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Publication Date

2002-03-01

A Note on Settlements under the Contingent Fee Method of Compensating Lawyers

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Abstract: It is commonly thought that a lawyer working under a contingent fee arrangement has an excessive motive — relative to his client's interest — to settle the case, leading to a lower-than-desirable settlement amount and a high settlement rate. The conventional analysis that generates this conclusion omits an important consideration — that if the case were to go to trial, the lawyer would spend an inadequate amount of time on it. We demonstrate that once this effect is taken into account, the lawyer could have an insufficient motive to settle, the opposite of what is usually believed. Specifically, the lawyer's settlement demand could be too high and the resulting settlement rate too low.

* Stanford University and National Bureau of Economic Research; and University of California, Berkeley, respectively. Polinsky's research was supported by the John M. Olin Program in Law and Economics at Stanford Law School. Rubinfeld's research was undertaken in part while he was a visitor at New York University Law School. We thank the referee for a helpful suggestion.

A common observation about the contingent fee method of compensating a lawyer is that it creates an excessive motive, relative to his client's interest, for the lawyer to settle the case. The usual explanation is that, by settling, the lawyer obtains his share of the settlement without having to invest the additional time that would be required if the case were to go to trial. Further, it is believed that the settlement amount will be less than the amount that would be in the interest of the client, for by demanding a low amount, the lawyer can encourage the defendant to accept the settlement.¹

In this note we reevaluate the settlement incentives created by the contingent fee method of compensation. Contrary to the conventional wisdom, we show that, relative to a benchmark in which the client's welfare is maximized, the contingent fee system can create incentives for the attorney to settle cases *less* often, and for a *higher* amount. In other words, the lawyer may have an *insufficient* incentive to settle under the contingent fee system, the opposite of what is commonly believed.

The usual analysis of settlements under the contingent fee system does not take into account that, if the case were to go to trial, the lawyer would work fewer hours on the case than is in the client's interest. Once this effect is considered, as we do here, lawyers' settlement demands could be higher than their clients would want, resulting in settlements occurring too infrequently.² Because the conventional analysis ignores the lower-trial-effort effect, it mistakenly concludes that lawyers necessarily settle too often and for too little under the contingent fee system.³

¹ For a sample of authors who have come to these conclusions see Schwartz and Mitchell (1970), Miller (1987), Thomason (1991), and Gravelle and Waterson (1993).

² Although Schwartz and Mitchell (1970) take the lawyer's effort at trial into account, they still reach the conventional conclusion that the settlement amount in the contingent fee system will be too low. This is because they assume, in effect, that all cases result in settlement (with the settlement amount determined solely by the lawyer's effort at trial). As the reader will see, their result does not necessarily follow when an explicit decision about whether to settle or go to trial is incorporated into the analysis.

³ Some studies have come to conclusions similar to ours. See Miceli (1994), Bebchuk and Guzman (1996), Rickman (1999), and Farmer and Pecorino (2001). Their reasons, however, are entirely different, being based on the assumption that some cases are frivolous (Miceli), or that the client, not the lawyer, controls the litigation (Bebchuk and Guzman, Farmer and Pecorino), or that settlement bargaining occurs over multiple periods (Rickman).

In section I we analyze trial and settlement decisions in the benchmark in which the client's welfare is maximized. In section II we compare the contingent fee system to this benchmark, first assuming that the lawyer's effort at trial is the same as in the benchmark, and then, more properly, that it is less. In section III we provide a numerical example that illustrates our main points.

I. The Benchmark

To provide a basis for evaluating trial and settlement decisions under the contingent fee system, we analyze the litigation decisions that maximize the welfare of the client. These are the decisions that would be made by a knowledgeable plaintiff — one who knows the relationship between a lawyer's effort and the expected award at trial — who hires a lawyer on an hourly basis. We assume throughout this discussion (and in section II) that all parties are risk neutral.⁴

Let:

h = number of hours worked by the plaintiff's lawyer if the case goes to trial;

$p(h)$ = probability that the plaintiff will prevail at trial given h ; $p'(\cdot) > 0$; $p''(\cdot) < 0$;

w = hourly wage of the plaintiff's lawyer; and

a = award at trial if the plaintiff prevails.

An asterisk will be used to indicate the optimal values of the plaintiff's choices in the benchmark.

If the case goes to trial, the plaintiff will choose h to maximize her expected payoff at trial,

$$p(h)a - wh. \tag{1}$$

Thus, h^* is determined by the first-order condition⁵

$$p'(h)a = w. \tag{2}$$

⁴ The model employed in this note is essentially that used in Polinsky and Rubinfeld (2001). The focus there was on a new method of compensating lawyers that resolves the conflict of interest with their clients. We explicitly omitted analyzing settlement behavior under the contingent fee system, referring the reader to the present note.

⁵ We assume that this solution is an interior optimum and is unique, and we make similar assumptions below without further comment.

In other words, the plaintiff will instruct the lawyer to continue working on the case until the marginal increase in the expected award equals the marginal cost of the lawyer's time.

To allow for the possibility that the case will settle, we employ an asymmetric information model of settlement in which the defendant knows his defense cost at trial, while the plaintiff knows only the distribution of possible defense costs. The plaintiff is assumed to make a take-it-or-leave-it settlement demand, which is accepted or rejected by the defendant.⁶ Let

- c = defendant's litigation costs;
- \underline{c} = lowest level of defendant's litigation costs; $\underline{c} \geq 0$;
- \bar{c} = highest level of defendant's litigation costs; $\bar{c} > \underline{c}$;
- $f(c)$ = probability density of defendant's litigation costs; $f(\cdot) > 0$ on $[\underline{c}, \bar{c}]$; and
- s = settlement demand of the plaintiff.

Also, let $F(\cdot)$ represent the cumulative distribution of $f(\cdot)$.

For the plaintiff to be able to extract a settlement from the defendant, the plaintiff must have a credible threat to go to trial; otherwise, the defendant would refuse to pay anything, knowing that the plaintiff will drop the case. We assume that such a threat exists.

First consider the defendant's decision whether to accept a settlement demand s made by the plaintiff. If he rejects the settlement, the plaintiff will go to trial and the defendant will bear expected costs of $p(h^*)a + c$, where h^* is determined by (2). The defendant therefore will accept the settlement if and only if⁷

$$s \leq p(h^*)a + c, \tag{3}$$

or, equivalently, if and only if $c \geq s - p(h^*)a$. We will refer to the critical value of defense costs below which a defendant will reject the settlement demand s and at or above which he will accept it as $c^*(s)$. Thus,⁸

$$c^*(s) = s - p(h^*)a. \tag{4}$$

⁶ This is a standard model of the litigation process. See, for example, Bebchuk (1984).

⁷ None of our results depend on the assumption we are making here that the defendant will accept the settlement demand when he is indifferent.

⁸ We demonstrate below that the optimal s equals or exceeds $p(h^*)a$, so $c^*(s)$ cannot be negative.

The plaintiff will choose the settlement demand s to maximize her expected payoff, which is

$$F(c^*(s))[p(h^*)a - wh^*] + [1 - F(c^*(s))]s. \quad (5)$$

The first term reflects the chance that the defendant will have a relatively low defense cost and therefore will reject the settlement, in which case the plaintiff will go to trial, while the second term reflects the chance that the defendant will have a relatively high defense cost and will accept the settlement. If s is less than or equal to $p(h^*)a + \underline{c}$, the defendant will accept the settlement regardless of his defense cost, so it will never be optimal for the plaintiff to set s below $p(h^*)a + \underline{c}$. Conversely, if s exceeds $p(h^*)a + \bar{c}$, the defendant will reject the settlement regardless of his defense cost, so we can assume without loss of generality that s is less than or equal to $p(h^*)a + \bar{c}$.

The derivative of (5) with respect to s can be written as

$$f(c^*(s))[p(h^*)a - wh^* - s] + [1 - F(c^*(s))], \quad (6)$$

and interpreted as follows. If the plaintiff raises s by a dollar, she will obtain an additional dollar from the defendant if the defendant continues to accept the settlement; this occurs with probability $[1 - F(c^*(s))]$. But, by raising the settlement demand, the plaintiff reduces the probability that the defendant will accept the settlement; the probability of acceptance declines by $f(c^*(s))$. If the defendant switches to rejecting the settlement demand, the plaintiff receives the expected payoff from trial, $p(h^*)a - wh^*$, but foregoes the settlement, s . Because, as explained above, s must equal or exceed $p(h^*)a + \underline{c}$, $p(h^*)a - wh^* - s$ must be negative.

What can be said about the optimal settlement demand in the benchmark, s^* ? First note that s^* is such that there is a positive probability that the case will settle. To see this, consider the derivative of the plaintiff's welfare when the settlement demand is at its upper bound, $p(h^*)a + \bar{c}$. Then $c^*(s) = \bar{c}$ and $F(\bar{c}) = 1$, so (6) becomes $-f(\bar{c})[wh^* + \bar{c}]$, which clearly is negative. Thus, s^* must be strictly less than its upper bound, $p(h^*)a + \bar{c}$, which implies that the probability of settlement is positive. Second, observe that s^* could be at its lower bound, $p(h^*)a + \underline{c}$, in which case a settlement occurs regardless of the defendant's litigation cost. At $s = p(h^*)a + \underline{c}$, $c^*(s) = \underline{c}$ and $F(\underline{c}) = 0$, so (6) becomes $1 - f(\underline{c})[wh^* + \underline{c}]$. If the second term is sufficiently large, this expression will be negative, implying that $s^* = p(h^*)a + \underline{c}$, in which case a settlement occurs

for all values of defense cost. To summarize,

$$p(h^*)a + \underline{c} \leq s^* < p(h^*)a + \bar{c}. \quad (7)$$

We will assume that s^* is strictly greater than $p(h^*)a + \underline{c}$ so that there will be a positive probability of both trial and settlement in the benchmark. Then s^* will be determined by the following first-order condition:

$$f(c^*(s))[p(h^*)a - wh^* - s] + [1 - F(c^*(s))] = 0. \quad (8)$$

II. The Contingent Fee System

Now suppose that the lawyer makes decisions on behalf of a client who is uninformed about the costs and benefits of litigation, and that the lawyer is compensated according to a contingent fee arrangement under which he receives a percentage of the award or settlement and bears all of his costs. Let

θ = fraction of award or settlement given to the plaintiff's lawyer under the contingent fee system;⁹ $0 < \theta < 1$; and

h_c = number of hours worked by the plaintiff's lawyer if the case goes to trial under the contingent fee system.

If the case goes to trial, the lawyer will choose the number of hours to work to maximize his expected payoff

$$p(h)\theta a - wh, \quad (9)$$

so h_c will be determined by the first-order condition¹⁰

$$p'(h)\theta a = w. \quad (10)$$

Given the declining marginal productivity of the lawyer's time, it follows from a comparison of (10) and (2) that the lawyer will devote fewer hours to the case at trial under the contingent fee system than in the benchmark.¹¹

⁹ For purposes of this note, it does not matter how this fraction is determined.

¹⁰ We are implicitly assuming that the lawyer's opportunity cost is his wage rate w , that is, if he were not working on this case he would be working on other cases at his hourly rate.

¹¹ From (2), $p'(h^*) = w/a$, while from (10), $p'(h_c) = w/\theta a > w/a$. The result in (11) follows from the assumption that $p''(h) < 0$.

$$h_C < h^*. \quad (11)$$

The well-known explanation of this result is that under the contingent fee system the lawyer bears all of the cost of his time but obtains only a fraction of the benefit of his time, and therefore will want to reduce his effort.

Assuming the lawyer has a credible threat to go to trial, he will choose his settlement demand s to maximize his expected payoff, which is

$$F(c_C(s))[p(h_C)\theta a - wh_C] + [1 - F(c_C(s))]\theta s, \quad (12)$$

where h_C is determined according to (10) and the critical value of defense costs (below which the defendant will reject the settlement demand and at or above which he will accept it) is

$$c_C(s) = s - p(h_C)a. \quad (13)$$

By reasoning analogous to that used above, it must be that s is at least equal to $p(h_C)a + \underline{c}$ and no greater than $p(h_C)a + \bar{c}$.

The derivative of (12) with respect to s is

$$f(c_C(s))[p(h_C)\theta a - wh_C - \theta s] + [1 - F(c_C(s))]\theta, \quad (14)$$

which has an interpretation analogous to that of (6) above. If the lawyer raises s by a dollar, he obtains the additional fraction θ of a dollar from the defendant if the defendant continues to accept the settlement, which occurs with probability $[1 - F(c_C(s))]$. But by raising the settlement demand the lawyer reduces, by $f(c_C(s))$, the probability that the defendant will accept the settlement. Then the lawyer would receive his expected payoff from trial, $p(h_C)\theta a - wh_C$, but forego his share of the settlement, θs . Because s equals or exceeds $p(h_C)a + \underline{c}$, $p(h_C)\theta a - wh_C - \theta s$ must be negative.

How does the settlement demand under the contingent fee system compare to that in the benchmark? To help answer this question, suppose initially that the number of hours worked on the case by the lawyer at trial is the same as in the benchmark, that is, $h_C = h^*$. We will show that if this were true, then the settlement demand chosen by the lawyer under the contingent fee system, s_C , would be lower than the settlement demand chosen by the plaintiff in the benchmark, s^* . Moreover, settlement would be more likely under the contingent fee system. Thus, if the number of hours worked on the case at trial were the same under the contingent fee system as in the benchmark, the conventional wisdom about settlement incentives under the contingent fee

system would be correct.

To demonstrate that s_c would be lower than s^* if $h_c = h^*$, rewrite (14) as

$$f(c_c(s))[p(h_c)a - wh_c - s] + [1 - F(c_c(s))] \\ + f(c_c(s))[-p(h_c)(1 - \theta)a + (1 - \theta)s] - [1 - F(c_c(s))](1 - \theta). \quad (15)$$

Then evaluate (15) on the assumption that $s_c = s^*$. Using (8) and observing that $c_c(s) = c^*(s)$ when $h_c = h^*$, (15) can be written as:

$$(1 - \theta)\{f(c^*(s))[s - p(h^*)a] - [1 - F(c^*(s))]\}. \quad (16)$$

By (8), we also know that $-f(c^*(s))[p(h^*)a - wh^* - s] = [1 - F(c^*(s))]$. Use this to rewrite (16) as

$$-(1 - \theta)f(c^*(s))wh^* < 0. \quad (17)$$

In other words, if the lawyer sets s at the same level as in the benchmark, his welfare is declining in s . This implies that $s_c < s^*$, as claimed.

What is the intuition behind this result? If h is the same in the benchmark and the contingent fee system, then the likelihood that the defendant will accept a given settlement demand is the same. Now consider the benefits and costs to the plaintiff in the benchmark and to the lawyer in the contingent fee system of raising s by a dollar. If the plaintiff in the benchmark raises s by a dollar, she obtains all of the benefit, $[1 - F(c^*(s))]$, and bears all of the cost, $f(c^*(s))[p(h)a - wh - s]$ (see the discussion following (6)). However, if the lawyer in the contingent fee system raises s by a dollar, he only receives θ of this benefit, and he bears the cost $f(c_c(s))[p(h)\theta a - wh - \theta s]$. The marginal benefit and the marginal cost for the lawyer in the contingent fee system would be proportional to those of the plaintiff in the benchmark if wh were also multiplied by θ . But because wh is not multiplied by θ in the contingent fee system, the lawyer bears a higher cost per dollar of benefit from raising s than does the plaintiff in the benchmark. Hence, the lawyer has an incentive to choose a lower s .

Now consider the fact that the lawyer actually devotes fewer hours to the case under the contingent fee system, that is, $h_c < h^*$. What implication does this have for his choice of the settlement demand s_c ? Because the lawyer invests less effort at trial under the contingent fee system, the expected cost to the defendant if the case goes to trial is lower. This implies that the defendant is less likely to accept any given settlement demand, which in turn means that the benefit to the lawyer of raising the settlement demand is lower. However, if the defendant rejects

the settlement demand, the lawyer's cost of going to trial also is lower, because h_C maximizes the lawyer's welfare if the case goes to trial. Although these two effects (a lower benefit and a lower cost) work in opposite directions, it can be shown that, if they were the only consequences of the fact that h_C is less than h^* , the lawyer still would choose a lower settlement demand under the contingent fee system.¹²

However, another factor may cause the lawyer to raise the settlement demand, and this is the point we want to emphasize. Specifically, the probability of the defendant switching from accepting to rejecting the settlement demand as a result of it being raised may be lower in the contingent fee system than in the benchmark; so even though the lawyer is worse off if the case goes to trial under the contingent fee system than is the plaintiff in the benchmark, the *expected value* of this effect could be smaller under the contingent fee system. Then it may be in the lawyer's interest to raise the settlement demand above that in the benchmark. Whether the probability of the defendant switching from accepting to rejecting the settlement demand is lower under the contingent fee system, and sufficiently so to offset the effects described in the preceding paragraph, depends on the distribution of the defendant's litigation costs. A necessary condition is that the density of the defendant's litigation cost is diminishing.¹³ We provide an example in the next section in which this is the case and in which the density effect dominates the other effects, resulting in a higher settlement demand under the contingent fee system.

Now consider the probability of settlement in the contingent fee system compared to that

¹² To see this formally, rewrite (14), the derivative of the lawyer's welfare with respect to the settlement demand s in the contingent fee system, as

$$\theta \{f(c_C(s)) [p(h_C)a - (wh_C/\theta) - s] + [1 - F(c_C(s))]\}. \quad (14')$$

We want to compare the sign of (14') to the sign of (6), the comparable expression for the client in the benchmark, when the settlement demand s is the same in each. Because $h_C < h^*$, it follows from (4) and (13) that $1 - F(c_C(s)) < 1 - F(c^*(s))$. Moreover, $p(h_C)a - (wh_C/\theta) - s < p(h_C)a - wh_C - s < p(h^*)a - wh^* - s < 0$, where the second inequality follows from the fact that h^* maximizes $p(h)a - wh$. Thus, if $f(c_C(s))$ were not affected, (14') would be negative at the settlement demand s^* that makes (6) equal to zero. (The consequence of $f(c_C(s))$ changing is the subject of the next paragraph in the text.)

¹³ Formally, since $h_C < h^*$, $c_C(s)$ exceeds $c^*(s)$. Thus, if $f(\cdot)$ is declining sufficiently rapidly, the expression in braces in (14') — see the preceding footnote — will be positive even though both expressions in brackets in (14') have declined. For example, in the extreme, if $f(c_C(s))$ were zero at $s = s^*$, then (14') would be positive at s^* , implying that it would be optimal for the lawyer to raise the settlement demand in the contingent fee system above that in the benchmark.

in the benchmark. If the settlement demand is lower under the contingent fee system, the probability of settlement would tend to rise because the defendant would be more likely to accept a low settlement demand. However, it is possible that, because the number of hours worked by the lawyer is lower under the contingent fee system, the probability of settlement could fall even if the settlement demand is lower (because the cost to the defendant of going to trial is reduced). If the settlement demand is higher under the contingent fee system, the probability of settlement is certain to fall.¹⁴ The example in the next section illustrates this outcome.

Thus, to summarize, while a lawyer may have an excessive incentive to settle under the contingent fee system, as is conventionally believed, this result does not necessarily follow. It is possible instead that his incentive to settle will be inadequate. Specifically, the settlement demand in the contingent fee system might be higher than in the benchmark and the settlement probability might be lower.¹⁵

III. A Numerical Example

To conclude, we illustrate the point of this note with a numerical example. Because the calculations in the example are relatively straightforward, the details are omitted.

Suppose the lawyer can work either 10 hours if the case goes to trial, in which case the probability of prevailing is 0.3, or 90 hours, in which case the probability is 0.9. The lawyer's hourly wage is \$100 and the award at trial if the plaintiff prevails is \$15,000. The defendant's litigation cost is uncertain; it will equal \$3,000 with a probability of 0.6 or \$15,000 with a probability of 0.4. Under the contingent fee system, the lawyer's contingency percentage is 25%.

In the benchmark, the knowledgeable plaintiff will hire the lawyer for 90 hours, in which case the expected payoff at trial is \$4,500. Hence, the plaintiff has a credible threat to go to trial,

¹⁴ This follows because $c_C(s_C)$ would unambiguously exceed $c^*(s^*)$ if $s_C > s^*$ and $h_C < h^*$; compare (4) to (13).

¹⁵ A parallel analysis could be undertaken which assumes that the client rather than the lawyer chooses the settlement demand under the contingent fee system (the lawyer would still choose how many hours to work on the case if it goes to trial). It is easy to demonstrate that if the lawyer's hours were the same in the contingent fee system as in the benchmark, the client would choose a higher settlement demand than in the benchmark. It also appears that the client's settlement demand could be lower than in the benchmark, for reasons analogous to those discussed in this section.

and can demand a settlement payment from the defendant. The optimal settlement demand of the plaintiff is \$16,500. The defendant will accept this settlement demand regardless of his defense cost, so the probability of settlement is 1.

Under the contingent fee system, the lawyer will choose to work 10 hours if the case goes to trial — less than in the benchmark — resulting in an expected payoff to him of \$125. He will demand a settlement payment of \$19,500, which will be rejected by the defendant if his defense costs are \$3,000, but accepted if his defense costs are \$15,000. Hence, the probability of settlement under the contingent fee system is 0.4.

In this example, therefore, the settlement amount is \$3,000 higher under the contingent fee system than in the benchmark, and the probability of settlement is lower, falling from 1 to 0.4. As we have emphasized, these results are contrary to the conventional wisdom.

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