

CAN ONLINE COURTS LOWER LITIGATION BARRIERS?

EVIDENCE FROM CHINA’S INTERNET COURT PILOT

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The entrenched litigation barriers in traditional courts have fuelled growing interest in digital technologies as a transformative means to enhance judicial access. In 2017 and 2018, China launched three pilot internet courts in Hangzhou, Beijing, and Guangzhou, each granted exclusive jurisdiction over internet-related disputes. Their fully online operations provide a unique quasi-natural experiment to assess the impact of digitalising litigation. Building on this, the paper constructs a novel panel dataset covering 321 Chinese cities from 2010 to 2020, using structured data extracted from full-text judgments on China Judgments Online. Employing a staggered difference-in-differences model, the paper finds that the internet court pilot significantly increased litigation volumes in treated cities, indicating a substantial reduction in litigation barriers. Robustness checks further support the credibility of this finding. Moreover, the increase is more pronounced in cases adjudicated under procedural law than substantive law, and in cases with legal representation compared to those without. The paper also explores judicial quality, offering a more comprehensive evaluation of the design and impact of the pilot. Overall, these findings provide strong evidence that online courts can lower litigation barriers, highlighting the potential of digital technology in transforming the judicial system.

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Keywords: online courts, litigation barriers, internet court pilot, access to justice, judicial quality

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1. INTRODUCTION

One only truly understands how difficult litigation can be when suddenly forced to rely on it. As the classic pyramid metaphor suggests,² barriers to litigation, such as strict schedules, distant venues, high costs, complex procedures, and long delays, filter out vast numbers of disputes at the pyramid's wide base.³ Yet courts, long regarded as the embodiment of impartiality and justice, sit at the narrow top of the pyramid, reached by only a small fraction of

² Richard Miller and Austin Sarat, 'Grievances, Claims, and Disputes: Assessing the Adversary Culture' (1981) 15 Law & Society Review 525.

³ Orna Rabinovich-Einy and Ethan Katsh, 'The New New Courts' (2017) 67 American University Law Review 165.

cases.⁴ Although initiatives like the access to justice movement have existed since the 1960s to overcome these enduring barriers,⁵ civil and administrative justice remains out of reach for 1.4 billion people today,⁶ especially for low-income individuals and parties to low-value disputes.⁷ In the United States, geographical disparities of judicial resources compel rural residents to travel long distances in search of legal services;⁸ across European countries, court fees alone can exceed 20% of the disputed amount in low-value claims;⁹ in the United Kingdom, family courts take about 65% longer than the statutory time limits to resolve cases;¹⁰ and in fragile and conflict-affected countries, the civil justice deficit is even more severe.¹¹ These various barriers render litigation—often perceived as the ultimate deterrent—feeble and ineffective in practice, as the result is often a dismissive response: “Sue me? Be my guest.”

Of all the initiatives aimed at removing barriers to litigation and improving access to justice, the rapid rise of digital technology has emerged as the most anticipated force for transforming traditional judicial systems. From basic digital filing systems, to

⁴ Ethan Katsh and Orna Rabinovich-Einy, ‘Access to Digital Justice’ in Ethan Katsh and Orna Rabinovich-Einy (eds), *Digital Justice: Technology and the Internet of Disputes* (Oxford University Press 2017).

⁵ Deborah Rhode, *Access to Justice* (Oxford University Press 2004).

⁶ World Justice Project, ‘Global Insights on Access to Justice’ (2019).

⁷ Peter Kenneth Cashman and Eliza Ginnivan, ‘Digital Justice: Online Resolution of Minor Civil Disputes and the Use of Digital Technology in Complex Litigation and Class Actions’ (Social Science Research Network, 20 August 2019) <<https://papers.ssrn.com/abstract=3415229>> accessed 31 May 2025.

⁸ Lisa Pruitt and others, ‘Legal Deserts: A Multi-State Perspective on Rural Access to Justice’ (2018) 13 *Harvard Law & Policy Review* 15.

⁹ European Commission, ‘The 2024 EU Justice Scoreboard’ (2024).

¹⁰ Catherine Baksi, ‘Children Left in Limbo as Family Courts in Crisis’ (4 September 2024) <<https://www.thetimes.com/uk/law/article/children-left-in-limbo-as-family-courts-in-crisis-fth3lp7f9>> accessed 29 May 2025; Sian Bradley, ‘Inside the UK’s Family Courts: Frustration, Tears and Long Delays’ (31 January 2025) <<https://www.thetimes.com/uk/law/article/inside-uk-family-courts-delays-385xql582>> accessed 29 May 2025.

¹¹ The World Bank, ‘Increasing Access to Justice in Fragile Settings’ (2023).

virtual courts and online dispute resolution (ODR) platforms, and now to the emerging use of artificial intelligence (AI) in legal services and decision-making, digital technologies are steadily reshaping the contours of litigation.¹² It no longer necessarily takes the form of in-person adversarial encounters in physical courtrooms, but can instead unfold as a round-the-clock, remote-access process—available online, unconstrained by location or time, and thoroughly simplified in cost and structure.¹³ The vision of more accessible, flexible and affordable justice enabled by digital technologies is undeniably compelling, and it has already inspired a growing number of digitalisation pilots and reforms across jurisdictions,¹⁴ especially during the COVID-19 pandemic.¹⁵ Yet in the absence of rigorous empirical evaluation—especially studies grounded in causal inference—we still know little about whether, and to what extent, these digital innovations actually reduce litigation barriers and

¹² Donald Dahlin, ‘Technology and Court Administration in the Twenty-First Century: Hurling Toward?’ (1996) 52 *Technological Forecasting and Social Change* 227.

¹³ Despite the promising outlook, these developments have also raised some concerns. For more critical perspectives, see Jane Donoghue, ‘The Rise of Digital Justice: Courtroom Technology, Public Participation and Access to Justice’ (2017) 80 *Modern Law Review* 995; Marijke Ter Voert, Anna Pivaty and Enguerrand Marique, ‘Access to Justice in the Digital Era’ (2022) 43 *Recht Der Werkelijkheid* 3.

¹⁴ Lucille Ponte, ‘Michigan Cyber Court: A Bold Experiment in the Development of the First Public Virtual Courthouse’ (2002) 4 *North Carolina Journal of Law & Technology* 51; Trish O’Sullivan, ‘Developing an Online Dispute Resolution Scheme for New Zealand Consumers Who Shop Online—Are Automated Negotiation Tools the Key to Improving Access to Justice?’ (2016) 24 *International Journal of Law and Information Technology* 22; Adalmir Oliveira Gomes, Simone Tiêssa Alves and Jéssica Tragueto Silva, ‘Effects of Investment in Information and Communication Technologies on Productivity of Courts in Brazil’ (2018) 35 *Government Information Quarterly* 480; Cashman and Ginnivan (n 7).

¹⁵ Tania Sourdin, Bin Li and Donna Marie McNamara, ‘Court Innovations and Access to Justice in Times of Crisis’ (2020) 9 *Health Policy and Technology* 447; James Williams, ‘Taking a Shot: Access to Justice, Judging and eCourt’ (2021) 59 *Family Court Review* 278.

generate profound impacts.¹⁶

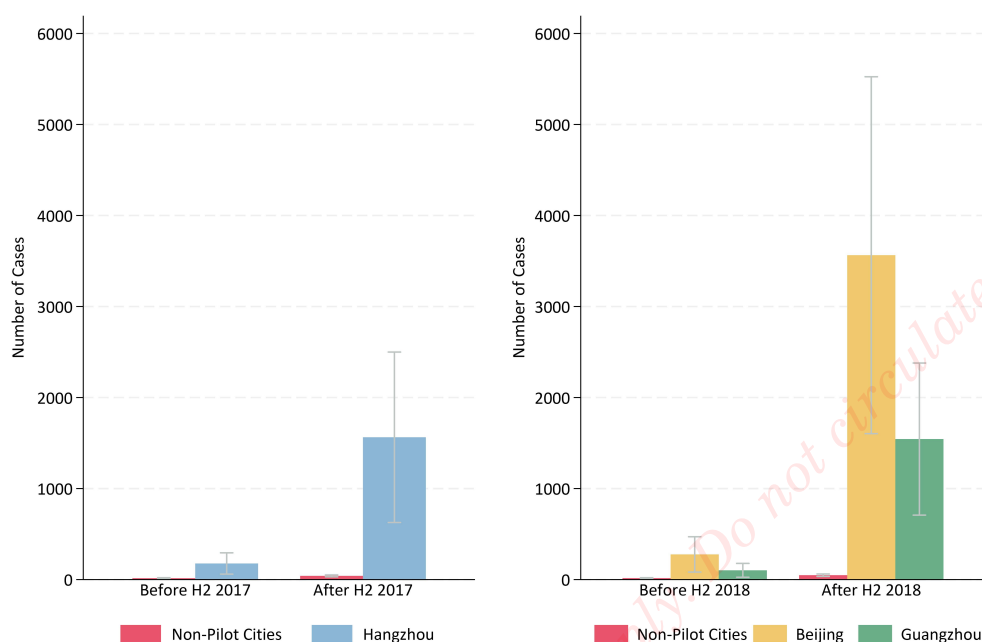


FIGURE 1. COMPARISON OF CASELOADS IN PILOT AND NON-PILOT CITIES

China has the largest internet population in the world, with over one billion users participating in social media, short videos, payments, shopping, and other digital activities.¹⁷ These vast online activities have given rise to a large number of online disputes—often trivial, low in value, and thus ill-suited to traditional litigation.¹⁸ To lower the barriers to litigation in these internet-related cases and explore new models of adjudication, China established its first internet court in Hangzhou in August 2017, which has exclusive jurisdiction over various internet-related disputes and handles all

¹⁶ Catherine Albiston and Rebecca Sandefur, 'Expanding the Empirical Study of Access to Justice' (2013) 2013 Wisconsin Law Review 101; Amy Schmitz, 'Measuring "Access to Justice" in the Rush to Digitize' (2020) 88 Fordham Law Review 2381.

¹⁷ China Internet Network Information Center, 'The 55th Statistical Report on China's Internet Development' (2025) <<https://cnnic.cn/n4/2025/0117/c88-11229.html>> accessed 5 June 2025.

¹⁸ Cashman and Ginnivan (n 7).

stages of litigation entirely online. In September 2018, on the first anniversary of the Hangzhou Internet Court, two additional internet courts were launched in Beijing and Guangzhou, expanding the pilot.¹⁹ By enabling litigants to initiate lawsuits anytime, anywhere, and entirely online, the reform significantly boosted engagement with the judicial process in three pilot cities, as illustrated in Figure 1. More importantly, the sharp and fundamental shift in adjudication patterns created a valuable quasi-natural experiment that allows for a clean and precise empirical evaluation of whether and how digital technologies can overcome barriers to justice and promote litigation.

Leveraging the quasi-natural experiment, the paper constructs a novel panel dataset of internet-related litigation indicators, spanning 321 Chinese cities at semi-annual intervals from 2010 to 2020. The dataset is based on the full texts of 114,118 court judgments obtained from China Judgments Online and is generated through the extraction of relevant information using regular expressions. Building on this panel dataset, the paper conducts a causal inference analysis using a staggered difference-in-differences (DID) model, with the second half of 2017 and the second half of 2018 (hereafter abbreviated as H2 2017 and H2 2018) defined as the treatment periods for Hangzhou and for Beijing and Guangzhou, respectively. The results show that the pilot, *ceteris paribus*, led to an average increase of 1,694.55 internet-related cases per half year in the treated cities, which suggests that digital empowerment effectively lowered barriers to litigation and activated previously latent demand for dispute resolution. A series of robustness checks, including a placebo test and alternative DID estimators, corroborate the above finding.

Furthermore, the heterogeneity analysis shows that the growth in cases adjudicated under procedural law is greater than that under substantive law, and the increase in cases involving legal representation exceeds that of cases without lawyers, indicating that the internet court pilot not only facilitated litigation but also enabled

¹⁹ Meirong Guo, 'Internet Court's Challenges and Future in China' (2021) 40 Computer Law & Security Review 105522.

effective mediation, and made the process more convenient not only for litigants but also (and even more) for lawyers. Finally, compared to traditional courts, cases handled by internet courts exhibited shorter litigation durations, lower appeal rates, but mixed judgment quality scores. These findings further enrich our understanding of the internet court pilot, particularly by positioning it within the trilemma of technological investment, access to justice, and adjudicative quality.

Compared with existing literature, the paper makes three marginal contributions. First, while a growing body of qualitative research has explored the innovative aspects of the internet court pilot, there remains a lack of quantitative studies cleanly assessing its impact, and this paper fills the gap. Second, it provides strong evidence that online courts can lower barriers to litigation and improve access to justice, offering valuable support for further reforms aimed at integrating digital technologies into the judicial system. Third, it reveals the inherent trilemma in the legal application of digital technologies, reflecting on how these competing value objectives might be balanced through careful institutional design.

The remainder of the paper is structured as follows. Section 2 reviews the relevant literature and introduces the institutional background of the internet court pilot. Section 3 describes the data collection and processing, as well as identification strategies. Section 4 presents the baseline empirical result on case volume and provides an in-depth analysis. Section 5 builds on this by offering further evidence on judicial quality. Section 6 concludes.

2. THEORETICAL AND INSTITUTIONAL BACKGROUND

2.1. *Barriers to Litigation and Access to Justice*

Litigation barriers constitute a persistent challenge across judicial systems worldwide, and many studies have explored their

diverse forms and manifestations.²⁰ This subsection does not attempt an exhaustive review but rather develops a more systematic account of their origins and significance, drawing on insights from economic analysis. Under the classic assumptions of risk neutrality and rational choice,²¹ individuals initiate litigation when the expected benefits outweigh the associated costs.²² Accordingly, litigation barriers arise not from a lack of legal entitlement, but from the fact that the various costs embedded throughout the litigation process are sufficiently high to induce rational actors to opt out to maximise their utility.²³ These costs, arising across different stages of litigation, can be understood within the broader notion of transaction costs.

Originally defined by Ronald Coase in 1937, transaction costs refer to the efforts, resources, and expenditures required for parties to reach agreements and complete an economic transaction.²⁴ While the concept was initially developed to explain the very existence of the firm, it has since been extended into the domain of institutional economics to capture a broader range of costs arising from institutional frictions.²⁵ More specifically, these include ex ante costs

²⁰ For a more general overview, see Emery Lee and Thomas Willging, 'Defining the Problem of Cost in Federal Civil Litigation' (2010) 60 *Duke Law Journal* 765; Katsh and Rabinovich-Einy (n 4).

²¹ It is worth noting that the rational choice assumption does not exclude psychological, cultural, or other valuable considerations. Though often difficult to quantify, these factors can also be incorporated into individuals' utility functions and thus inform rational decision-making.

²² Peter Menell, 'A Note on Private versus Social Incentives to Sue in a Costly Legal System' (1983) 12 *The Journal of Legal Studies* 41; Steven Shavell, 'Economic Analysis of Litigation and the Legal Process' (Social Science Research Network, 1 May 2003) <<https://papers.ssrn.com/abstract=408193>> accessed 8 June 2025. For a broader overview, see Richard Posner, *Economic Analysis of Law* (Little Brown and Company 1973).

²³ David Trubek and others, 'The Costs of Ordinary Litigation' (1983) 31 *UCLA Law Review* 72.

²⁴ Ronald Coase, 'The Nature of the Firm' (1937) 4 *Economica* 386; Oliver Williamson, 'The Economics of Organization: The Transaction Cost Approach' (1981) 87 *American Journal of Sociology* 548.

²⁵ George Stigler, 'The Law and Economics of Public Policy: A Plea to the Scholars' (1972) 1 *The Journal of Legal Studies* 1.

of information gathering and search, in-process costs of bargaining and coordination, and ex post costs associated with monitoring and enforcement.²⁶ Litigation, as a formal dispute resolution mechanism exclusively provided by courts, is marked by significantly high transaction costs throughout its entire process.

Even before litigation formally starts, substantial ex ante transaction costs already arise. Plaintiffs often face inherent informational disadvantages relative to defendants,²⁷ resulting in heavy information collection burdens, particularly in jurisdictions with weak discovery rules.²⁸ Understanding and navigating legal procedures and language also imposes considerable informational demands on unrepresented parties,²⁹ yet hiring lawyers is not a straightforward solution, since choosing whom to hire and on what basis is per se a search- and information-intensive process, especially under severe information asymmetry.³⁰ From the moment a case is formally accepted by the court to the final delivery of judgment, the litigation process—corresponding to the coordination and bargaining stage in transaction cost theory—remains costly. First, many expenditures, including legal fees, court charges, bailiff costs, and

²⁶ Oliver Williamson, 'Transaction Cost Economics: The Natural Progression' (2010) 100 *American Economic Review* 673.

²⁷ Evan Osborne, 'Who Should Be Worried about Asymmetric Information in Litigation?' (1999) 19 *International Review of Law and Economics* 399.

²⁸ John Ramseyer, 'The Costs of the Consensual Myth: Antitrust Enforcement and Institutional Barriers to Litigation in Japan' (1985) 94 *Yale Law Journal* 604; Robert Cooter and Daniel Rubinfeld, 'Economic Analysis of Legal Disputes and Their Resolution' (1989) 27 *Journal of Economic Literature* 1067; Lee and Willging (n 20).

²⁹ Matthew Yeung and Janny Leung, 'Removing Linguistic Barriers to Justice: A Study of Official Reference Texts for Unrepresented Litigants in Hong Kong' (2015) 28 *International Journal for the Semiotics of Law—Revue Internationale De Sémiotique Juridique* 135; Ricardo Lillo, 'Access to Justice and Small Claims Courts: Supporting Latin American Civil Reforms through Empirical Research in Los Angeles County, California' (2016) 43 *Revista Chilena De Derecho* 955.

³⁰ Gillian Hadfield, 'The Price of Law: How the Market for Lawyers Distorts the Justice System' (2000) 98 *Michigan Law Review* 953.

witness expenses,³¹ may assist procedural coordination but collectively impose a substantial burden, especially on disadvantaged groups.³² Second, as disputes increasingly stem from remote interactions, litigants are often required to make repeated in-person visits to courts for filings, mediations, and hearings, leading to significant financial and time costs.³³ Third, frictions in the attorney-client relationship—such as poor communication, mistrust, and opportunistic behaviour—further hinder coordination and increase procedural burdens.³⁴ After a judgment is rendered, considerable ex post transaction costs may persist during the enforcement phase, as the enforcement typically involves multiple parties, location-specific procedures, and complex administrative steps,³⁵ making the realisation of justice particularly challenging in practice.

Overall, transaction costs incurred throughout the litigation process have created formidable barriers, making the process lengthy, complex, costly, and often met with frustration and apprehension. More concerning, as litigation often serves as the final chance of dispute resolution, such prohibitively high transaction costs will directly lead to the denial of access to justice.

2.2. Online Courts as Digital Response

Therefore, effectively reducing the transaction costs of litigation has become a key to improving access to justice.³⁶ In recent

³¹ Mark Tuil, 'Litigation Costs in the Netherlands' (2010) <<http://www.ssrn.com/abstract=1547122>> accessed 7 June 2025.

³² Rebecca Sandefur, 'Access to Civil Justice and Race, Class, and Gender Inequality' (2008) 34 Annual Review of Sociology 339.

³³ Trubek and others (n 23).

³⁴ Cooter and Rubinfeld (n 28); Ummey Tahura, 'Role of Clients, Lawyers, Judges, and Institutions in Hiking Litigation Costs in Bangladesh: An Empirical Study' (2022) 9 Asian Journal of Law and Society 59.

³⁵ Isabel Albrecht and others, 'Enforcement of Judgments' (1997) 5 European Review of Private Law; Zhixun Cao, 'Civil Enforcement Rules and Mechanism in China: The Past, Present and the Future' (2021) 9 Peking University Law Journal 23.

³⁶ This is probably one of the simplest and most straightforward claims in the normative Coase Theorem, see Ronald Coase, 'The Problem of Social Cost' (1960)

years, digital technologies have emerged as a promising means of addressing this challenge, with the potential to transform and even reshape the litigation system.³⁷ This subsection reviews the existing literature on online courts and their related concepts, examines how they reduce institutional frictions and mitigate procedural barriers, and discusses some criticisms.

Long before the rise of online courts, the ODR movement had already gained significant momentum. Much like online courts, ODR aims to offer parties greater spatiotemporal flexibility and procedural convenience, often through technology-platform-led,³⁸ quasi-institutional mechanisms.³⁹ Although ODR can efficiently resolve disputes in many areas, such as commerce and social media, it remains outside the formal judiciary and lacks the procedural fairness and institutional accountability of formal courts.⁴⁰ Online courts, by contrast, form part of the official judicial system and are thus subject to stringent legal constraints.⁴¹ They not only enable civil proceedings⁴² to be conducted as fully as possible via the internet, offering greater spatial and temporal freedom through self-service

3 The Journal of Law & Economics 1.

³⁷ Contini Francesco, 'Artificial Intelligence and the Transformation of Humans, Law and Technology Interactions in Judicial Proceedings' (2020) 2 Law Technology and Humans 4.

³⁸ Natali Helberger, 'The Rise of Technology Courts, or: How Technology Companies Re-Invent Adjudication for a Digital World' (2025) 56 Computer Law & Security Review 106118.

³⁹ Michael Legg, 'The Future of Dispute Resolution: Online ADR and Online Courts' (2016) 27 Australasian Dispute Resolution Journal 227.

⁴⁰ Colin Rule, 'Online Dispute Resolution and the Future of Justice' (2020) 16 Annual Review of Law and Social Science 277.

⁴¹ Legg (n 39). Of course, ODR and online court are not entirely distinct. In practice, ODR can also be incorporated into online courts, see Dorcas Anderson, 'The Convergence of ADR and ODR within the Courts: The Impact on Access to Justice' (2019) 38 Civil Justice Quarterly 126.

⁴² In fact, some criminal cases have even begun to be conducted online, see Han Qin and Li Chen, 'Virtual Justice, or Justice Virtually: Navigating the Challenges in China's Adoption of Virtual Criminal Justice' (2025) 56 Computer Law & Security Review 106112.

evidence uploading and asynchronous hearings, but also enhance user accessibility by providing clear procedural guidance and automated workflows.⁴³ During the COVID-19 epidemic, courts around the world were forced to use online courts as an alternative to traditional courtrooms to facilitate dispute resolution.⁴⁴ Various temporary and alternative digital justice tools introduced during the pandemic made it increasingly clear that the barriers to civil litigation are, to a large extent, procedural rather than substantive.⁴⁵ Many of these short-term measures have shown enduring value and remain effective even in non-emergency contexts.⁴⁶

However, as a relatively recent development, online courts have also faced considerable criticism. A prominent concern centres on the digital divide, as online courts may increase access costs for individuals with limited internet connectivity, low levels of digital capability, or a lack of willingness to engage with digital platforms.⁴⁷ Similar disadvantages have also been observed among specific groups, including low-income individuals, self-represented litigants, and victims of human trafficking.⁴⁸ It has also been suggested that conducting hearings via video, as practised in online courts, differs fundamentally from in-person proceedings and may undermine the

⁴³ James Prescott, 'Improving Access to Justice in State Courts with Platform Technology' (2017) 70 *Vanderbilt Law Review* 1993.

⁴⁴ Sourdin, Li and McNamara (n 15).

⁴⁵ Abdi Aidid, 'Access to Justice and Civil-Procedural Bargaining' (2023) 73 *University of Toronto Law Journal* 3.

⁴⁶ Ignacio Oltra Gras, 'Online Courts: Bridging the Gap between Access and Justice' (2021) 10 *UCL Journal of Law and Jurisprudence* 24; Meghan O'Neil and others, 'Treatment Court Staffs' Perceptions in Support of the Use of Virtual Services in Court Post-Pandemic' (2024) 51 *Criminal Justice and Behavior* 286.

⁴⁷ Catrina Denvir and Amanda Darshini Selvarajah, 'Safeguarding Access to Justice in the Age of the Online Court' (2022) 85 *The Modern Law Review* 25.

⁴⁸ Felicity Gerry, Julia Muraszkievicz and Olivia Iannelli, 'The Drive for Virtual (Online) Courts and the Failure to Consider Obligations to Combat Human Trafficking—A Short Note of Concern on Identification, Protection and Privacy of Victims' (2018) 34 *Computer Law & Security Review* 912; Alicia Bannon and Douglas Keith, 'Remote Court: Principles for Virtual Proceedings during the Covid-19 Pandemic and Beyond' (2021) 115 *Northwestern University Law Review* 1875.

formality and gravitas traditionally associated with the courtroom. This perceived lack of solemnity could, in turn, affect the reliability of testimony and diminish public perceptions of procedural justice.⁴⁹ Moreover, online courts face a paradox between openness and privacy. On the one hand, their digital format may make public access and participation less straightforward than in traditional courtrooms,⁵⁰ yet on the other hand, recording or livestreaming proceedings for the sake of transparency may risk infringing upon participants' privacy.⁵¹ Ultimately, whether online courts affect the substantive fairness of outcomes remains questionable.⁵²

2.3. *China's Internet Court Pilot*

As the empirical example of this study, China's internet court pilot represents a vivid example of online court innovation, while also exhibiting distinctive characteristics. With no strong tradition of "rule of law" and no established "legal nobility", the adoption of cutting-edge technologies in the Chinese judiciary—though theoretically controversial—has encountered little resistance in practice.⁵³ Across sectors, attempts to digitalise litigation have generally been met with acceptance and support.⁵⁴ Reports of remote hearings conducted via video conference technology appeared as early as 2006,⁵⁵ a time when 3G networks had only recently become widely available. Subsequently, the use of video, audio, email, and

⁴⁹ Doron Menashe, 'A Critical Analysis of the Online Court' (2018) 39 University of Pennsylvania Journal of International Law 921.

⁵⁰ Bannon and Keith (n 48).

⁵¹ Sabreen Ahmed, 'Online Courts and Private and Public Aspects of Open Justice: Enhancing Access to Court or Violating the Right to Privacy?' (2023) 20 The Age of Human Rights Journal 1.

⁵² Tania Sourdin, Bin Li and Tony Burke, 'Just, Quick and Cheap? Civil Dispute Resolution and Technology' (2019) 19 Macquarie Law Journal 17.

⁵³ George Zheng, 'China's Grand Design of People's Smart Courts' (2020) 7 Asian Journal of Law and Society 561.

⁵⁴ Wei Gao and Lu Xu, 'Online Courts in China: A New Hybrid Model for Access to Justice' (2025) 25 China Review: An Interdisciplinary Journal on Greater China.

⁵⁵ *ibid.*

SMS to transmit evidence, deliver notifications, and even conduct hearings was trialled in several cases,⁵⁶ but due to the limited digital level at that time, these initiatives were not widely expanded.

With large-scale digital infrastructure development promoted by the government, the digitalisation and intelligent transformation of the judiciary were formally incorporated into the national strategy in 2017, under what became known as the “Smart Court” initiative.⁵⁷ In August of the same year, following a decision by the Central Committee for Deepening Overall Reform (CCDR), chaired by Xi Jinping, the proposal to establish the Hangzhou Internet Court was approved. On the first anniversary of its founding, the CCDR approved the establishment of two additional internet courts in Beijing and Guangzhou.⁵⁸ These three cities were selected because they are major centres of China’s digital technology industry, characterised by intensive innovation and well-developed digital ecosystems.⁵⁹ Aimed at facilitating litigation, resolving disputes efficiently, and conserving judicial resources, these courts enable the entire litigation process of cases at the first instance, from case filing and mediation to adjudication and enforcement, to be conducted online.⁶⁰ A series of legal instruments subsequently clarified key

⁵⁶ *ibid.*

⁵⁷ Zheng (n 53). Also see Opinions of the Supreme People’s Court on Accelerating the Construction of Smart Courts 2017.

⁵⁸ For more information about the establishment of internet courts and the development of the internet judiciary, see Supreme People’s Court, *Chinese Courts and Internet Judiciary* (People’s Court Press 2019) <<https://english.court.gov.cn/pdf/ChineseCourtsandInternetJudiciary.pdf>> accessed 9 June 2025.

⁵⁹ China News, ‘Seven Questions about Hangzhou Internet Court: Why It Is Located There and How It Affects the People’ (18 August 2017) <https://m.thepaper.cn/kuaibao_detail.jsp?contid=1767180&from=kuaibao> accessed 9 June 2025.

⁶⁰ Huang-Chih Sung, ‘Can Online Courts Promote Access to Justice? A Case Study of the Internet Courts in China’ (2020) 39 *Computer Law & Security Review* 105461. Notably, it has been argued that there is an order of priority for the aims mentioned here, where the purpose of facilitating participation has a higher priority than that of increasing the efficiency of the proceedings, see Liyuan Wang, ‘Application of Information Technology in Judicial Field: The Development Model

aspects of the internet courts' institutional framework, including their jurisdiction, trial procedures, and the legal validity of their judgments,⁶¹ thereby consolidating the status of the internet court system.

As with other forms of online courts, China's internet court pilot has expanded the spatial and temporal boundaries of the court, making it a service, rather than a simple place.⁶² Internet courts have enabled 24-hour case filing, remote hearing, and streamlined workflows, significantly improving the accessibility of judicial resources. Also, the promotion of online mediation before litigation has further improved the efficiency of dispute resolution. Moreover, a range of emerging digital technologies has taken root and flourished in the experimental setting of internet courts. For instance, blockchain-based systems for the preservation of digital evidence have been actively introduced, significantly simplifying and strengthening the collection and verification of evidence involving copyright, contracts, and finance.⁶³ AI-powered tools for risk assessment and procedural guidance have empowered self-represented litigants to engage in litigation with greater confidence and clarity.⁶⁴ In addition, internet courts have avoided many of the

of Online Litigation in China' (2024) 52 Computer Law & Security Review 105936.

⁶¹ Provisions of the Supreme People's Court on Several Issues Concerning the Trial of Cases by Internet Courts 2018; Rules of Online Litigation of People's Court 2021.

⁶² Richard Susskind, 'The Future of Courts' (2020) The Practice <<https://clp.law.harvard.edu/knowledge-hub/magazine/issues/remote-courts/the-future-of-courts/>> accessed 10 June 2025.

⁶³ Zheng (n 53); Gao and Xu (n 54). Up to now, the total number of blocks on the judicial chain provided by the Hangzhou Internet Court has been nearly 500 million, and the Libra Chain of the Beijing Internet Court has exceeded 300 million. For more information about the use of blockchain technologies in Chinese judicial system, see Sylvia Polydor and Associate in Baker McKenzie's IP and Technology Practice Group, 'Blockchain Evidence in Court Proceedings in China – a Comparative Study of Admissible Evidence in the Digital Age (as of June 4, 2019)' (2020) 3 Stanford Journal of Blockchain Law & Policy 96.

⁶⁴ Gao and Xu (n 54). More directly, visit the official website of the internet courts, e.g., Hangzhou Internet Court via <https://www.netcourt.gov.cn/>.

problems observed in other online court practices. For instance, by confining their jurisdiction to only internet-related disputes, they have mitigated the disruptive impact of reform and reduced the risk of exacerbating the digital divide. Virtual courtrooms with video recording of proceedings help preserve judicial solemnity and promote careful witness testimony.⁶⁵ In the meantime, accountability mechanisms and strict adherence to procedural justice ensure the quality and integrity of hearings.⁶⁶

The preceding discussion normatively outlines a promising narrative, that is, China's internet court pilot significantly reduced various barriers to litigation and improved access to justice. However, positive testing of this narrative, answering whether and to what extent the pilot has been effective, remains scarce in the literature. As a result, policymakers remain uncertain and underinformed about whether and how similar reforms should be implemented. To address this gap, the paper proposes the following hypotheses and examines them empirically later.

Hypothesis 1. The internet court pilot has significantly lowered litigation barriers, enabling more cases to be resolved through it.

Hypothesis 2. The internet court pilot has not significantly compromised the quality of judicial services.

3. DATA AND METHODOLOGY

3.1. *Data Collection and Processing*

To empirically test the above hypotheses, it is essential to access key information on the adjudication of internet-related cases across China, such as case volume, judicial efficiency, and adjudication quality. However, such data are either not yet

⁶⁵ Sung (n 60).

⁶⁶ Straton Papagiannenas and Nino Junius, 'Fairness and Justice through Automation in China's Smart Courts' (2023) 51 *Computer Law & Security Review* 105897; Xingmei Zhang and Jieren Hu, 'The Reform of Civil Online Litigation in China: Development and Predicaments' (2024) 54 *Hong Kong Law Journal* 111.

comprehensively compiled by the Supreme People's Court, or even if collected, have never been publicly disclosed. Therefore, in order to compute these indicators, the full texts of all internet-related civil judgments⁶⁷ are first collected from China Judgments Online, the official open-access database of judgments,⁶⁸ using web crawler techniques. These judgment texts are semi-structured, following a nationally standardised format and style, while allowing flexibility in writing across individual cases.⁶⁹ To transform these semi-structured texts into structured data suitable for further regression analysis, regular expressions are used to extract key information from judgments, including the court of adjudication, case filing date, judgment date, word count, whether the case was decided under substantive or procedural law, whether it was an appeal, and so on. In total, the above key features are successfully extracted from 114,118 judgments.

Although a large volume of valuable structured data has been obtained, data processing does not end here. To evaluate the pilot effect by comparing the three internet court pilot cities with non-pilot cities, the data must be transformed into a city-level panel rather than remaining at the case-level pseudo-panel. Therefore, based on the location of the court handling each case, the extracted features

⁶⁷ According to Provisions of the Supreme People's Court on Several Issues Concerning the Trial of Cases by Internet Courts, three internet courts only have jurisdiction in the internet-related areas, such as online shopping contracts, online service contracts, online loan contracts, copyright ownership and infringement of online works, domain ownership and infringement, and online product liability. Accordingly, the collection of judgments is based strictly on the above keywords, maximally ensuring data completeness.

⁶⁸ The platform was also launched under the "Smart Court" initiative, and its official website can be accessed at: <https://wenshu.court.gov.cn/>.

⁶⁹ Usually, judgments begin with information about the litigants and their legal representatives (if any), as well as the case filing process. 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.

are aggregated at the city level using average values.⁷⁰ Given that all three internet courts were established in the second half of 2017 or 2018, constructing panel data annually may fail to capture the clean effect of policy 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, total population, and the number of mobile phone users, all drawn from the China City Statistical Yearbook.⁷¹ Table 1 presents the descriptive statistics of the main variables. Some of the data used only in the following specific parts will be introduced later.

Table 1. Descriptive Statistics

Variables	Obs	Mean	Std. Dev.	Min	Max
ID	2,237	167.08	91.62	1.00	321.00
Half Year	2,237	4,035.98	3.97	4,020.00	4,041.00
Number of Cases	2,237	51.01	289.68	1.00	5,570.00
Substantive Cases	2,237	16.15	102.11	0.00	2,376.00
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
Quality Score	1,662	75.46	7.12	45.00	95.00
DID	2,237	0.01	0.09	0.00	1.00
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

⁷⁰ 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 instead of 2014. To mitigate potential bias, the top and bottom 0.5% of the trial duration data were winsorized and excluded from the calculation of the mean.

⁷¹ In subsequent regressions, the coefficients of control variables are not reported, as they are not the focus of this study. It is worth noting that most of the following regressions employ two-way fixed effects. As a result, time-invariant characteristics of cities (such as baseline infrastructure or legal tradition) and city-invariant times (such as macroeconomic cycles or national policy changes) are well controlled for and therefore do not require additional controls.

Population	2,141	550.46	376.93	31.50	3,416.00
Cell Phone Users	2,141	702.80	684.70	63.00	4,204.00

Note: HalfYear is a pseudo-year variable, constructed by doubling the calendar year and adding 1 for the second half year. For instance, H2 2017 is coded as 4035.

3.2. Identification Strategies

As discussed above, the internet court pilot provides a unique opportunity to empirically examine how digital technologies reshape the traditional judicial process, because it constitutes an exogenous and sudden policy intervention.⁷² 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 reform can be reasonably attributed to the pilot intervention. This process can be measured by the DID model in the following regression:

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

where i indexes cities and t indexes half years. Y_{it} represents the dependent variable that may vary depending on the analysis, but the primary focus is on the number of cases. 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 implemented at half year t). λ_t and μ_i denote half year and city fixed effects, respectively. 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 effect of the policy intervention on the dependent variable.

It is important to note that the internet court pilot was not implemented at once. The first was established in Hangzhou in H2 2017 (corresponding to pseudo year 4035), followed by Beijing and

⁷² There have been several studies that have utilised this quasi-natural experiment to investigate other questions, see Zhen Li, Panpan Zheng and Huobao Xie, 'Judicial Digital Intellectualization and Corporate Online Misconduct' (2024) 62 Finance Research Letters 105117; Panpan Zheng and others, 'Judicial Informatization and Digital Transformation: Evidence from the Establishment of the Internet Court' (2024) 0 Applied Economics Letters 1.

Guangzhou in H2 2018 (pseudo-year 4037). As a result, the above regression differs from the canonical DID design and instead adopts a staggered DID framework with two treatment timings. This issue will be revisited and discussed further in the robustness check's part.

3.3. Parallel Trends Test

A key identifying assumption of the staggered 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 policy shock. To assess the validity of the parallel trends assumption, the paper estimates an event study using the following regression:

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

where $\text{Event Time}_{it}^{(k)}$ 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.

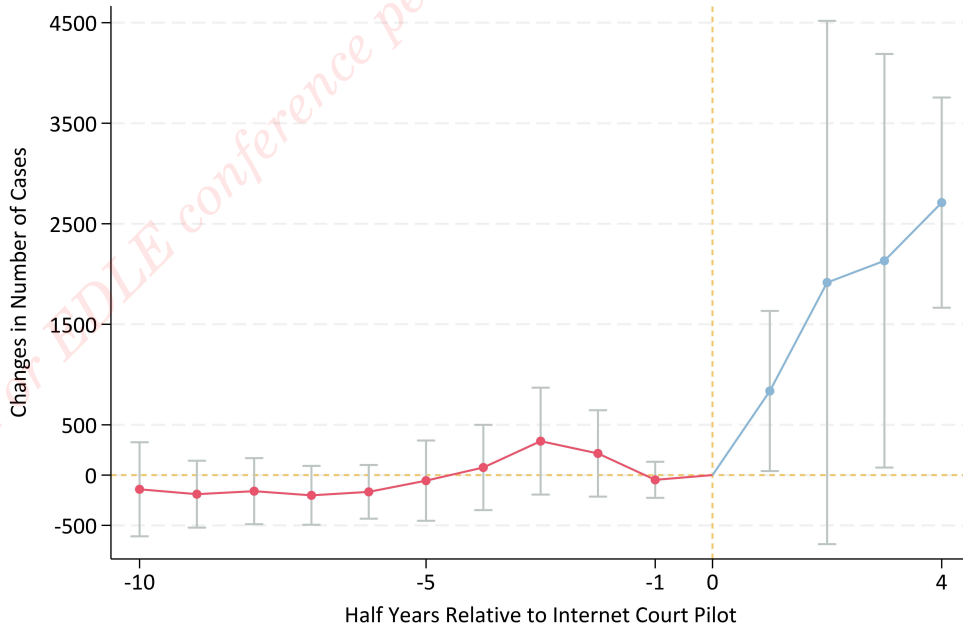


FIGURE 2. PARALLEL TRENDS TEST

Figure 2 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, that is, insignificant, supporting the parallel trends assumption. Also, the post-pilot coefficients show a clear upward shift and most of them are significant, indicating that the pilot may have a positive average treatment effect.

4. MAIN EVIDENCE ON CASE VOLUME

4.1. Baseline Results

The empirical analysis begins with the core question: whether the pilot reduced litigation barriers. As argued above, litigation barriers are reflected in the extent to which individuals refrain from initiating lawsuits due to high transaction costs. Accordingly, a decline in such barriers should manifest directly in the number of filed cases. 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.

TABLE 2. BASELINE RESULTS

	Number of Cases		
	(1)	(2)	(3)
DID	2,111.15*** (54.61)	1,858.95*** (494.87)	1,694.55*** (520.00)
Control Variables	No	No	Yes
Half Year FE	No	Yes	Yes
City FE	No	Yes	Yes
Cluster	No	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.

In 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.

4.2. 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.⁷³ 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.⁷⁴ 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 staggered DID is unlikely to generate substantial bias.

TABLE 3. ROBUSTNESS CHECKS

	Number of Cases		
	(4)	(5)	(6)
DID	1,506.44*** (551.47)	1,078.18*** (392.59)	1,456.47*** (500.82)

⁷³ Andrew Baker, David Larcker and Charles Wang, ‘How Much Should We Trust Staggered Difference-in-Differences Estimates?’ (2022) 144 *Journal of Financial Economics* 370.

⁷⁴ Andrew Goodman-Bacon, ‘Difference-in-Differences with Variation in Treatment Timing’ (2021) 225 *Journal of Econometrics* 254.

Control Variables	Yes	Yes	Yes
Half Year FE	Yes	Yes	Yes
City FE	Yes	Yes	Yes
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. R².*

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 DID⁷⁵ and synthetic DID.⁷⁶ 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.

⁷⁵ Brantly Callaway and Pedro Sant'Anna, 'Difference-in-Differences with Multiple Time Periods' (2021) 225 *Journal of Econometrics* 200.

⁷⁶ Dmitry Arkhangelsky and others, 'Synthetic Difference-in-Differences' (2021) 111 *American Economic Review* 4088.

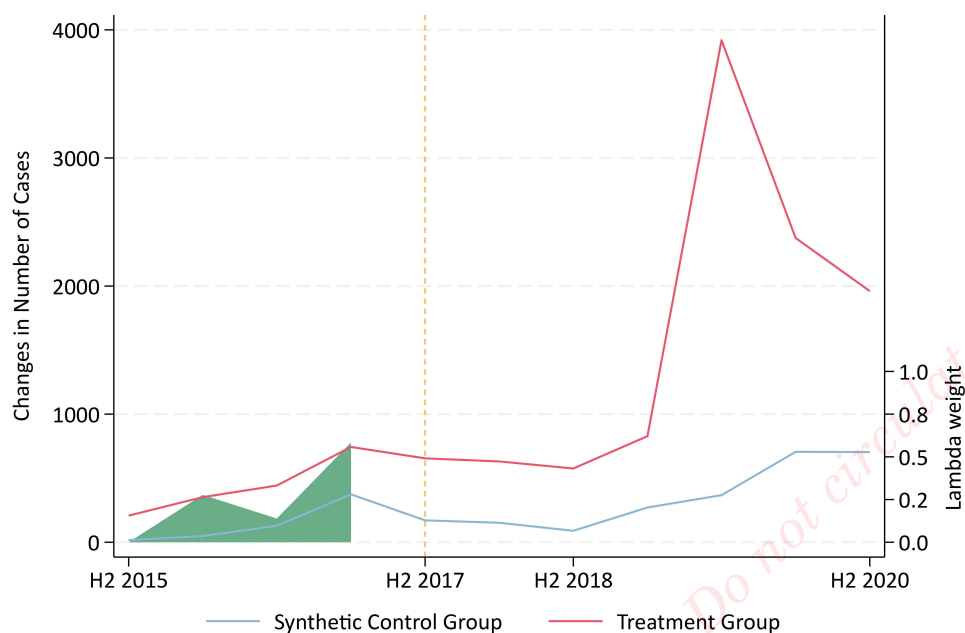


FIGURE 3A. NUMBER OF CASES: TREATMENT VS
SYNTHETIC CONTROL GROUP (H2 2017)

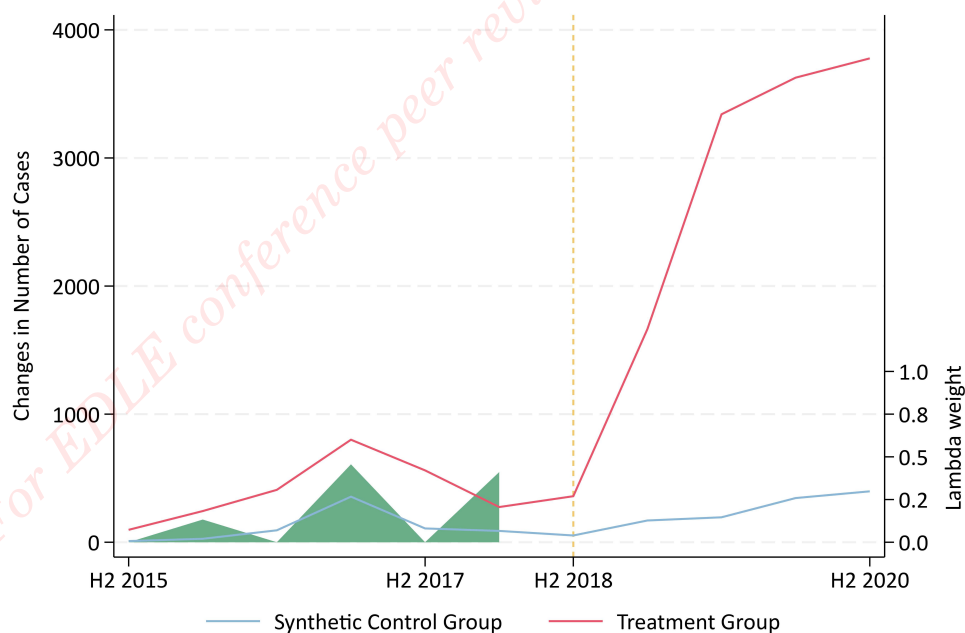


FIGURE 3B. NUMBER OF CASES: TREATMENT VS
SYNTHETIC CONTROL GROUP (H2 2018)

Figures 3a and 3b further 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. See Appendix 1 for the synthetic weights and further analyses.

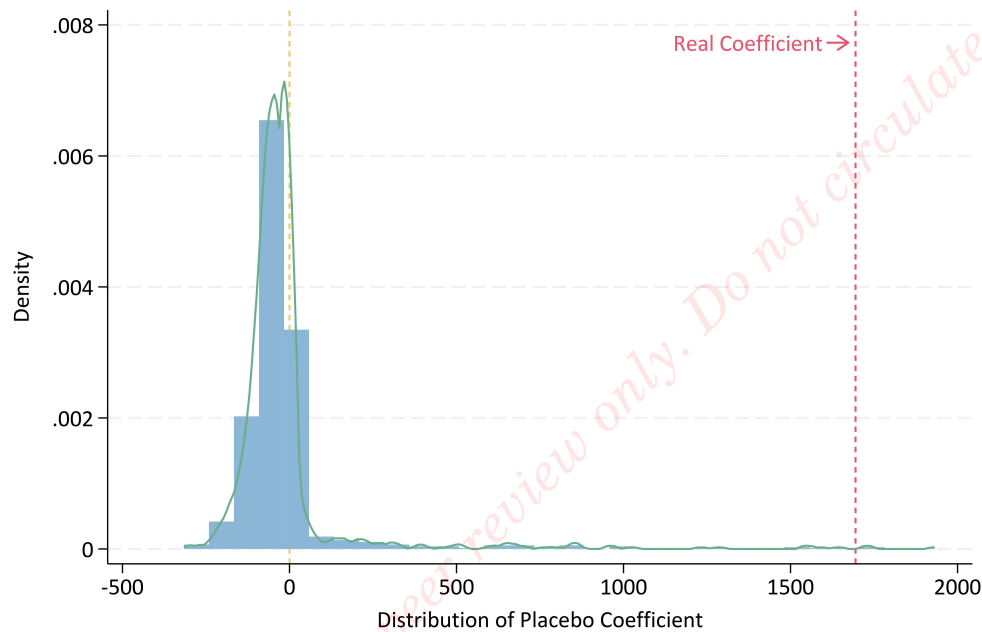


FIGURE 4. PLACEBO TEST

A remaining concern is that the observed increase in internet-related litigation may be driven by unobserved factors unrelated to the reform. In other words, similar results may also be observed even if the policy 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 4 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.

4.3. *Heterogeneity Analyses*

Legal cases are characterised by substantial heterogeneity. Even within the same case type, disputes may vary widely in complexity, points of contention, litigation strategy, and outcomes. To better understand the nature of the observed increase in case volume, this subsection conducts a series of heterogeneity analyses.

A natural starting point is to examine whether the increase is more pronounced in cases adjudicated on substantive legal grounds or those resolved through procedural rulings.⁷⁷ Columns (7) and (8) of Table 5 report the results. Both effects on substantive and procedural cases are significantly positive, with the increase in procedural cases being more pronounced. This pattern is largely driven by the fact that most procedural cases involve case withdrawals, either due to voluntary withdrawal by plaintiffs or automatic withdrawal for failure to pay filing fees within seven working days. This result is consistent with the institutional setup of internet courts, where commonly used pre-trial mediation increases the chance of settlement and withdrawal before the judgment. Meanwhile, the higher growth in cases ruled according to procedural law also confirms the lowering of litigation barriers, as the lower the amount in dispute, the more likely parties are to withdraw their claims, as time goes by.

TABLE 5. HETEROGENEITY ANALYSES

	Number of Cases		Number of Cases	
	Substantive Procedural		With Lawyers	Without Lawyers
	(7)	(8)	(9)	(10)
DID	624.21** (321.69)	1,036.94*** (231.18)	1,084.77*** (388.83)	582.43*** (142.26)
Control Variables	Yes	Yes	Yes	Yes

⁷⁷ In the Chinese judicial system, this distinction is observable from the case title. Substantive cases typically end with “judgment” (pàn jué shū), while procedural cases are titled “court order” (cái dīng shū). This allows us to empirically test the composition of the increase.

Half Year FE	Yes	Yes	Yes	Yes
City FE	Yes	Yes	Yes	Yes
Cluster	City-Level	City-Level	City-Level	City-Level
Estimator	Staggered	Staggered	Staggered	Staggered
	DID	DID	DID	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.*

The paper also investigates heterogeneity in treatment effects based on whether litigants were represented by lawyers. An intuitive idea is that, by lowering barriers, internet courts should primarily benefit individuals pursuing small claims, who are less likely to hire a lawyer. Accordingly, one might expect a larger increase in cases without legal representation. However, the empirical results suggest the opposite. As shown in Columns (9) and (10) of Table 5, both cases with and without legal representation saw a significant increase due to the internet court pilot, and the number of cases involving lawyers increased more than those without. A possible explanation is that the internet court pilot not only lowers barriers for ordinary litigants but also for lawyers, and in particular, because lawyers possess stronger professional expertise and greater experience, the new online procedures may be especially more convenient for them, enabling them to serve clients more efficiently and effectively. This finding further suggests that the benefits of digitalising litigation are not limited to any specific group, but are broadly shared and generally accessible.

5. FURTHER EXPLORATION ON JUDICIAL QUALITY

5.1. Trial Duration and Appeal Rate

Following the strong evidence that the internet court pilot significantly lowered litigation barriers and enabled more cases, a natural question arises: has judicial quality diminished as a result? Here, judicial quality is understood broadly, encompassing various aspects of the litigation process. This question is particularly

important, not only because a scenario of expanded access coupled with declining quality would be somehow undesirable, but also because a substantial increase in caseloads may, per se, overburden judicial capacity and compromise the quality of legal services. More generally, there exists a tension—akin to an “impossible trinity”—between cost and technology investment, access to justice, and judicial service quality. In most cases, judicial reforms cannot simultaneously minimise fiscal and technological inputs, expand accessibility, and maintain high standards of adjudication. Against this backdrop, this subsection evaluates the pilot’s impact on judicial quality from multiple perspectives, in order to assess where the internet court pilot stands within this trilemma.

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 and intuitive 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 just shows the effect of the pilot. Figures 5a and 5b illustrate the result. 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% decrease⁷⁸ in the trial duration. Relatively speaking, the reduction in trial duration at the Hangzhou Internet Court (established in H2 2017) is more pronounced than that observed in Beijing and Guangzhou (established in H2 2018), which may be explained by the spotlight effect associated with Hangzhou Internet Court, as the first internet court launched in China.

⁷⁸ The result here is computed as $e^{0.13475} - 1 \approx 0.1443$, as the dependent variable is log-transformed.

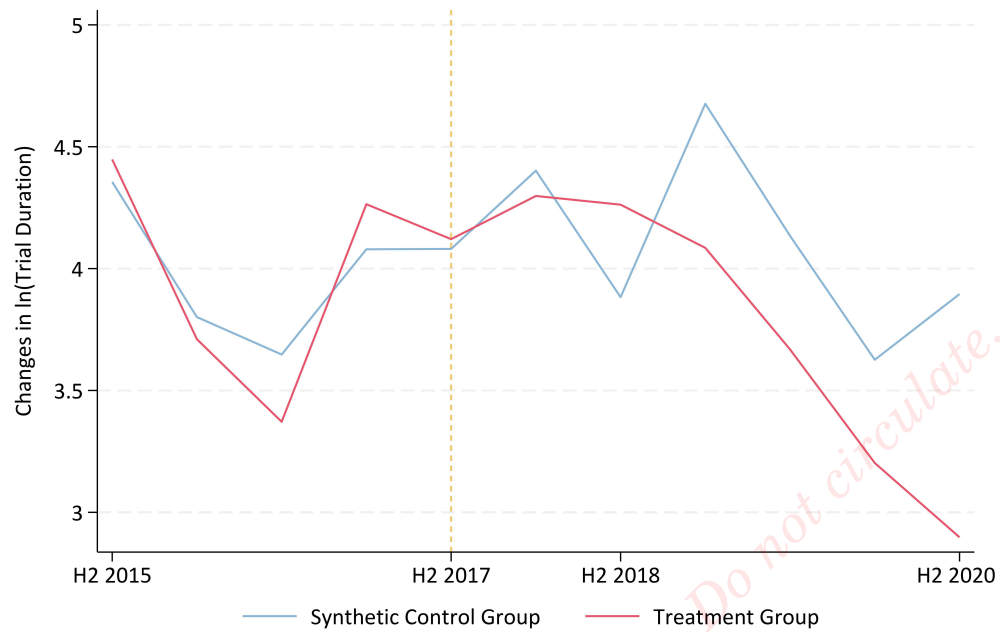


FIGURE 5A. TRIAL DURATION: TREATMENT VS
SYNTHETIC CONTROL GROUP (H2 2017)

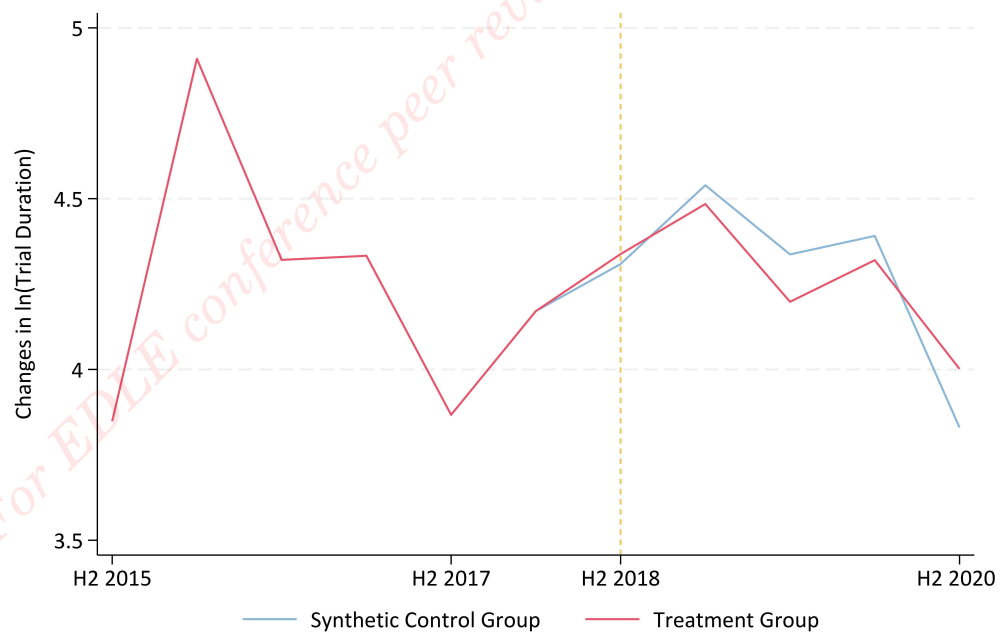


FIGURE 5B. TRIAL DURATION: TREATMENT VS
SYNTHETIC CONTROL GROUP (H2 2018)

Judicial quality encompasses both objective and subjective

dimensions. It involves not only measurable aspects of judicial performance, but also litigants' perceptions and feelings of the process. A direct reflection of such subjective assessment is whether a party choose to appeal. Accordingly, the paper examines differences in appeal rates between pilot and non-pilot cities. As shown in Columns (11) and (12) of Table 6, the appeal rate is significantly reduced by the pilot. A straightforward interpretation is that litigants are more satisfied with the decisions delivered by the internet courts. However, a reasonable explanation that coexists is that all three internet courts operate at the basic level, and there's no higher-level internet appellate court. As a result, the need to return to the traditional court system for appeals may have discouraged some litigants from pursuing further action. This further suggests that while internet courts may offer a subjectively satisfying experience, extending online litigation to cover the full dispute resolution process—including appellate proceedings—may better serve litigants' sense of justice.

TABLE 6. APPEAL RATE

	Appeal Rate	
	(11)	(12)
DID	−0.15** (0.06)	−0.11* (0.06)
Control Variables	No	Yes
Half Year FE	Yes	Yes
City FE	Yes	Yes
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.

5.2. LLM-Based Quality Score

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.⁷⁹ 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.⁸⁰ 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 2.

TABLE 7. LLM-BASED QUALITY SCORE

	LLM-Based Quality Score			
	Average	Hangzhou	Beijing	Guangzhou
	(13)	(14)	(15)	(16)
DID	−2.24 (2.08)	1.56** (0.65)	−5.70*** (0.67)	−3.02*** (0.85)

⁷⁹ Suhaib Abdurahman and others, ‘A Primer for Evaluating Large Language Models in Social-Science Research’ (2025) 8 *Advances in Methods and Practices in Psychological Science* 1; Zhenyu Wang and others, ‘Intelligent Computing Social Modeling and Methodological Innovations in Political Science in the Era of Large Language Models’ (2025) 30 *Journal of Chinese Political Science* 1.

⁸⁰ Compared to models such as Open AI’s o1 and o3-mini, Grok-3, and Deepseek-R1, Qwen3-235B-A22B offers highly competitive performance. For more information, see <https://huggingface.co/Qwen/Qwen3-235B-A22B>.

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Control Variables	Yes	Yes	Yes	Yes
Half Year FE	Yes	Yes	Yes	Yes
City FE	Yes	Yes	Yes	Yes
Cluster	City-Level	City-Level	City-Level	City-Level
Estimator	Staggered DID	Staggered DID	Staggered DID	Staggered DID
Pilot Half Year	Both	H2 2017	H2 2018	H2 2018
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.

After converting scores into panel data, regression analyses were 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 6. COMPARISON OF LLM-BASED QUALITY SCORE IN PILOT AND NON-PILOT CITIES

Figure 6 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. One possible explanation for these mixed results is the spotlight effect, as mentioned in the previous subsection. As the first internet court in China, Hangzhou Internet Court bore a pioneering and demonstrative mission, which may have incentivised 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.

In sum, the empirical findings suggest that the impact of the internet court pilot on judicial quality is complex, which indicates that digitalising litigation is far from a panacea for resolving the trilemma of the judicial system. Rather, the internet court pilot should be viewed as a reform effort that, propelled by technological advancement, has improved access to justice without causing a significant deterioration in adjudicative quality. Although the trade-offs among the core values embedded in the “impossible trinity” cannot be easily quantified or reduced to a single metric, the above findings nonetheless suggest that the pilot constitutes a meaningful step in judicial reform overall.

6. CONCLUSION

The paper provides empirical evidence on whether and how digital technologies can lower the barriers and enhance the performance of traditional courts. Leveraging the staggered introduction of internet court pilots in China in H2 2017 and H2 2018, the paper examines their causal impact on judicial activity and outcomes, finding that the pilot significantly increased the volume of internet-related litigation in pilot cities. This result is robust across a range of specifications and robustness checks. Further findings

reveal that the increase is more pronounced in cases involving procedural law than substantive law, and in cases with legal representation compared to those without. The paper also examines the impact of the reform on judicial quality, finding that trial durations decreased and appeal rates declined, while the case quality, measured using LLM, shows mixed results.

Building on these empirical findings, the paper argues that the application of digital technologies—exemplified by the internet court pilot—can reduce institutional transaction costs and lower barriers to litigation, thereby enhancing access to justice. The larger increases in cases involving procedural law and with legal representation suggest that the benefits of digital transformation extend across the entire litigation process and involve all types of participants, rather than serving only a particular stage or group. At the same time, the mixed evidence on judicial quality highlights the inherent “impossible trinity” in litigation reform, that is, controlling costs and improving accessibility may come at the expense of adjudication quality. The internet court pilot exemplifies a model in which moderate investment in technology generates substantial gains in accessibility while causing only limited fluctuations in quality, offering important insights for the future integration of digital technologies into the judiciary.

Of course, this study is not without limitations. First, given the limited global experience in deeply integrating digital technologies into judicial institutional design, the paper provides only an empirical example, and its external validity across different countries and legal systems remains a valuable question for further studies. Second, the use of LLM to generate or evaluate data is still in its early stages in the social sciences. As such, the implementation of LLM-based judgment scoring in this paper should be seen as exploratory, and future work is needed to refine and extend this approach.

CAN ONLINE COURTS LOWER LITIGATION BARRIERS? EVIDENCE FROM CHINA’S INTERNET COURT PILOT

ONLINE APPENDIX

Huabing Li¹

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APPENDIX 1. WEIGHTS IN SYNTHETIC DID

In Section 4.2, a synthetic DID model is employed to test robustness and provide more precise estimates. As a complement to the results in the main text, Figures A1a and A1b below display the automatically generated weights used to construct synthetic control groups. Each dot represents a city in the control group, with the dot size indicating the weight. Larger dots correspond to cities with higher weight, such as Shanghai, Zhengzhou, Changsha, and Xiamen. The vertical position of each dot reflects the estimated treatment effect, and their average is shown by the dashed line, which shows that the three pilot 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

¹ PhD researcher at University of Hamburg, University of Bologna, and Erasmus University Rotterdam under European Doctorate in Law and Economics (EDLE) program. Email address: email@huabing.li. I would like to thank all participants of EDLE workshops in both Bologna and Hamburg, as well as “Fresh Perspectives on Judging” symposium in London for their valuable suggestions. In particular, I wish to thank my supervisor Rooe Sarel for his help and guidance.

synthetic DID model.

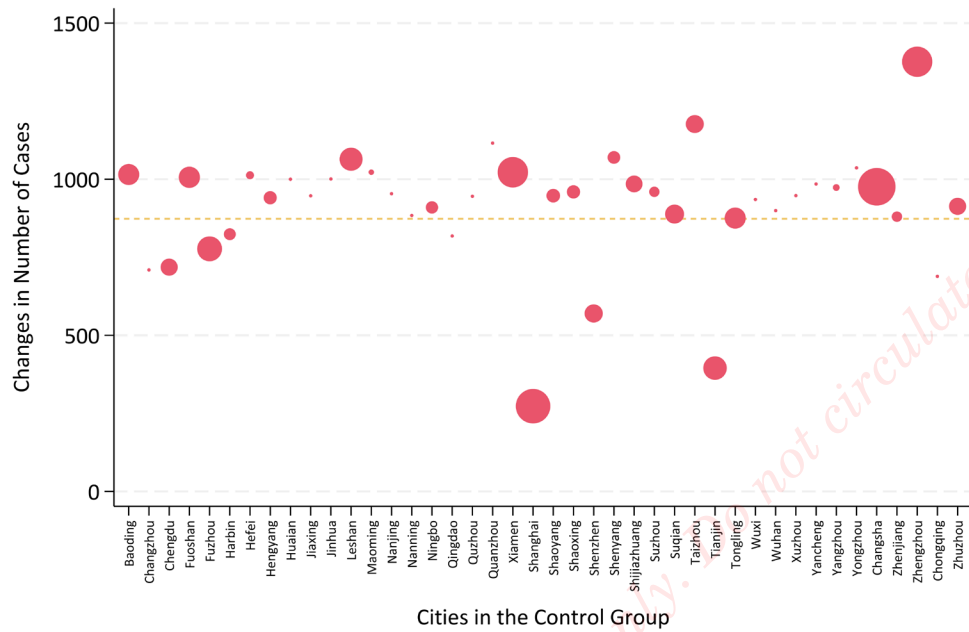


FIGURE A1A. SYNTHETIC WEIGHTS (H2 2017)

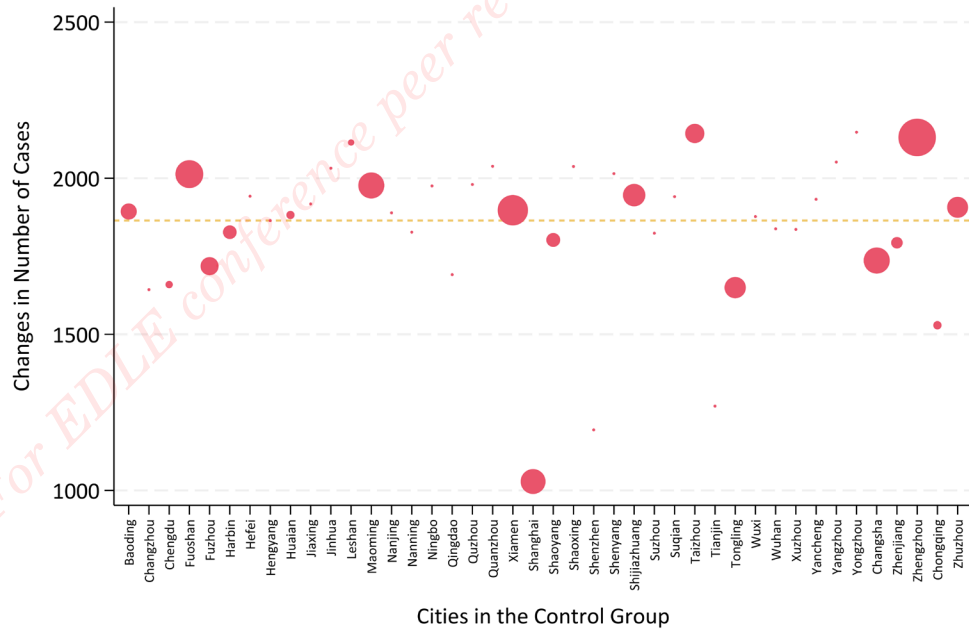


FIGURE A1B. SYNTHETIC WEIGHTS (H2 2018)

APPENDIX 2. LLM SETTINGS

In Section 5.2, 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 Code 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.

```
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"}
}
```

CODE 1. PARAMETERS AND PROMPTS

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 Code 2.

```
"quality_score" : 85
"reason_for_quality_score" : "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, defence
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 notarised 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."

CODE 2. AN EXAMPLE RESPONSE