

# Does a bounds approach help with selection in litigation data?

*Comment*

by

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In this issue Helland and Yoon (2018) propose the bounds approach to address the problem of selection with litigation data. They build on Snyder and Hughes (1990) and Hughes and Snyder (1995) who compare the English rule to allocate legal cost with the American rule using data from Florida. A comparison of these two regimes comes with selection issues: Not all claims which are filed under one rule would be filed under the other rule. Not all claims which are settled under one rule would be settled under the other.

Snyder and Hughes (1990) and Hughes and Snyder (1995) use a parametric selection model (Heckman, 1979; Lee, 1978) to distinguish between selection effects and behavioural effects. Helland and Yoon propose to replace the parametric selection model with a bounds approach (Horowitz and Manski, 1995; Lee, 2009). The bounds approach requires different assumptions. Below I ask the question whether these assumptions can be justified in the context of litigation.

Helland and Yoon consider two selection problems: (1) Some plaintiffs file a claim, others do not file a claim. (2) Once claims are filed, some parties settle, others litigate. Both decisions might depend on the rule to allocate legal cost.

*Filing a claim:* Let us first sketch the decision whether to file a claim: Plaintiff  $p$  and defendant  $d$  assign subjective probabilities  $x_p$  and  $x_d$  to the event that the plaintiff wins a case and obtains an award  $A$ . Furthermore, plaintiff and defendant have litigation costs  $c_p$  and  $c_d$  respectively.

Under the American rule the plaintiff's expected gain is  $\Pi_{AR}^p = x_p A - c_p$ . The plaintiff should file a claim if  $\Pi_{AR}^p$  is positive. Under the English rule the plaintiff's expected gain is  $\Pi_{ER}^p = x_p A - (1 - x_p)(c_p + c_d)$ . The plaintiff should file a claim if  $\Pi_{ER}^p$  is positive.

Figure 1a illustrates the decision to file or not to file a claim. The vertical axis shows  $\Pi_{AR}^p$ . Under the American rule the plaintiff should file whenever  $\Pi_{AR}^p$  is positive, i.e. above the horizontal axis. The horizontal axis shows  $\Pi_{ER}^p - \Pi_{AR}^p = x_p \cdot (c_p - c_d) - c_d$ . Under the English rule the plaintiff should file whenever  $\Pi_{ER}^p$  is positive, i.e. above the (dashed)  $-45^\circ$  line.

When  $\Pi_{AR}^p$  is positive and  $\Pi_{ER}^p$  is negative, plaintiffs should only file under the American rule. Here the award  $A$  is sufficiently large for a claim under the American rule, but the probability  $x_p$  of winning is too small for a claim under the English rule.

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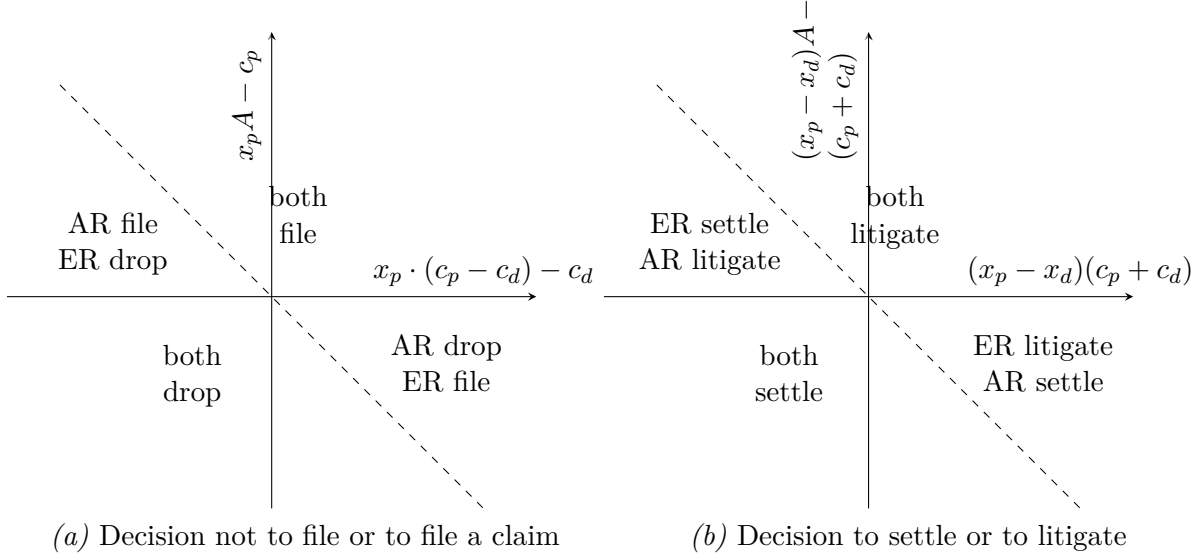


Figure 1

Decisions to file a claim and decision if litigation cost does not depend on the regime

Claims in this region seem to be relevant. They are sometimes called “low quality claims” (see, e.g., Polinsky and Rubinfeld, 1998, for a discussion).

When  $\Pi_{AR}^p$  is negative and  $\Pi_{ER}^p$  is positive, plaintiffs should only file under the English rule. Here the award  $A$  is too small for a claim under the American rule but the probability of winning  $x_p$  is sufficiently large for a claim under the English rule. Claims in this region are sometimes called “meritorious claims” (see again Polinsky and Rubinfeld, 1998).

*Settlement or litigation:* Let us next sketch the decision to settle a claim: Under the American rule the plaintiff’s gain is  $x_p A - c_p$  and the defendant’s gain is  $-x_d A - c_d$ . There are many ways to model negotiations for settlement. Before we come to the approach of Helland and Yoon, let us assume that, whatever the exact mode of negotiation is, parties settle if the sum of plaintiff’s and defendant’s gains from going to court is negative, i.e. parties settle if  $\Pi_{AR}^{p+d} = (x_p - x_d)A - (c_p + c_d) < 0$ . Under the English rule the plaintiff’s gain is  $x_p A - (1 - x_p)(c_p + c_d)$  and the defendant’s gain is  $-x_d A - x_d(c_p + c_d)$ . Parties settle if  $\Pi_{ER}^{p+d} = (x_p - x_d)A + (x_p - x_d)(c_p + c_d) - (c_p + c_d) < 0$ .

For the case that litigation cost is the same in both regimes Figure 1b illustrates the decision whether to settle or to litigate. The vertical axis shows  $\Pi_{AR}^{p+d}$ . Under the American rule parties should litigate whenever  $\Pi_{AR}^{p+d}$  is positive, i.e., above the horizontal axis, otherwise they should settle. The horizontal axis shows  $\Pi_{ER}^{p+d} - \Pi_{AR}^{p+d} = (x_p - x_d)(c_p + c_d)$ . Under the English rule parties should litigate whenever  $\Pi_{ER}^{p+d}$  is positive, i.e., above the (dashed)  $-45^\circ$  line, otherwise they should settle.

When  $\Pi_{AR}^{p+d}$  is negative and  $\Pi_{ER}^{p+d}$  is positive, parties will settle with the American

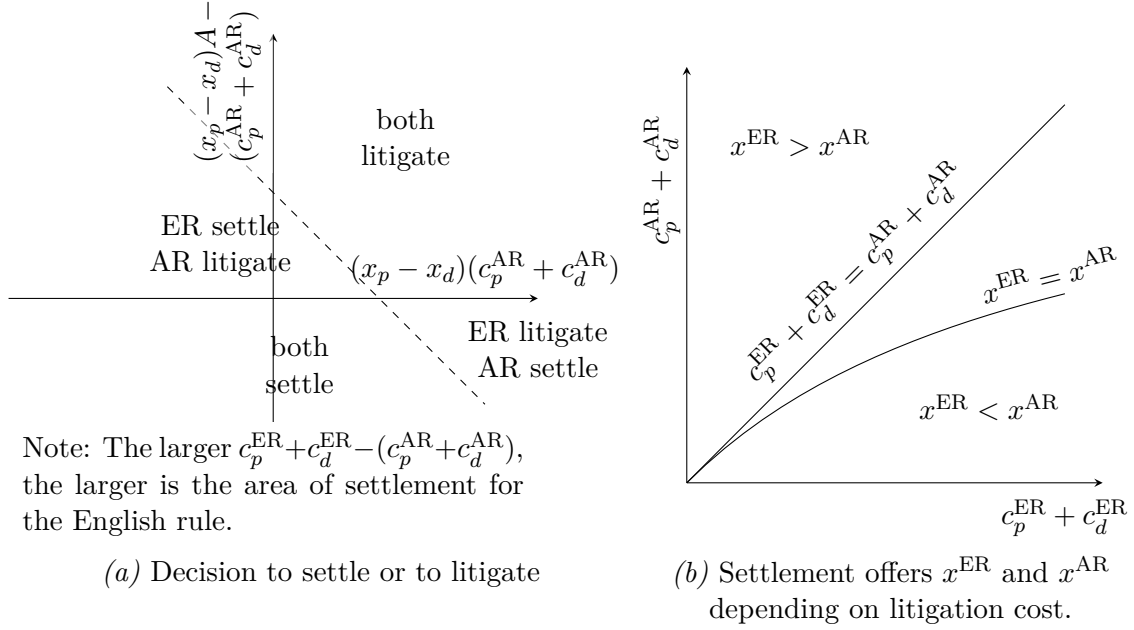


Figure 2

Settlement if litigation depends on the regime,  $c_p^{\text{AR}} + c_d^{\text{AR}} \neq c_p^{\text{ER}} + c_d^{\text{ER}}$ .

rule and litigate with the English rule (in this region the plaintiff has to be considerably more optimistic than the defendant and litigation cost is large, e.g.  $A = 1, x_p = 1, x_d = 1/10, c_p = c_d = 3/4$ ). When  $\Pi_{\text{AR}}^{p+d}$  is positive and  $\Pi_{\text{ER}}^{p+d}$  is negative, parties will settle with the English rule and litigate with the American rule (in this region the plaintiff has to be a bit more optimistic than the defendant and litigation cost may not be too large, e.g.  $A = 1, x_p = 1/2, x_d = 1/4, c_p = c_d = 1/10$ ).

*Endogeneous litigation cost:* So far we have considered a situation where litigation cost is not affected by the regime. Braeutigam, Owen, and Panzar (1984), Hause (1989), and Katz (1987) argue that litigation cost is endogeneous and can be substantially higher under the English rule than under the American rule. If  $c_p + c_d$  is larger under the English rule then the area where parties settle becomes larger, too. The area where parties litigate under the English rule shifts to the top right as indicated in Figure 2a. The region where parties only settle with the American rule shrinks. The region where parties only settle with the English rule grows.

*Screening offers for settlement:* Let us follow the framework proposed by Helland and Yoon to see how the regime determines settlement. Helland and Yoon follow Bebchuk (1984) and model the settlement negotiations as a game with asymmetric information: The defendant has private information about the value of a case:  $x_i \sim F(x)$ . The plaintiff makes a take-it-or-leave-it offer  $x^*$  to settle. Helland and Yoon assume that the distribution function  $F$  has a monotonous hazard rate, i.e. that  $(1 - F(x))/f(x)$  is

decreasing in  $x$ . To see that this is restrictive, consider, e.g.,  $F(x) = x^\alpha$  with  $\alpha \in (0, 1)$ . Such a distribution function does not have a monotonic hazard rate. Instead the hazard rate is increasing for  $x < (1 - \alpha)^{1/\alpha}$  and decreasing for  $x > (1 - \alpha)^{1/\alpha}$ .

If, indeed, the distribution functions  $F$  exhibits a monotonic hazard rate and if  $c_p^{\text{ER}} + c_d^{\text{ER}} = c_p^{\text{AR}} + c_d^{\text{AR}}$ , then the first-order conditions of the above screening game imply  $x^{\text{ER}} > x^{\text{AR}}$ .

Figure 2b illustrates the impact of the simplification  $c_p^{\text{ER}} + c_d^{\text{ER}} = c_p^{\text{AR}} + c_d^{\text{AR}}$ . The horizontal axis shows  $c_p^{\text{ER}} + c_d^{\text{ER}}$ , the vertical line shows  $c_p^{\text{AR}} + c_d^{\text{AR}}$ . Above the curve  $x^{\text{ER}} = x^{\text{AR}}$  we have, in line with the assumptions of Helland and Yoon,  $x^{\text{ER}} > x^{\text{AR}}$ . Below the curve we have, contrary to the assumptions of Helland and Yoon,  $x^{\text{ER}} < x^{\text{AR}}$ . This is a range where, in line with Braeutigam, Owen, and Panzar (1984), Hause (1989), and Katz (1987), litigation cost is larger with the English rule than with the American rule.

*Summary:* To distinguish between a selection effect and a behavioural effect, Helland and Yoon replace the assumptions of a parametric selection model (Heckman, 1979; Lee, 1978) with the assumptions of a bounds approach (Horowitz and Manski, 1995; Lee, 2009). Helland and Yoon state that, in using the bounds approach, they permit “...extreme forms of sample selection...” (Helland and Yoon, 2018, section 1). However, the bounds approach comes with two requirements: (1) treatments are randomly assigned and (2) the assignment to the treatment affects selection in a monotonic way.

- The first assumption, random assignment of treatments, means here that injuries are not affected by the judicial procedure. This is not trivial. After all, the change from one regime to the other is motivated by the intent to change the judicial outcome and, hence, to change the actions of the subjects of the law.

The second assumption, monotonicity of selection, seems to be even more restrictive:

- Monotonicity requires that cases which settle under the English rule must settle under the American rule, too. In the context of Figure 1b this assumes away the entire top left region where parties settle with the English rule but litigate with the American rule. Furthermore, Figure 1b assumes that  $c_p^{\text{AR}} + c_d^{\text{AR}} = c_p^{\text{ER}} + c_d^{\text{ER}}$ . For the more relevant case  $c_p^{\text{AR}} + c_d^{\text{AR}} < c_p^{\text{ER}} + c_d^{\text{ER}}$  (see Figures 2a and 2b) the area where monotonicity is violated becomes even larger.
- Furthermore, monotonicity requires that cases which are dropped under the English rule must be dropped under the American rule, too. In line with the discussion of Figure 1a this condition seems to be consistent with the support the English rule gives to claims from the bottom right region where plaintiffs file under the English but not under the American rule. However, the condition does not hold for the top left region in Figure 1a where plaintiffs file under the American but not under the English rule.

- Finally, monotonicity requires that cases which would be dropped under the American rule must not go to trial under the English rule. Essentially (and in terms of Figure 1a) this amounts to stating ex ante that if the English rule would encourage some meritorious claims, that these meritorious claims would never come to trial.

To summarise: The bounds approach replaces one set of assumptions, those of a parametric selection model, with another set of assumptions, here about the monotonicity of the selection process. The bounds approach is attractive when researchers disagree about the specificities of a parametric model and when they agree about the monotonicity of the impact of the treatment on selection. When comparing the English and the American rule in litigation, monotonicity of selection seems to be hard to defend.

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