

When Would a Lawyer Work for a Fixed Fee?*

Preliminary version

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Abstract

In this paper we analyze bidding behavior of law firms that compete for routine cases in a procurement auction. The distinguishing feature of this auction is that bidders are free to submit bids with an hourly fee, a fixed fee or a combination of the two. We derive the equilibrium properties of this auction in three settings: rational uninformed buyers, naive uninformed buyers, and informed buyers. Informed buyers possess information about the time efficiency of the law firms, in contrast to uninformed buyers. In the case of rational uninformed buyers, there is an "unraveling equilibrium" in which all bidders submit fixed fees. In both alternative models, some bidders bid fixed fees and others hourly fees. The data are inconsistent with unraveling as well as the public wisdom that "lawyers always work for an hourly fee". The empirical results by and large confirm the complete information model.

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1 Introduction

In this paper, we analyze bidding behavior of law firms that compete for routine cases in a procurement auction. The distinguishing feature of this auction is that lawyers may submit bids with the fee arrangement of their choice. This implies that bidders not only have to decide how much to bid, but also with what fee arrangement to bid: an hourly rate, a fixed fee, some combination of the two or a conditional fee. Therefore clients are faced by a complex task of choosing between bids with various fee arrangements. The bidding data allows us to study (1) which types of law firms offer fixed fees as opposed to the usual pricing scheme in The Netherlands: an hourly fee, (2) how much do lawyers bid, and (3) which pricing arrangements are clients most likely to accept.

The auctions are organized by XS2Justice (XS2J), a franchise network for legal service providers. In each auction 3-5 potential bidders are invited from a short short-list of approximately 50 Dutch small- and medium sized law firms. Clients are typically individuals and small- or medium sized enterprises. The cases are typically “routine” including labor disputes, consumer disputes, and family matters for individuals and contracts and collecting debts for businesses.

In section 2, we derive testable hypotheses on the basis of a model of equilibrium bidding in the XS2J auction. Given the clients’ preferences, it is as if bidders compete in a scoring auction in which they submit bids on several dimensions, including an hourly rate and a fixed fee. Using Asker & Cantillon’s (2008) theory of scoring auctions, we derive that in equilibrium, lawyers who expect to need few [many] hours to prepare the case submit fixed-fee [hourly-rate] bids. This “skewed” or “unbalanced” bidding is similar to results in related theoretical models (Athey and Levin, 2001, Bajari and Tadelis, 2001, Ewerhart & Fieseler) and has been reported in scoring auctions in practice such as timber sale auctions (Athey & Levin, 2001) and construction procurement (Bajari & Tadelis, 2001). However, if we take into account that the client updates her beliefs that only “slow” lawyers will bid an hourly rate, the equilibrium unravels to one in which lawyers only bid a fixed fee. Hourly-rate bidding may occur in equilibrium if the client can observe how fast the lawyers are or if she is “cursed” in that she does not fully update her belief about the lawyers’ type (Eyster and Rabin, 2005).

Section 3 contains our empirical results. [A summary of the empirical results.]

We are not the first to study remuneration for legal services. First of all, Smith and Cox (1985) observe that for routine legal services, law firms are more likely to adopt an hourly rate instead of a fixed fee (1) the larger the firm and (2) if they are listed in the Martindale Hubbell Law Directory. Both observations are in line with Smith and Cox' conjecture that clients are only willing to accept an hourly rate if they obtain a positive signal about the firm's quality. Second, Zhong (2007) analyzes the bidding procedure implemented by General Electric in which winning lawyers end up on a "short list" of lawyers General Electric may approach for legal services. In contrast to the auction that we will analyze, in this bidding procedure, only hourly-rate bids were allowed. Moreover, Zhong's research interest is quite different than ours: she analyzes the buyer's bias towards the incumbent supplier. Third, several authors study conditional and contingent fees.¹ Performance pay may solve moral hazard problems resulting from the credence good nature of legal services² or adverse selection problems in that lawyers might be able and willing to bid more aggressively the lower their quality.³ In the Netherlands, conditional fees were banned by professional regulation until very recently. In the XS2J auction, we do observe contingency fees. Information asymmetry between lawyers and client in our setting, is to a large extent resolved because the auctioneer is an expert intermediary who can advise the client not to take some lawyer or who can exclude bidders from future auctions in the case of opportunistic behavior.

2 Theory

In this section, we derive the equilibrium properties of the XS2J auction in the following environment. We consider a risk neutral client who auctions a legal case to one out of a set of n risk neutral lawyers. Each lawyer $\ell = 1, \dots, n$ possesses two-dimensional private information (h_ℓ, c_ℓ) about the case, where h_ℓ is the (expected) number of hours she will spend on the case if the client assigns the case to her and c_ℓ is her hourly costs. So, if lawyer ℓ gets the case, her costs will be $h_\ell c_\ell$. We assume that lawyer types (h_ℓ, c_ℓ) are independently distributed according to

¹See Emons (2006) and the references contained therein.

²Moral hazard problems for credence goods include overtreatment, undertreatment, and overcharging. See Dulleck and Kerschbamer (2006) for an overview of the literature on credence goods.

³See, e.g., Manelli and Vincent (1995).

the same joint distribution function, where we allow for correlation between h_ℓ, c_ℓ . The number of hours h_ℓ is ex post verifiable by the client.⁴ Let $\bar{h} < \infty$ be an upperbound on h_ℓ .

Lawyers compete in the following bidding mechanism.⁵ Each lawyer can submit a three-dimensional bid (p_F, h_F, p_H) , where p_F is a fixed fee she wishes to obtain if the client selects her, h_F is the maximum number of hours the lawyer is willing to work for the fixed fee, and p_H is her hourly rate if the time worked exceeds the limit h_F specified in the bid. In other words, if the client picks out this lawyer, the client will pay her $p_F + \max\{0, h_\ell - h_F\}p_H$. The resulting utility for the lawyer equals

$$p_F + \max\{0, h_\ell - h_F\}p_H - h_\ell c_\ell$$

if the client selects her to defend her case and zero otherwise. By convention, we write $(p_F, h_F, p_H) = (p_F, \bar{h}, 0)$ if the lawyer only bids a fixed fee and $(p_F, h_F, p_H) = (0, 0, p_H)$ if she only bids an hourly rate.

For the moment, we assume that the client assigns a score

$$S(p_F, h_F, p_H) = p_F + \max\{0, \alpha - h_F\}p_H$$

to a bid (p_F, h_F, p_H) , where $\alpha > 0$ is lawyer-independent and is naturally interpreted as the number of hours the client expects the lawyer to spend on the case. The client selects the lawyer whose bid produces the lowest score. We refer to this mechanism as the α -scoring auction.

When deriving the equilibrium of the α -scoring auction, we strongly rely on Asker and Cantillon's (2008) theory of scoring auctions. According to their theory, each multidimensional type can be replaced by a one-dimensional "pseudotype", from which the equilibrium can be readily derived using the standard tools from auction theory. Asker and Cantillon show that the pseudotype equals the minimum score a bidder can provide given that her utility equals zero. In our setting, it can be readily shown that lawyers for whom $h_\ell \leq \alpha$ [$h_\ell \geq \alpha$] can minimize their score by bidding $h_\ell c_\ell$ for the fixed fee [c_ℓ for the hourly rate] and \bar{h} on the second and zero on the third dimension [zero on the other two dimensions]. Therefore, the pseudotype ψ_ℓ for lawyer $\ell = 1, \dots, n$ is given by

$$\psi_\ell = \min\{h_\ell, \alpha\}c_\ell.$$

⁴Analogously, the lawyer is able to reimburse a maximum number of $m(h_\ell)$ hours, where m is a strictly increasing function.

⁵For simplicity, we do not allow for success fees.

We assume that $\psi_\ell \in [\underline{\psi}, \bar{\psi}]$, where $0 \leq \underline{\psi} < \bar{\psi} < \infty$. Moreover, the distribution G of ψ_ℓ is strictly increasing and admits a continuous density function. Let

$$W(\psi) \equiv [1 - G(\psi)]^{n-1}$$

be the probability that a lawyer with pseudotype ψ has a lower pseudotype than all the other $n - 1$ lawyers (which corresponds to the winning probability in equilibrium).

The following proposition establishes that in the equilibrium of the α -scoring auction, lawyers either submit hourly rates or fixed fees and bid zero on the other dimensions. This extreme form of bidding is commonly observed in the literature and referred to as “skewing” or “unbalancing” (see, e.g., Athey and Levin, 2001, Bajari and Tadelis, 2001, Ewerhart and Fieseler, 2003).

Proposition 1 *There exist a Bayesian Nash equilibrium of the α -scoring auction, where a lawyer with type (h, c) bids*

$$\begin{aligned} (p_F, h_F, p_H) &= (B_F(h, c), \bar{h}, 0) \text{ if } h \leq \alpha, \text{ and} \\ (p_F, h_F, p_H) &= (0, 0, B_H(\alpha, c)) \text{ if } h > \alpha, \end{aligned}$$

where

$$B_F(h, c) = hc + \int_{hc}^{\bar{\psi}} \frac{W(x)}{W(hc)} dx, \text{ and} \tag{1}$$

$$B_H(\alpha, c) = c + \int_{\alpha c}^{\bar{\psi}} \frac{W(x)}{\alpha W(\alpha c)} dx. \tag{2}$$

Proof. According to Asker and Cantillon (2008), the Bayesian Nash equilibrium can be found by deriving the equilibrium of the lowest-price sealed-bid auction in which a lawyer’s pseudotype equals her costs. The equilibrium bid then corresponds to the score that the bidder will obtain in the equilibrium of the scoring auction. Suppose that a lawyer has pseudotype ψ and that the equilibrium bidding function is denoted by B . In equilibrium, the lawyer solves

$$\max_{\hat{\psi}} W(\hat{\psi}) [B(\hat{\psi}) - \psi].$$

The first-order condition of the equilibrium is

$$W'(\hat{\psi}) [B(\hat{\psi}) - \psi] + W(\hat{\psi}) B'(\hat{\psi}) = 0$$

at $\hat{\psi} = \psi$. It is standard to show that

$$B(\psi) = \psi + \int_{\psi}^{\bar{\psi}} \frac{W(x)}{W(\psi)} dx$$

is the unique solution. If $h \leq \alpha$, the lawyer will bid a fixed fee. Because her pseudotype $\psi = ch$, it follows that $B_F(h, c) = B(ch)$. Similarly, if $h > \alpha$, the lawyer will bid an hourly rate. Because her pseudotype $\psi = \alpha c$, and the scoring function multiplies bids on the hourly rate by α , $B_H(\alpha, c) = \frac{B(\alpha c)}{\alpha}$. ■

Corollary 1 *In the Bayesian Nash equilibrium of the α -scoring auction, fixed fee bids are increasing in both h_ℓ and c_ℓ , while hourly rates do not depend on h_ℓ and are increasing in c_ℓ .*

Note that it is in the interest of the client to award lawyer's bids according to the α -scoring auction as long as α is her correct estimate of the expected number of hours a lawyer will spend on the case given that this lawyer bids on an hourly rate. However, a contradiction emerges because if lawyers bid according to equilibrium,

$$\alpha = E \{h_\ell | h_\ell > \alpha\} > \alpha.$$

In other words, the game will unravel to a(n) (perfect Bayesian) equilibrium in which all lawyers bid on a fixed fee.

Proposition 2 *In equilibrium, the client will choose offers as if lawyers competed in an α -scoring auction where $\alpha > \bar{h}$. Lawyers with type (h, c) will bid $(p_F, h_F, p_H) = (B_F(h, c), \bar{h}, 0)$ where $B_F(h, c)$ is given in (1).*

This result leads to the following testable hypotheses:

Hypothesis 1: All lawyers bid a fixed fee and zero on the other dimensions.

Hypothesis 2: A lawyer's (fixed fee) bid is increasing in the number of hours she needs for the case and her hourly costs.

Hypothesis 3: The client chooses the bid that yields the lowest expected payment.

Let us present two alternative theories in which some lawyers may bid hourly rates. One alternative could be that the client has complete information about h_1, \dots, h_n . In that case, a lawyer who needs h hours for the case will be indifferent between bidding an hourly rate p_H or a fixed fee $p_F = hp_H$ because the client will perceive them as equivalent so that the lawyer's winning probability is the same. Assuming that lawyers are still incompletely informed about each others' h , we derive the following proposition.

Proposition 3 *Suppose that the client has complete information about h_1, \dots, h_n . In the Bayesian Nash equilibrium of the α -scoring auction, a lawyer with type (h, c) bids either*

$$\begin{aligned} (p_F, h_F, p_H) &= (B_F(h, c), \bar{h}, 0) \text{ or} \\ (p_F, h_F, p_H) &= (0, 0, B_H(h, c)), \end{aligned}$$

where $B_F(h, c)$ is given in (1) and $B_H(h, c)$ follows from (2) with $\alpha = h$.

Corollary 2 *If the client has complete information about h_1, \dots, h_n , fixed fee bids are increasing in both h_ℓ and c_ℓ . If W is log-concave, hourly rates are decreasing in h_ℓ and increasing in c_ℓ .*

Proof. We have

$$\frac{\partial B_H(h, c)}{\partial h} = -\frac{c^2}{\psi W(\psi)} \left(W(\psi) + \int_{\psi}^{\bar{\psi}} W(x) dx \left[\frac{1}{\psi} + \frac{W'(\psi)}{W(\psi)} \right] \right)$$

where $\psi = hc$. Let

$$\tilde{W}(\psi) = W(\psi) + \int_{\psi}^{\bar{\psi}} W(x) dx \left[\frac{1}{\psi} + \frac{W'(\psi)}{W(\psi)} \right].$$

Note that $\tilde{W}(\bar{\psi}) = 0$ and

$$\frac{\partial \tilde{W}(\psi)}{\partial \psi} = -\frac{W(\psi)}{\psi} - \int_{\psi}^{\bar{\psi}} W(x) dx \left[\frac{1}{\psi^2} - \frac{\partial}{\partial \psi} \frac{W'(\psi)}{W(\psi)} \right] \leq 0.$$

The inequality follows because W is log-concave so that $\frac{\partial}{\partial \psi} \frac{W'(\psi)}{W(\psi)} \leq 0$. Therefore, $\tilde{W}(\psi) \geq 0$ and in turn $\frac{\partial B_H(h, c)}{\partial h} \leq 0$. ■

This leads to the following alternative hypotheses:

Hypothesis 1A: Some lawyers bid an hourly rate, others a fixed fee.

Hypothesis 2A: Fixed fee bids are increasing in the number of hours the lawyer needs for the case and her hourly costs. Hourly rate bids are decreasing in the number of hours the lawyer needs for the case and are increasing in her hourly costs.

Hypothesis 3A: The client evaluates hourly rate bids not only on the basis of the bid but also on the basis of the number of hours the lawyer needs for the case. The client evaluate fixed fee bids only on the basis of the bids: if a fixed fee bid wins, it is the lowest fixed fee bid.

A second option is that the client is “cursed” à la Eyster and Rabin (2005): He does not take into account that a lawyer will spend many hours on the case conditional on bidding an hourly rate. For instance, a fully cursed client will think that those who bid on an hourly rate will spend $E\{h_\ell\}$ hours on the case, so that it is in his interest to run the α -scoring with $\alpha = E\{h_\ell\}$. Less cursed clients will take an α between $E\{h_\ell\}$ and \bar{h} . In all cases, the outcomes should be in line with Proposition 1, leading to the following alternative hypotheses.

Hypothesis 1B: A lawyer needing many [few] hours for the case will bid an hourly rate [a fixed fee].

Hypothesis 2B: Fixed fee bids are increasing in the number of hours the lawyer needs for the case and her hourly costs. Hourly rate bids do not depend on the number of hours the lawyer needs for the case and are increasing in her hourly costs.

Hypothesis 3B: The client chooses the bid that minimizes her expected costs.

[Work in progress]

As long as bidders are risk-neutral (and clients do not have complete information about h_1, \dots, h_n), it is never rational for an efficient bidder ($h \leq \alpha$) to submit a two-sided bid, at least not one with $h_F < \alpha$. An inefficient bidder ($h > \alpha$) is indifferent between submitting a one-sided hourly fee bid p_H and a two-sided bid a ‘comparable’ third bid dimension. Illustration: Suppose $\alpha = 5$ and $h = 6$. The bidder is indifferent between bidding $(0, 0, 100)$ and $(400, 4, 100)$: both bid deliver the same score $S = 500$ and same revenue if winning: 600.

Suppose now that lawyers are risk averse. In this case, an efficient bidder ($h < \alpha$) who, if he was risk neutral, would have submitted a one-sided fixed fee bid, would want to trade-off a better score against some certainty. The bidder can do this by submitting a bid where the

first bid dimension is lower than his equilibrium one-sided bid ($p_F \in (0, B_F(h, c))$), the second bid dimension: $h_F \in (0, \bar{h})$. and the third bid-dimension: $p_H \in (0, B_H(\alpha, c))$. The main point is that efficient bidders can be recognized from submitting a two-sided bid with a "low" third bid-dimension, that is lower than their "normal hourly fee".

The predictions from theory are summarized in Table 0.

Table 0. Predictions from theory

Theory	Prediction
Uninformed naive buyers	Bidders with $h \leq \alpha$ bid fixed, while $h > \alpha$ bid hourly (or two-sided with 'not-low' p_H). The hourly fee bid is independent of h and is increasing in c .
Uninformed rational buyers	All bidders bid fixed.
Informed buyers	Bidders indifferent between bidding fixed, hourly or two-sided. The hourly fee bid is decreasing in h and increasing in c .
Uncertain bidders	Bidders with $h \leq \alpha$ bid fixed or two-sided (with low p_H), while $h > \alpha$ bid hourly (or two-sided with 'not-low' p_H).

3 Data

In this section, we introduce our data. The source of our data is a setting that is rather unusual for lawyers: an auction where law firms are bidding on cases. The auctions are organized by XS2J, a franchise network for legal service providers. The franchisees of XS2J are legally skilled professionals, who are no member of The Bar. These jurists provide legal advice and assist clients in dispute resolution outside court. They however cannot represent their clients in court, as that is the exclusive right of the members of The Bar, called lawyers.⁶ In situations when XS2J franchisees cannot take on- or proceed with a case, or when the client explicitly requests a lawyer, the case is put up for auction among a number of law firms. Under law firms we understand firms owned and run by lawyers who are members of The Bar Association and who have the right to represent clients in court.

The potential bidders (the law firms) are short-listed on the internet site of XS2J: <http://www.xs2justice.nl>. The list includes approximately 50 small- and medium sized law firms within the Netherlands. These firms are rather typical law firms with respect to size and expertise, which is the typical

⁶Except in labor disputes, house-renting disputes, administrative law or in disputes that involves an amount less than 5000 Euro.

legal issues of private people (divorces, labor disputes etc.) and small and medium sized firms (contracts, collecting debts etc.). These law firms are maybe atypical with respect to their competitive attitude: not all law firms are willing to engage in competitive auctions.

The typical client is a private person with an average income or a small- or medium sized enterprise. Private clients with low income are probably underrepresented in the sample as these clients are eligible for legal aid. People at the high end of the income distribution also do not seem to appear in the sample: perhaps they search or select lawyers in a different manner. Similarly, small- and medium sized firms do appear in the sample, but larger firms do not: large firms usually have in-house jurists and the selection of lawyers is likely to proceed quite differently.

From the above it already follows that the cases on which bidding is invited are the general problems of private people such as labor disputes, neighbor disputes, consumer disputes, family matters (divorces, child contact, alimentation, inheritance etc.) and the usual conflicts of smaller sized businesses: contracts and collecting debts. Criminal cases or highly specialized (or high prestige) fields of law such as Competition Law do not appear in the sample.

3.1 The set-up of the auction

Each bidding round starts with an invitation to a number of law firms. The invitation is accompanied by a brief description of the case (and when applicable other relevant documentation), as well as a clear formulation on what services the lawyers are expected to submit a bid on, e.g. a legal advice, a second opinion on a contract, or representation (in court). Clients can also indicate their preference on a type of fee arrangement. This indication is however not binding: lawyers can bid with the type of fee contract they want. Bidders can also submit multiple bids with different types of fee contracts. A client selecting a bidder who submitted a multiple bid, must also specify which bid she accepts. On occasions, lawyers also put forward outlier bids: they propose other course of actions that serves the same purpose. For example, the lawyer can make a fixed fee offer for writing a letter and an hourly fee bid, in case the proposed letter does not achieve the purpose.

Law firms are told that for each bidding round, 3 to 5 law firms would be invited to submit an offer. As a matter of fact, sometimes there are less than 3 or more than 5 firms invited, but

bidders do not know that. Bidders do not know the identity and not even the exact number of the other candidates. Nevertheless, after some bidding experience, bidders might be able to guess who else is invited because the selection of candidate bidders is based on expertise and the location of the office (which is published on the internet site of XS2J).

After the bids are made, an XS2J jurist discusses the different bids with the client. Apart from the financial bid and other comments made by the lawyers, clients also receive information on the location of the office and the number of years of experience of the lawyers concerned. When additional information is of interest, such as experience in proceeding against the same opposing party, this is also shared with the clients. Based on this information, the client makes his choice of lawyer, and if applicable specifies which bid he accepts.

A client can also choose to refuse all bids. Approximately 33% of the cases are not awarded. There are several reasons why this might happen. In some auctions, the dispute stays unawarded as the case appears meritless - which became apparent from the comments lawyers made accompanying their bid. It may also be the case that the client shops around, perhaps to use the bidding results to put pressure on his steady lawyer.

When a case is awarded, the financial terms of the winning bid are revealed to all lawyers who have submitted a bid. The identity of the winning bidder is kept anonymous, except for the town of the office and the number of years of experience of the winning bidder.

3.2 The auctions

The dataset contains information on all the auctions that have been organized by XS2J in the period November 2004 to December 2008. All bids are observed except for a limited number of (non-winning) bids⁷ The dataset includes 95 auctions in which 374 bids have been submitted. Table 1 reports summary statistics for the auctions. In two thirds of the auctions, the client has accepted a bid. The rest stayed unawarded. On average, 4.7 law firms have been invited to participate in an auction and 3.2 firms have decided to accept the invitation and submitted a bid. Law firms were free to submit multiple bids (for instance a fixed fee bid and an hourly fee bid). On average, clients could make their choice from 4.1 bids.

In the dataset we observed (1) hourly fee bids, (2) fixed fee bids (3) bids with a fixed fee for

⁷Our dataset is based on the e-mail box of the organizers of the auctions. The bids that we do not observe, had been submitted by fax. The number of missing bids is at most 5 in total.

some limited range of work and an hourly fee for hours of work exceeding the limit, (4) hourly fee bids with a maximum for the total bill (5) an hourly fee bid for the first couple of hours, and another hourly fee bid for the exceeding hours and (6) success fee bids. The average hourly fee bid is 176 Euro. This includes office costs but excludes taxes. The table shows that no bidder offered an hourly fee under 100 Euro. This might be very intuitive: the hourly fee that a lawyer can earn by doing legal aid is set by the government at 99 Euro per hour. This hourly fee serves as a reservation price: lawyers who are not capacity constrained can probably earn at least 99 Euro by their next best alternative. On the other end of the spectrum: the highest hourly fee bid is 267.50 Euro. A limited number of bidders submitted bids with an hourly fee with some cap on the maximum number of hours to be billed or two hourly rates for the first couple of hours and the hours after the specified time limit.

The fixed fee bids are in the range of 107 to 8,500 Euro. The 107 Euro fixed fee bid is limited to a legal advice, the 8,500 Euro bid covered full court representation. In the dataset, dummies indicate whether or not a bid is limited to some activity such as writing a letter, negotiating in the shadow of court or whether the bid covered proceedings in court.

Table 1 Summary statistics on the auctions

	Count/N	Mean	St. dev	Median	Min	Max
Total no of auctions	95					
Total no of auctions awarded	65					
No of invited bidders per auction	95	4.66	4.2	4	2	33
No of bidders per auction	95	3.17	2.28	3	1	20
No of bids submitted per auction	95	4.10	3.17	3	1	26
Total no of bids submitted	374					
Hourly fee bids submitted	149	176	31.4	173	105	267.5
Fixed fee bids submitted	94	1,795	1,478	1,500	107	8500
Fixed fee with limit & hourly fee for exceeding	93					
- Fixed fee/max nr of hours		136.8	32.1	135	78	277.8
- Excedent fee		154.3	28.7	150	100	238.5
Hourly fee with a cap on hours	11	174.2	39.3	185.5	100	240.8
Two hourly fees	6					
- Hourly fee for first x hours		144.8	25.2	15.1	106	174.9
- Hourly fee for hours after		160.3	29.8	155.7	130	213.5
Success fee	21					

93 bids were of the form of a fixed fee bid with some limit on the time the lawyer is willing to work on the case for the specified fixed fee, and an excedent fee. For this type of bids, it is

useful to look at the ratio of the first two bid-dimensions: p_F and h_{\max} . The average of this ratio is 136.8. The average of the third bid dimension for two-sided bids, p_H (the excedent fee) is 154.3 Euro per hour.

In our dataset, we observe 21 success fee bids. Success fees are controversial in The Netherlands: no cure - no pay is declared illegal. There has been some liberalization, but the boundaries of what type of fee arrangements constitute a breach of professional regulation are vague. Industry experts believe that success fees are rare in general, but we do observe them in our sample. There are many ways to specify a success fee, and indeed, almost all of the 21 bids had a different setup. In the following, success fee bids will only be included, when it is unambiguous how to treat them.

The summary statistics in Table 1 cover all cases that are put up for auction. Two cases, however might be different than the rest. In one of these cases, there was a potential for large media coverage, the other case concerned a framework contract for handling approximately 20 cases per year, for a number of years. For these two auctions many more lawyers were offered the opportunity to bid. Apart from the obvious changes in average number of bidders and bids, excluding these two auctions, does not change much in the summary statistics of bidding behavior.

3.3 The bidders

3.3.1 The bidding lawyer and law firm

Table 2 portrays the bidders. In total 152 lawyers appear in our dataset. Clients are provided with information on the number of years of experience of the lawyers involved in the bidding⁸. A lawyer with a longer professional track record may need less time to complete a case, may be more capable to estimate the time needed with a smaller error than a lawyer with less years of experience. At the same time, a more experienced lawyer may have a larger case-flow outside the XS2J auctions and therefore may have a higher opportunity cost of time. The average bidder at the moment of submitting the bid, has 11 years of practice. In some cases, the bid specified that more than one lawyer would be involved in the case. In the estimations, however we use the number of years of experience of the lawyer who submitted the bid, as that is the lawyer

⁸This information has been double-checked on the internet site of The Bar Association: www.alleadvocaten.nl.

most likely to conduct the case.

Table 2 Summary statistics on the bidding lawyers

	Count/N	Mean	St.dev	Median	Min	Max
Total no of lawyers	152					
No of years experience lawyer	378	11.03	8.58	9	0	41
No of firms invited at least once	61					
No of firms participated at least once	50					
Size firm: no of offices	386	1.71	1.67	1	1	7
Size firm: no of lawyers	386	17.60	24.81	10	1	115
No of lawyers per 1,000 inhab	386	4.59	5.67	1.85	0.18	24.50
Bidding experience	386	7.23	6.52	5	1	32
Rental cost	386	169	59	140	100	292.5
Distance	386	45.2	52.3	28	0	289

These lawyers are affiliated to 61 law firms. That is the total number of law firms that had been invited to participate at least once, 50 of these firms have submitted a bid at least once. The typical law firm in our sample has 1 or 2 offices and only a few lawyers: the median of the number of lawyers affiliated with the law firm is 7. Put it differently, our usual bidder is a small to medium sized law firm, the type of law firm that deals with general legal matters of private persons and small- and medium sized enterprises. Information on the number of offices and number of lawyers were collected from the internet site of the Bar Association⁹ in February 2009.

The bidding experience of law firms in the XS2J procurement auctions, is also a matter of interest. The reason that we look at bidding experience of a law firm as opposed to an individual lawyer is that each law firm appoints a contact person (one of the lawyers) who coordinates invitations to bid within the firm. This person knows what the past bids were and what bid won in former auctions. Even if the contact person does not submit the bid himself, information is very likely to be shared and discussed with the bidding lawyer within the own firm. Table 2 shows that there is a large variation in bidding experience: some law firms have participated only once (submitted a bid only on 1 case) but there was also a law firm who submitted bids in 32 auctions. The average number of bidding experience at the moment of submitting the bid, equals 6.5.

⁹<http://www.alleadvocaten.nl/>

3.3.2 Local condition variables

As we have information on the address of the bidders' office, we are able to supplement our bidding data with a number of local condition variables. We include information on the size of the local market in terms of number of inhabitants in the town of the law firm. The source of this information is the Statistics Netherlands. We can combine this data with the number of competitors in the geographical area. This data is collected from the internet site of The Bar Association. The counts of lawyers are adjusted by subtracting the number of lawyers working at the Top-10 law firms in The Netherlands, as these (usually highly specialized) lawyers are unlikely to compete for the types of cases that are the object of XS2J auctions. After this correction, on average, 4.4 lawyers compete on a market of 1,000 inhabitants.

We also include information on the rental costs of office space in the geographical area where the bidding lawyer's office is situated. As Smith and Cox (1985) argue "*for legal service firms some physical manifestation of quality will be informative: expansive book-lined office walls, a prestigious address, a large staff. These investments provide a readily ascertainable evidence of satisfied repeat customers* (p.173)" A more expensive office location may be an indication of higher quality. As we are mainly concerned with routine cases, we equate higher quality to better time-efficiency. An important point to note, is that the exact location of the office is not communicated to the client before awarding the case. This possible quality signal is thus essentially not effective in the XS2J auction, but may tell us something about the time-efficiency of the law firm. The data on rental costs is collected from the internet site of DTZ Zadelhoff¹⁰ In our estimations, we will use the midpoint between the cost estimate for low-end and high-end monthly office rental in a given area. The average of this variable in our sample is 169 Euro per m² per month. Naturally, the most expensive area's are the central area's of large cities, like Amsterdam and Rotterdam.

Furthermore, it is possible that the geographical distance between the lawyer's office and the residence of the client is of importance. This is not a direct cost issue for the lawyer, after all, it is the client who visits the lawyers' office and not vice versa. Distance is probably more of an issue for the client. This perhaps makes lawyers either reluctant to bid or perhaps bid

¹⁰DTZ Zadelhoff is a large real estate agent in the business segment publishing estimates of office rental costs in the main office areas of most Dutch cities with the following URL: <http://www.dtz.nl/page.asp?id=5023>.

more aggressively on distant clients in order to make a chance of winning. The average distance between lawyer and client in our bidding sample is: 46 km. In a limited number of cases, the client lives abroad. In this case we set the distance at 0, as distance in this case, does not constitute an advantage or a disadvantage to any bidder. The source of the data on distances is the internet site of the Royal Dutch Touring Club ANWB.¹¹

3.3.3 Case specific controls

Table 3 gives a sketch of the composition of cases. As mentioned earlier, the cases put up for auction are everyday legal disputes of private persons and small- and medium sized enterprises. 31% of the cases are in the field of Company Law. The majority of these disputes has to do with some contractor or subcontractor not fulfilling obligations. 29% of the cases concern Family Law. These are usually divorces, alimention and child contact cases, but we also observe some inheritance disputes. In 7% of the auctions a labour dispute is at stake and in 2% of the auctions, the case is in the field of Public law. The rest category, here referred to as 'Private law other' contains cases like payment disputes of private persons, neighbor conflicts etc.

The financial value at stake, when it is known, is an indication of the complexity of the case. It also reflects maximum willingness to pay of the client. In 52 of the auctions an estimate of the financial value at stake was available (for both bidders and researcher). The average financial value is at around 150,000 Euro, but the variation is quite large: the minimum value is 3,633 Euro's and the maximum value is more than 5 million. In the auctions when the financial value at stake is unknown (e.g. child contact cases), we include a dummy for missing financial value.

Table 3 The main features of the legal disputes concerned

Area of law	Company	Family	Labour law	Other private	Public law
(N=95)	31%	29%	6%	32%	2%

Financial value	Mean	St. dev	Median	Min	Max
(N=52)	156,742	710,460	25,000	3,633	5,138,911

¹¹www.anwb.nl

4 Empirical Analysis

From the data description in the previous section it is immediately apparent that the bids submitted are not in line with the stylized fact (or public wisdom) that "lawyers only work for an hourly fee". Neither do we observe exclusively fixed fee bidding, that our model predicts when clients update their beliefs about lawyers' time-efficiency. In this section we evaluate the hypotheses derived from the alternative theories discussed in section 2. In section 4.1 we investigate what type of bids lawyers submit, and in particular, which lawyers bid fixed fees. Next, in Section 4.2, we look at the levels of the bids in the three bid-dimensions. Finally, in section 4.3 we focus on the clients decision: which bids do clients choose? Do clients dislike hourly fee bids; and to what extent do they take bidders' professional experience into account?

4.1 Which lawyers bid fixed fees?

We use discrete choice econometric models to investigate the type of bids lawyers submit in the auction. The predictions of our alternative theories center around time-efficiency. We proxy time-efficiency using the number of years of experience of the lawyer. Many years of professional experience may reduce preparation time and therefore may lead to higher time-efficiency. However, the length of professional experience is observed by clients and they may adjust α accordingly.

Table 4 presents the results on two different specifications for multinomial logistic estimation. The dependent variable is the type of bid: an hourly fee bid, a two-sided bid or a fixed fee bid.¹² Hourly fee bids are taken as the base outcome, so that the coefficients reported in the table indicate whether the explanatory variables significantly affect the likelihood of bidding fixed and two-sided, compared to bidding with an hourly fee. In the first specification (column 1-2), besides a constant, we only include the variables on bidder characteristics. Professional experience increases the probability of bidding two-sided compared to hourly fee bidding, but reduces the probability of bidding fixed. These estimates are however not significant. When

¹²Selection criteria: (1) bids that concern advice-only when this was not explicitly requested by the client, are deleted (2) bids that concern only writing a letter when the request for bids was broader, are deleted (3) bids in the auction (one of the two auctions with many invited bidders) where the client requested only hourly fee bids, are deleted and (4) in case the bidder submitted a multiple bid, the one that is closest to the fixed fee bid is taken into account.

we compare the effects of professional experience between two-sided and fixed fee bidding (not reported in the table), we find that the difference is (just) not significant at 10% level. From the results we conclude that either that experience does not improve time-efficiency, or that bidders believe that clients take years of experience into account. The later is consistent with the complete information model.

The other dependent variable in the specification in column1-2 is office rental costs. Office costs are fixed and sunk at the moment when the bidder makes his decision on the bid. Theoretically, such costs should not have a direct effect on the level or type of a bid. The results in table 4 however suggest that office rental costs play an important role in the choice of type of bidding: A law firm at a more expensive location has a significant higher probability of bidding two-sided than hourly, and even bidding fixed compared to two-sided (not reported in the table). It seems plausible that office costs are correlated with other forces that can have an effect on type of bidding. Two explanations are possible. First, a posh office can be seen as a signal to clients that the law firm has a large and satisfied client base, otherwise the firm could not afford the expensive office (location). Because here we are concerned with routine cases, we might equate high quality to high time-efficiency. If our interpretation is correct, than the results are strongly in favor of our incomplete information naive clients theory. Nevertheless, it is questionable whether we can interpret office costs as an indirect measure of time-efficiency. While such an interpretation certainly has merit in case of large law firms, it might be less plausible for the small to medium sized law firms in our sample. Why would an Amsterdam lawyer be more time-efficient than a law firm in a rural area, where office rental costs are lower? Another possibility is that offices with high rental costs put more pressure on non-partner lawyers to acquire new clients than otherwise.

If risk-aversion of bidders is an issue, than the riskiness of the case (the dispersion of h) matters for bidding fixed. For types of cases where the uncertainty of the time needed is high, hourly fees would prevail, for cases where it is more straightforward to estimate the number of hours needed, fixed fees would be more common. Whether law firms are willing to bid fixed, is likely to be affected by case characteristics. Column 3-4 present the estimation results where we include additional control variables on case characteristics. Disputes of private clients are more likely to get a two-sided bid than business clients. Alternatively, we could replace the

private client dummy by the financial value of the case and a dummy that takes the value of 1 when a financial value is a missing in the dataset (this dummy is strongly correlated with the private client dummy). This alternative specification would tell us that two-sided and fixed fee bids are more likely to be offered for lower financial value cases.

Furthermore, we have included dummies on what the client requested a bid on: an advice, representation in court or settlement outside court. Although the individual variables are not significant, jointly they are.

Besides the control variables reported in column 3-4, we have tested many other possible controls, such as area of law, number of invited bidders, bidding experience, geographical distance between lawyer and client, local condition variables and variables on firm size of bidders. The inclusion of these controls however did not lead to a significant improvement of our model, as confirmed by likelihood ratio tests.

Table 4. Type of bid submitted

	(1)	(2)	(3)	(4)	(5)	(6)
	mlogit1		mlogit2		biprobit	
	two-sided	fixed	two-sided	fixed	two-sided	fixed
Years of experience	0.0120 (0.0178)	-0.0189 (0.0191)	0.00745 (0.0186)	-0.0224 (0.0195)	0.000256 (0.0103)	-0.0155 (0.0103)
Rental costs	0.00449 (0.00302)	0.00979*** (0.00295)	0.00715** (0.00323)	0.0111*** (0.00312)	0.00329* (0.00182)	0.00425** (0.00184)
Dummy: private client			1.143*** (0.357)	0.507 (0.353)	0.637*** (0.204)	-0.0432 (0.207)
Dummy: advice requested			-0.962 (0.729)	0.631 (0.540)	-0.468 (0.377)	0.660* (0.376)
Dummy: repr in court			1.023 (0.891)	1.438 (0.887)	0.504 (0.411)	0.485 (0.413)
Treated by XS2J advisor					0.413** (0.196)	-0.105 (0.205)
Bidding experience					-0.0168 (0.0164)	0.00149 (0.0169)
Constant	-1.142** (0.530)	-1.754*** (0.538)	-2.197*** (0.651)	-2.344*** (0.637)	-1.339*** (0.374)	-1.115*** (0.373)
Observations	233	233	233	233	223	223

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Recall that bidders were allowed to submit multiple bids, and some indeed did. In case a bidder submitted a multiple bid, the multinomial logistic regressions in column 1-4 only look at the bid that is closest to the fixed fee. If an hourly fee bid and a two sided bid is submitted, these two bids appear in our estimations as 1 observation in which a two-sided bid is submitted. A bidder submitting a two-sided and a fixed fee bid, is treated as if he submitted a fixed fee bid. We take a different approach in column 5 and 6. Here, we look whether the bidder has submitted a fixed fee bid and whether the bidder submitted a two-sided bid: in these estimations, both the two-sided bid and the fixed fee bid dummy takes the value of 1, when one submitted a two-sided bid and a fixed fee bid. The estimation technique we apply here is a bivariate probit regression. The results are much in line with the earlier results. However, here we were able to add two additional control variables. The first one is a dummy whether an XS2J jurist has treated the case previously. For a bidding lawyer this usually means that

a decent documentation is at hand and that the possibilities of settlement outside court are largely exhausted.

The coefficient estimate suggests that the more experienced bidders become in bidding, the smaller the probability that they bid with a two-sided bid. The effect of bidding experience on bidding with a fixed fee is positive, but not significant.

4.2 How much do lawyers bid?

In this section we look at the level of the bids. First we will look at the drivers for hourly fees, next we turn to the one-sided fixed fee bids, and finally we compare the first- and third-biddimension in two-sided bidding to the respective bid in one-sided bidding.

4.2.1 Hourly fee bids in one-sided bids

The level of hourly fee bids depends only on hourly costs for the incomplete information naive buyers model and both time-efficiency and hourly costs assuming complete information. As in the previous section, we use the length of professional experience to indicate time-efficiency. The hourly costs to a lawyer is likely to be her opportunity cost of time. It is reasonable to assume that more experienced lawyers have a larger client base and therefore a larger work-flow outside the XS2J auctions. A large work-flow means that the a high percentage of the lawyer's time is occupied with projects with "high" (above 99 Euro) hourly fee jobs.

Table 5 presents the results of the regressions exploring the driving forces behind hourly fee bids. The dependent variable is the natural logarithm of the hourly fee bid. The first equation is an ordinary least squares regression without fixed effects, the second equation allows for fixed effects for the auctions and the third equation contains fixed effects for the law firms In the specification of column 1 and 3 we have included year dummies, but these estimates are suppressed in the table.

Professional experience has a positive effect on the level of hourly fees. This result is only possible in the model of complete information if the effect of hourly costs overweigh time efficiency. In the model of uniformed naive buyers, only hourly costs matter. The results are in line with the predictions of this model.

If we believe the time-efficiency interpretation of office rental costs, the complete information

model would predict a significant negative coefficient. The estimate is indeed negative, but not significant. This is however in line with the predictions of the uniformed naive bidders model.

We have added some controls variables in the estimations. The first one concerns the number of lawyers per 1000 inhabitants. Surprisingly, the more lawyers, the higher the hourly fee bid.

Notice that the financial value at stake in the legal dispute has a significant positive effect on the hourly fee bid. The elasticity of roughly 0.04% may not seem that much; however the variation in financial values is large, so that the economic effect can be very large. The significant positive estimate means that the maximum willingness to pay on the client's side is certainly taken into account when setting the hourly fee. When a price is based on the willingness to pay, that is usually a sign that competition is not that fierce. Intuitively, this is something that is imported from the general price-setting practice outside the XS2J auction. Lawyers generally admit [search reference] that their fees are based on the financial strength of the client. In our case, the lawyer does not observe the financial strength but some imperfect indicator of it: the value of the case. The data certainly confirms the claim that lawyers take financial value/willingness to pay into account.

With respect to areas of law, labour law and business law, fees seem to be lower than other private law and public law cases.

The media dummy reflects potential media attention for the case. This dummy takes the value of one for one of the auctions where relatively many law firms received an invitation to bid. Apparently, this was an attractive case

Table 5 Hourly fee bids

	(1)	(2)	(3)	(4)
Log years of experience	0.0688*** (0.0162)	0.0609*** (0.0226)	0.0670*** (0.0174)	0.0599*** (0.0138)
Log rental costs	-0.155* (0.0834)	-0.181 (0.130)	0.322 (0.217)	-0.122* (0.0670)
Log nr lawyers per 1000 inhabitants	0.0790** (0.0337)	0.103* (0.0525)	0.265** (0.107)	0.0393 (0.0271)
Bidding experience	0.00366 (0.00290)	0.00520 (0.00428)	0.00955** (0.00456)	0.00350 (0.00238)
Log financial value	0.0372*** (0.0133)		0.0276** (0.0110)	0.0412*** (0.0112)
Dummy: fin value missing	0.382*** (0.145)		0.238* (0.121)	0.428*** (0.121)
Dummy: Family law	-0.0256 (0.0525)		-0.0135 (0.0493)	-0.0207 (0.0380)
Dummy: Labor law	-0.136* (0.0701)		0.000740 (0.0795)	-0.141*** (0.0505)
Dummy: Business law	-0.0685** (0.0343)		-0.0336 (0.0305)	-0.0394 (0.0276)
Dummy: media interest	-0.150 (0.172)		-0.215 (0.137)	-0.119 (0.176)
Dummy: Two-sided				-0.132*** (0.0238)
Constant	5.366*** (0.417)	5.843*** (0.621)	2.969*** (1.061)	
Observations	143	143	143	
R^2	0.293	0.186	0.473	
Number of groups		74	38	

4.2.2 Fixed fees in one-sided bids

When it comes to the level of fixed fees, all our alternative theories resemble that a lawyer's fixed fee bid should be increasing in the number of hours she needs for the case and her hourly costs. If we translate these predictions into our variables, the effect of professional experience could go either way. A negative coefficient would imply that efficiency is more important, while a positive sign would imply that the hourly costs are more important. With respect to office costs, we expect a negative sign: an unobservable signal of (time-)efficiency should be correlated with a lower fixed fee.

The results are given in Table.5. Before we interpret the results, please note that the number

of observations is very limited: 42. The reason is that we had to scale the data so that the bids on quite different cases can be comparable. We scaled the fixed fees by dividing them by the number of hours legal aid would cover the activities of a lawyers for the given case. This estimate is only available for consumer cases. Therefore, we are forced to work with a subsample of the bids.

Not much is significant in this limited subsample. Professional experience seems to yield lower fixed fee bids: time-efficiency seems to be more important than hourly costs. The coefficient of the office rental costs has the expected sign, but is not significant. In short, we find weak support of all three theories.

[Insert table]

4.2.3 Two-sided bids

Our risk averse bidders theory suggest that even though two-sided bids can be submitted by both efficient and inefficient bidders, they can be distinguished by the level of the bid. Efficient bidders would submit a two-sided bid, where the hourly fee dimension would contain an bid that is lower than her normal hourly fee. Two two-sample Wilcoxon ranksum (Mann-Whitney) test confirms that the distribution of hourly fee bids in one-sided bidding is significantly different from the hourly fee bid dimension submitted in a two-sided bid.

Another way to approach this question is to compare one-sided hourly fee bids to the hourly fee bids in two sided bids. Such a regression is reported in column 4 of table 4. The dependent variable here is the natural log of hourly fees: both as part of a one-sided and two-sided bid. The ones in the two-sided bids are significantly lower. We have tested for constant regressors and found that apart from the discount that is given in two-sided bids, the hourly fees are generated in the same way, whether they are observed as a two-sided or one-sided bid.

4.3 Which bids win?

In this section, we look at the client's choice. To do this, we will take the following approach. First we define the financial attractiveness of the bid, next we study to what extent a financial attractive bid is overruled by for example a the choice for a more experienced bidder. Finally, we look whether the type of bid.

Let us start with the 'lowest bid '. For the moment, let us suppose that bidders are homogenous with respect to the expected amount of time needed ($E(h)$), to complete the job, at least from the client's perspective. We introduce a new variable that we call "dominated by ". This variable takes the value of the number of bids that dominated a bid within an auction. Although, not all bids can be compared and ordered directly, it is possible to identify bids that are strictly dominated by other bids: bids that yield a higher expected cost to the client, no matter how much time is needed to complete the case. Whether or not a bid is dominated is illustrated in Figure 1. that plots the expected expenditure for bid $B_1 = (2000, \infty, 0)$, $B_2 = (1400, 10, 155)$ and $B_3 = (0, 0, 125)$. We cannot say that B_1 dominates B_3 or vica versa: for $h < 16$, one would prefer B_3 , but would prefer B_1 for hours exceeding that. We will say that none of the bids is dominated by the other. B_2 is however dominated by B_3 : assuming that both bidders have the same expected h , B_3 will yield less payment than B_2 .

Figure 1

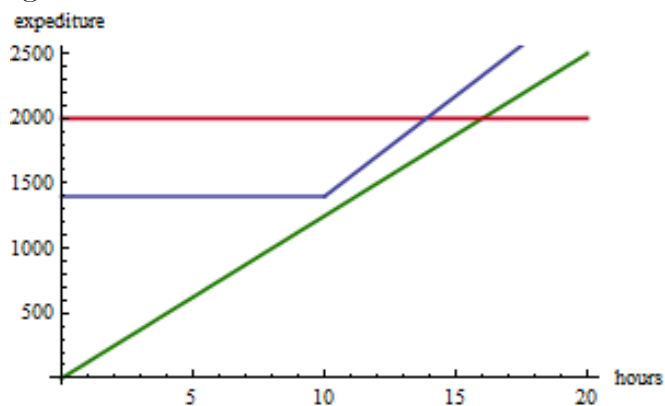


Table 5 Dominated bids

	Winning bid	Not-winning bid	Total
Not dominated	56	96	152
Dominated by 1 other bid	7	58	65
Dominated by 2 other bids	1	18	19
Dominated by 3 other bids	1	7	8
Dominated by 4 or more other bids	0	21	21

Besides looking at the number of bids that dominate a certain bid in an auction, we attempt to calculate the score that a naive client would attach to a bid. To make this comparable across the auctions, we construct a scaled version of the expected costs: the score in the α -scoring auction. We define score as follows $score = \frac{pF}{L} + \max\{0, L - h_{\max}\}p_H$, where L stands for legal aid hours. The lower the score of a bid, the lower is the calculated expected costs. Again, we

will use the number of hours that the legal aid fund covers the time input of the lawyer, which means that we are again estimating the model on a subsample where this measure is available: disputes of private clients.

We expect that the sign of the coefficient estimate of "dominated by" and "score" is negative. This is indeed what we find in our estimations below. Professional experience has the expected sign, but is not significant: we do not find evidence that clients take experience into account. After controlling for the financial attractiveness of the bid and professional experience, we find significant and large effects on the type of bid submitted: clients favor fixed fees with a maximum of hours and an hourly fee for exceeding hours (or success fees when available). In Equation 1, when we leave out the otherwise insignificant years of experience, then the significant difference between hourly and fixed on 10% level. Equation (2): The difference between hourly fee and fixed fee is not significant. In this specification we cannot include the success fee dummy because no such bid was submitted in an auction where we can calculate the score.

Table 6. What wins?

	(1)	(2)
Dummy: dominated	-1.675*** (0.475)	
Score		-0.00740* (0.00397)
Years of experience	0.0162 (0.0235)	0.0175 (0.0306)
Dummy: hourly fee	-1.938*** (0.496)	-2.130** (0.841)
Dummy: fixed fee	-1.193** (0.524)	-1.753* (0.919)
Dummy: success fee	1.930* (1.061)	
Dummy: two hourly fees	0.439 (1.408)	-1.839 (2.175)
Dummy: hourly fee with cap	-1.112 (1.205)	15.95 (2896)
Observations	252	113
Number of groups	57	25

5 Conclusions

TBA

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