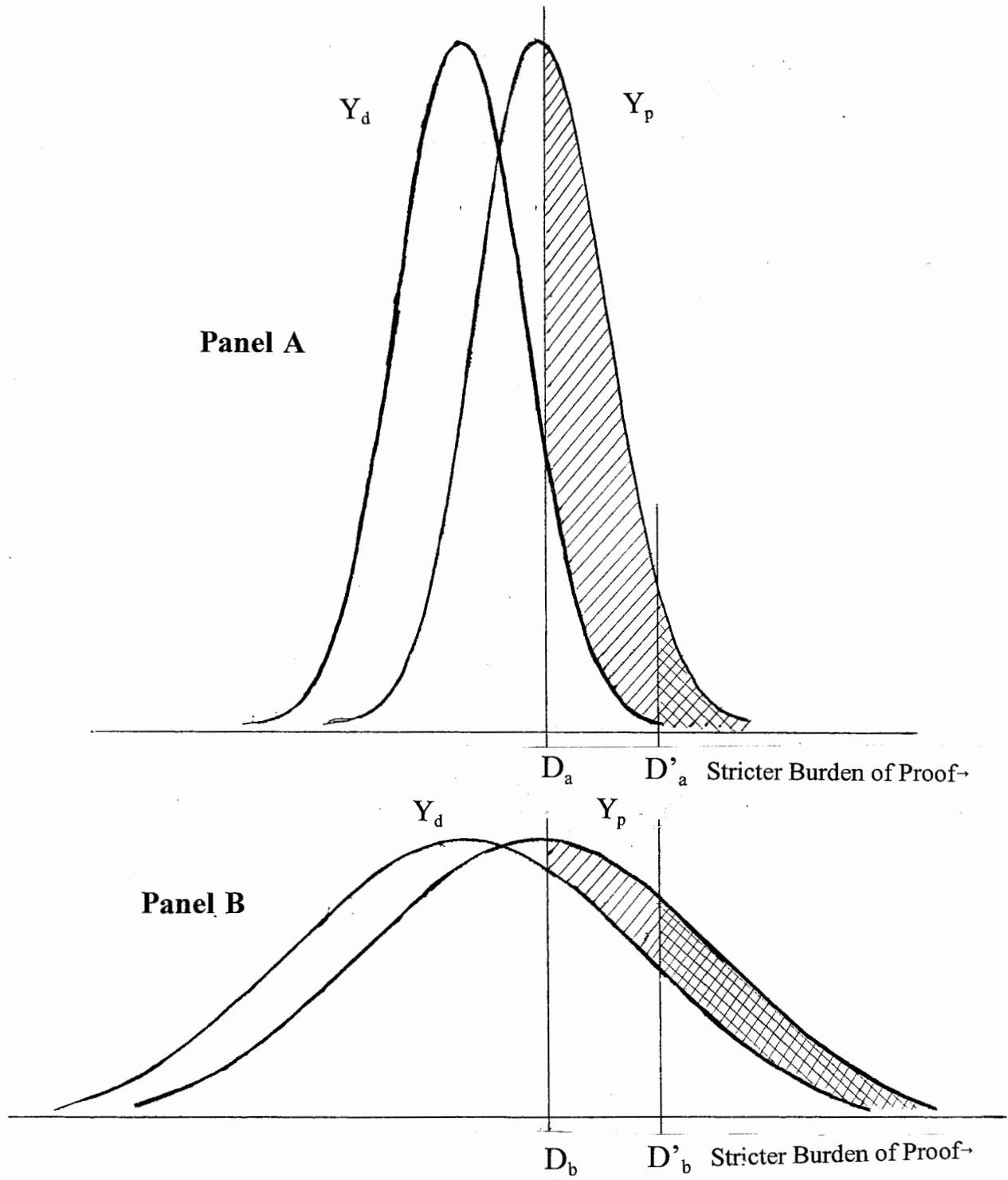
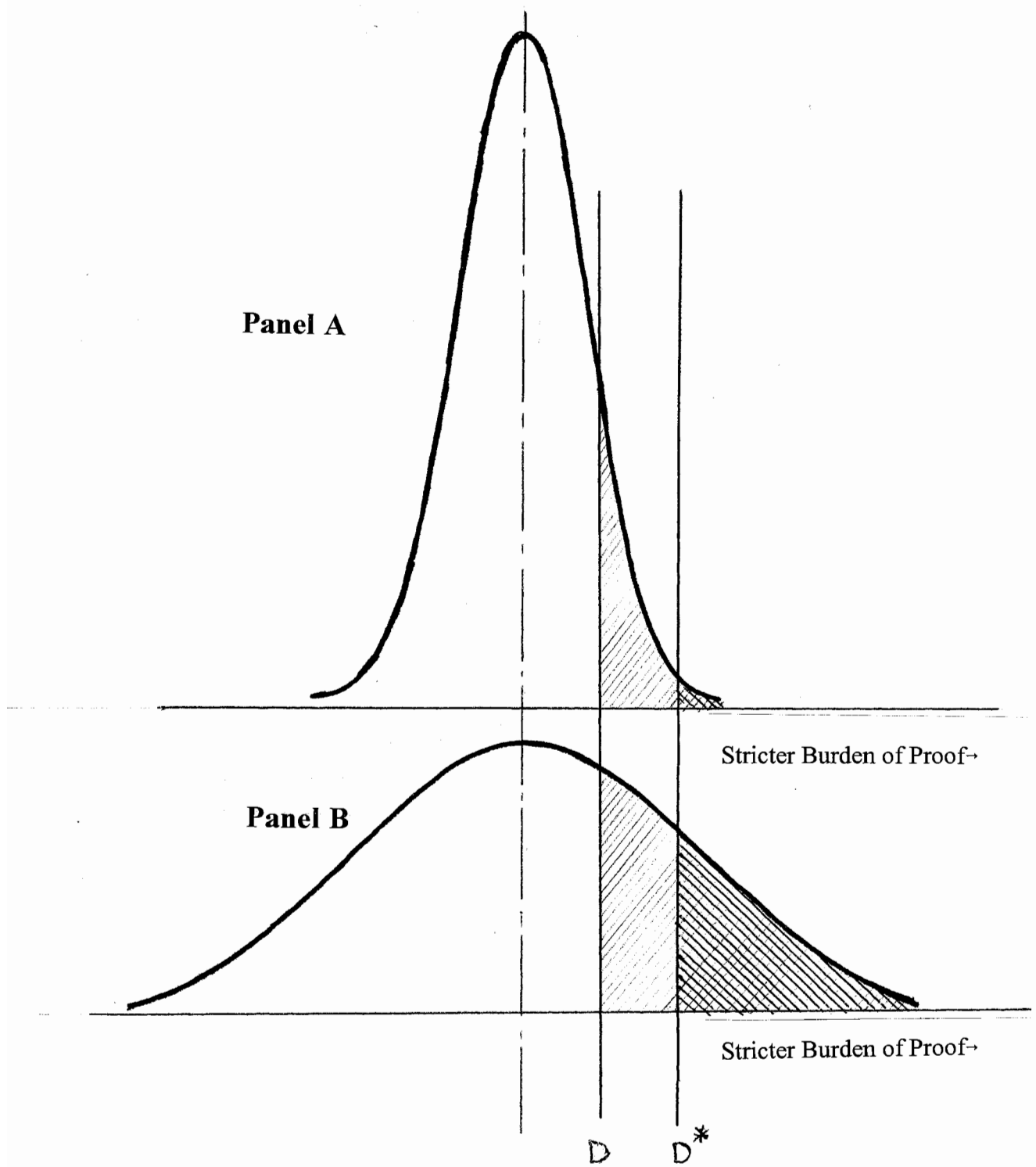


FIGURE 1



**TABLE 2***Regression results*

*Dependent variable is natural log of the annual number  
of district court decision on tying  
(t values in parenthesis)*

	(1)	(2)	(3)	(4)	(5)	(6)
LCASES	.81 (3.20)	—	1.15 (6.13)	1.12 (4.40)	1.13 (4.61)	1.21 (5.31)
LNYSE	-1.30 (2.84)	—	.01 (.04)	—	-.40 (1.72)	-.17 (.81)
LPROFIT	-.36 (2.50)	—	-.49 (2.98)	—	—	-.41 (2.62)
TIME	.13 (2.72)	—	.02 (.62)	—	—	—
FORTNER I	.22 (.85)	1.47 (6.61)	—	.39 (1.28)	.51 (1.72)	.40 (1.43)
FORTNER II	-.86 (2.54)	.50 (2.19)	—	-.11 (.47)	-.11 (.50)	-.09 (.43)
PARISH	-.35 (1.42)	-.44 (1.91)	—	-.07 (.38)	.20 (.84)	-.01 (.04)
KODAK	.43 (1.56)	.01 (.06)	—	.55 (2.73)	.94 (3.28)	.73 (2.62)
CONSTANT	-.10 (.05)	1.50 (9.59)	-4.07 (2.42)	-4.85 (3.32)	3.48 (2.19)	-3.75 (2.55)
$\bar{R}^2$	.85	.68	.78	.77	.79	.82
N	39	42	39	39	39	39