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Managing judges mathematically: an empirical study of the medical malpractice litigations in Shanghai

Wei Zhang

Abstract The post-Mao China has been increasingly managed mathematically, not the least in its judicial system. In this paper, I looked into some of the mathematical indicators used to judge the performance of judges in this nation, and ascertained their effects on the judicial decisions on medical malpractices in Shanghai. The findings of this paper support the previous study that qualitatively identified the judicial responses to such a quantified evaluation system. Underlying the effect of performance indicators is the Chinese judiciary's bending toward populist pressure. Essentially, therefore, this paper serves to place in perspective the judicial populism well documented in the latest literature on Chinese judiciary. At the same time, however, my study also endorses the theory on courts' reluctance to exercise discretion in a hierarchical judicial system. Thus, as hinted by the data, the actual behaviors of Chinese judges might be complex under a combination of institutional constraints embodying policy preferences of political leaders as well as structural characteristics of the judiciary.

Keywords Medical malpractice · Judicial populism · Quantified performance indicators · Bureaucracy

JEL Classification K13 · K40 · K41

1 Introduction

It is well known among the students of modern China that the Party state manages its officials and bureaucrats through a variety of quantified indicators (Whiting 2004; Minzner 2009). Judges are no exception. They are routinely evaluated

according to a wide array of performance indicators (Minzner 2011a). Embedded in a highly hierarchical political apparatus, behaviors of the Chinese judiciary closely follow the bureaucratic logic (Peerenboom 2002; He 2009). The pervasive usage of performance indicators, indeed, is a hallmark of the bureaucracy control based on measurable results where it is infeasible for the superior to consider the same set of facts as the inferior in order to determine the correctness of the latter's action (Tullock 1965).

Despite the widespread awareness of their importance, judicial performance indicators have rarely been studied empirically in terms of their effects on the day-to-day functioning of Chinese courts. To my knowledge, He (2009) is probably the only relevant research published in English. Its qualitative study on divorce cases disclosed certain interesting behavioral patterns of Chinese judges in the shadow of the performance evaluation system. Quantitative evidence, however, is yet to be developed about the relationship between performance indicators and judicial practices in China. This paper presents a first attempt to fill in this gap in the literature, drawing on the court decisions rendered in Shanghai from 2011 to 2012 on medical malpractice litigations. More specifically, I try to explore whether the judicial performance indicators have effectively channeled judicial efforts toward bettering the indicator scores through potential manipulations in adjudicating medical malpractice case.

Medical malpractices were chosen for their prodigious repercussions on the Chinese society in the past 10 or so years. As detailed below, despite the relatively small number, medical malpractice litigations have created considerable pressure on judges due to their great potential to stir up grievances, especially on the plaintiff's side. Medical malpractice disputes have recently come to the attention of prominent China law scholars in the U.S. Liebman (2013) provided a pioneering survey on this topic. Liebman's study, however, did not employ multivariate regressions, and relied on a smaller sample base than the one used for this research. Hence, this paper may also be the first endeavor to inspect the adjudication of medical malpractice cases in China applying regression analyses.

The paper is organized as follows. Part 2 introduces the background information about the judicial performance indicator system and the medical malpractice litigations in Shanghai. Part 3 generates the hypotheses to be tested by the data. Part 4 describes the data source and the empirical strategy. Part 5 then presents my findings with certain caveats. A short conclusion follows Part 5.

2 Background: judicial performance indicators and medical malpractice litigations in Shanghai

2.1 Judicial performance indicators

Like in the other parts of China, the judicial performance indicators in Shanghai are built on the guideline for evaluating adjudicative quality issued by the Supreme People's Court (SPC) (SPC 2008). The Shanghai High People's Court (SHPC) compiles the Shanghai Court Adjudication Quality and Efficiency Composite Index

(上海法院审判质量效率综合评估指数, Composite Index) to assess the performance of the courts within its jurisdiction. The composite index is made up of 24 components grouped into 3 sub-indexes. The “justice” sub-index (公正指数) looks mainly to the percentage of cases reversed or sent back for retrial. The “efficiency” sub-index (效率指数) mostly asks about whether the cases are closed within the statutory time limit. The “effect” sub-index (效果指数) is concerned about the extent to which the parties accept the verdicts or mediation results without further appeals or petitions. Each component is assigned with certain weight in the index. The two most heavily weighted components are the rate of case closure through mediations or withdrawals (调解撤诉率, hereinafter as “RMW”), essentially measuring the rate of settlements after filing, and the rate of case closure without appeals after trial (一审服判息诉率, hereinafter as “RWA”), each accounting for 18% of the “effect” sub-index and 5.4% of the entire composite index. A higher RMW or a lower RWA is considered as a better performance.

To students of more advanced judicial systems, it appears outlandish that willingness to settle or appeal is used as metrics of judicial performance as this simply is litigants’ pursuit of their procedural rights sanctioned by the law. Courts are not supposed to interfere with these rights. In particular, although settlements may be encouraged, explicitly or implicitly, in other jurisdictions, the prominence of settlement rates in assessing performance of Chinese judges is, for example, in stark contrast to the practice in Japan, a neighboring civil law jurisdiction where China learned many of its modern private law doctrines. Whereas judges are rewarded in Japan for writing more published adjudicative opinions (Ramseyer and Rasmusen 2003: 54; Ramseyer 2015: 232), in China they are prized for quietly settling a higher percentage of cases. Hence, earlier studies have acutely linked the enormous emphasis placed by the Chinese judiciary on such indicators to the mounting judicial populism in this nation (Minzner 2011a).

SHPC collects the relevant information and constructs the Composite Index for the district and intermediate courts, and each court utilizes similar indicators to evaluate the performance of its divisions (庭) and judges. Some courts keep the individual performance indicator scores private whereas others use them to rank judges and publicize the ranking internally. In either case, however, judges should be aware of their individual scores. Moreover, the court and division scores are usually briefed to judges periodically. Leaders of courts and divisions often make cross-court comparisons of performance scores. SHPC updates the scores monthly and announces them within the local court system every quarter.¹ The monthly records cover the period from January of the reporting year to the month when the indicator scores were updated. In spite of the frequency of updates, the most important one is the annual report coming out near the year-end. The court and division level scores are often briefed at the wrap-up meetings held at the end of the year. Moreover, the presidents of courts at various levels make their official work report to the same level people’s congresses annually. Most judges I interviewed deemed the indicator-based evaluation as a great pressure, and some admitted that strategic actions were taken to improve the indicator scores. Although the financial

influence of the evaluation appears to be minor,² it can nonetheless be a crucial factor in promotion decisions.³

2.2 Medical malpractice litigations

In the past decade, disputes over medical malpractices have become a hot button issue in Chinese society. From time to time, intense conflicts are reported between physicians and patients, some of which led to fatal consequences.⁴ The passionate contentions certainly extend to courtrooms. In fact, many legal professionals now believe that, together with land taking and labor disputes, medical malpractice is among the three major origins of public discontent toward the Chinese judiciary.⁵ Although the absolute number of medical malpractice cases litigated in courts is moderate,⁶ it rises significantly over time (Liebman 2013).⁷ And the litigated disputes tend to be the most confrontational ones calling for delicate handling by courts (Civil Law Office 2010: 180).⁸

² The indicator scores used to affect judges' quarterly bonuses of RMB 2000–3000 before the bonus system was abolished in June 2014 as part of the latest judicial reform.

³ This paragraph is based on my interviews with the judges in various courts in Shanghai (interview with Judge FR, July 9th, 2013; interview with Judge ZJ, July 20th, 2014; interview with Judge ZX, July 22nd, 2014; interview with Judge F, July 22nd, 2014; interview with Judge H, July 25th, 2014; and interview with Judge S, July 28th, 2014).

⁴ Just to name a few widely publicized incidents causing death of physicians in the past few years, a 17-year-old stabbed his physician to death in the capital city of Heilongjiang province on Mar. 23, 2012, see <http://news.sina.com.cn/c/sd/2012-04-09/154724242561.shtml>. Only one month later, another physician was killed by a patient in the south China city of Hengyang, see <http://news.sohu.com/20130326/n370305912.shtml>. On Oct. 25, 2013, a physician was hammered to death by his patient in the southeastern city of Wenling, see http://news.ifeng.com/shendu/mszk/detail_2013_11/12/31172529_0.shtml. On Feb. 17, 2014, the Wenling tragedy repeated itself, but this time in the northeastern city of Qiqihar, see http://news.xinhuanet.com/legal/2014-02/18/c_119392734.htm. (Date of last access to all the websites in this footnote: Jan. 12th, 2015.) The striking rise in both the number and severity of patient-physician conflicts is attributed to a variety of reasons including increase in hospital visits in the general population with the expansion of medical insurance coverage, the limited investment in medical and public health enterprises, the distrust between patients and physicians due to information asymmetry, the lack of trust in dispute resolution mechanisms, and the government's overemphasis on social stability leading to undue favor to excessively demanding plaintiffs (Wang 2013: 321–322).

⁵ Interview with Judge ZC, July 9th, 2013.

⁶ The courts in Jiangsu province, for instance, received 1949 filings of medical malpractice cases from July 2010 to December 2011, roughly 1% of the tort cases filed during the same period of time (Gong 2012: 372). A study on three major hospitals, 301, Haidian and Jishuitan, in Beijing shows that, when counted separately for each hospital, the number of medical malpractice litigations against these three arising in 2006 and 2007 ranged from 7 to 22 (Civil Law Office 2010: 180). Nationwide, the Chinese courts heard nearly 17,000 medical malpractice claims in 2010 (Liebman 2013: 185).

⁷ For example, within the jurisdiction of Beijing No. 2 Intermediate Court composed of 9 districts and counties in the east part of Beijing, the number of medical malpractices cases was about 20 in 2001, but it jumped to about 130 in 2007, more than six-fold increase within 6 years. A district court in the western province of Gansu saw a rise in the number of medical malpractice cases from less than 10 in 1996 to 90 in 2006 (Civil Law Office 2010: 795, 801). Nationwide, the number of medical malpractice claims rose by 7.6% in 2010 over the previous year (Liebman 2013: 185).

⁸ This can be further substantiated by the number of medical malpractice cases petitioned to the procuratorates, an effort to request for extra judicial review after court decisions taking effect. It was reported that the medical malpractice cases petitioned to the People's Procuratorate of the Xicheng

The medical malpractice litigations in Shanghai are characterized by the predominant usage of the reports of medical reviews as evidence of hospitals' negligence and victims' injuries. As detailed in Liebman (2013: 195–200, 214–216), instead of counting on expert witness testimony provided by both parties, in China, written reports issued by certain professional organizations on errors in medical practices serve as the primary evidence in medical malpractice litigations. These reports are not supposed to be *ex parte*, but are issued as expert opinions from a neutral position. The reports are available to both parties before they decide to cling to the trial and await court decisions. In practice, two types of organizations are authorized to issue these reports, the medical review boards (医疗事故鉴定委员会) established by the local medical associations and the judicial inspection agencies (司法鉴定机构) composed usually of forensic staff. While plaintiffs often question the neutrality of the former, defendants blame the latter for their scanty expertise. Though courts in other provinces can be more open to judicial inspections (司法鉴定), the judges in Shanghai relied heavily on and deferred considerably to medical reviews, as clearly indicated by the data below.⁹

The primary purpose of medical reviews is to determine whether “medical accidents” (医疗事故) have occurred in medical treatment. Medical accidents refer to relatively serious injuries to patients caused by negligent medical practices. However, the medical review boards in Shanghai routinely point out hospitals' other less serious mistakes in treatment even when they find no medical accidents. Medical review boards are organized internally as a hierarchy divided, from the bottom to the top, at district, municipal and national levels. When the parties dispute over the conclusions drawn by the lower level medical review boards, they can petition to the next level for another review. While a substantial number of medical malpractice litigations in Shanghai did go through both the district and the municipal level reviews, none of them invoked a review at the national level.

In China, parties are allowed to appeal trial decisions once in civil litigations. The appellate review covers both the factual and the legal issues, and decisions are rendered by three-judge panels. The notice of appeal has to be filed within 15 days after entry of the trial judgment appealed from.¹⁰ This period is short, only half the length of the period allowed for filing appeals in civil cases in the U.S. federal courts.¹¹ Hence, usually there is little chance for further settlements before an appeal is lodged. It is said that the probability of appeal, as well as of reversal and remand, is higher than average for medical malpractice cases. In particular,

Footnote 8 continued

District in Beijing accounted for above 10% of all the petitioned civil cases in both 2011 and 2012, and the total number of such petitions tripled compared to 2008 or 2009 (see http://www.legaldaily.com.cn/bm/content/2013-02/05/content_4177920.htm?node=20732, last accessed: Jan. 12th, 2015).

⁹ Judges in Shanghai might believe that the judicial inspection agencies are more likely to be corruptive (interview with Judge H, July 25th, 2014). On the other hand, the medical review procedures in Shanghai are designed to boost the trust in the system. Members of the review board of a specific case are randomly drawn by the parties from a pool of medical experts. And in most situations, reviews are conducted by the medical review boards outside defendants' home districts.

¹⁰ Article 164 of the PRC Civil Procedural Law.

¹¹ Federal Rules of Appellate Procedure, Rule 4.

consensus seems to exist among the judges I interviewed that, in Shanghai, defendants in medical malpractices, i.e. hospitals, hardly appeal after trial decisions have been reached.¹² This was borne out by data as well. Of the 205 published appellate decisions on medical malpractices in 2011 and 2012, only 21, or about 1 out of 10, were filed by hospitals. This makes Shanghai distinguishable from the other areas studied in a previous paper where the defendants filed a substantial portion of the appeals (Liebman 2013: 221). Plaintiffs in medical malpractice litigations appeal mainly in hope of increase in the amount of damage awards.¹³ Some may suspect that the paltry number of appeals filed by hospitals implicates a judicial bias in their favor. This postulation, however, does not go well with the prevailing judicial populism widely documented by China law Scholars home and abroad.

There are, moreover, good reasons for hospitals' reluctance to file appeals from first-instance decisions in Shanghai. First, hospitals, unlike victims, are repeated players with courts for medical malpractice disputes are heard by the courts in defendants' home districts. Therefore, hospitals may hesitate to annoy courts by frequent appeals, especially considering the negative implication of the number of appeals on the assessment of judicial performance. Second, the vast majority of hospitals in China are publicly owned. Therefore, they are not very different from other public entities in terms of management incentives. As such, hospitals, the big ones in particular, care more about administrative sanctions than civil liabilities (Civil Law Office 2010: 791). Since the administrative sanctions are determined according to the legally non-appealable medical reviews (医疗事故鉴定) rather than court decisions, appeals of the latter simply will not do too much good to hospitals. Related to the prior point, as the hospitals in Shanghai are usually big and relatively well funded, monetary compensations awarded by courts are unlikely to cause substantial financial difficulties (Liebman 2013: 238).¹⁴ Finally, in Shanghai the vast majority of hospitals are insured against malpractice liabilities, therefore, at least within their insurance coverage, they will not be enthusiastic about fighting for pecuniary causes in courtrooms.¹⁵

Like in other areas of civil justice (Fu and Cullen 2011), the Chinese judicial system is conscientiously channeling medical malpractice disputes toward settlements.¹⁶ A multi-phased mediation mechanism is in place to encourage settlements. First, there are internal departments inside many hospitals to settle malpractice disputes with patients. Second, if the bilateral negotiation between hospitals and patients fail, and patients intend to bring their cases to courts, they are often required to go through pre-filing mediations at the so-called "litigation-mediation docking

¹² Interview with Judge H, July 25th, 2014; interview with Judge Y, Aug. 1st, 2014.

¹³ Interview with Judge W, July 26th, 2016.

¹⁴ Interview with Judge H, July 25th, 2014; interview with Judge Y, Aug. 1st, 2014; interview with Judge W, July 26th, 2016.

¹⁵ According to the statistics compiled by one major insurance company, as of 2015, nearly 90% of the state owned hospitals in Shanghai have purchased malpractice insurance policies.

¹⁶ It was estimated by one former district, now intermediate, court judge in Shanghai that about 80% of the medical malpractice disputes were settled (interview with Judge Y, Aug. 1st, 2014).

centers” (诉调对接中心) which are essentially court affiliates. Courts in Shanghai hire retired judges at these docking centers to mediate civil disputes before lawsuits being officially filed, and the settlements so reached are conferred with the same legal effectiveness as court-supervised mediations.¹⁷ Finally, court-supervised mediations are prevalent when parties still cannot settle after the pre-filing mediations and malpractice lawsuits are filed. A mediation presided over by the judge specifically in charge of the case, or sometimes his or her assistants, is routinely conducted shortly before a formal adjudicatory court session starts. At this round of mediation, parties will receive good knowledge of each other’s main arguments as well as the evidence presented in their support.¹⁸ In effect, therefore, parties in civil litigations in China have meaningful chance to exchange essential information at the pre-trial stage, similar to their counterparts in the U.S., despite the absence of a formal discovery procedure.¹⁹

In case of medical malpractices in Shanghai, as confirmed by the data below, medical reviews are decisive to findings of hospitals’ liability at trial. Thus, once conclusions of these reviews are revealed in pre-trial mediations, as they almost always are, parties usually have little doubt about the probability for plaintiffs to win some damages. Instead, disagreements between parties that may frustrate their settlement efforts seem to reside mainly in the amount of potential judgment awards. In this sense, the adjudication of medical malpractice disputes is divided into two stages with the first stage, determination of liability, delegated in effect to the medical review boards, while courts are focused on the second stage, i.e. the assessment of damages.

Judges mentioned repeatedly in my interviews that victims’ excessive expectation about the amount of awardable damages is a major barrier to settling medical malpractice disputes through mediations.²⁰ Data also lends some support to this impression. The average amount awarded to plaintiffs in malpractice litigations is just below 28% of their claims. Actually, half of the plaintiffs were awarded less than 20% of what they claimed at trial. Admittedly, the legal standard of tort compensations is generally low in China (Zhang 2016). However, these percentages still indicate that plaintiffs’ anticipation is wildly off the mark under the prevailing legal standard. Even if we were ready to make the extreme assumption that hospitals always expect no liabilities at trial, their errors in expecting court attitude would still be just about one third as serious as plaintiffs’. Hence, to facilitate settlements, judges in Shanghai make substantial efforts to lower plaintiffs’ unreasonable expectation. In particular, they often try to explain to plaintiffs the prior court opinions in similar cases so that plaintiffs could build up more sensible beliefs in potential outcomes of litigation.²¹

¹⁷ Interview with Judge ZC, July 9th, 2013.

¹⁸ Interview with Mr. S and Mr. J, both of whom are PRC qualified lawyers specializing in civil litigations, July 17th, 2016; interview with Judge W, July 26th, 2016.

¹⁹ In 2014, the Shanghai municipal government adopted a local regulation to establish medical malpractice mediation centers composed of both medical and legal professionals, hence adding another layer to the mediation mechanism for malpractice disputes. However, the court decisions studied in my current research pertain to disputes not yet subject to this additional layer of medication.

²⁰ Interview with Judge H, July 25th, 2014; interview with Judge W, July 26th, 2016.

²¹ Interview with Judge S, July 28th, 2014; interview with Judge W, July 26th, 2016.

3 Hypotheses

This research intends to answer whether the court decisions on medical malpractice disputes in Shanghai were influenced by the quest for good achievements in judicial performance evaluations as measured by performance indicators. In particular, it explores the two indicators bearing the heaviest weights in the Composite Index, RMW and RWA. In my interviews with judges, these two were often mentioned as vital components of the performance evaluation.²²

According to a former district court judge and legal academic in Shanghai,²³ RMW and RWA are calculated as follows:

$$RMW = \frac{\text{number of cases mediated or withdrawn}}{\text{total number of cases closed within the report period}};$$
$$RWA = \frac{\text{number of cases closed without appeals}}{\text{total number of cases closed within the report period}}.$$

Furthermore, a filed case is considered closed at the first-instance in China if it is (1) withdrawn by the plaintiff, (2) settled after mediation, (3) appealed after the trial decision, (4) not appealed after the period for filing an appeal has expired, or (5) determined by a non-appealable judicial ruling.

All courts in Shanghai are subject to the same indicator system as metrics of performance assessments. However, the magnitude of their responses to the assessment results in a particular year could vary depending on how well they were scored in the previous year. If courts attempt to manipulate adjudications for better performance scores in future, those scored lower would be more intensely motivated to do so. In other words, the tournament-style system places more pressure on courts to make improvements when they scored worse relative to their peers. This seems a reasonable assumption because otherwise those left behind would have no chance to win the tournament. In fact, since courts are ranked according to the absolute score values, rather than their relative changes, the manipulation has to be substantial enough to affect the rank absolutely if a poorly performing court wants to surpass its competitors in the coming year.

In China, judicial decisions are adjustable mainly in two dimensions. First, just like in other jurisdictions, Chinese courts decide to which extent plaintiffs' requests will be supported. In the context of medical malpractice litigations, this essentially means the amount of damages awarded to plaintiffs, given the amount of their claims. The compensable damages in medical malpractices are itemized under the current Chinese law, and the relevant legal authority standardized the calculation of damages.²⁴ Nevertheless, for many of these items, the legal standards are no more

²² Interview with Judge F, July 22nd, 2014; interview with Judge S, July 28th, 2014; interview with Judge Y, Aug. 1st, 2014.

²³ Written communication with Professor M.

²⁴ The governing legal authority is the Regulation on Handling of Medical Accidents (医疗事故处理条例) issued by the State Council and the SPC Interpretation Concerning the Adjudications of Cases on Compensation for Personal Injuries (最高人民法院关于审理人身损害赔偿案件适用法律若干问题的解释).

than bare bones to be fleshed out by the specific evidence admitted at trial. Because of the crudity of rules, Chinese judges retain ample discretion on admission and evaluation of civil evidences.²⁵ Thus, it is frequently seen in court decisions that the assessment of damages were according to judges' "discretion" (酌情). Second, in terms of the litigation costs, China follows the British rule in principle so that the loser will pay the entire costs. However, in medical malpractice cases, only occasionally does either party lose completely. The standard of cost allocation is vague for partial successes; hence, again, courts are required to exercise discretion.²⁶ Indeed, multiple judges confirmed in my interviews that fee allocation would be employed as a device to influence parties' settlement or appeal incentives.²⁷

First, let's consider how courts will go about judgments to promote settlements and achieve a higher RMW. As elaborated in Sect. 2.2 above, mediations organized by courts serve as meaningful opportunities for litigants of medical malpractices to familiarize evidence held by both sides. Thus, the theoretical models depicting settlements between parties with symmetric information but divergent beliefs (Landes 1971; Posner 1973; Priest and Klein 1984) seem to fit the current study reasonably well. The divergence in belief can be caused by litigants' irrational expectations. In this study, plaintiffs' overestimation about judgment awards may be critical to predict judicial responses. In this sense, therefore, the model presented below embodies a behavioral flavor.

The current model, however, differs from the divergent belief model introduced by Priest and Klein (1984) in one aspect. Since conclusions in medical review reports practically prescribe the chance of positive damage awards at trial, for simplicity, I portray the parties as holding the same expectation about this probability. Instead, the difference in parties' beliefs, after they are presented with these reports, should pertain mainly to the amount of damages rather than the probability that plaintiffs will be granted damages in courtrooms. With this twist in mind, assuming the underlying disputes over medical malpractices are exogenously distributed, then the plaintiff's minimum settlement demand and the defendant's maximum settlement offer can be represented, respectively, as follows:

$$\text{Minimum demand} = P(J_p - \alpha_p C) - (1 - P)C + S_p \quad (1)$$

and

$$\text{Maximum offer} = P[J_d + (1 - \alpha_d)C] - S_d \quad (2)$$

where J_p and J_d are respectively the plaintiff's and defendant's expectation about the amount of damages that the plaintiff will be awarded at trial; similarly, α_p and α_d are their expected share of litigation cost borne by the plaintiff when she wins damages;

²⁵ One illustration of the vagueness of the evidence rules, as applied to medical malpractices, which creates room for judicial discretion is *Yu Enhui et al. v. Chongqing Southwest Hospital* ((2013)民抗字第 55号). In its decision, SPC acknowledged the plaintiffs' claim for medical expenses, in the absence of receipts, based on other related evidences, though the lower courts had repeatedly rejected the claim.

²⁶ The Measures on the Payment of Litigation Costs (诉讼费用交纳办法), art. 29.

²⁷ Interview with Judge S, July 28th, 2014; interview with Judge W, July 26th, 2016.

P is the probability that the plaintiff will be awarded with a positive amount of damages at trial; C is the total litigation cost; and S_p and S_d are the respective settlement costs for the plaintiff and the defendant. I further assume that the parties hold symmetric stakes in litigation.

Settlement fails and litigation occurs when (1) $>$ (2), or

$$P(J_p - J_d) - PC(\alpha_p - \alpha_d) > C - S \quad (3)$$

where $S = S_p + S_d$.

As stated above, judges in Shanghai often try to use recent court opinions to inform parties of potential outcomes of the trial and persuade them to settle. Hence, the parties' expectations are considered as a function of the court's damage awards, J , and allocation of fees, α , in previous decisions. In particular, J_p and J_d are assumed to increase with J , and similarly, α_p and α_d increase with α . So the inequality (3) can be rewritten as

$$P(J_p(J) - J_d(J)) - PC(\alpha_p(\alpha) - \alpha_d(\alpha)) > C - S \quad (4)$$

I mentioned in Sect. 2.2 that judges in Shanghai prioritize reducing plaintiffs' expectations to catalyze settlement of malpractice disputes, which means they will choose to decrease J but increase α . According to the inequality (4), however, this will work only if it does not induce hospitals to turn conservative in making settlement offers. Considering the reasons stated in Sect. 2.2 for hospitals' lukewarm incentives to appeal, it appears unlikely indeed that they will materially diminish the amount of their offers after courts turn less amenable to plaintiffs' requests, at least when these amounts are within their insurance coverage or budgets allocated to resolve malpractice disputes.²⁸ Moreover, plaintiffs of medical malpractice litigations are also inclined to suffer behavioral biases as individuals of bounded rationality. For instance, they might be anchored by a recent opinion delivered by the same court on a similar case, hence adjusting insufficiently from that given benchmark in settlement bargaining (Tversky and Kahneman 1974). Such cognitive problems perhaps also underlie judges' predilection to bridle plaintiffs' expectations.

In light of these factors, it appears reasonable that, in medical malpractice disputes, plaintiffs tend to be more responsive to prior court decisions in forging their expectations about damages. In other words, I expect $J_p'(J) > J_d'(J)$ and $\alpha_p'(\alpha) > \alpha_d'(\alpha)$. Thus, settlement becomes more likely as J decreases or α increases, other things being equal. Therefore, the courts more incentivized to encourage settlement will reduce more substantially the amount of damages awarded to the plaintiff, and raise the plaintiff's share of litigation costs. Accordingly, I propose the first two hypotheses as follows:

²⁸ Actually, the average amount of damages awarded by courts in my sample is approximately 88,000 RMB, much lower than the coverage of malpractice liability insurance policies prevailing in Shanghai, which is about 300,000 RMB per claim (see e.g. Medical Malpractice Liability Insurance Rates, Yong An Insurance Co., Ltd), and settlements endorsed by courts are covered under these policies (see e.g. Medical Malpractice Liability Insurance Policy, Sunshine Insurance Group).

Hypothesis 1 Courts with a lower RMW will award a lower amount of damages (J) to plaintiffs.

Hypothesis 2 Courts with a lower RMW will allocate a higher proportion of litigation costs to plaintiffs (α) when there are positive damage awards.

Now we examine the potential effect of RWA on trial court decisions. As stated above, defendants seldom appeal in Shanghai after trial decisions have been reached on medical malpractices. So I only consider the situation where the plaintiff files an appeal. Suppose the plaintiff has been awarded J and allocated with a share α of the litigation costs at trial. Under the Chinese law, appellate courts are allowed to revise the damages as well as the share of litigation costs determined at trial though the latter cannot be revised separately. On the other hand, if the plaintiff loses on appeal, the trial decision will sustain. Therefore, a plaintiff will appeal when her expected value of appeal, net of costs, is greater than $J - \alpha C$. In other words, the condition of the plaintiff's appeal can be written as

$$J - \alpha C < P^A \left[J_p^A - \alpha_p^A (C + C^A) \right] + (1 - P^A)(J - \alpha C - C^A)$$

or, after rearrangement,

$$J - \alpha C < J_p^A - \alpha_p^A (C + C^A) - C^A (1 - P^A) / P^A \quad (5)$$

where P^A is the plaintiff's expectation about her winning probability on appeal ($P^A > 0$),²⁹ C^A is the litigation cost on appeal, and J_p^A and α_p^A are, respectively, the plaintiff's expectation about the damage award and her share of litigation costs determined by the appellate court.

Trial court decisions are not likely to sway plaintiffs' expectations regarding what may happen at appellate courts. If there is anything that can affect such expectations, it will be the prior appellate decisions on relevant cases. Hence, P^A , J_p^A and α_p^A are largely exogenous to trial decisions, so is C^A which depends on the rules regulating appellate fees as well as the market conditions determining attorney fees. Accordingly, the trial court can only inflate J or suppress α if it wants to discourage appeals filed by plaintiffs. Thus, we come to the next two hypotheses:

Hypothesis 3 Courts with a lower RWA will award a higher amount of damages (J) to plaintiffs.

Hypothesis 4 Courts with a lower RWA will allocate a lower proportion of litigation costs to plaintiffs (α) when there are positive damage awards.

4 Data and empirical strategy

4.1 Data source

One major challenge to empirical studies on judicial decisions in China is the lack of reliable data source. The official case publication system at the national level has just been launched, and only contains decisions reached most recently.³⁰ At the provincial level, the accessibility to court decisions varies tremendously. Even those courts generously publicizing their decisions nevertheless remain silent about the method used to select cases for publication, which renders it extremely hard to assess potential biases in data. As indicated below, some previous studies relying on the provincial judicial document databases might be subject to unknown selection biases. Unfortunately, the newly launched national case publication system retains this shortcoming as a data source for quantitative research.

On the other hand, the Peking University School of Law started a commercial website, Beida Fabao, of various legal resources in China about one decade ago.³¹ Thanks to its unparalleled history and the prestige of the PKU School of Law in China's legal education, the judicial decision database of Beida Fabao has been increasingly used for empirical studies (e.g. Huang 2012). However, just like the court-sponsored case publication systems, the database of Beida Fabao is likely to be plagued by serious and unknown biases in selecting court decisions for publication.³² Hence, whereas it might still provide valuable information for qualitative studies (e.g. Stern 2010), the validity to count on it for quantitative researches appears questionable.

The data used for this study come from the Shanghai Legal Document Retrieval Center (上海法律文书检索系统, hereinafter as "SLDRC"), a website constructed by SHPC.³³ In particular, I collected all the trial decisions on medical malpractice litigations publicized on this website that were rendered from January 1st, 2011 through December 31st, 2012.³⁴ Though it is still impossible to claim that SLDRC is completely free from potential selection biases, the following facts do provide me

³⁰ The Judicial Opinions Website (中国裁判文书网) (<http://www.court.gov.cn/zgcpwsw/mshz/index.htm>) is sponsored by SPC.

³¹ <http://www.chinalawinfo.com/>.

³² For example, I searched this database on Nov. 21, 2014 for trial decisions made by courts in Beijing from Jan. 1, 2011 through Dec. 31, 2012 with the cause of action of "medical malpractice liability" (医疗损害责任纠纷), and retrieved only 1 result. Obviously, it is impossible to have 1 trial decision on medical malpractices in the capital of China within 2 years (the same search was also done for Tianjin and Shanghai, and retrieved, respectively, 1 and 387 results).

³³ <http://www.hshfy.sh.cn:8081/flws/>. An alternative portal, with slightly different search functions, to the same database is http://www.hshfy.sh.cn/shfy/gweb/index_flws.html.

³⁴ The web search was completed on the following search conditions: (1) courts—all; (2) case category—civil; (3) level of adjudication—all; (4) date of decision—from Jan. 1, 2011 to Dec. 31, 2012; (5) terms – medical malpractice (医疗损害), medical accident (医疗事故), medical negligence (医疗过失), medical compensation (医疗赔偿) and medical liability (医疗责任); and (6) document type—judgment (判决书). The search was first conducted on Nov. 30th, 2013, and then repeated on Dec. 3rd, 2014 to add any newly posted judgments after the first search. Duplicative and irrelevant search results were deleted manually.

with reasonable confidence that the court decisions publicized on SLDRC in recent years are unlikely to be plagued by serious selection biases, and that SLDRC may well be the best available data source for empirical studies on Chinese court decisions to date. First, my interviews with judges from various courts in Shanghai show that, except those cases involving privacies or national secrets, courts in Shanghai have unselectively publicized their decisions on SLDRC, though delays may arise between the time when the decisions were made and when they were publicized.³⁵ Second, the rate of online publication of court decisions has been included in the judicial performance indicators in Shanghai no later than 2009, hence producing incentives to publicize court decisions online. Finally, my own estimation confirms the findings from interviews about the high publication rate of court decisions in Shanghai. Table 1 below summarizes my estimation of the SLDRC publication rates of the first-instance judgments of civil litigations in Shanghai from 2007 to 2012.

As Table 1 indicates, the vast majority of trial judgments of civil cases have been publicized on SLDRC in recent years. In 2010, roughly 3 out of 4 closed judgments were publicized on SLDRC while the publication rates rose further to about 80% in 2011 and 2012. In fact, this rate may even dwarf the LexisNexis or Westlaw's coverage of the U.S. federal appellate decisions since a large percentage of these decisions are officially unpublished and a substantial part of the unpublished opinions are not reported in either electronic database (Hannon 2001).³⁶ Nevertheless, the proportion of publicized judgments was much lower before 2010. In particular, less than a quarter of the judgments rendered in 2008 were publicized, and almost 95% of the judgments made in 2007 could not be seen on SLDRC. This creates a serious concern about sampling bias in the previous studies drawn on the SLDRC data before 2010 (e.g. He and Su 2013). It should be noted, too, that the courts in Shanghai are only required to publicize judgments but not other legal documents such as mediation reports (调解书).³⁷

In total, I collected 424 first-instance judgments for this study. All information pertaining to the cases were extracted from these judgments posted on SLDRC. The coding was done first by the author's research assistants and then reviewed by the author.

With respect to the most important explanatory variables for my research, RWA and RMW, the data came from the annual reports evaluating courts' performance in

³⁵ My informants included one Vice President of SHPC, two judges from SHPC, two judges from the two intermediate courts in Shanghai, and two judges from district courts in Shanghai (interview with Judge Z, June 3rd, 2013; interview with Judge Y, June 5th, 2013; interview with Judge ZJ, July 20th, 2014; interview with Judge ZX, July 22nd, 2014; interview with Judge F, July 22nd, 2014; interview with Judge H, July 25th, 2014; and information from Judge A through Professor M, July 2013). However, they disagreed on when the unselective publication had started.

³⁶ For instance, as of 2000, nearly 27% of the federal appellate decisions reported in LexisNexis were officially unpublished opinions, and the unpublished opinions reported in Westlaw containing reasoning accounted for only 20% of the total reported federal appellate decisions. However, from 1981 through 1999, the average annual percentage of unpublished federal appellate decisions was about 58%, which means more than half of these unpublished appellate decisions were not reported in LexisNexis, or, in case of Westlaw, either unreported or reported without legal reasoning.

³⁷ Interview with Judge Y, June 5th, 2013. Very few mediation reports are publicized on SLDRC.

Table 1 Rate of publicized first-instance judgments of civil litigations on SLDRC: 2007–2012

Year (1)	# of civil judgments (2)	# of publicized judgments (3)	Rate of publication (4) (%)
2007	75,457	4070	5.59
2008	75,662	17,632	23.30
2009	85,022	36,284	42.68
2010	82,585	62,514	75.70
2011	80,841	65,228	80.69
2012	81,522	64,796	79.48

Column (2) is based on Shanghai Municipal Statistical Yearbooks 2008–2013. Column (3) is based on my search for first-instance judgments of civil litigations (一审民事判决书) on SLDRC conducted on Dec. 3rd, 2014

Shanghai. Essentially, these are collation of component scores of the Composite Index. The reports are circulated only inside the judiciary in Shanghai, but not open to the general public. I acquired access to the evaluation reports with the help of two informants, one current and one former judge in Shanghai. In addition, I also used the Shanghai municipal statistical yearbooks for certain district level contextual information.

4.2 Empirical strategy

The empirical question posed to data is whether, in medical malpractice litigations, the judicial performance indicators affect the court's position on damage award and sharing of litigation costs. The amount of damages awarded at trial is a function of, among other things, the amount of claims raised by plaintiffs. Normally, in China, plaintiffs are supposed to present evidence to substantiate their claims.³⁸ Hence, the amount of claims impounds the factual information needed for the award of damages. Also, in principle, the amount of award will not exceed the amount of the claim, and the first-instance decision can be appealed only within the scope of the original claim. Finally, the amount of claim may affect award of damages as a result of the anchoring effect (Campbell et al. 2016). Thus, following the convention of handling dollar amounts in empirical work (Wooldridge 2013), I model the logarithm of the amount of damages, J ,³⁹ as a linear function of the logarithm of the amount of claims, T , i.e.

$$\log(J) = k + a \log(T) + \mathbf{bO} \quad (6)$$

where k is a constant and \mathbf{O} a vector of other variables including the performance scores. I use this logarithmic amount of damages awarded by the court as the first dependent variable to measure the court's position. In medical malpractice

³⁸ The Civil Procedure Law (民事诉讼法), art. 64.

³⁹ In the log transformation, I set all zero values to an amount slightly smaller (by 0.00001) than the minimum transformed log value of a positive value (Cameron and Trivedi 2009).

litigations, the awardable damages under the Chinese law are itemized. The amount of award was calculated based on those items with definite amounts of both the plaintiff's claim and the court award.⁴⁰ Moreover, sometimes defendants in China are willing to make voluntary payments to plaintiffs without admitting their liability under the law. These payments are dubbed *buchang* (补偿), as distinguished from the normal compensatory damages (赔偿) arising from legal liabilities. Such voluntary payments were excluded from the amount of awarded damages.

Another dependent variable in this research is the plaintiff's share of fees, which is simply the proportion of the fees paid by the plaintiff in the total amount of fees. In medical malpractice cases, however, the litigation fees charged by courts are allocated together with the review or inspection fees paid to medical review boards or judicial inspection institutions. Therefore, the plaintiff's share of fees refers to her share of both types of fees. In contrast, attorney's fees are not deemed as part of the litigation costs. Instead, plaintiffs can include these fees in their claims and courts will award them as a component of regular damages. The relatively small section, around 20%, of judgments awarding 0 damages were included in the regressions in the next Part. Nevertheless, the findings hereunder do not change qualitatively even after these judgments were excluded.⁴¹

The value of the two performance indicators of our interest, RMW and RWA, was drawn from the evaluation reports of the year *immediately before* the year when the judgments were made. In other words, the indicator scores of 2010 and 2011 were used to explain the court decisions rendered, respectively, in 2011 and 2012. Since medical malpractice is a type of civil disputes, RWA and RMW in civil litigations were employed for this study.⁴²

The most important controls for a study on medical malpractice adjudications in Shanghai are the results of medical reviews, revealing both the severity of injuries and the degree of hospitals' negligence.⁴³ Some of the remaining covariates appeared in the previous studies on American malpractice disputes, such as whether the victim was a minor (Farber and White 1991), and others pertain to certain distinctive issues in China. For instance, considering the judicial local protectionism, I controlled whether the victim was a resident in Shanghai. Furthermore, the law handling medical malpractices changed in 2010 (Liebman 2013), and both the

⁴⁰ Items in claims can be missing because plaintiffs, instead of pinpointing particular amounts, vaguely requested "fair" damages or, in terms of prospective damages, reserved rights to make specific requests down the road. Items in awards can be missing because courts decided to award prospective damages as they actually arose. Dummies indicating whether there are missing items in claims or awards bear no correlation with either RMW or RWA (the absolute values of pairwise coefficients are below 0.06 and not significant statistically).

⁴¹ The plaintiff's share of litigation costs is supposed to be 1 in these cases. The data shows that the plaintiff's actual share has a mean of roughly 0.7 and a median of 0.97, highly close to 1.

⁴² As noted in Sect. 2.1, the annual reports coming out in December are considered most important for evaluation purpose, so the performance scores for this research are from those reports. However, no judicial performance evaluation was conducted in December 2011. Therefore, for the judicial performance scores of 2011, I extracted data from the report completed in November, the last one for that year.

⁴³ As mentioned above and further substantiated below, judicial inspections, which do not indicate the severity of injuries, are rarely used in Shanghai.

old and the new laws were applicable to part of the cases covered in this study. Therefore, a dummy variable entered the regressions to distinguish whether the new law had been applied to a case. The case features under control in the baseline model also include whether a summary procedure (简易程序) was used, whether the litigation was about claims for follow-up medical expenses, and whether there was a third-party action contributing to the victim's injury. Finally, four annually calculated district-level contextual variables were in the baseline regressions, all of which were controlled in the literature on medical malpractice payments in the U.S. (Avraham 2007). These are the per capita GDP, the population of permanent residents (常住人口) in 10,000 persons, the percentage of residents over 60, the official threshold of seniors, and the percentage of residents moving into a district from outside Shanghai within the past year.

The case level data were pooled in the regressions. It appears plausible that courts, given last year's performance scores, would choose, in pursuit of better scores for this year, a best combination of the damage award and the fee sharing in their decisions. In other words, no good ceteris paribus interpretation exists in a simultaneous equation model (SEM) treating one dependent variable as a covariate in the regressions of another (Wooldridge 2013). Therefore, reduced form models were used instead. The model specification can be written as:

$$y_i = \alpha + \beta x_{1i} + \gamma x_{2i} + \eta x_{3i} + \delta x_{4i} + u_i \quad (7)$$

where y is the measurement of courts' attitude; x_1 is a vector of judicial performance indicators; x_2 is a vector of covariates; x_3 is the vector of court dummies; x_4 is the adjudication year dummy; and u is the error term. In particular, x_1 contains the previous year's performance scores received by the court making the judgment. As the number of medical malpractice judgments varied widely from one court to another, I used both the OLS and the weighted least squares (WLS) estimators to estimate (7), and the latter was inversely weighted by the number of judgments each district court had rendered in the sample.

4.3 Descriptive statistics

The descriptive statistics of the main variables are reported in Table 2. On average, plaintiffs received nearly 90,000 RMB at trials, excluding the payments voluntarily made by hospitals. Compared to the average amount of their claims, about 350,000 RMB, damages recovered by malpractice plaintiffs only account for just above a quarter of their claims.⁴⁴ On the other hand, the average plaintiff's share of fees was 41%. In terms of the indicators of courts' performance, the mean RWA and RMW were, respectively, 91 and 66%. In the vast majority, nearly 90%, of the cases, the medical review boards found some errors in defendants' delivery of medical services, whether such errors had been serious enough to be regarded as medical accidents or not. Turning to victims' attributes, we see that victims died in about 40% of the cases, that 84% of victims lived in Shanghai, and that about 1 out of

⁴⁴ In three cases, the court actually awarded more than what the plaintiffs had claimed, for unknown reasons. Two of these judgments were made in follow-up litigations though.

Table 2 Descriptive statistics of major variables

Variable	Mean	SD	Min	Max	Observations
Amount of damage award (1000 RMB)	87.82	165.7	0	1342	424
Plaintiff's share of fees	0.41	0.35	0	1	419
<i>Judicial performance indicators</i>					
(1-year lagged) RWA	0.91	0.02	0.87	0.95	424
(1-year lagged) RMW	0.66	0.07	0.51	0.82	424
<i>Case attributes</i>					
Amount of claim (1000 RMB)	344.6	453.5	1	4055	424
Defendant's error found in medical reviews	0.88	0.32	0	1	371
Death case	0.42	0.49	0	1	424
Victim being a resident in Shanghai	0.84	0.37	0	1	419
Victim being a minor	0.12	0.32	0	1	421
Third-party injury	0.05	0.21	0	1	424
Follow-up litigation	0.04	0.21	0	1	424
Summary procedure	0.54	0.50	0	1	424
Medical service contract	0.04	0.20	0	1	424
Tort liability law cited	0.27	0.44	0	1	424

every 10 victims was a minor under 18. Summary procedures were employed in 54% of the cases, where decisions were made by a single judge instead of a panel of three. This is lower than the overall rate, above 83%, of usage of summary procedures in Shanghai in 2011, implying that handling medical malpractice cases is thornier than average.⁴⁵ Slightly less than 30% of the judgments cited the newly implemented Tort Liability Law. Finally, only about 5% of the cases involved a third-party injurer, follow-up claims for a previously litigated medical malpractice or a cause of action for breach of medical service contracts.

Of the 424 cases in my sample, 372, or 88%, had reports by the medical review boards determining whether treatment had constituted medical accidents, and if yes, the level of medical accidents, as well as hospitals' degrees of liability.⁴⁶ Only 4 cases went through the judicial inspection process without medical reviews.⁴⁷ That the medical malpractice disputes go predominantly through medical reviews instead of judicial inspections is characteristic in Shanghai and consistent with the previous findings (Liebman 2013). According to the seriousness of their consequences, the department rule set by the Ministry of Health⁴⁸ classified medical accidents into four

⁴⁵ According to article 157 of the PRC Civil Procedural Law (民事诉讼法), summary procedures should be used in litigations of relatively clear and simple disputes.

⁴⁶ There is 1 case among the 372 where the defendant voluntarily admitted its liability, based on the scale of medical review, without either a medical review or judicial inspection process. Another case went through both a medical review and a judicial inspection, with consistent conclusions.

⁴⁷ In the remaining 48 cases, no conclusions about the hospitals' liabilities were made through either a medical review or a judicial inspection.

⁴⁸ It was transformed into the National Health and Family Planning Commission in 2013.

levels, with the first three further divided into several sub-levels, the lower level or sub-level numbers indicating the more serious injuries resulting from malpractices.⁴⁹ At the same time, hospitals' liabilities are divided into four degrees, slight (轻微), minor (次要), major (主要) and full (全部) based on their extent of negligence. Table 3 shows the joint distribution of the level of medical accidents and defendants' liability found by the medical review boards.⁵⁰

As Table 3 shows, in nearly half of the cases, the medical practices were not deemed as medical accidents. However, in 129 of these 172 non-accident cases, the medical review boards did suggest certain errors on defendants' side. And these errors may well lend support to courts' finding of defendants' minor negligence.

5 Findings

5.1 Differences based on medical review or judicial inspection results

First of all, it seems that court decisions on medical malpractices in Shanghai relied heavily on the results of medical reviews or judicial inspections, in terms of both the damage award and the plaintiff's share of fees. I divided the judgments into 4 categories according to the results of such reviews or inspections. The first category includes cases not going through the review or inspection process, or no conclusions drawn even after these processes.⁵¹ A case belongs to the second category if no error was identified on the hospital's side in medical reviews or judicial inspections. In the third category are cases where defendants' medical practices were found to be erroneous in certain ways but not amounting to medical accidents. Finally, a case falls into the fourth category if the review or inspection did find a medical accident. Figures 1 and 2 below depict the means and medians of the amount of damages awarded and the plaintiff's share of fees across these four categories.

Generally speaking, as for the cases having review or inspection conclusions, the average amount of award increases while the average plaintiff's share of fees decreases, when the hospital was found to be in more serious errors. These comparisons show that courts are likely to take the review or inspection results as a critical gauge of the strength of plaintiffs' claims. It is then readily understandable that a stronger case would enable the plaintiff to win higher damages at trial with a lower burden of the related fees. Such effects will be further tested below using multivariate regressions.

By contrast, as for cases without review or inspection conclusions, the two proxies of court attitudes of our interest seem to go in opposite directions. In terms

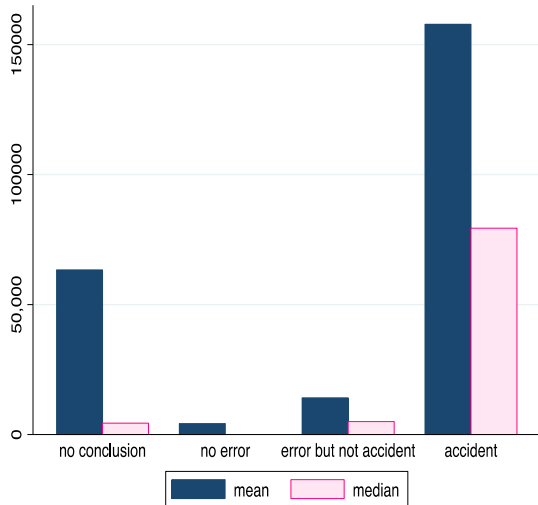
⁴⁹ For instance, accidents of level 1.1 entail victims' death. However, the classification does not count on the length of time for which the outcomes will last, such as permanent or temporary injuries, but on the severity of organ dysfunctions caused by malpractices. In fact, virtually all the medical accidents listed on the department rule will cause permanent dysfunctions.

⁵⁰ Where multiple medical reviews reached different conclusions, I record the one that was acknowledged by the court.

⁵¹ Medical reviews or judicial inspections reach no conclusions usually because the documents of treatment history submitted by the parties were insufficient for determinations on medical malpractices.

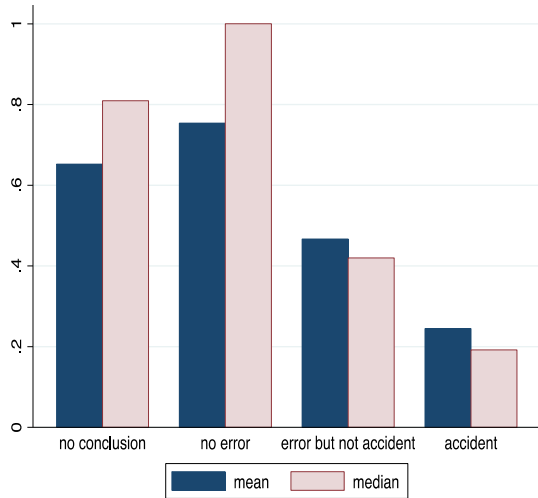
Table 3 Breakdown of degree of liability by accident level

	Degree of liability					Total
	No	Slight	Minor	Major	Full	
<i>Accident Level (from the most to the least serious outcomes)</i>						
1.1	–	22	30	20	1	73
1.2	–	4	1	3	0	8
2.1	–	0	0	0	0	0
2.2	–	0	5	2	0	7
2.3	–	0	1	3	0	4
2.4	–	0	0	0	0	0
3.1	–	3	2	0	0	5
3.2	–	0	1	2	2	5
3.3	–	4	6	6	2	18
3.4	–	0	3	9	0	12
3.5	–	1	6	5	3	15
4	–	8	14	25	6	53
No	172	–	–	–	–	172
Total	172	42	69	75	14	372

Fig. 1 Mean and median of amount of damage award by review/inspection results

of the average amount of award, plaintiffs actually fared better in the no-conclusion group compared to either the no- or minor-error group. When we look at the share of fees, however, plaintiffs in the no-conclusion category no longer had the edge over their counterparts in the no- or minor-error category. In fact, they had to bear a higher proportion of fees than their counterparts in the minor-error group. The first finding may hint that courts, without relying on expert opinions, tend to be pro-victim in medical malpractices. Lack of control on the merit of cases, however, we

Fig. 2 Mean and median of Plaintiff's share of fees by review/inspection results



cannot confidently ascertain this tendency. On the other hand, the latter finding is possibly due to the merger of litigation and review/inspection fees in calculating plaintiffs' shares. As medical review fees are not supposed to be apportioned,⁵² when they are allocated to defendants as a whole, the overall share of fees borne by plaintiffs will decline. Such a lump sum fee transfer, however, will not happen in cases without medical reviews.

5.2 Effects of performance indicators

In this section, I explicitly test the four hypotheses raised in Sect. 3 using multivariate regression analyses. Table 4 reports the observed effects of the judicial performance indicators on the adjudication of medical malpractice litigations.

In all but the unweighted regression of the amount of award, the two indicators of our interest do exert significant effects on judicial decisions, just as expected. Other things being equal, as RMW rises by 1 percentage point in the prior year, the average amount of compensation awarded in the court judgment would rise by some 20% in the current year. On the other hand, this amount would drop by roughly 19% with every percentage point increase in RWA. When it comes to the plaintiff's share of fees, it would decrease by approximately 6 percentage points as RMW rises by 1 percentage point in the previous year, but would jump by around 7 percentage points for each percentage point rise of RWA, holding other things constant.

Turning to the findings about medical reviews, we can see that both the accident level and the hospital's degree of liability have highly significant impacts on the damage award. For instance, if the most serious level-1 medical accident had been found in a case, the amount of damages awarded in the judgment would be three and half times as high as in a case with no medical accident being identified, other things the same. Similarly, if the medical review board had determined that the hospital

⁵² See Regulation on the Handling of Medical Accidents, art. 34. There are situations where hospitals are required to pay such fees solely even if plaintiffs lose in litigation completely or win partially.

Table 4 OLS and WLS regression results

Dependent variable	(1)	(2)	(3)	(4)
	Amount of award in log		Plaintiff's share of fees	
Estimator	OLS	WLS	OLS	WLS
(1-year lagged) RMW	13.97 (9.64)	20.32 (7.46)**	-6.19 (1.69)***	-5.60 (1.38)***
(1-year lagged) RWA	-16.28 (16.68)	-19.48 (11.23)*	7.44 (2.16)***	6.46 (1.68)***
Amount of claim in log	0.31 (0.05)***	0.34 (0.03)***	0.08 (0.01)***	0.06 (0.01)***
Level 1 accident	2.68 (0.49)***	2.86 (0.69)***	-0.21 (0.05)***	-0.18 (0.06)***
Level 2 accident	3.38 (0.50)***	3.38 (0.68)***	-0.21 (0.12)*	-0.11 (0.12)
Level 3 accident	2.78 (0.31)***	2.65 (0.37)***	-0.18 (0.08)**	-0.10 (0.07)
Level 4 accident	1.23 (3.36)***	1.41 (0.43)***	-0.14 (0.07)*	-0.07 (0.06)
Minor liability	0.56 (0.14)***	0.50 (0.11)***	0.01 (0.03)	-0.00 (0.02)
Major liability	1.17 (0.23)***	1.08 (0.15)***	-0.10 (0.04)**	-0.08 (0.02)***
Full liability	0.87 (0.41)**	0.52 (0.27)*	-0.17 (0.06)***	-0.09 (0.03)***
Defendant's minor error found in medical reviews	1.15 (0.26)***	1.07 (0.23)***	-0.32 (0.07)***	-0.28 (0.05)***
Death case	0.13 (0.22)	0.01 (0.25)	0.01 (0.03)	0.06 (0.02)***
Victim being a resident in Shanghai	0.45 (0.28)	0.59 (0.20)***	0.00 (0.04)	-0.02 (0.02)
Victim being a minor	0.02 (0.17)	0.04 (0.08)	-0.04 (0.03)	-0.02 (0.01)*
Third party injury	-0.10 (0.23)	-0.25 (0.11)**	-0.01 (0.06)	0.04 (0.03)
Follow-up litigation	-1.45 (0.35)***	-1.66 (0.18)***	0.28 (0.07)**	0.22 (0.05)***
Summary procedure	-0.26 (0.15)*	-0.26 (0.16)	-0.05 (0.03)	-0.08 (0.02)***
Medical service contract	0.77 (0.39)*	0.51 (0.66)	0.03 (0.03)	0.06 (0.02)***
Tort liability Law cited	0.24 (0.10)**	0.28 (0.04)***	0.04 (0.03)	0.03 (0.03)
Adjusted R ²	0.73	0.75	0.55	0.47
Observations	366	366	361	361

Robust standard errors clustered at the court level are in parentheses. All models include a constant term, court dummies, adjudication year dummy and covariates of annually calculated district level GDP per capita, size of population, proportion of senior citizens and proportion of new immigrants. Models (1) and (3) used OLS estimation, and models (2) and (4) used WLS estimation inversely weighted by the number of judgments each district court had rendered

* Significant at 10%; ** Significant at 5%; *** Significant at 1%

should bear major liability for the malpractice, this amount would be more than doubled in comparison to a situation where the hospital had been deemed slightly liable, holding all other things constant. Actually, even minor errors found in medical reviews would increase the damages awarded after controlling for the accident level and the degree of liability. Taken together, the conclusion reached by the medical review board alone accounts for more than 60% of the variation in the amount of damage awards in both OLS and WLS estimations. Therefore, the results of the multivariate regressions reaffirm our findings from the mean comparisons regarding the decisive role of medical reviews.

With respect to the plaintiff's share of fees, medical reviews still appear important. For instance, the plaintiff's share of fees would be lower by about 20 percentage points in a level-1 accident case, relative to a non-accident one. When hospitals are found to

be fully or mainly liable for the harm associated with medical treatments, the proportion of fees borne by plaintiffs would drop by some 10 percentage points when compared to a medical review report finding only slight liability on the hospital's side. Moreover, if minor errors had been discerned in the medical review, the plaintiff's share of fees would be lower by 30 percentage points, compared to the no-error cases. These are primarily in accordance with our findings from the mean comparisons. Overall, the medical review conclusion explains less about the variation in the plaintiff's share of fees. Approximately 28% of the variation could be accounted for by medical review results in OLS estimation, and 21% in WLS estimation. The lower explanatory power of medical review results pertaining to the plaintiff's share of fees may be attributable again to the mixture of the litigation and review fees for courts are, in principle, not supposed to apportion the latter in litigation, though they will decide on which party these fees should be placed entirely.⁵³

As for the remaining case attributes, I found some, maybe weak though, evidence that if the victim was a resident in Shanghai, the plaintiff would fare better by 60% in terms of the amount of damages awarded. This might be seen as a judicial bias in favor of locals, signaling the long-lasting judicial localism in China (Lubman 2000). Alternatively, it can also be understood as an indication of the court's uneasiness about the potential protests on the plaintiff's side. Local residents usually have wider connections in the locality so that they are able to stir up populist pressure on judges, a concern highlighted in the literature (Liebman 2011a, Liebman 2013).

Interestingly, plaintiffs might do better in cases going through a summary procedure by paying a lower proportion of fees. One explanation is the more intense concern over the plaintiff's grievances against the decision made by a single judge solely accountable for it in a summary procedure in comparison to the multiple judges responsible collectively for a panel decision. Nevertheless, plaintiffs' this advantage in summary procedures does not carry on to the damage awards.

The amount of damages may become lower when a third-party had contributed to the injury, such as in a traffic accident followed by a medical malpractice. This is not surprising since courts could take into account victims' other recourse for damages when adjudicating medical malpractice litigations. But the effect is significant only in the WLS estimation.

Somewhat surprisingly, the regressions show that plaintiffs are awarded a lower amount of damages but bear a higher proportion of fees in cases suing for costs of follow-up treatment. This might substantiate plaintiffs' overconfidence in bringing follow-up litigations given that they had won primary litigations earlier on.

When the newly promulgated Tort Liability Law was cited in a judgment, the plaintiff would obtain an award almost 30% higher in amount. This finding confirms that the change of law has tilted toward the victims of medical malpractices⁵⁴ although the effect of the change is less clear with respect to plaintiffs' fee sharing.

⁵³ See *supra* note 52.

⁵⁴ Notwithstanding some different opinions (Liebman 2013: 201), it is a prevalent view among Chinese legal professionals that the application of the Tort Liability Law, in effect, requires the damage assessment in medical malpractice cases to be handled according to the SPC's Interpretation on Application of Law in Adjudication of Cases of Personal Injuries, rather than the Regulation on the

Lastly, for unclear reasons, plaintiffs bear a higher proportion of fees in lawsuits involving victims' death or brought on the basis of breach of medical service contract, though the latter was significant only in the WLS estimation.

5.3 Robustness

5.3.1 Additional controls

To test the robustness of the findings, I first added extra controls to the baseline regressions. Sharkey (2005) posited that the larger number of parties will increase the judgment award in malpractice litigations, and that the death cases often involve more plaintiffs. Hence, the numbers of plaintiffs and defendants, as well as the interaction of death cases with the former, were added. Furthermore, I controlled whether the plaintiff had hired attorneys since legal counsels can provide better information about the judicial attitudes. Finally, I also added the defendant's voluntary payment, as a ratio of the claim, for that can arguably affect the amount of damages awarded by the court. Both the OLS and WLS estimators show that the addition of these new controls does not qualitatively change the effect of the judicial performance indicators on either the amount of damages awarded or the plaintiff's share of fees.

However, in the WLS regression of the amount of awards, defendant's voluntary payment appears to exert a significant negative impact. One possible explanation is that courts thought of judgment award and voluntary payment substitutive to each other in terms of meeting the plaintiff's demand at trial. Understood in this way, it suggests courts' predilection for closing the case and solving the problem (案结事了), rather than restoring justice (Liebman 2011b). In addition, when the WLS estimator is used, the interaction between the number of plaintiffs and the death cases is positively associated with the amount of damages awarded to plaintiffs, in partial support of Sharkey (2005)'s position. It appears that the presence of plaintiffs' legal counsels does not affect the litigation results, unlike in some other jurisdictions such as the U.S. (Farmer and Tiefenthaler 2001). If lawyers do their clients a service mainly by providing information about law, then, to a large extent, courts in China are perhaps playing such a role, which would have been played by attorneys elsewhere, through repeated pre-decision mediations. Hence, it is not surprising that lawyers do not add too much for their clients.

Then I included several other indicators bearing the second highest weights in the SHPC's Composite Index. Three of these measure the efficiency of adjudications, the rate of case closure within the report period (同期结案率), the rate of case closure before the statutory deadline (审限内结案率) and the standard deviation of the rate of monthly case closure (均衡结案度), while another two demonstrate apparently the quality of trial decisions, the rate of defective decisions changed or remanded on appeal (二审改判发回瑕疵率) and the rate of changed or remanded decisions in petition trials (申诉改判

Footnote 54 continued

Handling of Medical Accidents (Wang 2013: 307; Gong 2012: 380). The former set down rules more hospitable to malpractice victims by and large.

发回率). Each of these indicators account for 5.2% of the Composite Index values. The effects of RMW and RWA do not change qualitatively in general.⁵⁵

5.3.2 Lagged judicial performance indicators

Then I added the scores of RMW and RWA two years prior to when the medical malpractice cases were adjudicated. In other words, for the decisions made in 2011, now we look at the impact of performance scores of both 2010 and 2009. Similarly, the scores of 2011 and 2010 would be the explanatory variables for the judgments rendered in 2012.

As for the performance scores of the year immediately before when the decisions were made, their effects remain significant generally even in presence of the two-year lagged scores.⁵⁶ On the other hand, the two-year lagged performance scores appear to be less influential on courts' stance in medical malpractice litigations, especially in light of the allocation of litigation fees. This suggests that the impact of judicial performance indicators is unlikely to last very long.

The results of the regressions mentioned in Sects. 5.3.1 and 5.3.2 are available upon request.

5.3.3 Bias-reduced linearization

Furthermore, Angrist and Pischke (2009) points out the possible bias in clustered standard errors when the number of clusters is small. They propose the bias-reduced linearization (BRL) procedure to inflate the residuals as one solution to the bias problem (Angrist and Pischke 2009: 320). Since the standard errors in this research were clustered at the court level, and relatively few, 17, clusters were involved in the regression analysis, I applied the BRL procedure to the baseline model, and the results are reported in Table 5. The standard errors became larger after the adjustment, but the findings do not differ qualitatively from those in the baseline regressions.

In unreported regressions, I controlled for the causes of medical malpractices, as a series of dummy variables,⁵⁷ in all the baseline regressions. The results were similar qualitatively. I applied Tobit estimation, with and without the weights, to the baseline models. The findings were qualitatively unchanged except that RWA became significant at 5% level even in the unweighted regression of the amount of damages. All these unreported results are available upon request.

⁵⁵ Only the effect of RWA lost significance in the regressions of the amount of damage awards when the two indicators of decision qualities were added.

⁵⁶ Only the effect of RWA lost significance in the regressions of the amount of damage awards when the two-year lagged performance scores were added.

⁵⁷ Nine causes were identified: normal surgery malpractice, plastic surgery malpractice, non-surgical treatment, transfusion, failure to diagnose, delay in treatment, dental malpractice, obstetrical malpractice and negligent examination.

5.4 Interaction between medical review or judicial inspection results and performance indicators

Next, let us examine the interaction effects between the results of medical reviews or judicial inspections and the judicial performance indicators. To do so, I replaced all the dummy variables indicating medical accident levels and hospitals' liability degrees, including the minor errors, first with one single variable, TYPE, which has been used in Sect. 5.1 to categorize the cases based on their medical review or judicial inspection results. Here, however, I focus only on the last three categories that do contain review or inspection reports. The value of TYPE takes 1, 2 or 3, respectively, for cases whose reports found no errors, minor errors not amounting to medical accidents, or medical accidents on the hospital's side. Therefore, TYPE is an ordinal variable with higher values assigned to cases bearing review or inspection results more favorable to plaintiffs. The following table reports the interaction between TYPE and the two performance indicators of our interest.

Regressions in Table 6 included the four cases that only went through judicial inspections.⁵⁸ It is interesting to observe that, with respect to the plaintiff's share of fees, the effect of RWA shrinks while that of RMW expands as plaintiffs hold increasingly favorable results from medical reviews or judicial inspections. Both findings are in line with courts' incentives created through the performance indicators. Courts, on the one hand, go to extra lengths to placate plaintiffs in order to reduce appeals, but this becomes a less salient task as plaintiffs have stronger cases, hence better chances of winning. On the other, courts want to stay tough against plaintiffs so as to dissuade them from clinging to litigations. Conceivably, however, it will be more difficult to do so when plaintiffs see review or inspection results in their favor. Consequently, judges will have to try harder just to bring optimistic plaintiffs to the negotiating table.⁵⁹ It should be noted that these impacts do not seem to exist insofar as the amount of damage award is concerned.

Then, in place of the ordinal variable TYPE, I use a dummy variable whose values are 1 for cases having medical review or judicial inspection reports that found hospitals' minor errors, but not medical accidents, without enunciating the severity of such errors. The conclusions in these reports appear to be ambivalent compared to the other two types of reports, which either did not find hospitals' errors at all or articulated levels of medical accidents and hospitals' degrees of liability clearly. Table 7 shows the interaction effects between this dummy, TYPE2, and the two performance indicators.

All regressions in Table 7 demonstrate that the effects of the judicial performance indicators tend to increase when the review or inspection reports are more

⁵⁸ Since judicial inspections, though determine whether medical accidents have occurred, do not identify the particular levels of such accidents, these cases were dropped in the previous regressions for missing data in accident levels.

⁵⁹ The coefficient estimates of TYPE in Table 6 are misleading as these were estimated where the two performance indicators took 0 values, which does not exist in the sample at all. When the values of RMW and RWA were adjusted to their sample means, the signs of TYPE were just as expected, positive for amount of award and negative for plaintiff's share of fees, and its effects significant both statistically and practically.

Table 5 Robustness tests: BRL procedure

Dependent variable	(1)	(2)	(3)	(4)
	Amount of award in log		Plaintiff's share of fees	
Estimator	OLS	WLS	OLS	WLS
(1-year lagged) RMW	13.97 (11.36)	20.32 (9.10)**	-6.19 (1.88)***	-5.60 (2.08)***
(1-year lagged) RWA	-16.28 (21.76)	-19.48 (15.41)	7.44 (2.60)***	6.46 (2.58)***
Adjusted R ²	0.73	0.75	0.55	0.47
Observations	366	366	361	361

Standard errors adjusted through the BRL procedure are in parentheses. All models include a constant term, all the covariates in the baseline model, court dummies and adjudication year dummy. Models (1) and (3) used OLS estimation, and models (2) and (4) used WLS estimation inversely weighted by the number of judgments each district court had rendered

* Significant at 10%; ** Significant at 5%; *** Significant at 1%

ambiguous, but the interaction terms are marginally significant only in some specifications when the WLS estimators are used. Thus, these findings lend some weak support to the proposition that the courts in Shanghai are inclined to follow more closely the conclusions reached by external experts, instead of wielding judicial discretion, when such conclusions are less equivocal.

5.5 Discussion

The empirical findings largely bear out my predictions about the effects of the judicial performance indicators on court decisions. These findings are more robust with regard to the plaintiff's share of fees. Compared to the award of damages, courts are probably more inclined to adjust the fee allocation in pursuit of complimentary performance evaluations. Presumably, the manipulation of fee sharing entails lower risk to courts for, unlike the substantive decision on damages, the parties are not allowed to file appeals solely on the basis of fee allocations. Rare as they are, appeals do appear when hospitals are dissatisfied with trial decisions. Hence, courts may consider massaging the fee sharing as a safer way to appease grumpy plaintiffs in medical malpractice litigations.

The observed effects of judicial performance indicators buttress the prior qualitative study revealing the behavior change in Chinese courts under the constraints imposed by the performance evaluation system (He 2009). They also echo the empirical evidence bearing out the efficacy of such control mechanisms generally deployed within the Chinese political system (Landry 2008). This being said, the importance of performance indicators should not be overstated. As noted above, their impacts on the amount of damage awards are less robust. More importantly, it is the results of medical reviews that explain the lion's share of the variation in judicial decisions on medical malpractices. Patently, medical review reports dominate the orientation of court decisions. Indeed, it is not unusual for courts in Shanghai to request reviews on their own accord.

Table 6 Interaction between TYPE (ordinal) and performance indicators

Dependent variable	(1)	(2)	(3)	(4)
	Amount of award in log		Plaintiff's share of fees	
Estimator	OLS	WLS	OLS	WLS
(1-year lagged) RMW	21.62 (11.40)	43.92 (11.85)**	-5.08 (1.98)**	-3.78 (1.55)**
(1-year lagged) RWA	-19.68 (35.90)	-58.13 (31.58)*	13.87 (2.99)***	15.13 (2.99)***
TYPE	3.29 (10.16)	-4.44 (9.55)	2.46 (0.92)**	3.50 (1.02)***
RMW × TYPE	-2.62 (3.16)	-5.10 (4.37)	-0.57 (0.35)	-0.80 (0.36)**
RWA × TYPE	0.75 (13.10)	11.02 (13.06)	-2.58 (1.08)**	-3.49 (1.11)***
Adjusted R ²	0.66	0.68	0.54	0.48
Observations	370	370	365	365

Robust standard errors clustered at the court level are in parentheses. All models include a constant term, all the covariates in the baseline model except the dummies recording medical review results, court dummies and adjudication year dummy. Models (1) and (3) used OLS estimation, and models (2) and (4) used WLS estimation inversely weighted by the number of judgments each district court had rendered

* Significant at 10%; ** Significant at 5%; *** Significant at 1%

Certainly, courts count on expert opinions due to their lack of expertise. However, their heavy reliance on medical reviews may nevertheless signal the bureaucratic logic underlying the hierarchical judicial system in China (Damaška 1986: 198–199, He 2009: 95). Under the law, a report by the medical review board is but one piece of evidence of the hospital's negligence, and the court is obliged to review the report as it does to any other evidence.⁶⁰ In fact, courts' occasional rejection of medical review conclusions has demonstrated their cognizance of the authority to assess and gainsay these conclusions.⁶¹ Nonetheless, in the vast majority of cases, courts seem to follow medical review opinions strictly, without further assessment. In particular, when the medical review boards at different levels expressed dissimilar opinions, courts virtually always adhere to the higher-level review board,⁶² again in absence of any legislative mandate. Put another way, the courts in Shanghai have essentially replaced the judicial scrutiny of medical reviews with their obedience to the internal hierarchy of review institutions.

Courts' rigid compliance with medical review opinions, and especially the faithful respect for those stated at a higher level, reveals their reluctance to exercise discretion allowed by the law. The negative attitude toward discretion, in fact, permeates within the Chinese judiciary, and manifests itself in a variety of ways, such as the persisting practice of seeking instruction from higher courts on how to decide pending cases, the so-called advisory request (请示) system (Minzner 2011b: 59). As Damaška (1986) has acutely pointed out, in a hierarchal judiciary, "official discretion is anathema". In the context of medical malpractices, written reports by formally organized professional agencies provide an effective shield against blames

⁶⁰ This was plainly admitted by a judge in my interview (interview with Judge Y, Aug. 1st, 2014).

⁶¹ The medical review conclusions were rejected in 2 cases.

⁶² Only 1 exception can be found to such adherence.

Table 7 Interaction between TYPE2 (dummy) and performance indicators

Dependent variable	(1) Amount of award in log		(4) Plaintiff's share of fees	
	OLS	WLS	OLS	WLS
(1-year lagged) RMW	4.79 (9.79)	3.37 (10.29)	-5.70 (1.90)***	-3.74 (2.03)*
(1-year lagged) RWA	-10.88 (14.31)	-10.17 (12.16)	6.49 (1.93)***	4.51 (2.16)**
TYPE2	-1.88 (11.09)	-3.27 (12.00)	-2.09 (1.43)	-1.69 (0.93)*
RMW × TYPE2	5.35 (3.27)	9.08 (4.41)*	-0.23 (0.23)	-0.16 (0.31)
RWA × TYPE2	-3.90 (12.19)	-5.12 (13.67)	2.56 (1.57)	2.03 (1.16)*
Adjusted R ²	0.41	0.47	0.29	0.29
Observations	370	370	365	365

Robust standard errors clustered at the court level are in parentheses. All models include a constant term, all the covariates in the baseline model except the dummies recording medical review results, court dummies and adjudication year dummy. Models (1) and (3) used OLS estimation, and models (2) and (4) used WLS estimation inversely weighted by the number of judgments each district court had rendered

* Significant at 10%; ** Significant at 5%; *** Significant at 1%

on court decisions for wild discretion, as well as the adverse consequences arising from the judicial disciplinary system. Hence, as the conclusions drawn by medical review boards become more clear-cut and specific, courts maybe shy further away from discretion even for the sake of bettering their performance scores. In this sense, the potential judicial arbitrariness due to the absence of the rule of law is mitigated by the hierarchical structure of the judiciary in China, which presses for a technocratic approach of adjudication, at least in routine cases. Moreover, the authoritativeness of the medical review opinions, coupled with courts' abstention from scrutinizing these opinions, also renders the adjudication of medical malpractices in China a vivid example of the hierarchical and informal pattern of dispute resolution within Robert Kagan (2001)'s typology, diametrically different from the American adversarial legalism.

5.6 Caveats

Attempts to draw inferences about adjudicatory standards from litigated disputes are prone to be biased. Obviously, most legal disputes are settled without court verdicts, and those actually going through litigation are a selected sample of disputes (Priest and Klein 1984). Consequently, the observed pattern of court decisions can merely be a result of the selection bias. Recently, Klerman and Lee (2014) reassessed the implications of such a bias on empirical studies on court decisions. Although their conclusions convey some encouraging messages, selection bias remains a thorny problem for researchers, like the current one, aimed at capturing the variation in the standards courts use to assess damages.

Regarding the questions posed in this research, parties involved in medical malpractices in Shanghai are unlikely to select disputes for litigation based directly

on the judicial performance scores for these scores are nonpublic. Nevertheless, they may select in light of the courts' visible positions forged by the performance scores. In this section, I will evaluate the influence of some potential selection biases on the findings demonstrated above.

Selection biases arise because of the existence of unobservable confounders that determines both the dependent variable and the independent variables of interest. Essentially, therefore, it is an unobservable variable bias problem. Borrowing the directed acyclic graph (DAG) (Pearl 2009), I present the selection bias in Fig. 3 below where U stands for the unobservable confounders, and the relationship between X and Y is the causality researches intend to identify. In this paper, X contains the two judicial performance indicators while Y include court decisions on damage award and fee sharing in medical malpractice cases.

Two selection paths seem to be especially relevant to this research. First, parties in medical malpractice disputes may decide whether to settle or litigate in front of a particular court based on hospitals' degree of negligence and victims' severity of injury, the two decisive factors in medical malpractice disputes. Fortunately, in the context of Shanghai, the liability degree and accident level found in medical review reports, available to both parties, become the de facto metrics in both aspects. Hence, the first selection path is actually observable. Therefore, after we controlled for the findings of medical reviews, the selection of disputes for litigation is arguably independent of the properties of the court. Indeed, the previous study on the malpractice judgments in the U.S. found that the cases tried were indistinguishable from those dropped in terms of the amount received by plaintiffs once defendants' negligence and the severity of injury were controlled (Farber and White 1991).

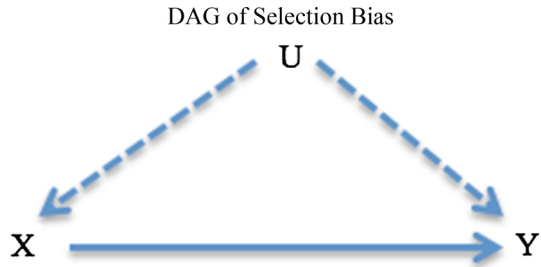
Second, selection can occur through factual characteristics other than hospitals' negligence or victims' injuries. It is conceivable that disputes are selected for litigation according to the strength of evidence substantiating the extent of damages. One plausible situation is that the cases with evidences weaker and less favorable to plaintiffs tend to be litigated in courts taking a more pro-plaintiff stance whereas the less pro-plaintiff courts will hear lawsuits whose evidences are stronger and more favorable to plaintiffs. Although the strength of evidence is unobservable to the researcher, the omitted variable bias (OVB) formula enables a reasonable estimation of the impact of selection (Angrist and Pischke 2009). According to this formula,

$$\begin{aligned}
 OVB &= \text{Short regression without omitted variable} \\
 &\quad - \text{Long regression with omitted variable} \\
 &= \{ \text{Regression of omitted variable on included independent variable} \} \\
 &\quad \times \{ \text{Effect of omitted variable on dependent variable} \}
 \end{aligned} \tag{8}$$

Therefore, for this second selection path, it is key to evaluate the influences of the evidence strength on, respectively, the judicial performance scores and the court decisions, in particular, their signs.

If this second selection path ever exists, the cases with weaker evidences in support of plaintiffs' claims are more likely to be litigated in courts with pro-plaintiff inclinations. At the same time, as explained in Part 3., since courts with

Fig. 3 DAG of selection bias



higher RMW and lower RWA tend to be more hospitable to plaintiffs in medical malpractice lawsuits, evidence strength should be negatively correlated with courts' RMW scores but positively with their RWA scores. On the other hand, it seems straightforward that plaintiffs with stronger evidence should have better chance to win bounty damages while sharing lower proportions of fees. Table 8 summarizes the postulated signs of these correlations, together with the signs of their products.

As OVB is the difference between the short regression model without the omitted variable and the long regression model including it, the real effects of the explanatory variables of our interest can be identified only after subtracting OVB from the observed effects (Angrist and Pischke 2009). In other words, if we denote the real coefficient of x_1 in function (7) as β_r and its estimated coefficient in presence of OVB as β_e , then

$$\beta_r = \beta_e - \text{OVB} \quad (9)$$

Now that the estimated coefficients of RMW are positive in the regression of damage award but negative in the regression of plaintiff's share of fees while the signs of the estimated coefficients of RWA are just the opposite, in light of the signs of OVB presented in Table 8, the observed difference in adjudication between courts with higher and lower performance scores would be the lower bound of the actual difference.⁶³

There are other caveats about this research apart from the selection bias issue. Despite my confidence in the representativeness of data on SLDRC, ultimately, we have little clue to the 20% judgments missing from this database. Neither can we tell the exact percentage of trial judgments publicized online that dealt specifically with medical malpractices. After all, this research is conducted on the *best data available* so far to the students of Chinese law.

⁶³ Alternatively, the case selection, based on evidence strength, may be conducted by courts themselves, instead of the litigants, since they are empowered to decide whether to accept the filing of lawsuits according to the requirements set by article 119 of the PRC Civil Procedural Law. To the extent that courts choose cases with intentions to improve their performance scores, those hoping to deliver pro-plaintiff judgments should pick cases with evidences stronger and more favorable to plaintiffs. If so, the observed effects of judicial performance indicators on *adjudication alone* are exaggerated. But they nonetheless reflect the *cumulative* impact of those indicators on different phases of judicial behaviors including acceptance of case filings and adjudication of cases. Therefore, the findings of this study are still informative of the *overall* influence of performance indicators on judicial behaviors.

Table 8 Estimation of OVB due to strength of evidence about damages

	Strength and amount of damage award (+)	Strength and Plaintiff's share of fees (-)
Strength and RMW (-)	-	+
Strength and RWA (+)	+	-

The postulated signs of correlation between the variables are in the parentheses, and the signs of their products are in the matrix cells

Finally, this research is to ascertain the potential influence of the past performance scores on judicial decisions. That means I merely attempted to test certain hypotheses regarding courts' behaviors in a specific type of litigations, medical malpractices, if courts are really responsive to the judicial performance evaluation system in China. It is not designed to discover whether the change in court decisions on medical malpractices would alter the results of future performance assessments. An inquiry into the latter issue may require controls on a broader variety of lawsuits.

6 Conclusion

About two decades ago, Ray Huang, a leading scholar on Chinese history, depicted the ongoing reform in China as a shift from the "outdated agrarian-bureaucratic management" toward a "mathematically managed" system (Huang 1996). He believed that the divergent path of development between China and the West lied fundamentally in the historical failure of the former to erect a mathematically managed state. Whereas his reading of the reason for economic stagnation in Chinese history is open to debate, Huang was definitely right to point out that the post-Mao China has been increasingly managed mathematically, not the least in its judicial system. In this paper, I looked into some of the mathematical indicators used to judge the performance of judges in this nation, and ascertained their effects on the judicial decisions on medical malpractices in Shanghai. The findings of this paper support the previous study that qualitatively identified the judicial responses to such a quantified evaluation system.

Underlying the impact of the performance indicators is the Chinese judiciary's bending toward populist pressure. In particular, the pursuit for a higher withdrawal and settlement rates but a lower rate of appeals accentuates the imperative of the Party state to appease litigants and maintain social stability. Essentially, therefore, this paper serves to place in perspective the judicial populism well documented in the latest literature on Chinese judiciary (Liebman 2011b, Minzner 2011a). On the other hand, however, my study also endorses the theory on courts' general reluctance to exercise discretion in a hierarchical judicial system. Judges gingerly maneuver their discretion so as to lessen the pressure transmitted through such a system. To summarize, as hinted

by the data, the actual behaviors of Chinese judges might be complex under a combination of institutional constraints embodying policy preferences of the political leaders as well as the structural characteristics of the judiciary.

Of course, the findings presented above only tell the story of Shanghai in two recent years. China has great geographical and institutional diversity, which might limit the generalizability of my study. Moreover, the judicial performance indicator system itself may soon become a historical phenomenon in the ongoing judicial reform launched under President Xi Jinping.⁶⁴ After all, this paper is but an initial step to explore quantitatively the link between the macroscopic institutional settings and the microscopic judicial behaviors in China, especially in the massive number of routine cases of low political sensitivity. I hope it will also contribute to the broad literature on behaviors of hierarchical judiciaries in authoritarian regimes.

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⁶⁴ The courts in certain areas of the country, such as Xuzhou in Jiangsu province, have reportedly suspended using performance indicators to evaluate judicial behaviors.

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