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THE SELECTION OF EMPLOYMENT DISCRIMINATION DISPUTES FOR LITIGATION: USING BUSINESS CYCLE EFFECTS TO TEST THE PRIEST-KLEIN HYPOTHESIS

PETER SIEGELMAN and JOHN J. DONOHUE III*

ABSTRACT

Employment discrimination cases filed during recessions are more likely to settle after filing and less likely to be won by plaintiffs than those filed when the economy is strong. This model of litigation confirms two predictions of the Priest-Klein model of litigation. First, relatively weak cases (for either party) should be more likely to settle. Second, the party with the greater stake in litigation will have the higher win rate in adjudicated disputes; the special case of even stakes produces a 50 percent plaintiff win rate. The settlement process does not produce complete selection, however: the strong version of the Priest-Klein model predicts a constant win rate over the cycle, but the win rate falls during recessions. The observed settlement and win rate effects cannot be explained by changes in the parties' relative stakes over the business cycle, nor by variations over the cycle in the types of cases brought.

I. INTRODUCTION

CONSIDER the case of an immensely talented basketball player who loves to play pickup basketball—and most of all loves to win. He runs into the gym each afternoon, and as soon as 10 players have arrived, he begins the process of negotiating with an opposing “captain” to determine how the 10 players will be split into two teams. When the two captains have agreed on the teams, the basketball games begin. Even

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though our hero is overwhelmingly the most talented basketball player around, he is disappointed to discover that his teams win only about half the time. In fact, his rate of victory is no higher than that of the less talented players who frequent the gym. How could this be?

The answer is fairly obvious. Both captains will of course resist any effort to stack the opposing team with the best talent. Since our hero is clearly the best player, he must agree to take relatively weak players on his side to offset his talents. If he does not make enough concessions, the other captain will not agree to the sides. The process is analogous to letting one sibling divide a cake while the other gets to select her preferred piece. In both examples, the outcome—whether one looks at our hero's victory rate in basketball games or at the portion of the cake that each child receives—will tend toward 50 percent.

This same intuition underlies the Priest-Klein model of the selection of disputes for litigation: the process of negotiation tends to weed out the extremely weak or extremely strong cases through settlement, thereby pushing the win rates on those cases that are ultimately adjudicated toward 50 percent.¹ There is an important exception with respect to the prediction of a 50 percent win rate, however. Continuing the tale of our basketball hero who loves to win far more than those around him, consider what would happen to the win rate if our hero were able to offer side payments to the opposing captain. For 5 dollars, the opposing captain—who values the money more than the victory—might be persuaded to accept the weaker team. As a result, our hero—who values the victory more than the money—would have a win rate in excess of 50 percent. Of course, in the litigation context, the party who has more at stake effects the side payment by simply offering more (or demanding less) in the settlement negotiations, but the predictions are the same: the party with more at stake will have the higher win rate.

The Priest-Klein model of the selection of disputes for litigation thus generates the important conclusion that litigated cases are not representative of the larger population of disputes between parties. The systematic selection of disputes for litigation has important implications for empirical

¹ George Priest & Benjamin Klein, *The Selection of Disputes for Litigation*, 13 *J. Legal Stud.* 1 (1984). Incidentally, the first author of the Priest-Klein model, George Priest of Yale Law School, is also the hero in our tale of pickup basketball. For 5 years, the authors of this article participated in such basketball games at Yale with George. Note one difference between the forces leading to the 50 percent win rate in basketball games and in litigation: negotiation in selecting basketball teams selects for teams that are equal and whose win rates can subsequently be observed. In the case of litigation, settlement negotiations select out those cases with unequal chances of winning; consequently, win rates will only be observed in those cases in which the case goes to trial (because settlement has failed).

work.² Simple extrapolation from a sample of litigated cases to the population of all cases—or to the larger social realm in which the disputes arose—is valid only if the sample is random. If cases are not randomly selected for litigation, then a researcher who uses litigated cases is necessarily studying *both* the selection mechanism and the underlying population of cases simultaneously. Both may be worthy of study, but it is important to distinguish between the two.³ As an eminent statistician once wrote, “[I]f you catch fish with a net having a 6-inch mesh, you are liable to formulate the hypothesis that all fish are more than 6 inches in length.”⁴ Instead of describing the population of fish, such a researcher would really be making a perfectly valid (although in this case rather uninteresting) claim about the selection process that generated his sample.⁵

One recent paper has reviewed over 20 articles that have found that plaintiff win rates do not closely approximate 50 percent, which is taken as empirical refutation of the Priest-Klein model.⁶ But there are at least two reasons why it is not easy to test the Priest-Klein model by merely looking at whether aggregate plaintiff win rates are significantly different from 50 percent. First, plaintiff win rates above 50 percent can be gener-

² See John J. Donohue III, *Law and Economics: The Road Not Taken*, 22 *Law & Soc’y Rev.* 903, 910 (1988) (discussing how an empirical test of discrimination on the part of judges would need to be informed by the theoretical insights of the Priest-Klein model).

³ A growing body of legal and social science research has come to recognize this and now explicitly takes account of the fact that generalizing from the subsample of litigated disputes to the population of all disputes or potential disputes is problematic when selection is not random. See Peter Siegelman & John J. Donohue III, *Studying the Iceberg from Its Tip: A Comparison of Published and Unpublished Employment Discrimination Cases*, 24 *Law & Soc’y Rev.* 1133 (1990) (a comparison of published and unpublished cases reveals substantial differences between them). See also Theodore Eisenberg & Stewart J. Schwab, *What Shapes Perceptions of the Federal Court System*, 56 *U. Chi. L. Rev.* 501 (1989); James W. Hughes & Edward A. Snyder, *Policy Analysis of Medical Malpractice Reforms: What Can We Learn from Claims Data?* 7 *J. Bus. & Econ. Stat.* 423 (1989). The insights have made their way well outside the law and economics community: attempts to generalize from data on appellate decisions or published cases are increasingly sensitive to selection issues. For example, Vicki Schultz & Stephen Petterson, *Race, Gender, Work and Choice: An Empirical Study of the Lack of Interest Defense in Title VII Cases Challenging Job Segregation*, 59 *U. Chi. L. Rev.* 1073 (1992), contains an extended discussion of selection effects.

⁴ Irving John Good, *Fallacies, Statistical*, in 5 *International Encyclopedia of the Social Sciences* 292 (1968).

⁵ Keith N. Hylton, *Asymmetric Information and the Selection of Disputes for Litigation*, 22 *J. Legal Stud.* 187, 205 (1993), has a nice analysis of this point in the context of tort litigation.

⁶ Daniel Kessler, Thomas Meites, & Geoffrey Miller, *Explaining Deviations from the Fifty Percent Rule: A Multimodal Approach to the Selection of Cases for Litigation*, 25 *J. Legal Stud.* (1996, in press).

ated if large numbers of cases are merely disputes over damages rather than liability. In the limit, if liability is never an issue, the observed plaintiff win rate will be 100 percent. Researchers who only can observe whether the plaintiff was awarded damages will perceive such high win rates as a departure from the 50 percent rule, although they are in fact consistent with the view that the damage awards should lie close to the mean of the damages predicted by the two parties. Second, if the parties' stakes in litigation are not equal, then the Priest-Klein model predicts that plaintiff win rates will vary systematically from 50 percent. Therefore, even though many scholars have found win rates for different types of litigation that diverge from 50 percent,⁷ this may well be perfectly consistent with the Priest-Klein model if the parties with the higher win rates—for example, employment discrimination defendants—tended to have a higher stake in the litigation. Since it is difficult to assess the relative stakes of parties in litigation, the examination of raw win rates has neither undermined nor validated the Priest-Klein hypothesis.

In this article, we use data on employment discrimination cases to test a different prediction of the Priest-Klein model. Instead of looking for a 50 percent win rate, we ask whether settlement is a random process or instead acts to screen out extremely weak (or strong) cases. In the latter case, the win rate for the cases that are ultimately adjudicated will vary systematically from the win rate that would be observed if all cases were tried.⁸ Using the time-series record of all employment discrimination litigation in federal trial courts over a 20-year period, we demonstrate six points:

⁷ Some of the major contributions in the large literature are Theodore Eisenberg, *Testing the Selection Effect: A New Theoretical Framework with Empirical Tests*, 19 J. Legal Stud. 337 (1990); Stewart Schwab & Theodore Eisenberg, *The Influence of Judicial Background on Settling and Winning Cases and a Study of the Disputing Pyramid* (unpublished manuscript on file with us); Samuel R. Gross & Kent D. Syverud, *Getting to No: A Study of Settlement Negotiations and the Selection of Cases for Trial*, 90 Mich. L. Rev. 319 (1991); Harold W. Elder, *Trials and Settlements in the Criminal Courts: An Empirical Analysis of Dispositions and Sentencing*, 18 J. Legal Stud. 191 (1989); Gary M. Fournier & Thomas W. Zuehlke, *Litigation and Settlement: An Empirical Approach*, 71 Rev. Econ. & Stat. 189 (1989); and Linda R. Stanley & Don L. Coursey, *Empirical Evidence on the Selection Hypothesis and the Decision to Litigate or Settle*, 19 J. Legal Stud. 145 (1990).

⁸ There are alternative theories of selection, developed in the spirit of the Priest-Klein model. For the most part, these yield roughly similar conclusions about selection patterns, although they do not all predict a 50 percent win rate, even with identical stakes. See, for example, Hylton, *supra* note 5; Donald Wittman, *Is the Selection of Cases for Trial Biased?* 14 J. Legal Stud. 185 (1985). The Priest-Klein model assumes that actors do not behave strategically, in that they do not take into account the effects of their behavior on their opponent's behavior. For a review of a broad array of economic models of litigation that includes those that attempt to control for the strategic behavior of the parties, see Robert D. Cooter & Daniel L. Rubinfeld, *Economic Analysis of Legal Disputes and Their Resolution*, 27 J. Econ. Literature 1067 (1989).

1) The plaintiff win rate in employment discrimination cases is far below 50 percent. According to the Priest-Klein model, this implies that, on average, defendant employers have a larger stake in this type of litigation than do plaintiffs.

2) A slumping economy tends to elicit a substantial increase in the number of employment discrimination cases filed.

3) These incremental (recession-induced) cases tend to be much weaker than average; that is, the plaintiff win rate for the incremental cases (if they were all litigated to a final verdict) would be substantially lower than the win rate for all other cases.

4) The Priest-Klein model predicts that weaker cases settle at a disproportionately high rate; and, in fact, cases filed during recessions do have higher settlement rates.

5) The higher settlement rate of the recession-induced cases camouflages, but does not completely obscure, the lower plaintiff win rate for employment discrimination cases filed during business downturns.

6) Changes in the composition of cases, in relative stakes, in the amount of discrimination, or in legal doctrine cannot explain our findings of significant business cycle effects on settlement and win rates.

Note that our fifth finding contradicts the strongest form of the selection hypothesis—if selection at the settlement stage were complete, the plaintiff win rate (hereafter, the win rate) would depend *only* on the parties' relative stakes and would be completely unrelated to anything else. In other words, if the Priest-Klein selection filter operated flawlessly, all the additional weak employment discrimination cases filed during business downturns would settle. In that event, the win rate of those cases that were fully litigated would be the same across the business cycle. In fact, although the win rate fluctuates significantly less than the settlement rate—thereby evidencing *partial* selection—the win rate does vary systematically with the health of the macro economy, falling during slumps and rising during booms.

In Section II of this article, we present a simple economic model in the Priest-Klein tradition that demonstrates a link between awards to successful employment discrimination plaintiffs and the unemployment rate just prior to when their cases are filed. We use this model to predict how the business cycle affects the number of cases filed, the settlement rate, and the plaintiff win rate. Section III tests these predictions using time-series data on all employment discrimination cases filed in federal district courts between 1977 and 1988. Section IV considers and rejects several other explanations for our findings. It shows that the cyclical patterns we observed cannot be attributed to cyclical changes in the composition of cases, changes in legal doctrine or in sympathies for plaintiffs,

changes in the actual amount of discrimination, or changes in the relative stakes of the parties to the litigation. Thus, the article provides strong evidence for the selective weeding out of weak cases through settlement that the Priest-Klein model predicts.

II. THE BUSINESS CYCLE AND EMPLOYMENT DISCRIMINATION LITIGATION IN THEORY

A. *An Overview of Employment Discrimination Litigation and Settlement*

This section has two goals. First, it suggests a plausible link between the business cycle and the back pay damages available to prevailing plaintiffs in employment discrimination cases. In short, damages are higher in slumps because plaintiffs are more likely to experience longer spells of unemployment at such times. Second, it combines this model of damages with a Priest-Klein-like model of filing, settlement, and litigation to derive testable predictions about the effect of the business cycle on the volume of cases filed and the rates at which these cases settle or are won by plaintiffs.

In adapting the Priest-Klein model to the particular context of employment discrimination litigation, we begin with a simple model of the plaintiff's decision to file a lawsuit, based on a given dispute. Our model differs slightly from George Priest and Benjamin Klein's original formulation for two reasons. First, we use a specification that captures the one-way fee-shifting rules under which most employment discrimination litigation proceeds. To this extent, our formulation is merely a special case of the more general model, modified to show how settlement and win rates are determined under the rules that are relevant for the body of cases we examine.

In addition, however, we draw a distinction that Priest and Klein do not, which requires us to use some slightly different terminology. Priest and Klein "regard a dispute as 'litigated' only if a verdict is rendered; all terminations of the dispute short of a verdict are regarded as 'settlements,'"⁹ Their homogeneous definition of settlement elides all of the stages in the development of a dispute prior to formal adjudication. That is, they do not distinguish between potential plaintiffs who never pursue any sort of legal claim and those who settle or 'drop' their disputes after filing a complaint.¹⁰ The only distinction they recognize is between dis-

⁹ Priest & Klein, *supra* note 1, at 6.

¹⁰ For a perceptive discussion of the ontogeny of disputes, see William L. F. Felstiner, Richard L. Abel, & Austin Sarat, *The Emergence and Transformation of Disputes: Naming, Blaming, Claiming*. . . , 15 *Law & Soc'y Rev.* 631 (1980-81).

putes that “vanish” at some point after the incident generating the dispute occurs and those “litigated” (adjudicated to a final verdict).¹¹

Because our test of the Priest-Klein selection hypothesis derives from an exploration of the differences in case quality over the business cycle, we need to adopt a somewhat different descriptive notation and set of assumptions that allow us to distinguish between potential cases that are never filed and those that are filed but subsequently settle. The details of the model are spelled out in detail in Sections IIB and IIC below. Here, we give a broad overview.

Like Priest and Klein, we begin with a dispute between two parties. If the (risk neutral) plaintiff believes that her legal claim against the defendant has a positive expected value, she files suit. Otherwise, she drops her claim.¹² Once suit has been filed, the parties can try to negotiate a settlement. Settlement occurs if the least the plaintiff is willing to accept to settle (her “asking price,” or “ask”) is less than the most the defendant is willing to offer (his “bid”). Consistent with Priest and Klein, therefore, we define “litigation” as the pursuit to final adjudication of a case that has already been filed.¹³

¹¹ Technically, the issue is how one chooses to describe a dispute that never generates the filing of a lawsuit because its expected value to the plaintiff is less than zero. One might think of this situation as a “settlement” (with a zero payment by the defendant). Such treatment would be consistent with the Priest-Klein view that whenever the expected value of litigation to the plaintiff (by assumption, negative in this case) is less than the expected burden on the defendant from litigation (which in our model is always positive), a settlement will be reached. This point is made, somewhat opaquely, by Wittman, *supra* note 8, and responded to by Priest (George L. Priest, Reexamining the Selection Hypothesis: Learning from Wittman’s Mistakes, 14 J. Legal Stud. 215 (1985)). In the present context, the real issue is not whether the unilateral decision by some plaintiffs to drop their disputes eliminates or reduces the selection effect at the settlement stage. Rather, it is whether we can usefully analyze the separate stages that take place as the original large volume of disputes is narrowed to the much smaller volume of adjudicated cases. For an empirical and theoretical exploration of this decomposition, see Hughes & Snyder, *supra* note 3.

¹² Of course, plaintiffs can and do drop cases (without any compensation from defendants) *after* they have been filed. We treat this as settlement behavior because in our data there is no way to distinguish postfiling drops from settlements. As Hughes & Snyder, *supra* note 3, point out, this is not an entirely satisfactory way to proceed.

¹³ Both our formulation and Priest and Klein’s are arbitrary and necessarily conceal some crucial aspects of dispute processing. First, as Felstiner *et al.*, *supra* note 10, suggest, a lot of the action in the sociolegal system occurs before a dispute becomes a filed case. Unfortunately, our data do not permit us to analyze these early stages of dispute processing, but that should not be taken to mean that the early stages are unimportant. In fact, since there are over 10 times as many charges of discrimination filed with the Equal Employment Opportunity Commission (EEOC) (a necessary prerequisite for filing a Title VII suit in federal court) than lawsuits in federal court each year, there is presumably a great deal of settlement before cases ever reach a federal district court. Second, if any strategic behavior is involved, the precise timing of when offers can be made will obviously have important consequences (see, for example, Cooter & Rubinfeld, *supra* note 8). Thus, requiring as a matter of theory that settlement occur only after a case is filed is unlikely to be innocuous.

a *b*

FIGURE 1.—A schematic representation of two versions of the selection process. *a*, our version. *b*, the Priest-Klein version. "Ask" = expected value to the plaintiff; "bid" = expected value for the defendant.

A schematic overview of our model, and a comparison with the Priest-Klein formulation, is provided in Figure 1. The big difference between the two models is that our formulation allows for intermediate stages between the initial dispute and the final adjudication. This additional layer of complexity enables us to analyze the filing and settlement behavior of litigants and the quality of their cases by showing how these factors are influenced by the state of the economy.

B. The Plaintiff's Filing Decision

Our model begins with the following definitions:

- p_1 = plaintiff's estimate of her expected probability of winning (at the time she files suit);
- p_2 = plaintiff's estimate of her expected probability of winning at the time the defendant makes his settlement offer;
- p_d = defendant's estimate that the *plaintiff* will win the lawsuit at the time it is filed;
- C_1 = plaintiff's expected costs of litigation, including possible souring of work relationship, at the time the file/drop decision is made;
- C_2 = plaintiff's expected costs of litigation at the time the settle/litigate decision is made (since some costs have already been sunk, $C_2 < C_1$);
- C_d = defendant's cost of defending the suit;
- w = plaintiff's daily wage in job for which she was rejected (fired, not hired, and so on);
- U = unemployment rate; and
- D = duration (in days) of plaintiff's unemployment spell following rejection. Higher unemployment rates are associated with longer durations of unemployment spells. Thus, $D = D(U)$, with $dD/dU > 0$.

Notice that monetary damages ($= wD$) are limited to back pay¹⁴ and that the size of the back pay award depends on the duration of the plaintiff's

¹⁴ "[T]itle VII provides only equitable remedies; damages other than back pay are not recoverable." See Paul N. Cox, *The Law of Employment Discrimination: Cases and Commentary* 5-17 (1987), citing *DeGrace v. Rumsfeld*, 614 F.2d 796 (1st Cir. 1980); *Harrington v. Vandalia-Butler Bd. of Educ.*, 585 F.2d 192 (6th Cir. 1978), cert. denied, 441 U.S. 932 (1979); *Pearson v. W. Elec. Co.*, 542 F.2d 1150 (10th Cir. 1976). The Civil Rights Act of 1991 substantially changed the kinds of damages allowed under Title VII and other antidiscrimination statutes, but these changes are not relevant for the cases in our sample, all of which closed before the law took effect in November 1991.

Reinstatement, promotion, and changes in employment practices are also available as remedies, but our data suggest that plaintiffs secure them through settlement or judgment far less frequently than they receive monetary settlements or awards. See John J. Donohue III & Peter Siegelman, *The Changing Nature of Employment Discrimination Litigation*, 43 *Stan. L. Rev.* 983 (1991).

The Age Discrimination in Employment Act (ADEA) offers a limited version of punitive damages: conditional on a proof of willful violation of the statute, double recovery of actual damages is available. See Cox, *supra*, at 23-14. See, for example, *Fortino v. Quasar Co.*, 751 F. Supp. 1306 (N.D. Ill. 1990) (awarding double damages as liquidated damages for willful violation of the ADEA). Punitive and compensatory damages as such, however, seem not to be available under the ADEA. See Cox, *supra*, at 23-16. Suits under §§ 1981 and 1983 do allow for punitive damages in addition to back pay.

unemployment spell, D , which is in turn a positive function of the unemployment rate, U .¹⁵ We assume that the litigation is subject to Title VII one-way fee-shifting rules.¹⁶ In this situation, the expected value of the suit to the plaintiff at the time the file/drop decision is made—her stage 1 “asking price”—is

$$A_1 = p_1 w D(U) - (1 - p_1) C_1. \quad (1a)$$

Equation (1a) simply states that the expected value of the lawsuit to the plaintiff equals the probability of success times the backpay award, minus the probability of losing times the costs of bringing the suit.¹⁷

Following Priest and Klein, we ignore strategic considerations and assume that potential plaintiffs will sue if and only if the expected value of suit is positive. The necessary condition for a suit to be filed can therefore be expressed as $A_1 > 0$.

As it stands, however, the model is incomplete: to close it, we need a theory of how plaintiffs develop their estimate of the probability that they will win, p_1 . A key feature of the Priest-Klein model is an elegant description of how plaintiffs estimate their probability of victory, which can then be substituted into equation (1a) in order to ascertain whether the necessary condition for filing a suit is met. The derivation of $\hat{p}_1$ —

¹⁵ For recent evidence on the relationship between the duration of unemployment spells and the business cycle, see Mark Dynarski & Steven M. Sheffrin, *The Behavior of Unemployment Durations over the Cycle*, 72 *Rev. Econ. & Stat.* 350–56 (1990); and Michael Baker, *Unemployment Duration: Compositional Effects and Cyclical Variability*, 82 *Am. Econ. Rev.* 313–21 (1992). Both studies conclude that the duration of average unemployment spells increases with the unemployment rate. Using panel data, the former finds that the elasticity of duration of unemployment with respect to the unemployment rate is between 1.03 and 1.46. Controlling for heterogeneity in types of workers at a more aggregate level, the latter finds that the overall elasticity of duration with respect to the unemployment rate is about 0.6; it is almost 0.75 for workers who are unemployed because they have lost their jobs. Both studies reject the theory that the observed increase in average duration during slumps is attributable to a rise in the proportion of workers who remain unemployed for long spells.

¹⁶ In Title VII litigation, winning plaintiffs recover their legal fees from defendants, while winning defendants do not collect legal fees from plaintiffs unless the plaintiff's action was “frivolous, unreasonable, or without foundation, even though not brought in subjective bad faith.” See *Christiansburg Garment Co. v. EEOC*, 434 U.S. 412, 421 (1978).

¹⁷ The back pay award is the daily wage (w) times the number of days of unemployment (D). Note that employment discrimination plaintiffs frequently retain lawyers on contingency fees. In such cases, the plaintiff will not explicitly care about the expected costs of bringing the lawsuit: $(1 - p_1)C_1$. Contingency fee attorneys will screen the cases, however, to make sure that their expected fee, $p_1 C_1$, at least equals the opportunity cost of their time plus any incidental expenses such as filing fees, depositions, and expert witness fees.

essentially, the endogenous process of expectation formation—is described in the Appendix.

C. *The Settle/Litigate Decision*

While plaintiffs act unilaterally in deciding whether or not to file suit, the interaction of both parties will determine whether the case is settled or litigated. In the Priest-Klein model, the settle/litigate decision emerges in a simple and natural way from uncertainty over the probability that the plaintiff will win the case.

We adopt the Priest-Klein/Landes-Posner convention about settlement: absent strategic behavior, settlement will occur whenever the minimum amount the plaintiff is willing to accept for settling the case is less than the maximum amount the defendant is willing to offer. The former quantity—the plaintiff's stage 2 "asking price"—is simply the expected value to the plaintiff if the case were to proceed to trial (rather than settle).

Since we allow the plaintiff to have access to new information and new costs at the time of the settle/litigate decision, we define the second stage asking price of the plaintiff as¹⁸

$$A_2 = \hat{p}_2 wD(U) - (1 - \hat{p}_2)C_2. \quad (1b)$$

Similarly, the defendant's maximum "bid" will be equal to his expectation of what he will have to pay if litigation occurs, which is simply:¹⁹

$$B = \hat{p}_d [wD(U) + C_2] + C_d. \quad (2)$$

¹⁸ Again, the endogenous calculation of $\hat{p}_2$ is described in the Appendix. We take the costs at this stage as different from those considered by the plaintiff when deciding whether or not to file suit in the first instance. Some costs are already sunk by the time the suit is filed and are thus irrelevant in making the settle/litigate decision.

Plaintiffs may also get new, and presumably better, information about the size of their potential award or about the defendant's culpability as the suit unfolds. We incorporate this additional information by giving the plaintiff a second draw from an error distribution with a smaller variance. One might consider the case in which the parties *ex ante* take explicit account of the sequential unfolding of costs (and information). This approach alters the underlying structure of the model in fundamental ways, as Bradford Cornell shows using an options pricing model of litigation (Bradford Cornell, *The Incentive to Sue: An Option-Pricing Approach*, 19 J. Legal Stud. 173 (1990)). We ignore such complications here.

¹⁹ The calculation of the defendant's estimate that the plaintiff will prevail is identical to the plaintiff's calculation described in the Appendix, except that the defendant has a different draw from a (possibly different) error distribution. That is, the defendant's estimate that the plaintiff will win is

$$\hat{p}_d = PR(Y' > 0 | \hat{Y}_d) = G(Y' + \epsilon_d),$$

where ϵ_d is also a normal random variable with zero mean (but with a variance that is not necessarily equal to that of the plaintiff's error distribution), and G is the cumulative distribution function for this variable.

Settlement will then occur whenever $A_2 < B$; litigation occurs whenever this condition does not hold.

D. Theoretical Predictions

The model outlined above allows us to make three predictions about the effects of the business cycle on employment discrimination litigation. First, case filings will increase as the unemployment rate rises. Second, these additional recession-induced cases will likely be of weaker quality. And third, if they are in fact weaker than the average cases filed in the nonrecessionary times, then we would expect to see a disproportionate number of them settle.

1. *Case Filings.* A rise in unemployment should lead to an increase in the number of suits filed. At the time when the plaintiff is deciding whether to file suit, we saw in equation (1a) above that only three variables were relevant to the plaintiff's decision: the plaintiff's probability of victory (p_i), the estimated damages (wD), and the litigation costs (C_i). If we can assume that the expected litigation costs are relatively uniform and known across all cases at the prefiling stage, then we are left with only two variables that describe every conceivable case of employment discrimination. Thus, each employment discrimination case could be thought of as representing a point on a graph in which the estimated probability of victory is measured on the horizontal axis while the estimated damages are measured on the vertical axis, as shown in Figure 2.

Given the arbitrary, but not unreasonable, assumption that plaintiff's litigation costs (C_i) equal \$5,000, we can then use equation (1a) to solve the necessary condition for filing, $A_1 > 0$. Figure 2 demonstrates that at an unemployment rate of 6.04 percent (1 standard deviation below the average during the period covered by our data), any case falling in the unshaded northeast region of the graph will have a positive expected value and will therefore meet the necessary condition for the plaintiff to bring an action. Cases that fall in the two shaded areas will not be filed, either because they have low expected probabilities of victory, low estimated damages, or both.

Figure 2 also illustrates the effect of an increase in the unemployment rate on the region of cases that meet the necessary condition for filing. When the unemployment rate rises, the duration of unemployment spells also increases, which prompts a proportionate increase in the damages that successful employment discrimination litigants will receive. The black area in Figure 2 reveals the set of cases that would not have met the necessary condition for filing under the lower unemployment rate,

FIGURE 2.—Employment discrimination filings for various damages and probabilities of victory

but do satisfy this condition at the higher rate because longer spells of unemployment on the part of potential plaintiffs lead to higher potential damage awards.²⁰ Consequently, a rise in the unemployment rate should unambiguously increase the number of cases that will be filed.

2. *Case Quality.* Figure 2 can also help us explore what happens to the quality of the incremental employment discrimination cases generated by a rise in unemployment. Note first that the black area encompasses a band of cases across the entire array of predicted probabilities of plaintiff success less than one. Put differently, the higher rate of unemployment could conceivably induce additional very low probability cases that now promise substantially higher damage awards, or very high probability cases that were previously close to, but just below, the threshold for filing and have now risen above it. Figure 2 only shows the combinations of p_1 and the level of damages (wD) that meet the necessary conditions for filing but gives us no information about the distribution of cases *within* this set.²¹ Thus, it is logically possible that the average quality of the incremental cases (in the black area) will be higher, lower, or the same as that of the cases filed at the lower unemployment rate.²²

Therefore, in the absence of information about the distribution of cases across the various combinations of probability of success and damages, we cannot predict a priori whether on average the incremental cases will be of lower quality—that is, have lower plaintiff win rates if fully litigated—than the base cases. But simple inspection of Figure 2 reveals

²⁰ The assumptions underlying these calculations are as follows. First, the initial unemployment rate is taken to be 6.04 percent, which then rises to 8.66 percent. These figures are 1 standard deviation below and above the mean unemployment rate of 7.35 for the period covered by our data. Second, this 43.4 percent increase in the unemployment rate is deemed to generate a 43.4 percent increase in the mean level of damages (because of the attendant longer spells of unemployment). See note 15 *supra* for estimates of the elasticity of the duration of unemployment spells with respect to the unemployment rate, which we take to be unitary. As a result, the cases falling in the black area of Figure 2, which previously would not have met the necessary condition for filing, would now meet the condition because of their enhanced expected damages. Accordingly, every case that would have been brought when the unemployment rate was low will still be brought, and an additional band of cases represented by the black area will now be eligible for filing.

²¹ Think of Figure 2 as analogous to a chart showing all the possible combinations of height and weight for adult Americans. Each point on the chart represents one possible combination, but the number of Americans actually associated with each possible combination varies widely. For example, the combination 6 feet, 170 pounds is presumably much more common than the combination 7 feet, 170 pounds.

²² While we showed empirically that an increase in the unemployment rate does in fact lead to an increase in the filings of low probability cases, our earlier suggestion that this is *necessarily* true applies only when the amount at stake is the same for all cases filed in a given quarter. See John J. Donohue III & Peter Siegelman, Law and Macroeconomics: Employment Discrimination Litigation over the Business Cycle, 66 S. Cal. L. Rev. 709, 749 n.75 (1993).

TABLE 1
THE AREA OF THE REGION FROM WHICH ADDITIONAL
CASES ARE BROUGHT AS THE UNEMPLOYMENT RATE
RISES, BY PROBABILITY OF PLAINTIFF VICTORY

	Area	Total (%)
For the interval of p_1 :		
.05-.25	2,132.1	68.9
.25-.5	670.3	21.7
.5-1	292.2	9.4
.05-.5	2,802.4	90.6
.05-1	3,094.6	100.0

NOTE.—This table computes the area in Figure 2 by identifying the cases that are induced by an increase in the unemployment rate from 1 standard deviation below to 1 standard deviation above the mean. These areas represent the actual distribution of the incremental cases only in the unlikely event that the cases are uniformly distributed in the probability-of-victory/damages space.

that the area that defines the support of the incremental cases is substantially greater for low probability cases than for high probability cases. The intuitive reason for this has already been adumbrated: because of Title VII's one-way fee-shifting rules, virtually all very high probability cases will be brought, and therefore the induced effect from the higher unemployment rate will operate less powerfully for cases that fall into this region.

Table 1 presents the area of the black region of Figure 2 for various probability intervals.²³ This tabulation reveals that more than two-thirds of the area from which the incremental cases are drawn constitutes low probability cases ($p_1 < .25$), and over 90 percent of the area constitutes cases that have less than a 50 percent chance of success. If we knew that actual cases were uniformly distributed across the black area, then we would know that the incremental cases would be relatively weak cases.²⁴ Even without this information, though, the relatively larger area for low

²³ The area is given by

$$\int (\$5,000/p - \$5,000)(1 - 1/1.434)dp,$$

where \$5,000 represents the plaintiff's expected litigation expenses, and the increase in the unemployment rate—and hence in the size of the damages—is 43.4 percent. Note that we cannot integrate over the interval beginning with probability 0, since the function is undefined at that point. Therefore, we integrate over the interval beginning with probability .05.

²⁴ For a uniform distribution, the median win rate would be 15.4 percent.

probability cases is at least suggestive—although not dispositive—that the incremental cases will tend to be weaker than the base cases.

3. *Settlement Behavior.* Once we have a prediction that the incremental cases filed during recessions will be weaker than the base cases filed during nonrecessionary periods, we are then in a position to use the Priest-Klein model to predict what happens to these weaker filed cases. As Priest and Klein wrote, “In litigation . . . agreement over the outcome leads parties to drop out. . . . Where either the plaintiff or defendant has a ‘powerful’ case, settlement is more likely because the parties are less likely to disagree about the outcome. Settlement negotiations will most often fail, however, where the dispute is most problematic, whatever the applicable decision standard.”²⁵

Since we are positing that the cases filed during recessions tend to be relatively weak, we would expect them disproportionately to “drop out”—that is, to settle. We can test this proposition by determining whether the settlement rate on the incremental cases is in fact higher than the settlement rate on the base filings. Moreover, if the selection is complete, so that all of the weaker-than-average cases are settled, then we would see the same win rate on those cases that were actually litigated, regardless of whether the case was brought during a boom or a recession. If selection is not perfect, however, we would expect to see lower win rates for cases filed during recession.

III. TESTING THE SELECTION EFFECTS MODEL

A. *What Constitutes a Test of the Model?*

If, contrary to the selection effects model, settlement were truly random, then no “explanatory variable(s)” should be able to explain it. That is, no characteristics of a case—including in particular the unemployment rate at the time the case is filed—should aid the researcher in predicting whether or not that case will settle. By contrast, the Priest-Klein selection model implies that the settlement rate should be predictable, since the parties will settle a case based on their (unbiased) expectations of the outcome, which in turn are based on the relevant case characteristics. Since we have predicted that higher unemployment leads to weaker cases that are disproportionately settled, a loose empirical test of the selection model for our sample of employment discrimination cases can thus be conducted by regressing a dichotomous settlement variable (1 if the case settles, 0 otherwise) on the unemployment rate at the time of filing. If the

²⁵ Priest & Klein, *supra* note 1, at 17.

coefficients are insignificantly different from zero, we reject the selection model; if the coefficients are statistically and economically significant, this constitutes evidence in favor of the model.²⁶

The selection model also makes predictions about the predictability of win rates in adjudicated cases. In fact, the strong version of the model makes exactly the opposite prediction about win rates as it does about settlement rates. If the selection of disputes at the *settlement* stage is complete, then the outcomes of *litigation* should be random (or virtually so). Thus, the outcome of a litigated case should be almost completely unpredictable on the basis of any of its characteristics if Priest-Klein, or some other model based on selective settlement, obtains.²⁷ In the extreme version of the Priest-Klein hypothesis, the aggregate win rate is determined purely by the relative stakes of the parties—it will be 50 percent when these stakes are equal—and no case-specific variables predict a case's outcome. However, as Priest and Klein recognize, selection will not generally be so complete as to rule out *any* influence of exogenous variables on the win rate.²⁸ With less-than-complete selection, therefore, litigated cases will not be purged of all predictable elements, so some variables may explain the win rate.

We therefore have four testable hypotheses stemming from our modified version of the selection model:

1. The filing rate should be higher in slumps than in booms, and the incremental cases induced by the higher rate of unemployment should on average be weaker than the base cases.
2. The settlement rate for filed cases should be higher in slumps than in booms, thereby establishing nonrandom settlement.
3. (a) The observed win rate on adjudicated cases should either not move at all over the business cycle (perfect selection), or (b) this observed win rate should be lower in slumps than in booms (partial selection).

²⁶ The test is a loose one for the following reason. Suppose, for example, that we were to find no effect of unemployment rates on the average settlement rate. It might be perfectly possible that some other variables (at either the aggregate or case level) could nevertheless explain settlement very well. For instance, using the plaintiff's height or the temperature on the date the case was filed as explanatory variables would produce zero coefficients, but one could not interpret such a result as evidence of randomness in settlement because the wrong independent variables were considered. Conversely, if our regression test generates statistically significant coefficients using a limited number of explanatory variables, then this should be taken as relatively strong evidence in favor of the selection model.

²⁷ Schwab & Eisenberg, *supra* note 7, at 24, make a similar point after examining their data: "more noise comes from predicting court judgments than from predicting settlements (as the selection-effects model would predict), but a tune can be heard through the noise."

²⁸ See the discussion in Priest & Klein, *supra* note 1, at 22–24.

4. Sensitivity to the business cycle should increase as one moves down the disputing pyramid. That is, the win rate should be least sensitive to the cycle, while the filing rate (or number of suits filed) should be most sensitive, with the settlement rate somewhere in between.

B. Specification Issues

The best way to test the selection model would be using data on individual cases.²⁹ Unfortunately, our data do not contain much useful information about individual cases (except for their outcomes and the date on which they were filed). The Administrative Office of the U.S. Courts (AO) did not begin keeping track of the statutory basis for individual suits until 1988, and such important information as the type of discrimination alleged by the plaintiff (hiring, firing, pay, and so on) or the basis of the alleged discrimination (race, sex, age, and so on) is simply not available for individual cases.

Thus, we resort to a different strategy. Instead of testing whether the occurrence of settlement (or plaintiff victory) for an individual case can be explained by that case's characteristics, we examine whether the *aggregate* settlement or win rate can be explained by characteristics of a group of cases. By grouping cases by the quarter in which they were filed, we can use an explanatory variable that is common to all the cases (the unemployment rate for the quarter), while still maintaining the dichotomous dependent variable (settle versus litigate or win versus lose).³⁰

²⁹ For obvious reasons, individual-level data are much more capable of detecting whether there are explanatory variables that matter in predicting settlement and win rates.

³⁰ Thus, we define the settlement rate for quarter t as $1 - (PWIN_t + DWIN_t)/FILE_t$, where $PWIN_t$ is the number of cases filed in quarter t that are ultimately won by the plaintiff, $DWIN_t$ is the number ultimately won by the defendant, and $FILE_t$ is the number of cases filed in quarter t . The win rate is then $PWIN_t/(PWIN_t + DWIN_t)$. A handful of cases were coded as both parties win. We experimented with treating these cases as settled, as plaintiff wins, defendant wins, or dropping them altogether. They had no significant impact in any specification, so we ignored them altogether.

In estimating our settlement and win rates we use weighted logit. This is appropriate when using grouped data in which the underlying model is discrete (plaintiff loses or wins), but the observed dependent variable is a proportion, which occurs when "a number of respondents have the same values of the independent variables and the observed dependent variable is the proportion of . . . [respondents] with individual responses equal to 1" (William Greene, *LIMDEP Manual*, at 19.3 (1986)). This is precisely the situation with the Administrative Office data, since we have no information about each individual case that would enable us to distinguish it from any other filed during the same quarter (except for the outcome).

To see that weighting is necessary consider two different quarters: in the first, two cases are litigated and the plaintiff wins one of them, so the win rate in this quarter is 0.5 (50 percent). In the second, 100 cases are litigated and plaintiffs win 50 of them. Again the win rate is 50 percent; clearly, however, the estimated win rate for the second quarter is more precise (has a lower variance) and should be given a larger weight in estimating the overall win rate across all periods than the first. The grouped data specification corrects for this

C. Data

The data used in this article are drawn from the data tapes of the Administrative Office of the U.S. Courts, from which we have extracted the complete record of all employment discrimination suits filed in federal district courts between July 1969 and June 1989.³¹ For present purposes, the key pieces of information on each case are its filing date (which allows us to aggregate the data by the calendar quarter in which the case was filed) and the outcome of each case that was closed after July 1, 1978.³²

D. Empirical Evidence

1. *Regression Results.* Tables 2, 3, and 4 present our estimates of the effect of the business cycle on the number of cases filed, the settlement rate, and the win rate. All three tables support the hypothesis that a version of the selection model operates for federal employment discrimination cases.

Table 2 demonstrates that the volume of cases filed does indeed depend on the state of the economy, with each extra percentage point of unem-

heteroscedasticity by weighting each quarter's observation on WINRATE by the number of cases in the sample that were adjudicated in that quarter—that is, weighting by (PWIN_{it} + DWIN_{it}). For further treatment, see William H. Greene, *Econometric Analysis* 666–71 (1990). Because our grouped data do not take account of any heterogeneity in the characteristics of cases in explaining settlement or litigation verdicts, our coefficient estimates are potentially subject to aggregation bias. The aggregate data also prevent us from taking account of selection effects in the way that Hughes and Snyder suggest (using selection models with individual case data and correlated error terms in the settlement and win rate equations).

³¹ For a more complete discussion of this data, see Donohue & Siegelman, *supra* note 14; and Eisenberg, *supra* note 7. The category used by the Administrative Office to categorize these suits does not perfectly track the notion of employment discrimination prevalent in the legal or social science communities. The AO definition of “Civil Rights, Employment cases” includes all cases filed under Title VII, § 1981, the Age Discrimination in Employment Act, and the Equal Pay Act, which are the major federal laws prohibiting discrimination on the basis of race, sex, national origin, religion, and age. The AO also includes some additional cases brought by government employees alleging due process violations, but these are a very small share of the total.

³² Other data available for each case include jurisdictional basis (federal defendant, federal plaintiff, or general), procedural progress (stage at which case terminated), and so on. One unfortunate limitation of the data is that the AO did not record the outcomes of cases that closed before July 1, 1978. Furthermore, outcomes are not available for cases that were still pending when the AO data tape was compiled in July 1989. As a simple, albeit imperfect, correction for any duration-based selection problem, therefore, we eliminated *all* cases filed before March 1, 1977 or after July 1, 1988, leaving us with 46 quarters of data. If there is any relationship between the duration of a case and its outcome, using all closed cases will increasingly overinclude short cases as the filing date approaches the date the tape was compiled (June 30, 1989). This could impart a spurious time trend to the results. The reverse is true for cases filed before July 1, 1978. Using all the cases for which we had outcome data did not significantly change the results.

TABLE 2

REGRESSIONS OF NUMBER OF EMPLOYMENT CIVIL RIGHTS SUITS FILED IN FEDERAL COURTS,
1977:2-1988:3, CORRECTED FOR AUTOCORRELATION USING MAXIMUM LIKELIHOOD

VARIABLE	EQUATION					
	(1)	(2)	(3)	(4)	(5)	(6)
Constant	13.00 (.01)	212.79 (.14)	71.07 (.14)	-54.58 (-.12)	90.79 (.20)	-144.38 (-.37)
TIME (quarter since 1969:3)	51.03 (1.00)	60.43 (.95)	-2.06 (-.09)	-2.92 (-.14)	-13.64 (-.68)	3.70 (.22)
TIME ²	-.34 (-.71)	-.45 (-.75)	.19 (.88)	.19 (1.01)	.30 (1.57)	.13 (.82)
Unemployment rate in current quarter (%)	...	-49.35 (-1.31)	-15.84 (-.53)	-57.79* (-2.02)	...	...
Unemployment rate in previous quarter	...	...	173.30* (5.96)	135.11* (4.88)	116.13* (4.29)	...
Unemployment rate lagged 2 quarters	...	...	...	102.33* (3.62)	79.50* (2.96)	168.91* (8.51)
Summary statistics:						
$\hat{\rho}$	.77	.84	.36	.36	.35	.10
Adjusted R^2	.55	.71	.85	.88	.88	.85
Durbin-Watson	2.06	1.96	1.96	1.97	1.94	2.04

SOURCES.—Administrative Office of U.S. Courts Data Tape (number of employment discrimination suits); Department of Commerce, Survey of Current Business (nonseasonally adjusted unemployment rate).

NOTE.— $N = 46$ quarterly observations; t -statistics are in parentheses. For all regressions, the dependent variable was the number of original jurisdiction employment civil rights suits (purged of duplicate docket numbers) filed per calendar quarter. The Durbin-Watson statistic is for the transformed residuals; the adjusted R^2 is for the ordinary least squares (untransformed) equation.

* Significant at the .05 level.

ployment generating roughly 170 additional cases filed after 2 quarters (from col. 6). In Table 3, we see that the settlement rate also depends on the business cycle: as the unemployment rate rises so does the settlement rate, and the unemployment coefficients were (jointly) significant at the 1 percent level in all four of the specifications. For example, based on the regression in column (5), we estimate that a 1-percentage-point increase in the unemployment rate raises the settlement rate (for cases filed 2 quarters later) by 2.3 percentage points.³³

Table 4 reveals that when the unemployment rate rises, the win rate of litigated cases falls. In all the regressions, the unemployment rate

³³ Measured at mean values of the regressors, a 1-percentage-point increase in the unemployment rate raises the settlement rate from 64.6 percent to 66.9 percent.

TABLE 3

GROUPED LOGIT REGRESSIONS OF SETTLEMENT RATE ON TIME AND UNEMPLOYMENT RATES,
1977:2-1988:3

VARIABLE	MODEL				
	(1)	(2)	(3)	(4)	(5)
Constant	.43* (12.48)	.37* (10.54)	.38* (10.83)	3.07* (19.93)	3.13* (19.51)
TIME (quarter since 1969:3)	.007* (10.68)	.007* (11.68)	.007* (11.35)	-.10* (-16.79)	-.11* (-16.43)
TIME ²	...	...	...	.001* (18.10)	.001* (17.65)
DETRENDED UNRT(-1)	...	...	-.05* (-4.19)	...	.02 (1.23)
DETRENDED UNRT(-2)	...	.04* (6.98)	.08* (7.10)	.10* (14.64)	.09* (7.21)
- (Log likeli- hood)	45,923.7	45,899.2	45,890.4	45,732.0	45,731.2
Likelihood ratio tests	...	$\chi^2_{(1)} = 49.0$	$\chi^2_{(2)} = 66.6$	$\chi^2_{(2)} = 383.4$	$\chi^2_{(3)} = 385.0$

NOTE.—*t*-statistics are in parentheses. The grouped logit specification is based on 46 quarterly observations of the settlement rate but uses all 80,063 observations on case outcomes (whether or not the case was settled). There were 74,029 cases closed during this period, of which 50,892 were settled. Detrended unemployment rates (DETRENDED UNRT) were obtained as the residual from a regression of the unemployment rate on a constant, TIME, and TIME². The likelihood ratio tests are two times the absolute value of the difference between the log likelihood for model 1 and the competing model. They are distributed $\chi^2_{(j)}$, where *j* is the number of restrictions relaxed (variables added) in moving from model 1 to the alternative model.

* Significant at the .05 level.

coefficients are significant (either jointly or individually) and have the appropriate sign. Again using the regression in column (5), we find that an extra 1 percentage point of unemployment lowers the win rate by about two-tenths of 1 percentage point.³⁴

2. *Interpreting the Results.* Taken together, the results in Tables 2, 3, and 4 provide fairly strong support for a modified version of the selection model. The number of filed cases is indeed higher in booms than slumps, the settlement rate is higher, and plaintiffs win a smaller share of cases filed at such times. Overall, the selection of cases through settlement does seem to produce a progressively smaller business cycle effect as we move up the disputing pyramid: the volume of litigation is most

³⁴ Measured at mean values of the regressors, a 1-percentage-point increase in the unemployment rate lowers the plaintiff win rate from 20.6 percent to 20.4 percent.

TABLE 4
GROUPED LOGIT REGRESSIONS OF PLAINTIFF WIN RATES ON TIME AND UNEMPLOYMENT RATES, 1977:2-1988:3

VARIABLE	MODEL				
	(1)	(2)	(3)	(4)	(5)
Constant	-.98* (-13.55)	-.96* (-13.12)	-.96* (-13.09)	-.25 (-.77)	-.22 (-.64)
TIME (quarter since 1969:3)	-.006* (-4.62)	-.006* (-4.78)	-.006* (-4.80)	-.035* (-2.68)	-.04* (-2.66)
TIME ²	...	...	...	.0003* (2.21)	.0003* (2.20)
DETRENDED UNRT(-1)	...	...	-.008 (-.34)	...	.008 (.33)
DETRENDED UNRT(-2)	...	-.029* (-2.31)	-.02 (-.86)	-.01 (-1.06)	-.02 (-.87)
-(Log likelihood)	-11,423.1	-11,420.5	-11,420.5	-11,418.1	-11,418.0
Likelihood ratio tests	...	$\chi^2_{(1)} = 5.2^*$	$\chi^2_{(2)} = 5.2$	$\chi^2_{(2)} = 10.0^*$	$\chi^2_{(3)} = 10.2^*$

NOTE.—*t*-statistics are in parentheses. The grouped logit specification is based on 46 quarterly observations of WINRATE but uses all 21,118 observations on case outcomes (4,695 plaintiff wins and 17,423 defendant wins). See text for further explanation. Detrended unemployment rates (DETRENDED UNRT) were obtained as the residual from a regression of the unemployment rate on a constant, TIME, and TIME². The likelihood ratio tests are two times the absolute value of the difference between the log likelihood for model 1 and the competing model. They are distributed χ^2_j , where *j* is the number of restrictions relaxed (variables added) in moving from model 1 to the alternative model.

* Significant at the .05 level.

TABLE 5
THE PREDICTED EFFECT OF A HIGHER UNEMPLOYMENT RATE ON THE QUARTERLY FILINGS
AND DISPOSITIONS OF EMPLOYMENT DISCRIMINATION CASES

	Number of Cases (1)	Settlement Rate (2)	Win Rate (for Those Adjudicated) (3)
Base filings	1,367	61.3	20.9
Incremental cases	515	84.6	16.4
Total	1,882	67.7	20.3

NOTE.—The sources of the regression equations that are used to estimate case filings, the settlement rate, and the plaintiff win rate are, respectively, Table 2, model 5; Table 3, model 5; and Table 4, model 5. The estimates presented in this table are obtained by using mean regressor values and unemployment rates that are 1 standard deviation below and above the mean unemployment figure for the period covered by our data—from 1977 through 1988. The base filings are at an unemployment rate of 6.04 percent; incremental cases are induced by a 2.62-percentage-point increase in the unemployment rate; and the total is at an unemployment rate of 8.66 percent.

sensitive to the business cycle, the settlement rate is less sensitive, and the win rate is least cyclical of the three, just as the theory predicts.

While we have documented the existence of a statistically significant relationship between the unemployment rate and the number of cases filed, and their settlement and win rates, the evidence presented thus far might create the impression that the magnitude of these effects is small. We should quickly correct this misimpression. For example, Table 5 presents the effect of a hypothetical increase in the rate of unemployment from 6.04 percent (the base level) to 8.66 percent, a sizable but certainly not unprecedented jump.³⁵ The table shows that an average quarter with a 6.04 percent unemployment rate generates about 1,367 employment discrimination suits. Raising the unemployment to 8.66 percent increases the number of cases by 515, to 1,882. In other words, the 43 percent jump in the unemployment rate has caused an increase in employment discrimination cases of almost 37.7 percent, an elasticity of 0.87.

Moreover, while the increases in the win and settlement rates associated with higher unemployment might seem small, this is because the comparisons of the *overall* rates of settlement and plaintiff victory obscure the marginal effects. The cases that fall into the white region of Figure 2 (computed on the assumption that the unemployment rate was 6.04) settle at a rate of 61.3 percent. When the unemployment rate rises to 8.66 percent, the settlement rate on the *total* population of cases—the

³⁵ Over the 11-year span beginning in 1977 for which we have data on case outcomes, the mean rate of unemployment was 7.35 percent, and the figures of 6.04 percent and 8.66 percent represent 1 standard deviation on either side of the mean.

combined white and black regions—is 67.7 percent. This overall increase of 6.4 percent looks relatively small. But recall our assumption in discussing Figure 2 that all of the cases filed when the unemployment rate was low (the base filings) would also be filed when it was high. Suppose we make the further assumption that the settlement and win rates for these base filings are the same at both points in time. If so, then *all* of the changes in the settlement and win rates that appear in our regression estimates are caused by the different settlement and win rates of the *incremental* cases that are induced by the higher rate of unemployment (the cases in the black area of Figure 2).³⁶

Since our regression estimates tell us how many cases are induced by the higher unemployment, and we know the settlement and win rates for both the base and total populations, it is a simple matter to compute the settlement and win rates on the incremental cases as a weighted average.³⁷ These figures are presented in Table 5, which shows that there are substantial differences between the settlement and win rates of the incremental and base cases. For example, the settlement rate is 61.3 percent on the base cases, but 84.6 percent on the incremental cases. The 43 percent rise in the unemployment rate has thus led to a marginal increase in the settlement rate of 23.3 percentage points or 38.0 percent ($= 23.3/61.3$), for a marginal elasticity of 0.876. This is consistent with the predictions that these incremental cases are weaker than average and therefore should settle at higher rates.

Similarly, a comparison of the 20.9 percent win rate for the base filings with the 16.4 percent win rate for the incremental cases confirms that the

³⁶ The assumption that the base filings would have the same settlement rate when the unemployment rate rose is conservative for the following reason. If the unemployment rate rises, the likely damages received by successful plaintiffs will rise. But higher damages—unless they are offset by proportionately higher litigation costs—should encourage litigants to go to trial, thereby causing the settlement rate to *drop*. Thus, if the settlement rates of the base filings actually fell during the recession, then our estimates of the increased settlement rates on the incremental cases must be biased downward. Note, however, that the assumption is only conservative if the concerns expressed in Section IVA *infra* are not a serious problem.

³⁷ In other words, we know that

$$P_T \times \text{total cases} = p_B \times \text{base filings} + p_I \times \text{incremental cases},$$

where P_T is the overall probability of settlement, p_B is the probability of settlement for the base cases, and p_I is the overall probability of settlement for the incremental cases. Solving for p_I reveals that the probability that the cases that are induced by the higher unemployment rate will settle is 84.6 percent—substantially above the settlement rate of 61.3 for cases filed during low rates of unemployment. In a similar fashion, one can also compute *win rates* for the high and low unemployment rate periods, thereby permitting the calculation of the win rate on the adjudicated incremental cases induced by the higher unemployment rate.

induced filings are in fact weaker. Indeed, had it not been for the higher rate of settlement on the weaker cases, the difference in win rates would have been even greater than that shown in Table 5.³⁸ Thus, we have confirmed that a higher rate of unemployment induces a substantial number of additional cases, that these incremental cases are weaker than average, and thus have higher settlement rates and lower plaintiff win rates.

Note what we have established. Higher unemployment rates induce a significant rise in the number of cases, but these incremental cases are substantially weaker than the average cases filed when unemployment rates are lower. The Priest-Klein theory suggests that weaker cases should be disproportionately weeded out—and they are! The settlement rate for these incremental cases is over 23 percentage points higher than for the base cases. But the Priest-Klein screen does not keep out all of the lower-quality cases. The remaining incremental cases that have not settled are won by the plaintiffs at a rate of only 16.4 percent as opposed to the base plaintiff win rate of 20.9 percent. We have therefore established the existence of the screening mechanism that the Priest-Klein model predicts, but we have shown that it does not completely filter out all of the additional low-quality cases.

IV. REJECTING SOME ALTERNATIVE EXPLANATIONS FOR THE RESULTS

We have attributed our findings to the operation of a Priest-Klein settlement screen that partially obscures the lower case quality of the incremental cases induced by a rise in the unemployment rate. We must also consider four other factors not so far discussed that might link the business cycle with the settlement and win rates, however. Conceivably, the settlement and win rates could be affected by cyclical changes in (1) the composition of the caseload, (2) legal doctrine, (3) the average fault level of defendants (the amount of discrimination), or (4) the parties' relative stakes. This section demonstrates that none of these factors can actually explain the observed pattern of win and settlement rates.

³⁸ What would the plaintiff win rate have looked like had the incremental cases settled at the same rate as the base filings? In this situation, 213 of the incremental cases would have been tried instead of only 80. Obviously, if those 133 cases (213 - 80) included a substantial portion of very low probability cases, then the adjusted win rate for the incremental cases would have been considerably lower than the 16.4 percent we estimated for these cases. If the average win rate on these 133 settled cases would have been, say, 8.2 percent, then if they had not settled, the win rate for the 213 cases would have been only 11.3 percent compared to 20.9 percent for the base filings. If plaintiffs would have won none of the 133 extra settled cases, then the incremental win rate would drop to only 6.2 percent.

A. *Cyclical Changes in the Composition of the Caseload*

The previous section used the model depicted in Figure 2 and the Priest-Klein analysis to interpret our regression findings. The validity of our story rests, however, on the implicit assumption that any increase in filings induced by a recession—the incremental cases—comes from the dark area of cases in Figure 2. This theoretical assumption would seem to be buttressed by the fact that the recession-induced cases are weaker than those filed when the economy is stronger.

But an alternative explanation is possible. Rather than being driven by the model that we depict in Figure 2, the cyclical patterns in settlement and win rates could simply be caused by changes in the types of cases that are brought across the business cycle. If the entire composition of employment discrimination cases changes with the unemployment rate, then we have not properly identified the “incremental cases” that are added on to the constant “base filings.”

To illustrate this problem, imagine the following scenario. Suppose that cases filed during recessions are largely allegations of discriminatory discharge. In prosperous times, however, fewer workers are fired, and most of the discrimination complaints are instead allegations of, say, sexual harassment. This story has a certain plausibility to it: when the job market is tight, workers might be more willing to complain about conditions in their current job, knowing that it is more costly for their employer to retaliate against them at such times. If this sort of compositional shift actually occurs, however, then our analysis could be substantially off target. For instance, we attribute the declining win rate during slumps to a decline in case quality. Instead, however, it might be attributable to a compositional shift toward types of cases with different win rates.³⁹

In order to reassure ourselves that our Figure 2 model is appropriate and that the observed changes in settlement and win rates over the business cycle are not caused by changes in the *composition* of discrimination cases, we examined a number of different types of evidence.

1. *The Worker Benefits Effect.* Recall that our discussion of Figure 2

³⁹ Discharge cases might have lower win rates than harassment cases for either or both of two reasons. First, the rules governing proof might differ across the two types of cases. If the strict version of the Priest-Klein model prevails, then differences in rules should not cause differences in plaintiff win rates. But if there is incomplete selection of cases through settlement, plaintiffs might nevertheless do worse in litigated harassment cases than in litigated discharge cases. Alternatively, relative stakes might differ between the two kinds of cases. For example, if plaintiffs have higher stakes relative to defendants in harassment cases than they do relative to defendants in discharge cases, the Priest-Klein model predicts that plaintiffs will be more successful in harassment cases.

assumes that the increase in filings during recessions comes from a rise in potential damages caused by the longer spells of unemployment suffered by most plaintiffs. We have elsewhere referred to this phenomenon as the “worker benefits effect.”⁴⁰ But as we have also indicated, employment discrimination case filings could increase in recessions if the number of incidents that give rise to litigation, such as discharges and layoffs, grew in recessions—the “incidents effect.” This concern is alleviated by our earlier finding that the worker benefits effect, rather than the incidents effect, was the explanation for the countercyclical pattern.⁴¹ Thus, we have strong reasons to believe that Figure 2 captures an important reason for the procyclical behavior of employment discrimination case filings.

2. *Direct Tests for Cyclical Composition Changes.* We can also directly test whether the average characteristics of employment discrimination suits filed during periods of high unemployment differ uniformly, and not just at the margin, from those filed when the unemployment rate is low. We propose the following test.

Consider the percentage distribution of cases filed in quarter t . Let $Y_{t,i}$ index the distribution along some dimension: for example, Y might be the type of discrimination alleged by the plaintiff (hiring, firing, demotion,

⁴⁰ See Donohue & Siegelman, *supra* note 22, at 722.

⁴¹ We based this conclusion on the following findings, which undermine the importance of the incidents effect.

1) The upturn in federal court filings following a rise in unemployment occurs faster than would be possible given the delays needed to process unemployment discrimination cases through the EEOC. If a rise in the unemployment rate caused an increase in the duration of unemployment for those who had already been unemployed for some time, however, then the relatively short lag between changes in unemployment rates and filing rates is reasonable. In other words, the increase in case filings does not occur because of an increase in the type of incidents that lead to suit. It occurs because more of the employment discrimination cases that are already in the pipeline after the filing of a charge with the EEOC proceed to federal court if the economy slips into recession. The recession apparently changes litigant behavior concerning pre-existing disputes.

2) Suits against the federal government are countercyclical even though discharges and layoffs from the federal government are not. If the federal government does not lay off its workers countercyclically, but the number of suits against the government nevertheless follows the cycle, this again suggests that the unemployment rate–unemployment duration (worker benefits) effect is at work.

3) The volume of charges of discrimination brought before the EEOC is not countercyclical. Alleged acts of discrimination seem to generate EEOC complaints at a relatively constant rate, with less sensitivity to the business cycle than experienced by district court filings of discrimination cases. Months after the alleged act occurs, however, aggrieved workers are more likely to advance their claim to a federal court if the economy has worsened and they have had difficulty finding alternative employment.

4) The amount of damages awarded to successful plaintiffs in cases tried to a judge increases with the unemployment rate.

For a more detailed explanation of these findings, see Donohue & Siegelman, *supra* note 22.

conditions of employment, retaliation, other). In this case, $Y_{1,2}$ would be the percentage of cases in quarter 1 that fall in category 2 (firing).⁴²

A test of whether the composition of cases changes over the business cycle could then be conducted by regressing the $Y_{t,i}$ on business cycle variables (lagged detrended unemployment rates). If the coefficients on the unemployment variables are not significantly different from zero, then we reject the view that the observed changes in win rates and settlement rates are simply caused by different types of cases being filed at different points in the business cycle. Since the dependent variable is discrete and multivalued, we use multinomial logistic regression rather than ordinary least squares.⁴³

Table 6 presents results from logistic regressions designed to test whether the business cycle influences the composition of the employment discrimination caseload. Since the Administrative Office data set does not contain any information about the composition of the caseload, we utilized a different source for these regressions—a survey conducted by the American Bar Foundation (ABF) in which we examined roughly 1,100 randomly selected employment discrimination cases in seven cities across the United States.⁴⁴

Table 6 reports likelihood ratio tests for whether the business cycle

⁴² If there are K categories, then for any quarter t ,

$$\sum_{i=1}^K Y_{t,i} = 1.$$

If $K = 2$, we have the standard logistic regression with grouped data.

⁴³ Once again, having multiple observations for each quarter and a dependent variable that is a proportion of cases falling into each category, we use the grouped data formulation (described earlier in the WINRATE analysis).

For some of the variables, it is possible for the case to fall into more than one category. For example, a case could contain both a sex and race discrimination claim. We handled this problem in two ways.

First, we coded the most important claim first and used only the first basis of discrimination in the analysis below. This is appropriate if (most) plaintiffs believe that they have a choice of only a *single* type of claim (from among race, sex, age; hiring, firing, retaliation; and so on).

Table 6 also presents ordinary grouped logistic regressions, in which we ask whether the probability of a race (or sex or age. . .) claim—*regardless of any other claims* also made—changes over the business cycle. This is appropriate if plaintiffs' choices are not seen as mutually exclusive.

⁴⁴ The data were selected from the same Administrative Office data tape used to construct the population of employment discrimination cases and are described in more detail in Donohue & Siegelman, *supra* note 14; Siegelman & Donohue, *supra* note 3. The cases were sampled over the period from 1972:3 through 1987:1, which substantially overlaps, but is not identical to, the time frame used in the other regressions reported in the paper.

TABLE 6

LIKELIHOOD RATIO TESTS FOR THE EFFECT OF THE BUSINESS CYCLE ON THE COMPOSITION OF
THE EMPLOYMENT DISCRIMINATION CASELOAD

Distribution of Cases by:	Degrees of Freedom ^a	Test Statistic ^b	p-Value
Results from multinomial logit regressions:			
Basis of discrimination (age, sex, race, other)	6	6.84	.34
Basis of suit (Title VII, ADEA, § 1981, § 1983, other)	8	10.33	.24
Defendant's SIC code (mining, construction, durable manufacturing, nondurable manufacturing, transport, utilities, wholesale/retail trade, finance, services, government)	18	19.12	.38
Plaintiff's occupation (managerial, technical, service, agricultural, operative, precision craft)	10	8.09	.62
Plaintiff's race (black, white, other)	4	3.48	.48
Type of discrimination (hiring, firing, demotion/promotion, conditions of employment, retaliation, other)	10	8.64	.57
Results from binomial logit regressions:			
Whether plaintiff is suing his or her current employer (yes/no)	1	.37	.54
Plaintiff's sex (male, female)	1	1.99	.16
Whether plaintiff raises a Title VII claim (yes/no)	1	1.83	.18
Whether plaintiff raises an ADEA claim (yes/no)	1	.13	.72
Whether plaintiff raises a § 1981 claim (yes/no)	1	1.98	.16
Whether plaintiff raises a § 1983 claim (yes/no)	1	4.84	.03*
Whether age is a basis of discrimination (yes/no)	1	1.05	.31
Whether sex is a basis of discrimination (yes/no)	1	4.47	.03*
Whether race is a basis of discrimination (yes/no)	1	.04	.85
Whether plaintiff claims discrimination in hiring (yes/no)	1	3.78	.06
Whether plaintiff claims discrimination in firing (yes/no)	1	3.61	.06
Whether plaintiff claims discrimination in pay (yes/no)	1	.12	.73
Whether plaintiff claims discrimination in demotion/promotion (yes/no)	1	.33	.57
Whether plaintiff claims discrimination in conditions of employment (yes/no)	1	3.14	.08
Whether plaintiff claims discrimination in retaliation (yes/no)	1	1.31	.25

NOTE.—Likelihood ratio tests are based on grouped-data, multinomial logistic regressions using quarterly data from 1972:2 to 1987:1. The variable in col. 1 is the dependent variable; each regression used the same explanatory variables: TIME, TIME², and the 1- and 2-quarter lagged, detrended unemployment rate. See text for further details concerning data and methods. ADEA = Age Discrimination in Employment Act; SIC = Standard Industrial Classification.

^a With K categories in the dependent variable and J restrictions, the test statistic has $R = J \times (K - 1)$ degrees of freedom. In our case, J is always equal to 2 (for the two lagged values of the unemployment rate that are excluded). Hence, there are $R = 2K - 2$ degrees of freedom.

^b $2(LR_u - LR_r)$ is distributed χ^2 with R degrees of freedom, where LR_u is the log likelihood for the unrestricted model with unemployment coefficients, LR_r is the log likelihood for the model without unemployment coefficients, and R is the number of restrictions imposed.

* Significant at the .05 level.

effects (as captured by lagged, detrended unemployment rates) are zero.⁴⁵ Casual inspection reveals that the business cycle effect is not statistically significant at conventional levels for any of the multinomial variables. While not displayed here, the actual coefficients themselves were typically small in size and statistically insignificant.

We do find weak evidence of business cycle effects when categories are treated one at a time. The probability of a case containing a claim under § 1983, and the probability of a sex discrimination claim, do seem to respond to the state of the economy. Hiring and firing claims also appear somewhat sensitive to economic conditions. None of the other dichotomous categories shows much sign of a business cycle effect, however.⁴⁶ Moreover, in the cases of both hiring and firing discrimination, the two unemployment coefficients have opposite signs, and the net magnitude is contrary to one's expectations: they suggest that hiring cases increase, and firing cases fall, during a recession.

In general, then, the results support our earlier analysis: the composition of cases does not change much over the course of the cycle, which suggests that it is changes in case quality that drive the observed win rate and settlement rate effects.⁴⁷ The next section considers—and rejects—some additional possible explanations for the cyclical pattern of outcomes in employment discrimination litigation.

While this paper was in press, it occurred to us that the test for cyclicity in the composition of the caseload has relatively little power. That is, the test is unlikely to reject the null hypothesis of no cyclicity, largely because the data from our 1,100-case sample are not sensitive enough to the business cycle. One way to see this is to use the data in Table 6 to replicate the conclusions of Table 2. While the overall number of employ-

⁴⁵ $2(LR_u - LR_r)$ is distributed χ^2 with R degrees of freedom, where LR_u is the log likelihood for the unrestricted model (with unemployment coefficients), LR_r is the log likelihood for the model without unemployment coefficients, and R is the number of restrictions imposed. If the dependent variable is K -nomial, then constraining J coefficients to be equal to zero imposes $R = J(K - 1)$ restrictions. Since J is always equal to 2 in our analysis, $R = 2K - 2$.

⁴⁶ We also ran the same logistic regressions using 3- and 4-quarter lagged, detrended unemployment rates instead of 1- and 2-quarter lags. Of the 13 dichotomous variables describing case categories, only allegations of firing discrimination were significantly related to the business cycle, using the test procedure described above.

⁴⁷ The unemployment rate variables used in this analysis are measured at the national level, rather than being city-specific. Since each city's unemployment rate is presumably what drives the litigation behavior of its citizens, and since the local rate differs from the national one by a random component in each quarter which we do not know, our explanatory variables are measured with error. As is well known, this biases the estimated coefficients toward zero, which tends to support our hypothesis of no business cycle effects, weakening the authority of our tests.

ment discrimination suits is obviously sensitive to the business cycle, we found only a very slight sensitivity in the sample data used to estimate the regression in Table 6. If these data do not reveal much of a business cycle effect for the *volume* of suits (where we have strong reason to believe it exists), they are unlikely to reveal an effect on the composition of suits, which should be substantially weaker.

To compensate for this lack of power, we performed a variety of additional tests for cyclicalities in the composition of the caseload. (These tests and the results are described in detail in an appendix available from the authors.) One alternative is to replicate the tests described above using annual data on charges of employment discrimination filed with the EEOC, since most claims of employment discrimination must be processed through the EEOC before they can be filed in federal court. While there is a small, insignificant business cycle effect on the volume of charges filed, there is no appreciable effect of unemployment on the composition of EEOC charges.

A second set of tests looks at the ratio of hiring to firing claims. Since the two kinds of claims seem to move in opposite directions over the cycle, their ratio should be more sensitive to the unemployment rate than either hiring or firing claims taken by themselves. Even with this specification, however, we find no evidence of business cycle effects in either the EEOC or ABF sample data. In sum, while our tests may not be very powerful, the results are consistent with our maintained hypothesis that the business cycle does not influence the composition of the employment discrimination caseload.

B. Changing Doctrine

Easiest to dismiss is the possibility that changing legal doctrine explains any of the cyclical patterns we have discussed. Whether or not there has been a long-term change in doctrine that might explain the falling win rate,⁴⁸ it is highly implausible that there is any relationship between changes in legal doctrine and the business cycle. Moreover, even if one assumed that courts were more sympathetic to plaintiffs who file during economic downturns, this assumption would be consistent with the higher rate of filings in downturns, but not with the lower win rate.

⁴⁸ Note in Table 4 that the time trend on the plaintiff win rate is negative and statistically significant. A change in doctrine is not the only explanation for the falling win rate. For an alternative based on the accumulation of precedent, see Hylton, *supra* note 5.

C. *Changes in Discrimination*

Cyclical movements in the amount of discrimination seem inherently more plausible, although there is little empirical evidence to support their existence. Since unemployment (beyond the level associated with normal economic frictions) represents an excess supply of labor at the going wage, it presents employers with an opportunity to pick and choose among workers queuing for jobs. Just as minimum wage laws or unions facilitate discrimination in the classic Becker-Posner analysis—by creating an excess supply of labor and giving employers scope to indulge in discriminatory preferences—one might imagine that a macroeconomic slump produces the same effects. Theory suggests, therefore, that discrimination should rise during slumps, and this might be expected to induce more case filings.⁴⁹

But if discrimination is indeed higher during slumps, then the incremental cases induced by this greater discrimination should tend to be stronger than the average base case (or at least no weaker). In this event, the obvious prediction is that plaintiffs should win *more* (or at least, no fewer) of the incremental cases that are filed at such times. In the Priest-Klein model, for example, a rise in the defendant's average fault level should raise the win rate, although by much less than the increase in defendants' fault.⁵⁰ In fact, we find exactly the opposite to be true: plaintiffs win less often in the added cases filed when the unemployment rate is high. Thus, either discrimination must fall during slumps, which seems unlikely, or the movement of discrimination over the cycle cannot explain our results.

D. *Changes in Relative Stakes*

Can shifting relative stakes explain any of the cyclicity in win rates and settlement rates? We begin by defining the ratio of the plaintiff's to the defendant's stakes as R .⁵¹ Since the selection model predicts that the party with the larger stakes will prevail more often, the results presented earlier

⁴⁹ The effect is only unambiguous in the absence of an antidiscrimination law, however. When discrimination is illegal and back pay damages are available, the expected *cost* of discrimination to employers also becomes a function of the business cycle. (This is simply the flip side of the effect on plaintiff's expected benefits that we discussed earlier.) If employers are more sensitive to the incentive effects of larger penalties than to the greater opportunities for discrimination that a recession opens up for them, it is possible, although unlikely, that discrimination might actually fall during slumps. See Donohue & Siegelman, *supra* note 22, for an extended discussion.

⁵⁰ See Table 1 of Priest & Klein, note 1 *supra*, at 22; they simulate moving the decision standard, rather than the average fault level, but the consequences are the same.

⁵¹ That is, $R = \text{Stakes to Plaintiff} / \text{Stakes to Defendant}$.

(in Tables 1–4) require that (1) R is less than unity, (2) R is decreasing over time (since the win rate is falling), and (3) R moves *procyclically*. That is, since plaintiffs win a larger share of the cases filed in a booming economy, R must be greater in booms than in slumps to be consistent with the theory.⁵²

It is quite plausible that condition (1) holds—defendants may well have reputation and adverse-precedent effects from losing a lawsuit which would not be matched by symmetric gains to plaintiffs. One might also be able to tell a story about why relative stakes should be falling over time as required by condition (2). For example, if the stigma of being labeled a discriminator has increased over time, relative stakes will be decreasing.

However, some simple algebra reveals that relative stakes should, if anything, tend to move *countercyclically*, in violation of condition (3), although the magnitude of this effect is likely to be rather small.

To see this, define S_p and S_d as the *absolute* stakes of plaintiff and defendant respectively. By definition,

$$R = S_p/S_d.$$

Suppose that the plaintiff's stakes are limited to her back pay award, J . Thus, $S_p = J$. As demonstrated earlier, J depends on the unemployment rate, so $J = J(U)$, with $J' > 0$. The defendant's stake in the litigation consists of the back pay award, J , plus reputation or precedential effects, which we can denote by K , $K > 0$. Therefore, $S_d = J + K$. Presumably, K does not vary over the business cycle, since the importance of reputation or precedent should not depend on the unemployment rate. Therefore, we can write

$$R = J(U)/[J(U) + K],$$

and differentiating with respect to the unemployment rate, U , we have

$$\partial R/\partial U = [J'(J + K) - J'J]/(J + K)^2 = J'K/(J + K)^2 > 0.$$

Intuitively, an increase in unemployment raises J for both plaintiffs and defendants, but this increase in J represents a larger proportion of the stakes for plaintiffs. This means that *relative* stakes (R) *increase* during

⁵² The nature of relative stakes implied by our results can be summarized by writing $R = R(U, t)$. The procyclical behavior of the win rate implies that $\partial R/\partial U < 0$, while the negative time trend requires $\partial R/\partial t < 0$.

It is conceivable, following Hylton, that the *variance* of the error in the plaintiff's estimate of the true fault level could move procyclically or that the variance in defendants' error could move countercyclically. Both of these prospects seem implausible.

a slump, rather than decreasing as the selection model requires in order to explain the falling win rate.⁵³

In short, it does not seem possible as a matter of theory to explain the cyclical movement of settlement and win rates by attributing them to changes in relative stakes over the cycle.

V. CONCLUSION

This article shows how the relationship between the business cycle, as measured by the national rate of unemployment, and all phases of employment discrimination litigation can be used to examine the selection of disputes for litigation.

The strict version of the selection model suggests that the plaintiff win rate should not depend on any case-specific factors (other than the parties' relative stakes), since these are all accounted for by both sides in deciding whether or not to settle the case before it is adjudicated. In fact, however, the influence of the business cycle *can* be detected in the plaintiff win rate, implying only partial selection in the settlement of employment discrimination disputes. The partial selection model also implies that the unemployment rate should have a stronger influence on the volume of cases filed (and on settlement rates) than on the outcomes of adjudicated cases. This is precisely what we find. Note that while the settlement filter is not complete, it is powerful: when the unemployment rate jumps from 1 standard deviation below to 1 standard deviation above its mean, almost 85 percent of the incremental cases induced by this rise will settle.

In sum, this article suggests an important lesson about the selection of disputes for litigation: despite the theoretical and empirical attacks on

⁵³ Ian Ayres has suggested to us that K may indeed vary over the business cycle. If employers feel that losing a discrimination case in a slump has less precedential value than losing a case filed in a boom, then dK/dU will be negative. If this is true, however, then relative stakes are even *more* procyclical, since

$$R = J(U)/(J(U) + K(U))$$

implies

$$\partial R/\partial U = [J'K - K'J]/(J + K)^2 > J'K/(J + K)^2 > 0, \text{ for } K' < 0.$$

Thus, the assumption that K falls when U rises only strengthens the conclusions that relative stakes should increase in a slump.

Any effect of the unemployment rate on relative stakes is likely to be quite small, however. Suppose that at an average unemployment rate, $K = 3J$. Thus, $R = 1/(1 + 3) = 0.25$, and plaintiffs have only one-fourth as large a stake in litigation as defendants. Under these conditions, a 10 percent increase in J will raise R by only 7.3 percent (from 0.25 to 0.268). If instead $K = 0.25J$, a 10 percent increase in J raises R only from 0.8 to 0.81 (an increase of only 1.25 percent).

the Priest-Klein model, we have shown that one of its basic predictions—that weak cases tend to settle at a disproportionately high rate—is confirmed for our sample of federal court employment discrimination cases. The array of empirical findings in this article should be useful to cabin the speculations of theorists as they seek to develop better models of the settlement process. The finding that weak cases are strongly winnowed out is important not only for those who are interested in modeling the process of settlement and litigation, however. It should also matter to anyone who wants to draw conclusions about the law from the accessible set of cases that are litigated to a final judgment (or even more narrowly, from the set of cases that are appealed and generate an appellate decision).

The evaluation of employment discrimination litigation through the interpretive framework of the Priest-Klein model suggests that the low plaintiff win rate in employment discrimination cases may simply reflect the asymmetric nature of the stakes in such litigation. Rather than demonstrating the poor quality of most plaintiffs' cases, the low win rate might simply indicate that employers typically have more to lose from a negative outcome at trial than plaintiffs have to gain. Conversely, if our identifying restrictions are sound, then it is fair to conclude that the employment discrimination cases that are induced by an economic downturn tend to be lower-quality cases—at least as measured by the ultimate plaintiff win rates at trial.⁵⁴

Finally, we note that our test of the Priest-Klein hypothesis is not premised on a simple finding that the model's predictions are confirmed. We also consider, and reject, several alternative explanations for the business cycle effects we observed. Since there are neither theoretical nor empirical alternatives that seem capable of explaining why the win rate and settlement rate vary over the business cycle, our confidence in the validity of the Priest-Klein story is strengthened.

APPENDIX

EXPECTATION FORMATION

As in the standard version of the Priest-Klein model, whose general notation we follow here, the plaintiff estimates her probability of winning based on her estimate of the defendant's "fault level" and her knowledge of the decision stan-

⁵⁴ Conceivably, a firm that wished to engage in discriminatory discharges might find it easier to disguise its true motives if the economy was trending down and other workers were being fired because of it. In such an event, the recession is associated with a fall in the plaintiff win rate because of a greater difficulty in proof, even though there is no decline in the actual merits of the claim.

dard as follows. Let Y' be the true level of defendant fault in the case. If the true fault level is greater than the "decision standard," then the plaintiff will win if the case is litigated; otherwise, the defendant will win.⁵⁵

Although the plaintiff knows both the decision standard and the amount of damages she will receive (if she wins) at the time that the dispute occurs, she does not observe the true fault level in the case. Instead, she forms her expectation of the probability that she will win based on the fault level she actually observes, which contains some error. We can define the plaintiff's (unbiased) estimate of the fault level at the time the dispute occurs as

$$\hat{Y}_1 = Y' + \epsilon_1,$$

where ϵ_1 is a random variable with a zero mean.⁵⁶

Now assume that the decision standard is arbitrarily (and innocuously) rescaled so that it is set at 0, and suppose that ϵ_1 is normally distributed with mean zero and variance σ_1^2 . Then the plaintiff's estimate that she will prevail is

$$\hat{p}_1 = PR(Y' > 0 | \hat{Y}_1) = F(Y' + \epsilon_1), \quad (A1)$$

where $F(x)$ is just the probability that a normally distributed random variable with variance σ_1^2 is less than x . For convenience, we assume that the level of defendant fault, Y' , is also a random variable, which is uncorrelated with the business cycle.⁵⁷

Substituting equation (A1) into equation (1a) in the text yields a complete model of the decision to file suit. Filing will occur whenever the plaintiff's estimate of the likelihood that she will prevail ($\hat{p}_1$) exceeds the threshold value p_1^* . Alternatively, the plaintiff will file when her asking price—defined by substituting ($\hat{p}_1$) for p_1 into equation (1a)—is positive.

The decision to settle depends on the behavior of both parties. But assuming that each side estimates its probability of winning as described above, the logic is sketched out in the text and is fairly straightforward.

⁵⁵ Formally,

$$PR(\text{Plaintiff Win} | \text{Adjudicated Case}) = \begin{cases} 1 & \text{if } Y' > \text{decision standard,} \\ 0 & \text{if } Y' < \text{decision standard.} \end{cases}$$

This implies that there is no judicial error. For a consideration of the role of judicial error, see Hylton, *supra* note 5.

⁵⁶ Experimental evidence suggests that parties' estimates of fault level are subject to self-serving bias (George Loewenstein *et al.*, Self-Serving Assessments of Fairness and Pretrial Bargaining, 22 J. Legal Stud. 135 (1993)), and the tendency to believe one's own case (more generally, one's own attribute) is better than it actually is. See, for example, Ola Svenson, Are We All Less Risky and More Skillful than Our Fellow Drivers? 47 Acta Psychologica 143 (1981). However, if parties' lawyers have more experience estimating fault levels and less psychological investment in a lawsuit than their clients, this should work to reduce—if not eliminate—self-serving bias.

⁵⁷ One might imagine that the amount of discrimination, and hence the average defendant's fault level, would increase during slumps and fall during booms. Formally, this would imply that $Y' = f(U)$, with $f'(U)$ greater than zero. We discuss this possibility in the final section of the text.