# Conditional Fees and Litigation

AFED 2017

on November 8-9 2017

Yannick Gabuthy[BETA, Lorraine] Pierre-Henri Morand[LBNC, Avignon]

october 2017 - work in progress

## Outline

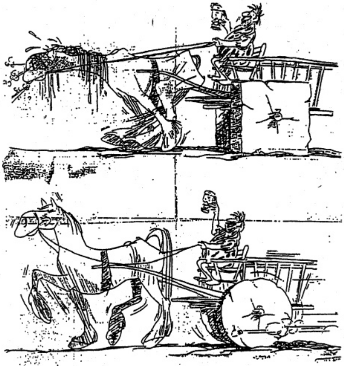
## Outline

1. Introduction
   - A blitz-course in auction theory
   - litigation system
2. The model
3. Equilibrium expenditures. (American rule) $\alpha = 0$
4. Incentives to settle
5. From the lawyers point of view...
6. English rule
7. Some maths (if you want)

## A blitz-course in auction theory I/III

**Why Every Economist Should Learn Some Auction Theory**

Paul Klemperer, August 2001.



Auction Theory **Heineken.**
**Refreshes the parts other**
economics ~~beers~~ **cannot reach.**

## A blitz-course in auction theory II/III

## Outline

## auction theory and litigation system I/III

**Klemperer, 2001**

"In 1991 U.S. Vice President Dan Quayle suggested reforming the U.S. legal system in the hope, in particular, of reducing legal expenditures. One of his proposals was to augment the current rule according to which parties pay their own legal expenses, by a rule requiring the losing party to pay the winner an amount equal to the loser's own expenses"

**Baye, M. R., Kovenock, D. and de Vries, C. G. (2005). Comparative analysis of litigation systems: An auction-theoretic approach. Economic Journal**

Litigation systems may be equivalent (in terms of legal expenditures, of incentives to bring lawsuits...) as auctions may be equivalent (Revenue Equivalence Theorem).

**Klemperer, 2001 (again !)**

"Of course, many factors are ignored[...]; the basic model should be regarded as no more than a starting point for analysis."

## A blitz-course in auction theory III/III

- Revenue Equivalence Theorem (RET) Assume each of a given number of risk-neutral potential buyers has a privately-known valuation independently drawn from a strictly-increasing atomless distribution, and that no buyer wants more than one of the k identical indivisible prizes. Then any mechanism in which (i) the prizes always go to the k buyers with the highest valuations and (ii) any bidder with the lowest feasible valuation expects zero surplus, yields the same expected revenue
- Litigation systems may be equivalent (in terms of legal expenditures, of incentives to bring lawsuits...) as auctions may be equivalent (Revenue Equivalence Theorem).

## auction theory and litigation system II/III

### Revenue equivalence theorem requirements

- symmetries
- risk neutrality
- private information I.I.D.
- a.s.o...
- any bidder with the lowest feasible valuation expects zero surplus

## auction theory and litigation system III/III one step beyond

- In auction, the highest bidder wins the prize.
- In a lawsuit, the party's probability of prevailing is not only determined by the legal expenditures.
- In auction, the payments equal the expenditures
- In a lawsuit, payments of the parties, payments to the lawyers, legal expenditures... do not need to be equal

**litigation rules - diversity of pratices**

hourly fees, *contingent fees*, Conditional fees, fixed bonus, variable bonus. American rule vs British rule

## Context

- Contingent legal fees are widely used in civil lawsuits in the US. 92%-98% of individual plaintiffs, 85%-88% of corporate plaintiffs retain their lawyer on a contingency basis in American tort and contract litigation cases.
- In Europe such a mechanism was strictly forbidden.
- Market pressure has led some countries (*e.g.* the UK, Belgium and the Netherlands) to allow *conditional* fees
- extend access to justice by enabling liquidity-constrained people to get legal advice.

## Related literature

- mostly addressed the use of conditional fee arrangement as a way to improve the lawyer-client relationship (see Emons 06)
- relevant risk-sharing mechanisms (see Posner 86)
- undermining frivolous suits (see Gabuthy 11)
- Hyde and Williams (02) (complete information, no pre-trial settlement).

## The model

Under *hourly fees*, the party *i*'s payoffs are given by:

$$u_i(e_i, e_j, v_i) = \begin{cases} \underbrace{v_i}_{\text{value of the asset}} - (\underbrace{k}_{\text{fixed}} + (1-\alpha)e_i) & \text{if party } i \text{ wins} \\ -(k + e_i + \underbrace{\alpha e_j}_{\text{shifted to the loser}}) & \text{if party } i \text{ loses} \end{cases}$$

Under *conditional fees*, the party *i*'s payoffs are given by:

$$u_i(e_i, e_j, v_i) = \begin{cases} v_i - (k + (1-\alpha)e_i + \underbrace{\beta e_i}_{\text{variable bonus}} + \underbrace{B}_{\text{fixed bonus}}) & \text{if party } i \text{ wins} \\ -(k + \alpha e_j) & \text{if party } i \text{ loses} \end{cases}$$

## The model

**Probability of prevailing:**

$$\phi = \begin{cases} \frac{1+x}{2} & \text{if } e_i \geq e_j \\ \frac{1-x}{2} & \text{if } e_i < e_j \end{cases}$$

x: adversarial' vs inquisitorial' systems ?

Each party $i$ values the asset at $v_i$, i.i.d. with distribution function $F$ over $[0,1]$

$$\max_{e_i} EU(e_i, v_i) = \int_0^1 ((v_i - (k + (1-\alpha)e_i + \beta e_i + B))P(W) - (k + \mu e_i + \alpha e_j)P(L))dF(v_j)$$

where

$$P(W) = \frac{1-x}{2}\text{Prob}(e_i > e_j) + \frac{1+x}{2}\text{Prob}(e_i < e_j)$$

and

$$P(L) = \frac{1-x}{2}\text{Prob}(e_i < e_j) + \frac{1+x}{2}\text{Prob}(e_i > e_j)$$

### Lemma

*Under American rule, hourly fees imply the following level of expenditure:*

$$e^*_{hf}(v_i) = x \int_0^{v_i} sF'(s)\,ds$$

### Lemma

*Under American rule, conditional fees imply the following level of expenditure, where $P(v_i)$ denotes the probability that a party with value $v_i$ wins the case:*

$$e^*_{cf}(v_i) = \frac{x\int_0^{v_i} sF'(s)\,ds}{(1+\beta)P(v_i)} - \frac{xBF(v_i)}{P(v_i)}$$

## Expected depense of the parties

### P. Klemperer was (obviously) true

*different strategies but equivalent depenses ?*

$$E(D_{cf}) = \int_0^1 \frac{1}{2} F'(\text{vi}) \left( 2x \left( \int_0^{\text{vi}} (s - B) F'(s)\, ds + BF(\text{vi}) \right) + B(1 - x) \right) d\text{vi}$$

$$E(D_{cf}) = 2 \left( \frac{B(1-x)}{2} + \frac{x}{6} \right) \text{(uniform ex, doesn't depend on } \beta\text{)}$$

$$E(D_{hf}) = \int_0^1 2xF'(\text{vi}) \left( \int_0^{\text{vi}} sF'(s)\, ds \right) d\text{vi}$$

$E(D_{hf}) = 2 \left( \frac{x}{6} \right)$ (uniform), **equals to** $E(D_{cf})$ **if** $B = 0$ **or** $x = 1$ **)**

**probability of prevailing based on expenditures (x = 1)**

1. from the point of view of the parties, neutrality of the litigation system (R.E.T.)
2. in terms of total expenditures, a higher bonus yields a lower expenditure (whatever the bonus structure)

**non determinist probability of prevailing (x < 1)**

1. Variable bonus ($\beta$) doesn't impact the parties.
2. A higher $\beta$ reduces expected expenditure.
3. Fixed bonus (B) impacts negatively the parties.
4. A higher B reduces expected expenditure

## American rule

### P. Klemperer was true, but...

The fact that parties adapt the strategic expenditures so that total payment remains unchanged $\nRightarrow$ both procedures yield the same level of expenditure. The party pays the same expected amount but the attorney, with CF bears her own expense in case of succumbing with a lawsuit.

**Proposition 1**

Under American rule, the conditional fee arrangement system induces lower expected expenditures if the bonus is large enough.

- A party, under hourly fees, has an expenditure of $\$100,000$ and probability of winning of $1/2$.
- Under conditional fees, he will adapt his expenditures such that his total expected cost equals $\$100,000$.
- Hyp: $\beta = 1$, an expected cost of $\$100,000$ => expenditures = $\$100,000$,
- $\beta = 1/2$, an expected cost of $\$100,000$ => expenditures = $\$133,000$.
- a lower bonus => a larger expenditure.

## Incentives to settle. Endogenous entry

- In the pre-trial stage, each disputant compares the expected payoffs he can get from an agreement to the payoffs obtained if trial occurs.
- threshold $\tilde{v}$ such that no party with $v_i \leq \tilde{v}$ chooses to go to court.
- indifferent between
  - going to trial and facing an adversary with a signal greater than $\tilde{v}$
  - or winning for sure if the other party has a signal $v_j < \tilde{v}$
  - or settle and obtain the asset with probability $1/2$.

$$EU(\tilde{v})(1 - F(\tilde{v})) + \tilde{v}F(\tilde{v}) = \frac{1}{2}\tilde{v}F(\tilde{v}),$$

$$\tilde{v}_{cf} = \frac{Bx + \sqrt{(x-1)\left((B+1)^2(x-1) - 4Bx\right)} - B + x - 1}{2x} \text{ (uniform distribution)}$$

$$\tilde{v}_{hf} = \frac{-x + \sqrt{(x-1)^2 + 1}}{2x} \text{ (uniform distribution)}$$

## Incentives to settle.

$$\frac{\partial \tilde{v}_{cf}}{\partial B} > 0, \frac{\partial \tilde{v}_{cf}}{\partial \beta} = 0$$

$$\tilde{v}_{cf} = \tilde{v}_{hf} \text{ if } x = 1$$

### Proposition 3

Under Amercian rule, conditional fees and hourly fees provide the same incentives to settle, whatever the level of variable bonus ($\beta$) as long as $B = 0$ or even for $B > 0$ if the probability of prevailing only depends on parties' expenditures ($x = 1$).

## comparing revenues to the lawyer

$$\text{lawyer's expected revenue: } E(R)_{cf}^{\text{lawyer}} = (B + (\beta+1)e_{cf}^*(v_i))P(v_i)$$

$$\text{with: } e_{cf}^*(v_i) = \frac{e_{hf}^*(v_i)}{(\beta+1)P(v_i)} - \frac{BxF(v_i)}{P(v_i)}$$

$$E(R)_{cf}^{\text{lawyer}} = \underbrace{e_{hf}^*(v_i)}_{E(R)_{hf}^{\text{lawyer}}} + \underbrace{B(P(v_i) - xF(v_i))}_{=0?}$$

### equivalence for the lawyers ?

Hourly fees and conditional fees yield the same revenue to the lawyer as long as $B(P(v_i) - xF(v_i)) = 0$.

1. $B = 0$
2. $x = 1$ and $P(v_i) = F(v_i)$
3. If $x < 1$, $P(v_i) > F(v_i)$, so $E(B(P(v_i) - xF(v_i))) > 0$ => higher revenues for the lawyers under conditional fees.

## comparing profits of the lawyers

$$\pi^{lawyer} = E(R) - \phi(e^*(v_i))$$

### probability of prevailing based on expenditures (x = 1)

$$E(R)^{lawyer}_{cf} = E(R)^{lawyer}_{hf}$$

$$\rightarrow \pi^{lawyer}_{cf} > \pi^{lawyer}_{hf} \text{ i.i.f. } e^*_{hf}(v_i) > e^*_{cf}(v_i)$$

the litigation system that minimizes the legal expenditure maximizes the profit of the lawyers and let the parties indifferent.

### non determinist probability of prevailing (x < 1)

1. With no fixed bonus (If $B = 0$), same results
2. If $B > 0$, a higher $B \longrightarrow$ lower $e^*$ => increases the profit of lawyers.
3. for the parties, a higher $B \longrightarrow$ lower $E(U)$

### non-neutrality of bonus structure !

Thank you for your attention.

Any questions ?

## English rule

### optimal level of expenditure

**Lemma**

*Under English rule, conditional fees imply the following level of expenditure:*

$$e^*_{cf}(v_i) = \frac{x}{\beta P(v_i)} \frac{\int_0^{v_i} s(2P(s))^{-1/\beta}\, dF(s)}{(2P(v_i))^{-1/\beta}} \tag{1}$$

**Lemma**

*Under English rule, hourly fees imply the following level of expenditure, where $Q(v_i)$ denotes the probability that a party with value $v_i$ loose the case:*

$$e^*_{hf}(v_i) = \frac{x}{Q(v_i)^2} \int_0^{v_i} sQ(s)\, dF(s) \tag{2}$$

## English rule

### Corollary

*From the point of view of the parties, under English rule, hourly and conditional fees do not induce the same level of expected cost.*

- back to auction theory...
  - it is no longer true that a party with the lowest possible valuation can spend nothing and lose nothing.
  - Now this party always loses and must pay a fraction of the winner's expenses,
  - One of the condition for Revenue Equivalence Theorem now fails.

### Proposition 2

Under English rule, the conditional fees arrangement system induces lower expected expenditures if the bonus is large enough.

### Proposition 4

Under English rule, if the outcome at trial tends to depend only upon the litigants' outlays, conditional fees provide more incentives to settle than hourly fees.

Under the American rule, the expected utility of a party with value $v_i$ can be written, noting $h_j(e_i)$ the inverse function $e_j^{-1}$, is

$$\int_{h_j(e_i)}^{1} \tfrac{1}{2}((x-1)(\beta e_i + e_i - v_i) - 2k)\, dF(v_j) + \int_0^{h_j(e_i)} -\tfrac{1}{2}(2k + (x+1)(\beta e_i + e_i - v_i))\, dF(v_j)$$

F.O.C.

$$\frac{x(v_i - (\beta+1)e(v_i))F'(v_i)}{e'(v_i)} - \frac{1}{2}(\beta+1)(2xF(v_i) - x + 1) = 0$$

considering symmetric equilibrium and taking boundary condition $e_i(0) = 0$.

$$e^*_{cf}(v_i) = \frac{2x\int_0^{v_i} sF'(s)\, ds}{(\beta+1)(2xF(v_i) - x + 1)}$$

Let $P(v_i)$ denotes the probability that a party with value $v_i$ wins the case,

$$P(v_i) = \left(1 - \frac{x+1}{2}\right)(1 - F(v_i)) + \frac{1}{2}(x+1)F(v_i),$$

we have: $1/P(v_i) = \frac{2}{2xF(v_i) - x + 1}$, and hence:

$$e^*_{cf}(v_i) = \frac{x\int_0^{v_i} sF'(s)\, ds}{(1+\beta)P(v_i)}$$