Online Courts and the Expansion of Litigation

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Online courts are emerging around the world, yet their effects on litigation remain empirically underexplored. Building on the Landes–Posner–Gould model, the paper argues that lower process costs in online courts are able to shift party's optimal choice from no action and settlement to litigation and, in aggregate, increase the number of disputes resolved in court. Moreover, since these cost reductions are uneven, the magnitude of this effect is expected to vary across contexts. These predictions are then tested using a quasi-experiment that exploits the staggered introduction of three internet courts in China. Empirical findings reveal a substantial increase in the volume of litigation in treated cities, with particularly pronounced growth in procedural cases and cases with legal representation. Despite the higher caseload, there is no significant decline in overall adjudicative quality, consistent with the institutional specialization and technological capabilities of internet courts.

Keywords: online court, internet court, litigation cost, litigation volume, adjudicative quality
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1 Introduction

Advances in information technology today make it possible for traditional courts, long tied to fixed schedules and physical locations, to operate in the online environment. From England and Wales (Denvir & Selvarajah, 2022; Donoghue, 2017) to the United States (Ponte, 2002; Schmitz, 2019), to Australia (Cashman & Ginnivan, 2019), and to China (Cheng, 2021; Zheng, 2020), initiatives are under way, shifting citizen's perception of the court from a place, to a service (Susskind, 2019). Unlike online dispute resolution platforms offered by private sectors, online courts are part of the formal judicial system and are able to deliver state-backed, authoritative judgments. At the same time, they benefit from the digital format by significantly reducing the time and financial costs faced by litigants and, potentially, their legal representatives. A central

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question remains: how do these cheaper and more convenient online courts affect the litigation and what does it imply for the future development of online courts?

To address this question, the paper applies the Landes–Posner–Gould model (Gould, 1973; Landes, 1971; Posner, 1973) to interpret the effects of online courts. In this framework, online courts lower both monetary and non-monetary process costs, which shifts parties' payoff functions and decision frontiers. As a result, more disputes where the injured parties would otherwise have to "lump it" or settle are expected to be brought into court. Moreover, because these cost reductions differ across stages and users, they will in turn shape the pattern of litigation expansion. These predictions are then tested empirically using the staggered establishment of internet courts[1] in Hangzhou (the second half of 2017, hereinafter H2 2017), Beijing (H2 2018), and Guangzhou (H2 2018) as a quasi-natural experiment. The results indicate that, holding other factors constant, the introduction of an internet court increases the number of cases within its jurisdiction by about 1,695 per half year, suggesting that more convenient and lower-cost online procedures activate substantial latent demand for formal adjudication. Heterogeneity analysis further shows that the increase is significantly larger for procedural cases and for cases with lawyer representation, because the cost reductions brought by online courts are concentrated in early procedural stages and are more salient to professional, repeat users such as lawyers. Moreover, across several measures of adjudicatory quality, there is no significant evidence of an overall decline despite the surge in caseload, which is largely attributable to their specialization in internet cases and advanced technology.

The contributions of this paper are threefold. First, by bringing an economic model of litigation to the context of online courts, the paper clarifies how reductions in process costs reshape parties' choices among no action, settlement, and trial, which systematically deepens the understanding of online courts. Second, drawing on a quasi-experimental setting, the paper provides rigorous causal evidence on the effects of online courts, thereby complementing a literature that is largely qualitative and doctrinal. Third, the empirical results, including the exploratory analysis, provide forward-looking guidance for jurisdictions around the world seeking to build more effective, accessible, and high-quality online courts.

The remainder of the paper is structured as follows. Section 2 outlines the cost reductions achieved by online courts compared to traditional ones and introduces the institutional background of China's internet courts. On this basis, Section 3 uses the Landes–Posner–Gould framework to analyze how these cost reductions affect litigation and develops the hypotheses. Section 4 describes the data and identification strategy. Section 5 reports the main empirical results on litigation volumes, together with robustness checks and heterogeneity analysis. Section 6 explores how the surge in caseloads affects adjudication quality from several dimensions. Section

[1] In this paper, the terms "internet courts" and "online courts" are interchangeable at the conceptual level, referring to courts that are part of the formal judicial system but operate online, while the only nuance is that "internet courts" denotes the three specific courts established in China in H2 2017 and H2 2018, whereas "online courts" is a more general term for similar initiatives.

7 concludes.

2 Conceptual and Institutional Background

2.1 Cost Reductions in Online Courts

Traditional litigation is premised on the court as a physical place (Susskind, 2019): parties must appear in person at a particular courthouse at a fixed time, pass security checks, wait in the corridor for their hearing to be called, and then enter the designated courtroom to present their case. Even for a minor dispute involving only a few hundred euros, once litigation is chosen, litigants have to step out of their ordinary work and family routines and relocate themselves into this specific institutional setting. All these unavoidably generate various costs and barriers (Trubek et al., 1983), both financial and psychological, especially for disadvantaged and vulnerable groups (Katsh & Rabinovich-Einy, 2017; Sandefur, 2008). Such prohibitive litigation costs not only deters rational plaintiffs[2] from pursuing claims below a certain value threshold but also, *ex ante*, creates incentive for defendants to strategically exploit these barriers by inflicting damages just below the level that would provoke a suit (Menell, 1983). Therefore, as the classic "disputes pyramid" metaphor suggests, most conflicts are dissipated by various costs at the grievance, claim, or dispute stages, and only a small fraction may reach the apex as court cases (Miller & Sarat, 1981).

With the rapid rise of digital technology, moving dispute resolution online has become one of the most widely anticipated means of reducing these costs (Rule, 2020). Long before the rise of online courts, the online dispute resolution movement had already gained significant momentum, which aims to offer parties greater spatiotemporal flexibility and procedural convenience through technology-platform-led (Helberger, 2025) and quasi-institutional mechanisms (Legg, 2016). Although online dispute resolution systems can efficiently resolve disputes in many areas, they remain outside the formal judiciary and lacks the procedural fairness and institutional accountability of formal courts (Rule, 2020). Online courts, by contrast, are part of the official judicial system and are thus subject to stringent legal constraints (Legg, 2016). They not only enable civil proceedings to be conducted as fully as possible via the internet, offering greater spatial and temporal freedom through self-service evidence uploading and online (or even asynchronous) hearings, but also enhance user accessibility by providing clear procedural guidance and automated workflows (Prescott, 2017). During the pandemic, courts around the world were forced to use online courts as an alternative to traditional courtrooms to facilitate dispute resolution (Sourdin et al., 2020), and many of these short-term measures have shown enduring value and remain effective in non-emergency contexts (Gras, 2021; O'Neil et al., 2024).

[2]The paper assumes litigants are rational profit-maximizers, which provides a tractable baseline to isolate the effects of process cost reduction on litigation decisions. While behavioral factors (e.g., optimism bias or risk aversion) certainly exist, they do not alter fundamental comparative statics.

2.2 *China's Internet Courts*

China's internet courts exemplify the broader global wave of online court reforms. With no strong tradition of "rule of law" and no established "legal nobility", the adoption of cutting-edge technologies in the Chinese judiciary has encountered little friction (Zheng, 2020). As a result, the establishment of China's internet courts ranks among the earliest such initiatives worldwide (Guo, 2021). As an integral part of the "Smart Court" national strategic initiative, China established its first internet court in Hangzhou in August 2017, followed by the launch of two internet courts in Beijing and Guangzhou in September 2018 (Supreme People's Court, 2019). It was a top-down pilot initiative approved by the Central Commission for Comprehensively Deepening Reform, therefore there was no public anticipation or participation prior to the launch. Furthermore, stipulated by the China Civil Procedure Law, these courts are restricted to adjudicating disputes within their respective municipalities, possessing no spillover effects. These three cities were selected because they serve as strategic hubs for China's digital technology industry, characterized by a dense concentration of innovation resources and mature digital ecosystems, thereby providing the necessary technological infrastructure to pilot internet courts (Ma & Zhang, 2017). To date, these remain the only three internet courts in China.

In stark contrast to the protracted and cumbersome proceedings of traditional courts, three internet courts transition the entire litigation life cycle of internet-related cases[3] online, streamlining processes from filing to adjudication (Sung, 2020). Using any internet-connected device, litigants can easily file cases, submit evidence, and attend hearings at their convenience, thereby eliminating the need for physical presence. Furthermore, a range of emerging digital technologies has taken root and flourished in the experimental setting of internet courts, such as asynchronous adjudication (Guo, 2021), blockchain-based evidence preservation (Polydor & Group, 2020), and AI-powered risk assessment and procedural guidance (Gao & Xu, 2025), available for parties to selectively utilize based on their specific needs. Consequently, litigants can not only save substantial temporal and monetary costs associated with physical court attendance but also resolve disputes with greater convenience and effectiveness, thereby significantly lowering the psychological and cognitive costs.

3 Theoretical Framework and Hypotheses

In the economics of litigation, a wide range of models share a common reduced-form core: the Landes–Posner–Gould rule, which characterizes how parties' beliefs and litigation costs jointly determine whether disputes end in no action, settlement, or trial (Gelbach, 2018). This broadly applicable yet parsimonious structure therefore offers a natural analytical framework for

[3]Three internet courts only have jurisdiction in internet-related areas, including online shopping contracts, online service contracts, online loan contracts, copyright ownership and infringement of online works, domain ownership and infringement, and online product liability (Supreme People's Court, 2018).

studying how online courts affect litigation behavior, considering its cost reducing feature.

In a simplified version of the Landes–Posner–Gould setting (Kobayashi, 2017), a risk-neutral plaintiff (P) has a claim of size J against a risk-neutral defendant (D). The two parties hold possibly different beliefs about the probability that the court will rule for the plaintiff, denoted p_P (for the plaintiff) and p_D (for the defendant). To litigate, they must incur various costs c_P and c_D, respectively, which include both monetary and non-monetary elements such as time, effort, and uncertainty. Given these beliefs and costs, the plaintiff's expected payoff from litigating is $T_P = p_P J - c_P$, which the plaintiff seeks to maximize. Similarly, the defendant seeks to minimize their loss $T_D = p_D J + c_D$ when the plaintiff fills a case.

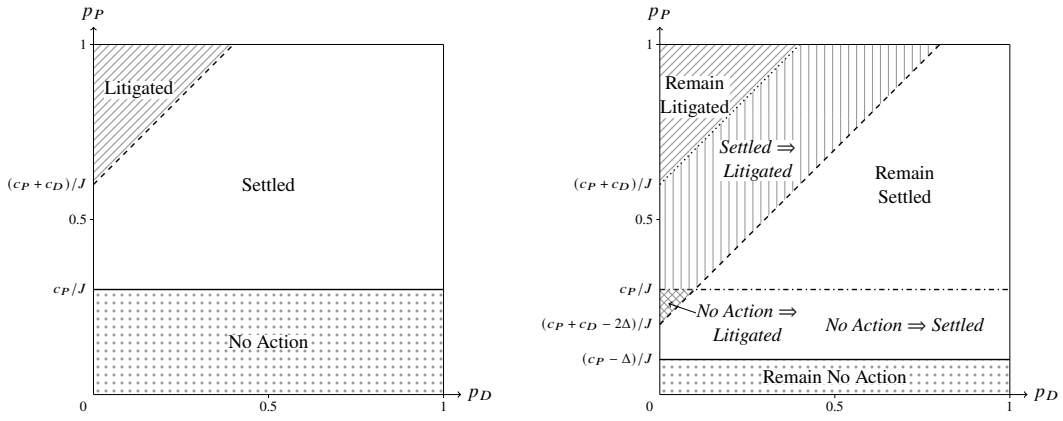
First of all, the plaintiff will not take any action but only "lump it" when $T_P \leq 0$, that is,

$$p_P \leq \frac{c_P}{J}, \tag{1}$$

since litigation yields a weakly negative expected payoff, and there's no credible basis for settlement. This typically arises when J is very small (a low-stakes claim) or when c_P is very high (severe litigation barriers). By contrast, if there exists a settlement amount S satisfying $S > T_P$ (the plaintiff receives more than from trial) and $S < T_D$ (the defendant bears a smaller loss than from trial), then both parties can strictly gain by Coasean bargaining (Coase, 1960) rather than litigating. This also implies that if $T_P > T_D$, that is,

$$p_P > p_D + \frac{c_P + c_D}{J}, \tag{2}$$

the settlement range collapses, and the plaintiff will choose to litigate. The foregoing choice structure among no suit, settlement, and litigation is illustrated in Figure 1a (Gelbach, 2018).[4]



(a) Normal Cost (b) Reduced Cost

Figure 1: Landes–Posner–Gould Frontier

[4] As an illustration, the figure shows the case where the dispute value J is 100 and the litigation costs of the plaintiff and the defendant, c_P and c_D, are both 30.

Building on this, the advent of online courts reshapes the parties' payoff functions and thus affects their dispute resolution strategies. Online courts allow litigants to file claims, submit documents, and attend hearings online, saving substantial transportation, opportunity, administrative, and coordination costs. This cost reduction, denoted by Δ, varies little with the amount in dispute or the complexity of the case and is broadly similar for the plaintiff and the defendant.[5] Incorporating this change into the two margins above yields the no action frontier:

$$p_P \leq \frac{c_P - \Delta}{J}, \tag{3}$$

and the litigation frontier:

$$p_P > p_D + \frac{c_D + c_P - 2\Delta}{J}. \tag{4}$$

Consequently, the parties' litigation choices shift as shown in Figure 1b,[6] which clearly demonstrates that, as litigation costs fall, not only does the region in which the plaintiff abandons any action becomes smaller than before, but the region in which litigation is the most appropriate dispute resolution mechanism also becomes larger. This implies that the advent of online courts enhances the probability of litigation functioning as the optimal dispute resolution mechanism, and from a macro perspective, this shift is poised to result in a greater volume of disputes being resolved through judicial processes. Accordingly, the following hypothesis is proposed for empirical verification:

Hypothesis 1 The introduction of internet courts significantly increases the volume of litigation.

Moreover, the source of this expansion depends on the magnitude of the cost reduction. If the reduction is not sufficiently large ($\Delta \leq c_D/2$), then the entire expansion of the litigation-feasible region arises from disputes that would previously have been settled. Only when the reduction in procedural costs surpasses this threshold does the expansion of litigation extend into the area of "inaccessible justice," where disputes were previously resolvable through neither litigation nor settlement. This implies that while the lower costs of online courts may enhance access to justice, a proposition consistent with a specific strand of literature (Denvir & Selvarajah, 2022; Donoghue, 2017; Gao & Xu, 2025; Prescott, 2017; Sung, 2020), such an outcome is not inevitable and offers merely a partial explanation for the growth in caseloads. A complementary theoretical driver is the diversion of disputes into the judicial system that would otherwise have been concluded through private bargaining. In addition, the reduction in litigation costs *per se* facilitates settlement within the previously inaccessible zone, representing yet another channel through which online courts contribute to overall dispute resolution.

[5] This is merely for the sake of simplicity, since even if the cost reduction differs between the parties, the results shown in Figure 1b remain unchanged.

[6] In this example, Δ is set to 20. The magnitude of Δ does not affect the expansion of the litigation region, but it may influence the composition of disputes that newly enter litigation, which is discussed later.

A further decomposition of the cost savings reveals that, online courts primarily reduce expenses during preliminary, procedural stages, such as online case filing and evidence submission, processes that traditionally necessitated repetitive physical presence at the courthouse. Conversely, the reduction is less pronounced for costs incurred during the substantive phase, such as attorney fees and court charges. Corresponding to Figure 1b, this suggests that while the feasible region for litigation expands in both instances, the expansion is markedly more significant for the former category. Similarly, this cost reduction may be skill-biased and varied across individuals. In addition, for experienced repeat players in online litigation, such as lawyers, they are able to amortize the fixed costs of learning the new system through economies of scale and leverage digital tools to significantly enhance case-processing efficiency, thereby driving costs down even further. These heterogeneities constitute the following hypotheses:

Hypothesis 2 The increase in litigation volume induced by online courts is larger for procedural cases relative to substantive cases.

Hypothesis 3 The increase in litigation volume induced by online courts is larger for attorney-represented cases relative to unrepresented cases.

4 Data and Methodology

4.1 Data

This paper tests above hypotheses by exploiting the establishment of China's three internet courts as a quasi-natural experiment. In the absence of fully disclosed official data, the paper constructs a dataset by web-scraping judicial documents from China Judgement Online, the official open-source judicial database. The dataset covers the period from 2010 through 2020 and encompasses the universe of cases adjudicated by courts nationwide that fall within the substantive jurisdiction of internet courts (i.e., "internet-related" disputes). These judgment texts are semi-structured, following a nationally standardized format and style, while allowing flexibility in writing across individual cases.[7] Regular expressions are then used to extract key information from judgments, including the court of adjudication, case filing date, judgment date, word count, legal representation status, whether the case is procedural in nature (such as rejection of filing, withdrawal, property preservation, or jurisdictional objections) or involves a substantive dispute, whether it was an appeal, and so on. In total, a comprehensive dataset of 114,118 full-text judgments, paired with their extracted metadata, forms the empirical foundation of this study.

To evaluate the treatment effect by comparing the three internet court pilot cities against non-pilot cities, the paper aggregates the case-level data to the city level based on the court's

[7] Usually, judgments begin with information about the litigants and their legal representatives (if any), as well as the case filing record. This is followed by a summary of the parties' claims, arguments, and supporting evidence. The subsequent part presents the judge's reasoning, the legal basis for the decision and the final ruling. Each judgment concludes with details on the allocation of litigation costs and the date of the decision.

location,[8] which yields both the city-level averages of case attributes and the total volume of relevant cases for each city. Given that all three internet courts were established in H2 2017 or H2 2018, constructing panel data annually may fail to capture the clean effect of the pilot shock. Therefore, the paper constructs a semi-annual panel dataset covering 321 cities from H1 2010 to H2 2020. To better account for the influence of socioeconomic conditions, this study includes three control variables: the log of GDP, population, and the number of mobile phone users, all drawn from the China City Statistical Yearbook. Table 1 presents the descriptive statistics of the main variables. Some indicators used only in the exploratory part will be introduced later.

Table 1: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Number of Cases	2,237	51.01	289.68	1.00	5,570.00
Number of Substantive Cases	2,237	16.15	102.11	0.00	2,376.00
Number of Represented Cases	2,237	32.78	194.99	0.00	3,574.00
ln(Trial Duration)	2,201	4.10	0.74	0.00	6.07
Appeal Rate	2,237	0.10	0.24	0.00	1.00
Adjudicative Quality Score	1,662	75.46	7.12	45.00	95.00
Text Length	2,237	2,238.83	1,895.33	249.00	21,851.00
ln(GDP)	2,141	7.94	0.91	5.33	10.56
Population	2,141	550.46	376.93	31.50	3,146.00
Number of Mobile Phone Users	2,141	702.80	684.70	63.00	4,204.00

4.2 Identification Strategies

This paper exploits the staggered establishment of the three internet courts as an exogenous shock and employs a staggered difference-in-differences (DID) approach to examine their impact on litigation volume. If, before the pilot, the volume trend of internet-related cases in three pilot cities was broadly similar to non-pilot cities, but a divergence emerged suddenly only after the pilot, then the change in the difference between the treatment and control groups before and after the shock can be reasonably attributed to the pilot intervention. This process can be measured by the DID model in the following regression:

$$Y_{it} = \alpha + \beta \mathrm{DID}_{it} + \lambda_t + \mu_i + X'_{it}\xi + \varepsilon_{it}, \tag{5}$$

where i indexes cities and t indexes half years. Y_{it} represents the dependent variable, that is, the number of cases.[9] DID_{it} is the interaction term between a pilot city dummy variable (equal to 1 if city i is one of the pilot cities) and a post-reform dummy variable (equal to 1 if the pilot was already

[8] A manual check revealed that a very small number of cases had extremely long or even negative trial durations, likely due to outliers or typographical errors, for example, recording 2104 (wrong) instead of 2014 (correct). To mitigate potential bias, the top and bottom 0.5% of the trial duration data were trimmed and excluded.

[9] In the subsequent exploratory analysis, Y_{it} is substituted with several indicators measuring judicial quality.

implemented at half year t). λ_t and μ_i denote time and individual fixed effects, respectively, which control for unobserved factors that are constant across cities (e.g., macro policies and events) and those that are constant over time (e.g., inherent city and court characteristics). X_{it} is a vector of control variables, and ε_{it} is the error term. In this regression, the main coefficient of interest is β, which is attached to DID_{it}, since it captures the average treatment effect of the intervention on the dependent variable. The specific methodologies employed in the exploratory analysis will be detailed in the subsequent sections.

5 Empirical Evidence on the Volume of Litigation

5.1 Parallel Trends Test

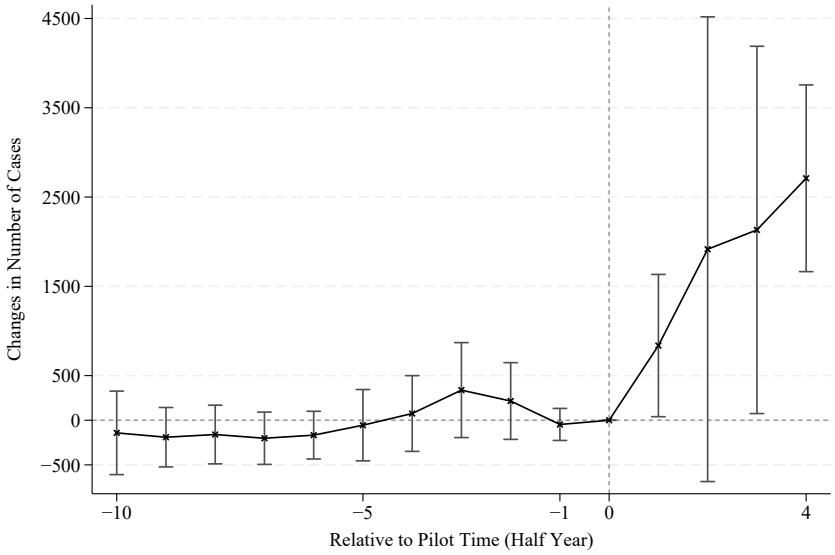


Figure 2: Parallel Trends Test

A key identifying assumption of the DID model is that the treatment and control groups should exhibit similar trends prior to the pilot implementation. Only under this condition can post-reform differences be credibly attributed to the shock. To assess the validity of the parallel trends assumption, the paper estimates an event study using the following regression:

$$Y_{it} = \alpha + \sum_{k \neq 0} \beta_k \text{Event}_{it}^{(k)} + \lambda_t + \mu_i + X_{it}'\xi + \varepsilon_{it}, \tag{6}$$

where $\text{Event}_{it}^{(k)}$ is a set of event-time dummies that indicate the number of periods relative to the pilot implementation, with $k = 0$ denoting the pilot period, $k < 0$ pre-form periods, and $k > 0$ post-form periods. The dummy for $k = 0$ is omitted to avoid multicollinearity. The regression result is presented visually in Figure 2, which plots the estimated event-time coefficients β_k, along

with their 95% confidence intervals. All coefficients of the pre-treatment periods are statistically indistinguishable from zero (i.e., insignificant), suggesting that the parallel trends assumption is not violated. Also, the post-pilot coefficients show a clear upward shift and most of them are significant, indicating that the pilot have a positive average treatment effect.

5.2 Baseline Results

The empirical analysis begins with the core question: whether the pilot increased the volume of litigation. Using the number of cases as the dependent variable, the paper estimates a staggered DID model to assess the pilot's impact, reported as Table 2. Column (1) presents a baseline result without control variables, fixed effects, or clustered standard errors. Column (2) adds two-way fixed effects (TWFE) and clustered standard errors at the city level. Column (3) further includes the log of GDP, population, and the number of cell phone users as control variables. Across all specifications, the estimated coefficient on the DID variable is positive and statistically significant at the 1% level. On average, the pilot increased the number of relevant cases in the three pilot cities by 1,694.55 per half year, which is a substantial rise compared with pre-reform volumes. This finding validates Hypothesis 1, demonstrating that the advent of internet courts has significantly elevated the role of litigation within the dispute resolution landscape.

Table 2: Baseline Results

	Number of Cases		
	(1)	(2)	(3)
DID	2,111.15***	1,858.95***	1,694.55***
	(54.61)	(494.87)	(520.00)
Control Variables			✓
Time Fixed Effects		✓	✓
Individual Fixed Effects		✓	✓
Cluster		City-Level	City-Level
Estimator	Staggered DID	Staggered DID	Staggered DID
Adj. R^2	0.40	0.49	0.54
Obs	2,237	2,204	2,126

*Note: ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.*

5.3 Robustness Checks

This subsection presents a series of robustness checks to reinforce the above finding. Growing literature has pointed out that in staggered DID designs, units that are treated earlier may serve as part of the control group for later-treated units, which could potentially lead to biased estimates (Baker et al., 2022). To address this issue, the paper applies some alternative estimation approaches to enhance the robustness, whose results are listed in Table 3. Bacon

decomposition is first used to assess the extent to which the estimate may be biased due to tricky comparisons between late- and early-treated units (Goodman-Bacon, 2021). Table 4 presents the detailed decomposition results, indicating that potential biased comparisons between H2 2018 and H2 2017 only count about 1% in the total treatment effect, suggesting that the impact of the biased component on the baseline results is negligible.

Table 3: Robustness Checks

	Number of Cases		
	(4)	(5)	(6)
DID	1,506.44***	1,078.18***	1,456.47***
	(551.47)	(392.59)	(500.82)
Control Variables	✓	✓	✓
Time Fixed Effects	✓	✓	✓
Individual Fixed Effects	✓	✓	✓
Cluster	City-Level	City-Level	City-Level
Estimator	Bacon Decomposition	Callaway & Sant'Anna DID	Synthetic DID
Obs	495	1,871	495

*Note: ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively. None of these methods provides Adj. R^2.*

Table 4: Bacon Decomposition

Full ATET Decomposition	2×2 Coefficient	Weight
H2 2017 vs Never Treated	1,028.23	0.31
H2 2018 vs Never Treated	2,135.32	0.63
H2 2018 vs H2 2017	536.50	0.01
Within	$-3,637.93$	0.05
Weighted Average	1,506.44	1.00

Note: ATET stands for the average treatment effect on the treated.

Although the staggered DID model is proven to yield reliable results, the paper still further verifies the robustness of the above main regressions using two alternative approaches: the Callaway and Sant'Anna DID (Callaway & Sant'Anna, 2021) and synthetic DID (Arkhangelsky et al., 2021). The former estimates clean group-time-specific ATETs separately and then aggregates these ATETs to obtain an overall effect, and the latter constructs a synthetic control group from untreated units by optimally weighting them to match the pre-trend of the treated group. Both methods are designed to mitigate the potential biases associated with staggered DID. Columns (5) and (6) of Table 3 report the corresponding results, in which the coefficients remain significantly positive and comparable to the baseline regressions. All these results suggest a robust and substantial impact of the pilot. See Appendix A for further results of the synthetic DID estimation.

A remaining concern is that the observed increase in internet-related litigation may be driven

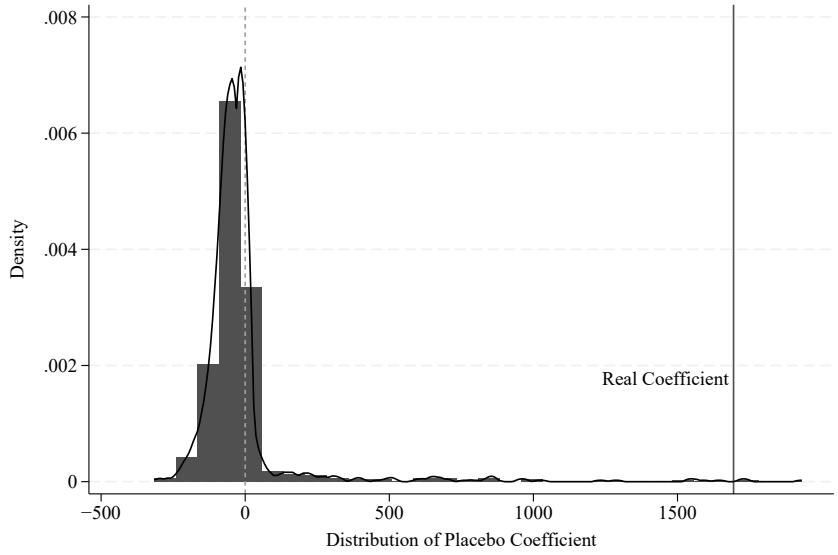


Figure 3: Placebo Test

by unobserved factors unrelated to the reform. In other words, similar results may also be observed even if the pilot were assumed to occur at a different time or in different cities. To address this concern, the paper conducts 1,000 placebo DID estimates, each using two randomly selected pseudo times and three randomly selected pseudo cities. Figure 3 plots the distribution of placebo coefficients. The vast majority of these placebo coefficients cluster around zero, indicating no systematic treatment effect under random assignments. In contrast, the real coefficient lies far in the upper tail of the distribution, providing strong evidence that the observed increase in case volume is indeed driven by the internet court pilot, which is unlikely due to coincidence or other factors.

5.4 Heterogeneity Analysis

As discussed in Section 3, considering the heterogeneity in cost reductions facilitated by internet courts, procedural cases are expected to benefit more than substantive adjudications, and lawyers are expected to benefit more than unrepresented laymen. This implies that the growth in procedural and attorney-represented cases should be relatively more pronounced. Table 5 display the results of the grouped regressions. The DID coefficients are significantly positive across all four specifications from Column (7) to Column (10), indicating that the effect of internet courts on litigation growth remains robust. However, the coefficients for procedural and represented cases are notably larger than those of their counterparts, thereby validating Hypotheses 2 and 3.

Table 5: Heterogeneity Analysis

	Number of Cases			
	Substantive	Procedural	With Lawyers	Without Lawyers
	(7)	(8)	(9)	(10)
DID	624.21**	1,036.94***	1,084.77***	582.43***
	(321.69)	(231.18)	(388.83)	(142.26)
Control Variables	✓	✓	✓	✓
Time Fixed Effects	✓	✓	✓	✓
Individual Fixed Effects	✓	✓	✓	✓
Cluster	City-Level	City-Level	City-Level	City-Level
Estimator	Staggered DID	Staggered DID	Staggered DID	Staggered DID
Adj. R^2	0.51	0.51	0.52	0.54
Obs	1,605	1,626	1,483	1,722

*Note: ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.*

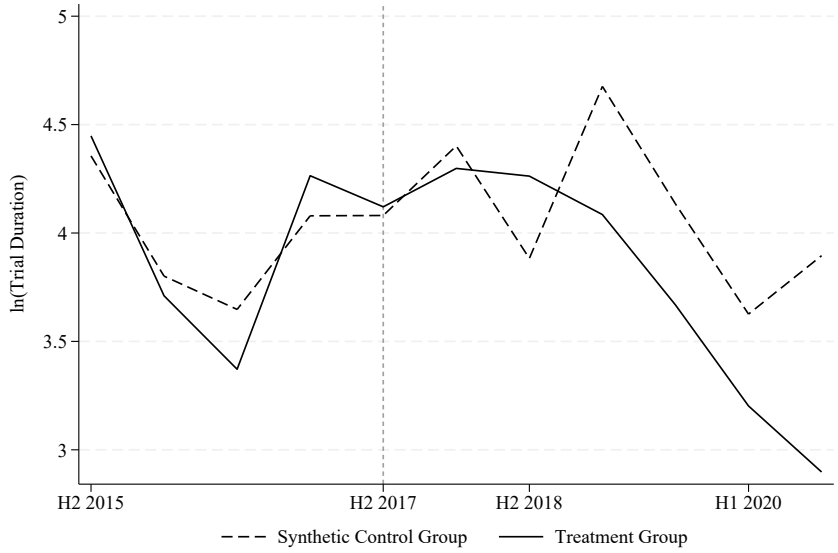
6 Exploratory Analysis on Adjudicative Quality

Thus far, the empirical evidence indicates that the cost reductions facilitated by internet courts have significantly expanded litigation volume, a finding consistent with the predictions of the Landes–Posner–Gould model. This signifies that a substantial number of lawsuits that would otherwise have settled are now entering internet courts because the bargaining range of settlement has been eliminated. Furthermore, it also implies that disputes previously incapable of effective resolution could potentially be resolved through lower-cost litigation, thereby enhancing access to justice. A natural subsequent question, however, is whether this sharp increase in caseloads has induced a decline in adjudication quality—specifically regarding efficiency, accuracy, and fairness—given the limitations of litigation resources. This question is pivotal to the enduring validity of the assessment of litigation expansion, since if the quality of judgment suffers even as dispute resolution numbers rise, then justice has not been enhanced but simply redistributed. To address this, the current section employs the rich dataset to perform further exploratory analysis.

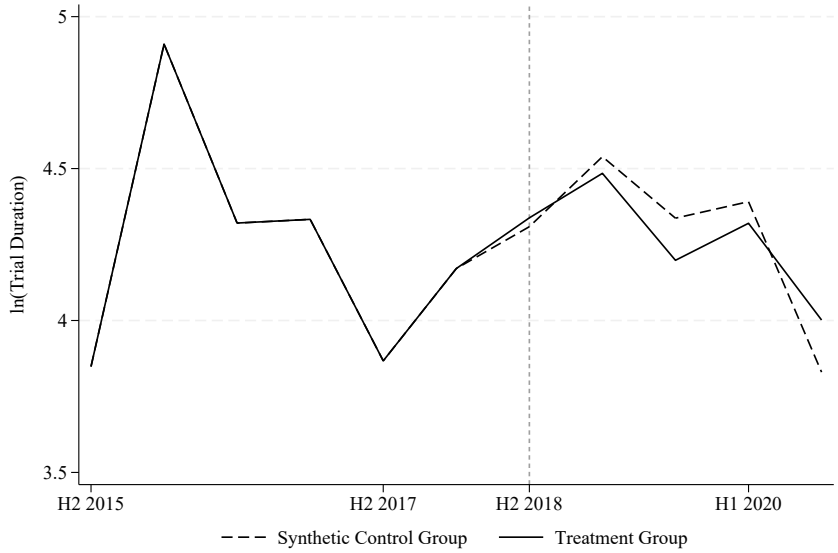
6.1 Efficiency: Trial Duration

The first aspect examined is whether the trial duration was affected by the reform, which is calculated as the number of days between the filing date and the judgment date. The trial duration is log-transformed for the convenience of subsequent analysis. The paper adopts a straightforward synthetic control method, in which a weighted combination of untreated cities is constructed to manually create a unit that closely matches the pre-trend of pilot cities in the trial duration. Then, the post-treatment divergence between the two groups shows the effect of the pilot, which is illustrated in Figure 4a and 4b. Compared to the synthetic control group, the pilot cities show a

noticeable reduction in trial duration after the reform, suggesting that litigation efficiency was not undermined by the increased caseload. As the result shows, the average treatment effect is 0.13475, meaning that the pilot leads to a 14.43% decrease ($e^{0.13475} - 1$) in the trial duration. Relatively speaking, the reduction in trial duration at the Hangzhou Internet Court (H2 2017) is more pronounced than that observed in Beijing and Guangzhou (H2 2018), which can be explained by the spotlight effect associated with Hangzhou Internet Court, as the first internet court launched in China.



(a) Hangzhou (H2 2017)



(b) Beijing and Guangzhou (H2 2018)

Figure 4: Trial Duration of the Treatment vs Synthetic Control Group

6.2 *Fairness: Appeal Rate*

This paper employs the appeal rate as a metric for the fairness of adjudication, a choice grounded in two primary rationales. First, a higher appeal rate typically signifies that the judgment has deviated from the litigants' reasonable expectations or suffers from perceived judicial bias. Crucially, such dissatisfaction must outweigh the costs of appealing to trigger an actual appeal, making the act of appealing a strong signal of insufficient judicial fairness. Second, a fair adjudication process enhances the litigants' acceptance of the ruling. If a judgment possesses both substantive justice and procedural transparency, even the losing party is inclined to acquiesce. Consequently, a high appeal rate also reflects perceived procedural injustice. Columns (11) and (12) of Table 6 present the differences in appeal rates between online and traditional courts, with and without control variables, respectively, which shows a significant decline in the appeal rate for online courts.

Table 6: Appeal Rate

	Appeal Rate	
	(11)	(12)
DID	−0.15**	−0.11*
	(0.06)	(0.06)
Control Variables		✓
Time Fixed Effects	✓	✓
Individual Fixed Effects	✓	✓
Cluster	City-Level	City-Level
Estimator	Staggered DID	Staggered DID
Adj. R^2	0.08	0.15
Obs	2,204	2,126

*Note: ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.*

6.3 *Comprehensive Evaluation by Large Language Model*

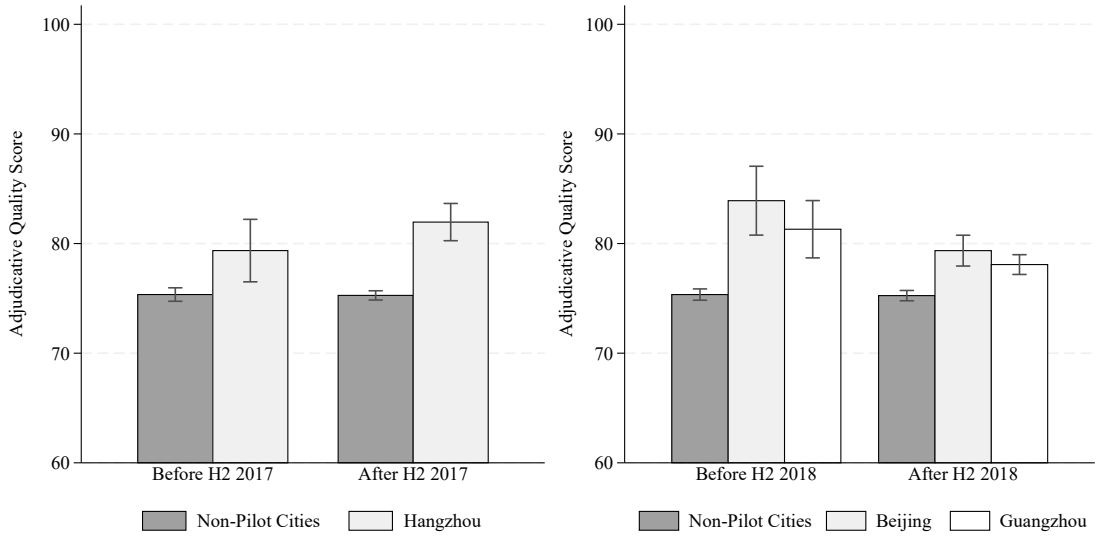
Finally, this study takes an exploratory approach by employing a large language model (LLM) to evaluate the quality of court judgments. Traditionally, such evaluations have relied on manual reviews or rule-based scoring systems that are often time-consuming, inconsistent, and, of course, costly. In contrast, LLM-based evaluation has demonstrated broad applicability across domains including legal document analysis (Abdurahman et al., 2025). Drawing on these precedents, the paper develops the following procedure: for each city and each half-year period, if the total number of cases did not exceed 200, all cases were retained for scoring; otherwise, 200 cases were randomly selected. In total, 9,526 cases were selected for evaluation. The LLM used was Alibaba Cloud's Qwen3-235B-A22B, released in May 2025, which is a flagship model known for its capabilities in causal reasoning, long-text comprehension, robust support for the

Chinese language, and consistent answers. Each selected judgment was submitted in full to the LLM, which was instructed to assign a score between 0 and 100 based on a comprehensive evaluation across four dimensions: linguistic coherence, factual determination, legal reasoning, and argumentative justification, which is used by the Supreme People's Court to select outstanding cases. The specific settings and prompts for the model, as well as an example output, will be presented in Appendix B.

Table 7: LLM-Based Quality Score

	Score			
	Average	Hangzhou	Beijing	Guangzhou
	(13)	(14)	(15)	(16)
DID	−2.24	1.56**	−5.70***	−3.02***
	(2.08)	(0.65)	(0.67)	(0.85)
Control Variables	✓	✓	✓	✓
Time Fixed Effects	✓	✓	✓	✓
Individual Fixed Effects	✓	✓	✓	✓
Cluster	City-Level	City-Level	City-Level	City-Level
Estimator	Staggered DID	Staggered DID	Staggered DID	Staggered DID
Adj. R^2	0.13	0.12	0.13	0.12
Obs	1,574	1,543	1,541	1,542

*Note: ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.*



(a) Hangzhou (H2 2017) (b) Beijing and Guangzhou (H2 2018)

Figure 5: Comparison of LLM-Based Adjudicative Quality Score

After converting scores into panel data, regression analysis is conducted. As shown in

Table 7, Column (13), the coefficient of the interaction term is insignificant. Heterogeneity analysis reveals that only in Hangzhou did the reform lead to an improvement in judgment quality compared to the control cities, whereas both Beijing and Guangzhou experienced a decline in scores following the reform. Taken together, these opposing effects offset each other, resulting in an overall insignificant average treatment effect.

Figure 5a and 5b also shows the above findings visually. Notably, quality scores for non-pilot cities remain relatively stable, whereas significant changes were observed in the three pilot cities, increased in Hangzhou, but decreased in Beijing and Guangzhou. As already mentioned in Section 6.1, one possible explanation for these mixed results is the spotlight effect. As the first internet court in China, Hangzhou Internet Court bore a pioneering and demonstrative mission, which may have incentivized it to maintain, or even enhance, judgment quality despite the surge in caseloads. In contrast, Beijing and Guangzhou, as later adopters, faced weaker institutional motivation and were more severely affected by the sharp increase in case volume associated with the broader rollout of the internet court system, which may have contributed to the observed decline in judgment quality in these two cities. Overall, however, the comprehensive scores of internet courts are not significantly lower than those of traditional courts, which indicates that, at least to date, concerns regarding inferior adjudication quality in internet courts remain unfounded.

In conclusion, the comprehensive evaluation covering efficiency, fairness, and judgment text analysis reveals that the overall quality of adjudication has not significantly declined, even though internet courts have driven a surge in caseloads. This suggests that the internet court's innovations are not a form of justice redistribution that sacrifices quality for quantity; rather, they represent an improvement in the overall welfare in the dispute resolution. On one hand, this success stems from the active adoption of new technologies, which has empowered the courts to resolve the structural bottlenecks inherent in traditional litigation. On the other hand, it benefits from the court's nature as a newly established, specialized institution focused solely on internet-related cases, a design that fully maximizes the advantages of economies of scale and professional expertise.

7 Conclusion

This paper addresses a pivotal question in the digitization of justice: how does the transition to online courts reshape the landscape of litigation, both in quantity and quality? Leveraging the quasi-natural experiment of China's internet courts, empirical results reveal a substantial expansion in case volume in pilot cities. This finding suggests that by lowering process costs, online courts have effectively expanded the feasibility frontier of litigation and activated latent demand for justice, a result that aligns closely with the theoretical predictions of the Landes–Posner–Gould model. Furthermore, since the cost reductions are uneven, the paper observes disproportionately faster growth in cases involving legal representation and procedural matters. Even more notably, a series of exploratory analyses demonstrate that this surge in quantity did

not come at the expense of quality; adjudicative standards remained robust despite the increased caseload.

The implications of these findings extend far beyond the specific context of this study. First and foremost, the grand experiment of China's internet courts provides a compelling proof of concept. It demonstrates that online courts are a viable solution to the justice deficit, capable of making dispute resolution more accessible and formal. As such, the model merits continued testing and adoption in jurisdictions worldwide. Second, the finding that professional lawyers and procedural cases currently capture a larger share of the digital dividend offers a critical caveat. Future reforms must prioritize lowering cognitive barriers and enhancing usability for *pro se* litigants, ensuring that the system evolves to accommodate more complex, substantive disputes rather than just low-hanging fruit. Finally, the success of China's internet courts highlights the value of institutional specialization and technological integration. It serves as a paradigm showing that maintaining quality amidst expanding quantity is achievable, provided there is a sustained commitment to optimizing technology, cost structures, and institutional design.

However, certain limitations must be acknowledged, which also point toward avenues for future research. First, the jurisdiction of China's internet courts is strictly circumscribed to internet-related cases, a specific institutional design intended to mitigate the risk of justice inaccessibility caused by the digital divide. This feature distinguishes the Chinese pilot from digital reforms in other jurisdictions that may apply more broadly. Consequently, further empirical evaluations of online courts across diverse institutional contexts remain necessary to establish external validity. Second, as observed in the heterogeneity analysis, the establishment of internet courts appears to exhibit a spotlight effect. The pioneer court (Hangzhou) demonstrated superior performance metrics compared to subsequent adopters, where adjudicative quality scores were relatively lower. Thus, as online courts transition from pilot experiments to institutional norms, their long-term operational equilibrium warrants continued observation.

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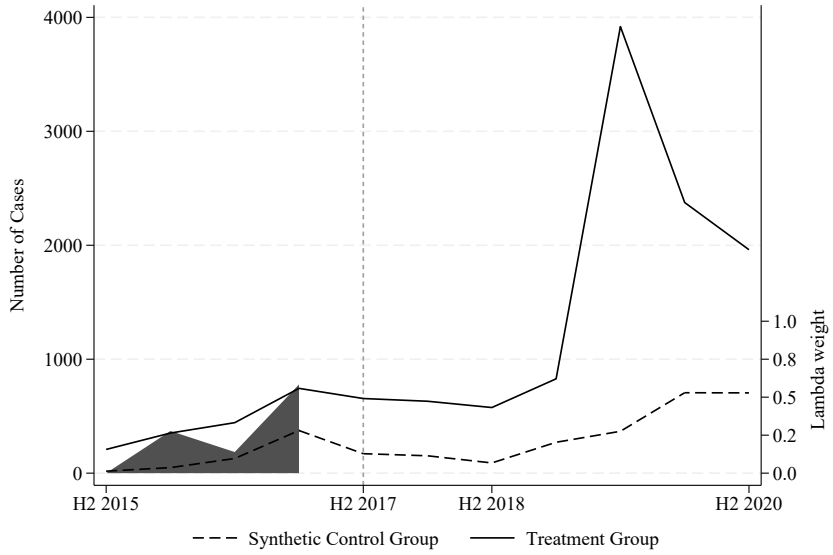
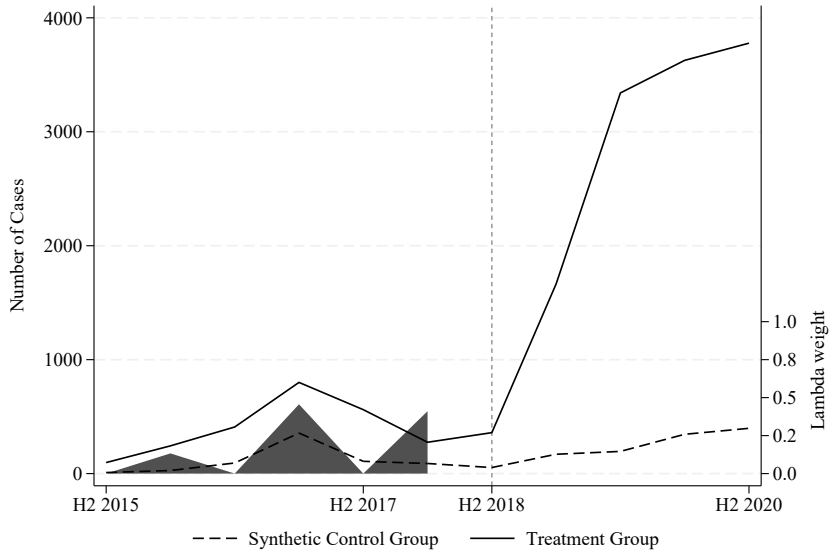
Appendix A Synthetic DID Estimation of Litigation Growth



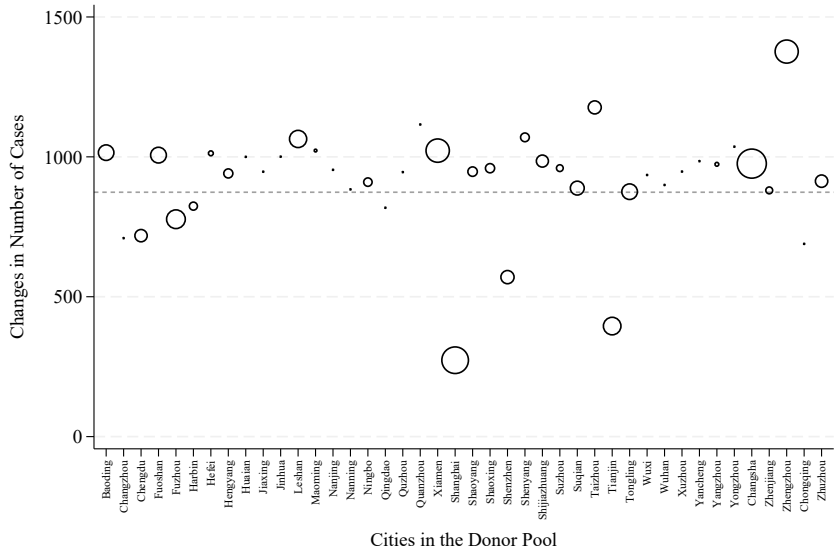
(a) Hangzhou (H2 2017)



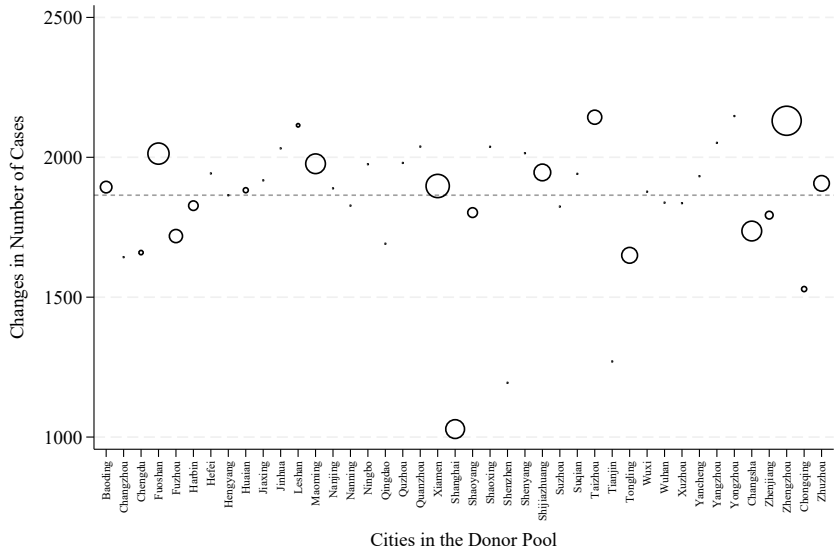
(b) Beijing and Guangzhou (H2 2018)

Figure 6: Litigation Volume of the Treatment vs Synthetic Control Group

In Section 5.3, a synthetic DID model is employed to test robustness and provide more precise estimates. Figures 6a and 6b present the results from the synthetic DID in a more visual and intuitive form. The treatment and control groups display nearly parallel trends before the pilot, followed by a pronounced divergence afterwards (especially the latter two internet courts in Beijing and Guangzhou), illustrating the strength of the effect.



(a) Hangzhou (H2 2017)



(b) Beijing and Guangzhou (H2 2018)

Figure 7: Synthetic Weight of Cities in the Donor Pool

Figures 7a and 7b further display the automatically generated weights used to construct synthetic control groups. Each circle represents a city in the control group, with the size indicating the weight. Larger circles correspond to cities with higher weight, such as Shanghai, Zhengzhou, Changsha, and Xiamen. The vertical position of each circle reflects the estimated treatment effect, and their average is shown by the dashed line, which shows that the three cities experienced substantial increases in case volume because of the pilot. In conclusion, the results remain consistent with the main regression under a more refined test of the synthetic DID model.

Appendix B LLM Settings and an Example Response

In Section 6.3, an LLM (Qwen3-235B-A22B) is used to evaluate the quality of judgments. The core parameters and prompt words for calling the LLM are shown below in Listing 1. The setting enables deep reasoning while maintaining stability and objectivity in its output. The prompts also require the model to evaluate the judgment from multiple dimensions and assign a comprehensive score.

Listing 1: Parameters and Prompts

```
payload = {
    "model": "Qwen/Qwen3-235B-A22B",
    "stream": False,
    "max_tokens": 512,
    "enable_thinking": True,
    "thinking_budget": 512,
    "min_p": 0.05,
    "temperature": 0.3,
    "top_p": 0.5,
    "top_k": 50,
    "frequency_penalty": 0.5,
    "n": 1,
    "stop": [],
    "messages": [
        {
            "role": "system",
            "content": " You are a renowned legal document review expert
            invited to evaluate judicial decisions. An excellent civil
            judgment is expected to feature fluent and logical language,
            clear fact-finding, accurate application of the law, and adequate
             and well-reasoned argumentation. Please evaluate the following
            judgment comprehensively based on the above criteria and assign
            it a score between 0 and 100. Only return the numerical score in
            Arabic numerals, with no additional statements or information.
            Please ignore any formatting issues in the text. You must
            strictly limit your reasoning process before scoring to no more
            than 512 tokens."
        },
        {
            "role": "user",
            "content": content
        }
    ],
"response_format": {"type": "text"}
}
```

Based on the above setting, the LLM directly outputs a numerical score in Arabic digits. At

the same time, its reasoning process is revealed and recorded. An example of the LLM's response is provided below, in which the LLM awards a score of 85. More examples can be found in the dataset.

I need to evaluate this civil judgment. First, I will carefully read and analyze its structure and content. According to the criteria provided by the user, the assessment should consider the clarity of language and logic, fact-finding, legal application, and the adequacy of reasoning.

Let's begin with the language and logic. The judgment has a complete structure, including information about the parties, case background, claims, defense arguments, fact-finding, and legal reasoning. The overall narrative is clear, with no obvious grammatical errors or incoherent sentences, although some parts could be more concise.

Next, the fact-finding section. The court presented the evidence from both the plaintiff and the defendant in detail, including notarized documents and search results, and confirmed the domain registration and filing information. The facts are established, though it could elaborate more on the relationships among the pieces of evidence. Nonetheless, the facts sufficiently support the judgment.

Now, regarding the legal application. The court cited Article 64, Paragraph 1 of the Civil Procedure Law to address the burden of proof. Was this correct? The plaintiff requested disclosure of information, but the law does not require domain registrars to provide personal ID information. Therefore, the court's position-that there is no legal basis for the request-is accurate. The legal application is appropriate.

As for the reasoning, the court explained why the plaintiff's claims were not upheld, pointing out that domain registration information can be queried through WHOIS, while information about actual operators should be obtained from the Ministry of Industry and Information Technology's filing system. It also noted that in judicial practice, filing information is usually regarded as authoritative. The reasoning is sound, although a deeper discussion of relevant legal provisions would enhance it. Still, the current reasoning is sufficient to support the conclusion.

Other aspects: The judgment is structurally complete, though it could provide a more detailed comparison of both parties' arguments. For instance, whether the defendant's cited cases are directly relevant, or whether the plaintiff's claims are supported by other overlooked legal grounds. However, the main points of contention are generally well addressed.

In summary, this judgment is well-executed in terms of fact-finding and legal reasoning. The argumentation is adequate and the logic is clear. Some minor deductions may apply due to areas that could benefit from further elaboration, but overall it meets the standard of a strong judgment. I would assign a score of around 85.