Edinburgh School of Economics

Discussion Paper Series
Number 28

An experiment with two-way offers into court:
restoring the balance in pre-trial negotiation

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Date
January 1999

THE UNIVERSITY *of* EDINBURGH

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Abstract

Defendant offers into court is common procedural device aimed at increasing the probability that pre-trial negotiations will lead to out of court settlement. Both in the UK following the Woolf Report (1996) and the Cullen Report (1995) and in the USA, the idea of extending the arrangement to plaintiff offers into court has been suggested. This paper presents an extension of the theoretical work by Chung (1996) on defendant offers into court under the American rule to cover the English rule and to extend to two-way offers into court. It also reports on experiments conducted to measure the effect of moving to two-way offers into court. The results suggest no impact on the propensity to settle and a statistically significant but empirically modest movement of settlement in favour of the plaintiff.

I.   Introduction

Pre-trial negotiation has received a good deal of attention in the law and economics literature. Starting with a widely accepted framework of rational expectations and threat points as developed by Landes (1971), Posner (1973) and Gould (1973), theorists have widened the model to accommodate procedural details such as offers into court. Recent surveys of this literature are available in Anderson (1996), Cooter and Rubinfeld (1989), Main (1997) and Rickman (1995). The approach is generally known, in the phrase of Mnookin and Kornhauser (1979), as bargaining in the shadow of the law, and its strategic possibilities are discussed in Cooter, Marks and Mnookin (1982). The area is one of considerable importance to those interested in bargaining.

The use of offers into court, whereby the empirical outcome of the trial process is made conditional on the pre-trial settlement offers of one or both parties, is now commonplace in many jurisdictions. The arrangement is generally referred to as payments into court in England and Wales (Woolf, 1995, p. 194), as judicial offers or tenders in Scotland (Macphail, 1988, p. 471), as Rule 68 in the federal courts of the USA (Cooper, 1996), and under various labels in state-wide variants across the USA (e.g., Michigan Rule of Court, Rule 2.405; see Rowe and Anderson, p. 143). The logic of these procedural rules is similar to that often given to justify the basic loser-pays English rule of allocating costs. Under the hypothesis that the trial outcome represents the 'truth' (or as near as we are likely to get to it), the party ruled to be in the wrong in a civil trial[1] is held to be the intransigent party and the one who should bear the costs of the trial process. Under defendant offers into court, this logic is extended to the situation where, even if held to be liable, the defendant is relieved of all responsibility for costs[2] from the point where the defence makes a good faith offer to settle that is in excess of what the judge subsequently awards. Here the plaintiff, by rejecting such an offer, is implicitly deemed to be intransigent.

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[1] That is either a defendant against whom a claim is upheld or a plaintiff whose claim is thrown out.

[2] The extent of relief from costs, whether including lawyer's fees and expert witness fees etc. in addition to court fees, varies from jurisdiction to jurisdiction.

Phillips, Hawkins and Fleming (1976) highlight the pro-defendant nature of this arrangement and several recent prominent court cases illustrate its empirical significance. Thus, Kwasi Minta, a victim of the 1987 Kings Cross tube fire, refused a payment into court of £355,000 only to be awarded by the judge in March 1997, after an eight-day High Court hearing, damages of £110,427. This left him liable for some £150,000 of defence (London Regional Transport) legal expenses. Similarly, William Roache, who plays Ken Barlow in Coronation Street, rejected a £50,000 payment into court by the Sun Newspaper to settle a libel suit. The subsequent award of exactly £50,000 by the jury left Mr Roache liable for a very much larger sum in the form of the Sun Newspaper's legal expenses from the date of their offer to settle.

Two-way offers into court extends this arrangement yet further to allow the plaintiff's pre-trial settlement offers to have an impact on the empirical outcome of trial. In this case, a trial award that is more than a plaintiff had offered to accept during pre-trail negotiation to resolve the dispute is taken as evidence of intransigence on the part of the defendant. When operating under the American rule (each side pays their own costs), this allows some or all of the plaintiff's costs to be shifted onto the defendant. Under the English rule the defendant, being found liable, is already responsible for the taxed costs of the plaintiff and some additional sanction is necessary. In recent discussion of the introduction of such a two-way offers into court rule for England and Wales, Woolf (1996) suggests the defendant be liable, in such a situation, for a punitive rate of interest on awarded damages (from 5 to 25 percentage points above the prevailing rate). In similar discussions for Scotland, Cullen (1995) endorses proposals by the Court of Session Rules Council that the defendant be liable in expenses at an increased level when the plaintiff beats their own offer.

It should be noted, however, that when the plaintiff-offers arrangement alluded to in the Cullen Report (1995, p. 59) was put into practice, difficulties soon arose. Instituted with effect from 23 September 1996, the new procedure was withdrawn

some seven weeks later, on 14 November 1996. The original Act of Sederunt[3] included the following terms in Rule 34A.b, paragraph (2):

> *Where the pursuer is awarded a sum equal to or more than the sum specified in the offer to settle, he shall be entitled, from the defender to whom the offer to settle was made –*
> *a) unless the court otherwise orders, to the expenses of process (including any additional fee under Rule 42.14) as taxed by the Auditor; and*
> *b) to a sum equal to the taxed amount of those expenses (excluding any additional fee under Rule 42.14).*

Not only was this procedure withdrawn but an award that qualified under its terms was denied after appeal to the Inner House of the Court of Session[4]. The design of the cost-shifting rule can be seen to be flawed in two ways. As the sanction in section b) above is calculated on taxed expenses and, as the offer could be submitted any time before judgement is made, there is, far from an incentive to settle early, an incentive to delay serious negotiation. In addition, there is serious legal debate on whether the authority exists to award anything more than actual expenses incurred. It is on this second consideration that the legal arguments centred at the appeal stage, but from an economic perspective it is the first that is the more important. It is clear that careful modelling of the incentive effects of any such procedural rule is vital.

In this vein, developing the Landes-Posner-Gould model to accommodate offers into court, Miller (1986) predicts that defendant offers arrangements do indeed encourage settlement but warns that there is also a redistribution of wealth from the plaintiff and towards the defendant. Anderson (1994) and Chung (1996) utilise Miller's approach and reach some qualified conclusions in terms of settlement owing to the strategic

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[3] The devolved power under which such procedural changes are made in the Scottish Legal System. Rules of the Court of Session Amendment No. 6, 1996 (S.I. 1996 No. 2769). Note the terms 'pursuer' and 'defender' are used in Scots Law to indicate the plaintiff and the defendant.

[4] This is the Appeal Court in Scotland. The case in question is William Copland Taylor against Marshalls Food Group and was heard by the Lord President (Lord Rodger of Earlsferry), Lord Coulsfield and Lord Allanbridge. Opinion of 26 June 1998.

advantage offered to the defendant courtesy of this procedural arrangement. It is the model of Chung (1996) that we extend below to encompass two-way offers under the English rule.

Because of the difficulty in accessing settlement data there has been relatively little empirical work to shed light on the robustness of the theory. In a series of simulations where lawyers are asked for their response to given hypothetical situations Rowe and Vidmar (1988), Anderson and Rowe (1996), and Rowe and Anderson (1996) suggest that offer rules do indeed have an impact but that it might be at a more subtle level than settlement propensity or settlement level.

Using an experimental setting with four pairs of subjects, Coursey and Stanley (1988) test defendant offers into court with the American rule against both the English rule and the American rule on their own. Again, the results are somewhat equivocal, but the authors feel able to claim that the English rule and Rule 68 (the Federal version of defendant offers) both induce more settlements than the American rule on its own.

In Section II of this paper we extend the theoretical work of Chung (1996) to the English rule of cost shifting and to embrace two-way as well as one-way offers into court rules. We then introduce some experimental evidence, describing the procedural arrangements for the experiment in Section III and presenting the empirical results in Section IV. Section V concludes with a summary of the findings and a discussion of their policy implications.

II.   Theory

Building on Main and Park (1998b), which in itself is an extension of Chung (1996), the model below allows both the defendant and plaintiff to make offers into court.   Define **P** as the probability that the plaintiff makes a successful claim, and let **x** be the size of the court judgement awarded if the case goes to court and the plaintiff is successful. We

assume that **P**, the probability of plaintiff victory, is common knowledge to both sides and that the judgement itself is distributed between **xpmin** and **xpmax** with a cumulative probability distribution, given that the case is successful, of **Q(.)**. For simplicity, we assume that both sides have identical expectations about the distribution of possible court awards. We denote the plaintiff's expected court award ('damages') as **J** where:

$$J = P \int_{x_{\min}}^{x_{\max}} x \, dQ(x) \qquad (1)$$

The English rule with defendant offers into court

The essential characteristic of the English rule is that the party who loses the case pays all the costs[5]. The addition of defendant offers into court has a modifying effect. To recap, if the defendant is able to make offers into court, then if such an offer is rejected and the plaintiff fails to beat the defendant's offer when the case subsequently goes to court, then the plaintiff is liable for the costs. Note that the plaintiff can fail to beat the defendant's offer in two senses. The first is if the case is rejected by the judge. The second is if the judge finds in favour of the plaintiff but makes a damages award that is less than the offer already made by the defendant and lodged with the court[6]. If the total cost (adding the costs of both sides) of taking the case through trial is **F**, then the plaintiff's expected costs, **F_p**, and the defendants expected costs, **F_d**, can be expressed as a function of the defendant's offer into court, **O_d**, as follows:

$$F_d = P \, F \left[1 - Q(O_d) \right]$$
$$F_p = (1 - P)F + P \, FQ(O_d) \qquad (2)$$

In equation 2, the plaintiff is liable for the costs if the case is rejected or if the case is

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[5]Strictly speaking, the costs awarded are the taxed costs and these may fall short of the more comprehensive 'solicitor and own client' costs, thus leaving the winning party with some costs to pay.

accepted and they fail to beat the defendant's offer of O_d. The defendant is only liable for costs if the case is successful and the plaintiff is awarded more than the offer into court. We can thus express the defendant's expected loss from trial, $\mathbf{T_d^{DOC}}$, and the plaintiff's expected gain from trial, $\mathbf{T_p^{DOC}}$, once the defendant has made an offer into court of $\mathbf{O_d}$, as follows:

$$T_d^{DOC} = P \int_{x_{min}}^{x_{max}} x dQ(x) + PF[1 - Q(O_d)]$$

$$T_p^{DOC} = P \int_{x_{min}}^{x_{max}} x dQ(x) - (1 - P)F - PFQ(O_d)$$

(3)

The English rule with two-way offers into court

We now allow the plaintiff to also make offers into court. In this case, in addition to the effect of defendant offers into court, there is an effect on the overall level of damages if the plaintiff's offer into court is active. With plaintiff offers into court, if the plaintiff makes an offer into court that is rejected by the defendant and when, if the case ends up at trial , the plaintiff beats their own offer[7] then the defendant is charged a punitive interest rate on the damages awarded. These additional damages accrue to the plaintiff in our model.

Under two-way offers into court, the expected legal costs for each side are the same as under defendant offers into court only, as plaintiff offers into court has an impact solely on the level of damages. We denote the interest rate charged on the damages awarded following a 'successful' plaintiff offer into court by β. The expected damages, when the plaintiff has made an offer into court of $\mathbf{O_p}$, are therefore given by the following expression:

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[6] In the first of these two cases the plaintiff, as the 'loser' of the case would be liable for the costs regardless of any defendant offer into court.

[7] Here 'beats their own offer' indicates that the plaintiff offers to settle for £5000, say, an offer rejected by the defendant, but at the subsequent trial the judge awards a greater amount, £7000, say.

$$J^{DOCPOC}(O_p) = P\left(Q(O_p)\int_{x_{\min}}^{O_p} x\,dQ(x) + (1+b)\big[1-Q(O_p)\big]\int_{O_p}^{x_{\max}} x\,dQ(x)\right) \tag{4}$$

Equation 4 states that for each player type the expected court award after the plaintiff has made an offer into court is equal to the probability that the plaintiff is successful times the probability that the offer into court does not come into play times the expected level of damages if this is the case plus the probability that the offer into court does come into play times one plus the interest rate times the expected level of damages associated with this second possible outcome, with this entire sum multiplied by **P**, the probability that the plaintiff's case is successful. We can now introduce legal costs and express the expected court outcome for each side under two-way offers into court as:

$$T_p^{DOCPOC}(O_d,O_p) = P\left(Q(O_p)\int_{x_{\min}}^{O_p} x\,dQ(x) + (1+b)\big[1-Q(O_p)\big]\int_{O_p}^{x_{\max}} x\,dQ(x)\right) - (1-P)F - PFQ(O_d)$$

$$T_d^{DOCPOC}(O_d,O_p) = P\left(Q(O_p)\int_{x_{\min}}^{O_p} x\,dQ(x) + (1+b)\big[1-Q(O_p)\big]\int_{O_p}^{x_{\max}} x\,dQ(x)\right) + PF\big[1-Q(O_d)\big]$$

$$\tag{5}$$

The range of possible settlements

The range of settlement possibilities under a given cost allocation rule is, traditionally, defined by those settlements that leave both sides better off than going to court. This does not, however, take account of the possibility of various offers or claims being equilibrium dominated by other possible offers or claims. An offer or claim, **O₁**, is equilibrium dominated if there exists another possible offer or claim, **O₂**, such that the worst the player can do with **O₂** is better than the equilibrium payoff she will receive with **O₁**. We deploy this concept below to analyse the range of possible settlements.

The return to trial for both sides is, regardless of the cost allocation rule, dependent on the probability distribution of damages, **Q(.)**. In addition, the effect of either defendant or plaintiff offers into court also depends on this probability distribution. In order that we may extend equations 1 through 5 to examine the possible settlement ranges under

the two rules, it is helpful if we explicitly specify the probability distribution.

For simplicity[8] we use a simple linear probability distribution for **Q(.)** — any value between $\mathbf{x_{min}}$ and $\mathbf{x_{max}}$ is equally likely. We can therefore express the probability that a trial award is lower than an offer , **O**, as:

$$Q(O) = \frac{O - x_{min}}{x_{max} - x_{min}} \tag{6}$$

and the average court settlement by:

$$\int_{x_{min}}^{x_{max}} x \, dQ(x) = \frac{x_{max} + x_{min}}{2} \tag{7}$$

We now turn to the impact of offers into court.

Impact of offers into court

When both sides have the ability to make offers into court, the expected return to trial of both sides will be affected when either side makes an offer. Take the case where the plaintiff is considering the range of possible offers she could make that would leave her better off than trial. The highest claim the plaintiff could make that the defendant would be willing to accept is given by $\mathbf{O_{pmax}^{DOCPOC}}$, such that $\mathbf{O_{pmax}^{DOCPOC}}$ is the level of an offer into court by the plaintiff that, if it is rejected, leaves the defendant's expected loss from trial equal to the offer. It is important to stress that this level of claim will also (simultaneously) be determined by any offers into court made by the defendant. Figure 1, discussed at the end of this section may make matters clearer. Using equation 5 and the probability distribution in equations 6 and 7, and simplifying we have:

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[8] And also for reasons of practical implementation in the experiments we conduct (see below) where participants need to have an intuitive understanding of the distribution.

$$O_{p\max}^{DOCPOC} = T_d\left(O_d, O_{p\max}^{DOCPOC}\right)$$

$$= \frac{P}{2(x_{\max} - x_{\min})}\left((1+b)x_{\max}^2 - x_{\min}^2 - b\, O_{p\max}^{DOCPOC2}\right) + PF\left(1 - \frac{O_d - x_{\min}}{x_{\max} - x_{\min}}\right) \qquad (8)$$

Solving equation 8 for $O_{p\max}{}^{DOCPOC}$ gives us a quadratic of the form:

$$b O_{p\max}^{DOCPOC2} + \frac{2(x_{\max} - x_{\min})}{P} O_{p\max}^{DOCPOC} - \left((1+b)x_{\max}^2 - x_{\min}^2 + 2F(x_{\max} - O_d)\right) = 0 \qquad (9)$$

which can be solved using the normal quadratic formula. It should be noted that this will give two roots but the nature of the equation is such that one will always be negative[9] and can be ignored for our purposes. We postpone solution temporarily until we have parameterised the model in the following section.

A claim will be equilibrium dominated for the plaintiff if once the claim is made and rejected by the defendant, the plaintiff's expected gain from trial will be higher than the claim. We thus define $O_{pmin}{}^{DOCPOC}$ as the level of a claim such that when the claim is made and rejected by the defendant the plaintiff's expected gain from trial is equal to the claim. Using equation 5, 6 and 7 we have:

$$O_{p\min}^{DOCPOC} = T_p\left(O_d, O_{p\min}^{DOCPOC}\right)$$

$$= \frac{P}{2(x_{\max} - x_{\min})}\left((1+b)x_{\max}^2 - x_{\min}^2 - b\, O_{p\max}^{DOCPOC2}\right) - (1-P)F - PF\left(\frac{O_d - x_{\min}}{x_{\max} - x_{\min}}\right) \qquad (10)$$

Solving equation 10 for $O_{pmin}{}^{DOCPOC}$ again gives us a quadratic, this time of the form:

$$b\, O_{p\min}^{DOCPOC2} + \frac{2(x_{\max} - x_{\min})}{P} O_{p\min}^{DOCPOC} - \left[(1+b)x_{\max}^2 - x_{\min}^2 - 2F\left(\frac{1-P}{P}\right)(x_{\max} - x_{\min}) - 2F(O_d - x_{\min})\right] = 0$$

$$(11)$$

The range of possible settlements for the plaintiff under two-way offers is thus given by O_{pmin}^{DOCPOC} to O_{pmax}^{DOCPOC}.

The highest offer the defendant should make, O_{dmax}^{DOCPOC}, is the offer such that once it is made the defendant's expected loss from trial is equal to the offer. Using equations 5, 6 and 7 this is given by:

$$O_{d\max}^{DOCPOC} = T_d\left(O_{d\max}^{DOCPOC}, O_p\right)$$
$$= \frac{P}{2(x_{\max} - x_{\min})}\left(x_{\max}^2 - x_{\min}^2 + b\,x_{\max} - b\,O_p^2\right) + PF\left(1 - \frac{O_{d\max}^{DOCPOC} - x_{\min}}{x_{\max} - x_{\min}}\right) \quad (12)$$

Solving equation 12 for O_{dmax}^{DOCPOC}, we have:

$$O_{d\max}^{DOCPOC} = \frac{\dfrac{P}{2(x_{\max} - x_{\min})}\left(x_{\max}^2 - x_{\min}^2 + b\,x_{\max}^2 - b\,O_p^2\right) + P\,F\left(1 + \dfrac{x_{\min}}{x_{\max} - x_{\min}}\right)}{1 + \dfrac{PF}{x_{\max} - x_{\min}}} \quad (13)$$

In a similar fashion we can calculate the minimum the defendant is able to offer with any prospect of acceptance, O_{dmin}^{DOCPOC} by:

$$O_{d\min}^{DOCPOC} = T_p\left(O_{d\min}^{DOCPOC}, O_p\right)$$
$$= \frac{P}{2(x_{\max} - x_{\min})}\left((1 + b)x_{\max}^2 - x_{\min}^2 - b\,O_p^2\right) - (1 - P)F - PF\left(\frac{O_{d\min}^{DOCPOC} - x_{\min}}{x_{\max} - x_{\min}}\right) \quad (14)$$

Which can be solved to give:

$$O_{d\min}^{DOCPOC} = \frac{\dfrac{P}{2(x_{\max} - x_{\min})}\left(x_{\max}^2 - x_{\min}^2 + b\,x_{\max} - b\,O_p^2\right) - (1 - P)F + PF\left(\dfrac{x_{\min}}{x_{\max} - x_{\min}}\right)}{1 + \dfrac{PF}{x_{\max} - x_{\min}}} \quad (15)$$

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[9] The quadratic formula is given by, if $ax^2 - bc + c = 0$, $x = \dfrac{-b \pm \sqrt{b^2 - 4ac}}{2a}$. In equation 9 the **a** and **b** coefficients are by inspection always positive and the **c** coefficient is always negative, so solution of equation 8 will have at most one positive root.

Equations 9, 11, 13, and 15 allow an analysis of the possible settlements under two-way offers into court. This is done by solving equations 9 and 11 using the standard quadratic formulae to express $\mathbf{O_{pmax}}^{\mathbf{DOCPOC}}$ and $\mathbf{O_{pmin}}^{\mathbf{DOCPOC}}$ respectively as a function of $\mathbf{O_d}$.

Under the English rule with only defendant offers into court we are concerned only with offers made by the defendant. As such, the range of possible settlements is given by $\mathbf{O_{dmin}}$ to $\mathbf{O_{dmax}}$, where $\mathbf{O_{dmin}}$ is again the offer made by the defendant that leaves the plaintiff indifferent between accepting the offer or going to court and $\mathbf{O_{dmax}}$ is the highest non-equilibrium dominated offer by the defendant. Using equations 13 and 15, setting the plaintiff offer parameter, β, equal to zero[10] we calculate:

$$O_{d\max}^{DOC} = \frac{P\dfrac{x_{\max} + x_{\min}}{2} + P\,F\left[1 + \dfrac{x_{\min}}{x_{\max} - x_{\min}}\right]}{1 + \dfrac{PF}{x_{\max} - x_{\min}}} \tag{16}$$

and

$$O_{d\min}^{DOC} = \frac{P\dfrac{x_{\max} + x_{\min}}{2} - (1 - P)F + \dfrac{PFx_{\min}}{x_{\max} - x_{\min}}}{1 + \dfrac{PF}{x_{\max} - x_{\min}}} \tag{17}$$

At this point we can plot $\mathbf{O_{dmin}}^{\mathbf{DOCPOC}}$, $\mathbf{O_{dmax}}^{\mathbf{DOCPOC}}$, $\mathbf{O_{pmax}}^{\mathbf{DOCPOC}}$ and $\mathbf{O_{pmin}}^{\mathbf{DOCPOC}}$ on an $\mathbf{O_d}$-$\mathbf{O_p}$ axis and examine the settlement possibilities diagramatically. This is done[11] in Figure 1. The range of possible settlements under defendant offers alone is constant, is shown by the points A and B and is given by the solution of equations 16 and 17. Equations 9, 11, 13 and 15 define the settlement possibilities under two-way offers into

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[10] This has the effect of eliminating the effect of plaintiff offers into court from the relevant expressions derived for two way offers into court, leaving us with the required expressions for defendant offers into court alone.

[11] The numerical values in figure 1 refer to the parameterisation of the model outlined in the following section.

court. Any offer or claim by either side, that when combined with an offer into court that is 'on the table' from the other side that lies in the shaded area C+D, is in the strictest sense rational — that is, neither side would be better off by going to court. However, the possible settlements lie on the 45° line that divides C and D. If we consider offers above the 45° line (area C), then for all these offer/counter-offer pairs the offer into court made by the defendant is greater than the claim made by the plaintiff — the defendant would be better off by accepting the plaintiff's claim. If we consider area D, then the plaintiff is claiming more than the defendant has previously offered and we do not have settlement. As such, the 45° line between the points where it is crossed by $\mathbf{O_{dmax}}$ and $\mathbf{O_{pmin}}$ gives the range of possible settlements.

Parameterisation of the model

The parameters used in the experiments (discussed in more detail below) are chosen to be as easy to comprehend as possible. The probability, **P**, of plaintiff success at trial is set at 0.75. The total costs, **F**, are £6000 and the damages, if awarded, range from an $\mathbf{x_{min}}$ of £2000 to an $\mathbf{x_{max}}$ of £10000. The interest rate, **β**, by which the damages must be increased if the plaintiff's offer into court is effective is 0.5 (i.e. a premium of 50%).

Using these values and equations 16 and 17 we can calculate the range of possible settlements under defendant offers into court. This is shown in the left hand side of Table 1. The settlement range for defendant offers into court is from 2640 to 6480, a total range of 3840. Using the parameters and equations 9, 11, 13 and 15 we can also calculate the maximum and minimum offers by each side as a function of the opposing side's offers, under two way offers into court. This is shown below:

$$O_{p\,max} = 21333\left(-1 + 0.0072618\sqrt{41330 - O_d}\right)$$
$$O_{p\,min} = 21333\left(-1 + 0.0072618\sqrt{30463 - O_d}\right)$$
$$O_{d\,max} = 0.64\left(12469 - 2.3438\left(10^{-5}\right)O_p^2\right)$$
$$O_{d\,min} = 0.64\left(6468.8 - 2.3438\left(10^{-5}\right)O_p^2\right)$$

(18)

The right hand side of table two shows that settlements under two-way offers should lie between 3911 and 7202, a range of 3291. This means that the switch from defendant offers into court to two-way offers into court decreases the settlement range and moves the level of possible settlements upwards in favour of the plaintiff.

This reduction in the range of possible settlements is due to each side's threat point being affected by their opponent's offer into court. The effect of going to court remains the same under the two rules — someone will have to pay the court costs, which would not apply were the case to settle out of court. Offers into court provide a structure for moving the two sides together. With defendant offers into court alone, the plaintiff knows that if the defendant has made a generous offer it is wise to accept it, given that this generous offer reduces the plaintiff's expected gain from trial. At the same time the defendant has the incentive to make more generous offers as this improves her position should the case go to court. Under two-way offers there is a further incentive on the defendant — if the plaintiff has made a modest claim then the expected loss from trial for the defendant is high and this also produces a further incentive on the plaintiff to be reasonable — as making a more modest claim can improve the expected return from trial. These two effects reduce the range of possible settlements by moving the threat points of the two sides closer together whilst preserving the penalty of failing to agree and ending up in court.

It is worth noting that under two-way offers the extra penalty imposed on the defendant if she fails in court to beat the plaintiff's offer does not itself increase the gain from settlement versus trial for the parties. It rather represents a redistribution from one side to the other. This is a common feature of such offers into court rules. As seen above, however, they do have certain strategic implications in terms of threat points.

III. Details of the Experiment

Those participating in the experiments are all students at the University of Edinburgh. A total of 36 participants are used over 4 sessions. Participants are, on arrival, randomly allocated the roles of defendant or plaintiff and retain these roles for the entire two-hour session. Written documentation is provided[12] which explains the experiment. The parameterisation is that outlined in the preceding section. Participants in the experiment negotiate over a computer network using software developed by the authors for this purpose[13]. At no time does any participant know against whom they are playing and these pairings are randomised from game to game.

The plaintiff has the chance to make the first bid[14] in each game. Each participant is given a starting amount of game money, for each game, so as to pay any costs, damages awards or settlements incurred. These initial endowments are calculated to ensure that each participant type must have a non-negative result for each game. Participants who are playing as defendants are given £21000 for each game and those assigned to the plaintiff role are given £6000.

Each game lasts for 3 minutes during which time participants exchange bid and counter bid, anonymously, with their opposite number via the computer network. They can come to an agreed settlement at any time. Equally, either one is free to elect to go to trial at any time. If time runs out without a settlement being reached, a court result is imposed on those who have not settled. To simulate the trial process, a roulette wheel is spun (36 numbers - the zero is always ignored and the wheel re-spun if it comes up) and a number between one and nine is taken to represent the case being rejected, i.e.,

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[12]The documentation can be found on the World Wide Web at: http://www.ed.ac.uk/~econ/main.html.

[13]Details of the software developed and used can also be found at http://www.ed.ac.uk/~econ/main.html.

[14]A previous experiment (see Main and Park 1998a) shows that varying the side who has the first bid had no effect on either the frequency or value of settlement. For simplicity, the plaintiff is chosen as the first player in each game.

with a probability of 0.25. If the case is accepted (any number 10 to 36), a ball is drawn at random from a bingo cage containing equal numbers of balls numbered from 20 to 100. The value of the ball drawn represents the court award in 100's. After this process is complete, each player's screen shows their individual 'score' for that game. Individual scores may differ from the court outcome due to the impact of offers into court as well as any individual settlements reached.

To ensure that participants are comfortable with the arrangements, three trial games are run. Participants are aware that these games are simply trials and that the results will not count in any way. Two games of defendant offers into court alone and one game of two-way offers are used in this start-up phase. Then, once the process starts in earnest, data is collected for twelve games - three of the English rule with defendant offers into court (DOC), followed by six of the English rule with two-way offers into court (DOCPOC), followed by another three of the English rule with defendant offers only.

To avoid any wealth effects arising as the session progresses (see Davis and Holt, 1993, pp. 449-451), payment for the participants is determined by picking one of the twelve games at random (once the session is complete) and the outcome of this game is then used as the basis of payment for everyone. Each participant's score in the game is divided by a thousand to convert it to actual pounds. On top of this a £5 attendance fee is paid to all participants. This payment scheme is outlined to all participants at the start of the experiment. The average payment, in theory, for the two-hour session is £18.50 for those individuals who settle in the chosen case and £15.50 for those who do not, although the total actual outcome for any individual can be anywhere between £5 and £32. The actual payments ranged from £5 to £26 and the average payment was £17.87.

IV.   Results

Table 2 shows the total number of settlements, **f**, under the two cost allocation rules

and some basic summary statistics on the value of the settlements, **Y**, for the two rules. To assist in the notation for subsequent hypothesis tests, **f$_{DOC}$** will be used to denote the number of settlements under the English rule with defendant offers into court and **f$_{DOCPOC}$** will denote the number of settlements under the English rule with both defendant and plaintiff offers into court. The description of the value of the pre-trial settlements, **Y**, follows the same convention.

Using a Fisher Exact Test and a Chi-square test, we test the null hypothesis that the frequency of settlements under the English rule with defendant offers into court is equal to the frequency of settlement when both sides may make offers into court. We are unable to reject the null hypothesis that the frequency of settlements is the same under both rules (a probability value of 0.557 under the Fisher Exact test and 0.440 under the Chi-square). These results are presented in Table 3.

As a further check on the robustness of this finding, we run probits (not reported here) on the probability of settlement as a function of the type of settlement offer available (one-way versus two-way), the gender of the participants, the risk aversion of the participants[15] , and the spread of initial offers by each side in the course of the bargaining. This last variable is aimed at capturing log-rolling behaviour. We find that none of the explanatory variables is significant, except for the risk aversion of the defendant which increases settlement as it increases. But, as far as the influence of the cost-shifting rule in operation, there is no significant effect on settlement behaviour. This is taken to confirm the results of Table 3, where no statistically significant impact is found for the type of offers into court available to participants.

On examining the distribution of settlements under the two rules, there is a single outlier, for each rule – a settlement of 14900 under defendant offers and 13000 under two-way offers.. In both cases these are close to the upper limit of possible court

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[15] Risk aversion is measured by asking each participant how much they would be willing to pay for a 50:50 chance of winning £10. The participant who bids the most, and it should be remembered that all participants have been paid at least £5 by the end of the game, is required to take up this gamble on a highest-bid/ second-highest-price basis. This requirement is made clear when participants are recording their bids.

outcomes[16]. It is worth bearing in mind, however, that these data points may be due to participant error.

We test the null hypothesis that the value of settlements is the same under both rules, using a student t-test and a Wilcoxon-Mann-Whitney (ranksum) test against the null hypothesis that the value of settlements is lower under defendant offers into court only. We also use a Kruksal-Wallis test to examine this same null against the alternative that the settlement values are different. The results are presented in Table 4.

We are unable to reject the null hypothesis using the student t-test (a value of 1.33 with a critical value of 1.66). Using the non-parametric statistics we do find a significant difference between the settlement values at 5% with the Wilcoxon-Mann-Whitney (value of 1.99 and critical value of 1.65) and the Kruksal-Wallis (value of 3.96 and a critical value of 3.84) both being significant. Repeating these tests having eliminated the outlying values mentioned above does not greatly affect the non-parametric tests but produces a significant (one-way) t-statistic. We thus confirm the prediction of the theory that extending defendant offers into court may not greatly increase the frequency of settlement, but may swing the balance away from the defendant towards the plaintiff. The magnitude of this difference is very small.

V.   Conclusion and Policy Discussion

The extension of offers into court from the commonplace defendant offers to include the plaintiff in a two-way offers into court arrangement is shown to affect the set of

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[16] Allowing for the possible imposition of court costs (£6000) and the fact that the maximum damages award (£10000) could (at least under two-way) offers be accompanied by a 50% interest penalty then the maximum loss from court that it is possible to face as a defendant is £21000.

likely settlements. The ability to impose a cost on the other side at the price of making a more accommodating offer to settle a dispute presents each side with a certain strategic advantage. An extension of the Landes-Posner-Gould model along the lines of Anderson (1984) and Chung (1996) suggests that certain possible outcomes can be eliminated as being equilibrium dominated by other offers. The net effect on settlement veers in the direction of less settlement, a finding which is contrary to general perceptions. In terms of level of settlement, the theory suggests that the extension of defendant offers into court to two-way offers will move the settlement in the plaintiff's favour — a finding that is more in keeping with general perceptions.

The empirical results, based on some 216 pair negotiations, reveal no statistically significant change in the propensity to settle. The average level of settlement moves from £6306 to £6599. This is in the direction predicted by our model (pro-plaintiff) and is statistically significant. The £6599 can be compared with the £6627 figure established in an earlier experiment with identical parameters (Main and Park 1998b) for the English rule only. It is also worth noting that in both this and our earlier paper (which compared the English rule alone with the English rule plus defendant offers into court) the level of settlement is similar (75.9% here, 71.9% before), as is the level of settlement (£6306 here, £6324 before).

The lack of impact on the propensity to settle is surprising as our model suggests that the settlement range decreases by 20% (from £3840 to £3076, see Table 2) and that the mid-point of the settlement range increases by some 24% (from £4560 to £5663, see Table 2).

One should, therefore, be cautious before extending these results to policy recommendations. It is clear, however, that any change in procedure needs to be thought through in detail from the perspective of the settlement incentives presented. Our theoretical model presented above suggests how this might be done.

The general conclusion to be drawn from the experimental results reported above is that it would be foolish to expect any dramatic increase in settlement if even a well-

designed plaintiff offers into court procedure were to be implemented. There are, however, definite advantages in terms of restoring the balance through shifting the level of settlement back in the plaintiff's direction (and so producing a more even playing field). Of course, discussion of any notion of even playing fields must be approached carefully. Gravelle (1993) makes it clear in his discussion of the efficiency implications of cost-shifting rules that these larger questions require attention to the care taken by individuals to avoid the causes of disputes and the impact on expected utilities, as well as the mere settlement outcomes.

Finally, if the settlement range and, hence, the incentive to settle is to be increased, then any extra costs from failing to beat an offer must go to some third party (e.g., the court) and not merely represent a redistribution from one side to the other[17]. Such redistribution merely shifts the bargaining strength or threat points and, as we have seen, may if anything reduce the settlement range. Extra costs going to third parties as explicit penalties for poor bargaining will encourage settlement But it will be difficult for the legal profession to accept such a concept, which goes far beyond the notion of who pays for what share of the legal expenses — the usual subject matter of cost shifting rules.

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[17] This is a point made earlier by Bowles (1987) in the context of Katz's (1987) comparison of the effects of the English rule versus the American rule.

Table 1 - The settlement range under the two cost allocation rules.

	Range of possible settlements			
Cost rule	Range	Minimum	Mid-Point	Maximum
Defendant offers	3840	2640	4560	6480
Two-way offers	3291	3911	5557	7202

Table 2 - Basic Results

	Cost Allocation Mechanism		Total
	English with Defendant offers into Court	English with both side offers into Court	
No of Settlements (f)	82 (75.9%)	77 (71.3%)	159
No of Trials	26 (24.1%)	31 (28.4%)	57
Total	108	108	216
Value of settlements (Y)			
Mean (μ)	6306.1	6598.7	
Std. Dev.	1460.6	1226.8	
Minimum	4000	4000	
Maximum	14900	13000	
Range	10900	9000	

Table 3 - Analysis of frequency of settlement

Hypothesis	Test	Statistic	Critical Value (5%)	Probability
Ho: $f_{DOC}=f_{DOCPOC}$	Fisher Exact	-	-	0.557
H1: $f_{DOC}\neq f_{DOCPOC}$	Chi-square (df=1)	0.5964	3.84	0.440

Table 4 - Analysis of settlement points

Hypothesis	Test	Critical Value (5%)	Statistic (probability) All data	Statistic (probability) Outliers eliminated
Ho: $Y_{DOC}=Y_{DOCPOC}$ H1: $Y_{DOC}<Y_{DOCPOC}$	Standard t	1.66	1.36 (157 df) 0.0874	1.88 (155 df) 0.0313
Ho: $Y_{DOC}=Y_{DOCPOC}$ H1: $Y_{DOC}<Y_{DOCPOC}$	Wilcoxon-Mann-Whitney	1.65	1.99 0.0233	2.02 0.0216
Ho: $Y_{DOC}=Y_{DOCPOC}$ H1: $Y_{DOC}\neq Y_{DOCPOC}$	Kruksal-Wallis	3.84	3.96 (1 df) 0.0466	4.086 (1 df) 0.0432

Figure 1 – Settlement ranges under defendant offers and two-way offers into court.
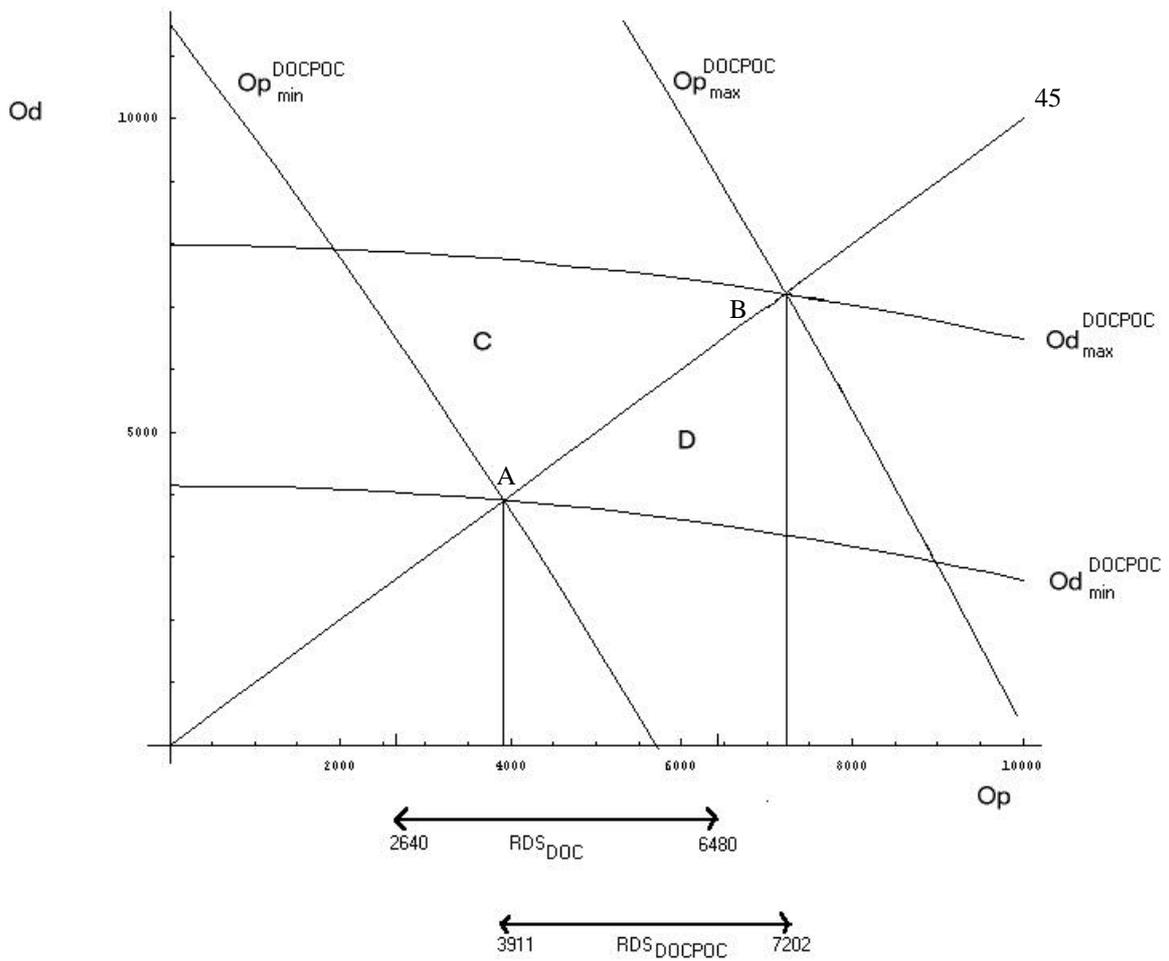
Key

RPS$_{DOC}$ – Range of possible settlements under defendant offers into court
RPS$_{DOCPOC}$ – Range of possible settlements under two-way offers into court

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