

# Judicial Transparency and Economic Development: Evidence from China\*

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## Abstract

This paper investigates the role of judicial transparency in driving economic development using a transparency reform in China. Since mid-2013, China has required all courts to upload judicial documents, but there are significant disparities in compliance among regions. We find that industrial outputs, registry of new firms, and exports in provinces with greater improvements in judicial transparency also experience greater growth. This growth is mainly driven by output per worker rather than an inflow of workers. Exploring industry heterogeneity strengthens the identification. Industries with higher judicial dependence exhibit larger growth in output and exports after the improvement in judicial transparency.

**Key Words:** Judicial Transparency, Institutional Quality, Economic Development, Judicial Dependence

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# 1 Introduction

The quality of the judicial system, an important aspect of institutions, is believed to be a key determinant of economic development (Knack and Keefer, 1995; Djankov et al., 2003; Porta, Lopez-de Silanes and Shleifer, 2008; Laeven and Woodruff, 2007). The literature argues that enhancing transparency can improve institutional quality (Stiglitz, 2002; Adsera, Boix and Payne, 2003; Gavazza and Lizzeri, 2009). However, little is known empirically whether enhancing judicial transparency can indeed boost economic development. In this paper, we employ a Chinese transparency reform that involves the disclosure of judicial documents online to gauge the connection between judicial transparency and industrial output and trade.

At the end of 2013, China announced a reform actively promoted by the former president of the Supreme People’s Court (SPC), *Zhou Qiang*, to increase China’s judicial transparency. The reform requires all courts in China to publicize judgment documents, covering almost all types of judgment documents, only with the exception of sensitive cases related to national security and privacy. However, there were large spatial variations in the compliance with the reform. These spatial disparities could be driven by local courts’ recognition of the SPC’s authority or the closeness of local court leaders’ political connection with SPC’s leadership (Liu et al., 2022*b*). Moreover, local courts’ IT infrastructure and human capital could also constrain their ability to comply with the SPC’s order. It is worth noting that economic conditions were found to be unrelated to compliance with the reform (Ng and He, 2017).

We leverage the provincial disparities in compliance with the mandated transparency reform to examine the impact of judicial transparency on economic development. Specifically, we first construct the share of closed cases whose judgment documents are posted online at the regional level as a measure of local judicial transparency. Subsequently, we show that an increase in local judicial transparency can boost local industrial output. This effect is mainly driven by an increase in measured labor productivity rather than an increase in the number of workers. We also find that a positive impact of judicial transparency on the entry of new firms. When we extend our analysis to an open economy, we find that an increase in judicial transparency is also associated with more exports, and the increase in exports is mainly driven by an increase in export quantities rather than export prices. In fact, the effect of judicial transparency on exports is much more pronounced than its effect on domestic output, consistent with existing literature’s finding that international transactions are more sensitive to institutional quality than domestic transactions (e.g. Jiao and Wei (2017)).

To strengthen the causal inference, we explore industry heterogeneity. In particular, we categorize industries based on their dependence on courts. The judicial dependence index is constructed as the ratio of the total value associated with litigation for all firms in an

industry to the total value of output in that industry. We anticipate that industries relying more on the courts will derive greater benefits from the judicial transparency reform. Indeed, industries with a higher dependence on the courts exhibit greater growth in domestic output and exports following an increase in judicial transparency.

*Related Literature* Our paper is related to the role of institutional quality in economic development. Among many others, North (1991), Barro (1997), Acemoglu, Johnson and Robinson (2001), Acemoglu and Johnson (2005), Murphy, Shleifer and Vishny (1993) and Mauro (1995) argue that low institutional quality such as rampant corruption, lack of contract enforcement and expropriation risk is detrimental to growth. Porta et al. (1998), La Porta et al. (1997), Levine (1999), Allen, Qian and Qian (2005) and Demirgüç-Kunt and Maksimovic (1998) specifically focus on the nexus between legal institutions, financial development and growth. In open economies, Wei (2000) pioneers empirical work on the relationship between institutional quality and FDI, while Levchenko (2007), Chor (2010), Cui, Yu and Zhang (2022), Costinot (2009) and Nunn (2007) examine the role of institutions in shaping international trade. We focus on the judicial system as an important aspect of institutions in economic development as well, but our emphasis lies on the significance of judicial transparency.

This paper is also related to the literature on the role of law in the economy of the People's Republic of China. Allen, Qian and Qian (2005) suggest that although the law-finance-growth nexus applies to the State Sector and the Listed Sector in China, the Private Sector drives most of China's growth despite the weak legal and financial institutions' support. They argue that alternative mechanisms, such as those based on reputation and relationships, support the growth of the Private Sector in China. Li and Ponticelli (2022) emphasize the positive economic effects of reforms in the Chinese judicial system. They document that the introduction of bankruptcy-specialized courts facilitates insolvency resolution and thus raises capital productivity. Liu et al. (2022a) examine how a judicial independence reform in China fosters cross-region economic integration. They argue that judicial independence leads to a reduction in local protectionism in courts' decisions, which can attract more inward investment flows into reformed localities.

Another piece of literature this paper closely links with is the effect of transparency in governance. Theoretical discussions by Gavazza and Lizzeri (2007), Mattozzi and Merlo (2007) and Gavazza and Lizzeri (2009) have highlighted the benefits of governance transparency. Alt and Lassen (2006) empirically show that a higher degree of fiscal transparency is associated with lower public debt and deficits. Furthermore, Alt and Lowry (2010) find that increased budget transparency mitigates the negative effect of tax increases on the retention of incumbent governors. While Grimmelikhuijsen and Klijn (2015) and Ahl and Sprick (2018)

investigate how judicial transparency promotes public trust and legal professionalism, our paper specifically examines its economic impacts.

## 2 Institutional Background

China's court system consists of the Supreme People's Court and three levels of local courts, including high people's courts at the provincial level, intermediate people's courts at the level of prefectures, and primary people's courts at the level of counties.<sup>1</sup> The Supreme People's Court (SPC) oversees and regulates the activities of all levels of courts, ensuring the enforcement of laws and directives issued by legislative bodies.

In 2013, China initiated a judicial reform led by *Qiang Zhou*, the former president of the SPC, with the aim of enhancing judicial transparency through online information disclosure. The SPC issued a notice titled "*Provisions of the Supreme People's Court on the Issuance of Judgments on the Internet by the People's Courts*" (2013 SPC Notice). This reform was introduced in a top-down manner, with the SPC taking responsibility for organizing, guiding, and supervising the work of each local court. The 2013 SPC Notice mandated the discretionary online disclosure of every judicial decision from January 2014 onwards, requiring courts at all levels to upload their judgment documents to a centralized public website.<sup>2</sup> The SPC explicitly stated that local courts were not allowed to selectively disclose their decisions based on decision type, social influences, or the quality of judgment. Instead, disclosure was required in all cases except for a few categories involving state security and individual privacy.<sup>3</sup> Furthermore, the website was required to not anonymize the names of individuals and firms.

As shown in Figure 1, there has been a significant increase in the total number of disclosed cases, with a notable surge beginning in 2014. It is worth noting that, before the 2013

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<sup>1</sup>Broadly speaking, the judicial system in China is composed of three key institutions: the people's court system, the procuratorate system, and the public security system. The people's procuratorate system oversees the investigative work of public security organs, the trial proceedings of people's courts, and the prison operations of judicial and administrative organs. Meanwhile, the public security system is responsible for investigations, as well as arrests and preliminary hearings in criminal cases. The court system also contains specialized people's courts, including military courts, maritime courts, etc.

<sup>2</sup>The website is accessible at <http://wenshu.court.gov.cn>. The 2013 SPC notice also required the development of two open platforms for publishing information on trial flow and enforcement information. The platform for publishing judgment documents, our primary focus, was deemed the most important and was launched first on July 1, 2013. Subsequently, the trial flow platform and the public platform of execution information were launched on November 13, 2014, and November 1, 2014, respectively. Several other platforms, including a trial live broadcast platform and a platform for the public disclosure and inquiry of list of dishonest persons subject to execution, were launched in 2016.

<sup>3</sup>Cases that involve state secrets, juvenile defendants, divorce or child custody, and some that are settled through mediation are generally excluded from online publication. The purpose is to protect the privacy and security of the individuals involved, as well as to maintain the confidentiality of state secrets.

reform, the SPC allowed lower courts to voluntarily publish judgments on their own official websites as a means to educate judges about understanding and correctly applying the laws. However, the published judgments were highly selective, requiring case-by-case approval to ensure that only decisions of sufficient quality, which would not harm the overall interests of the party-state or the judiciary, were released (Liu et al., 2022b). Additionally, the SPC mandated anonymizing private information, including name, address, and contact persons. Consequently, the overall transparency rate of court decisions before 2013 was only 2.7% (Tang and Liu, 2019).

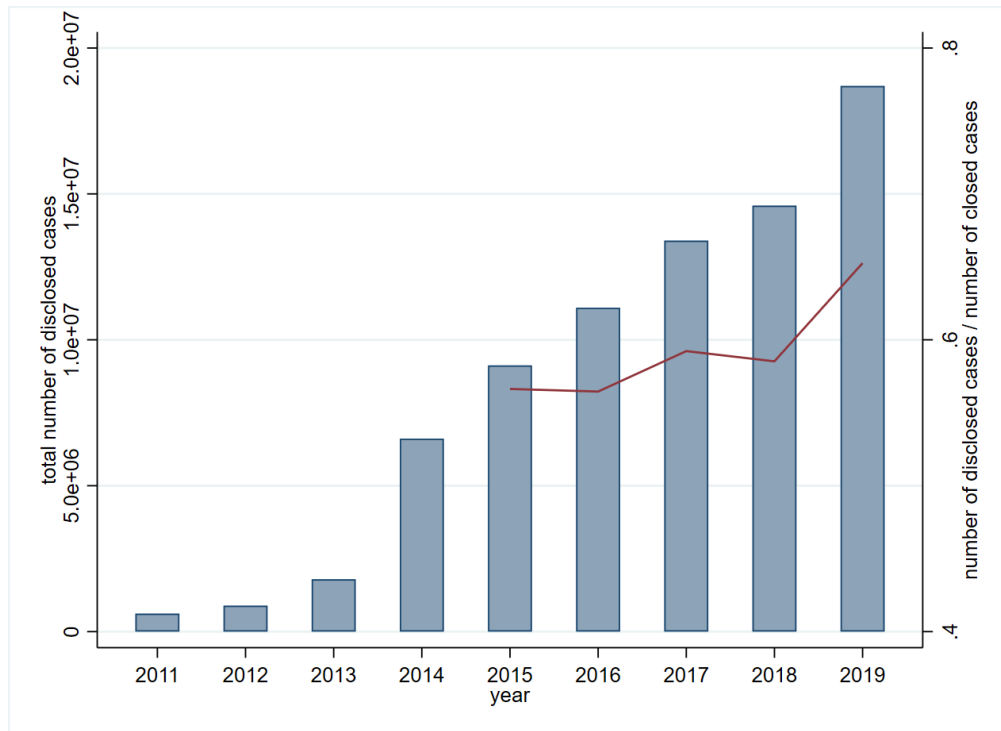


Figure 1: Total Disclosed Cases

The website for publishing judicial documents, *wenshu* website, has been operational since the end of 2013, and it has been found that judgments are typically uploaded within 90-180 days after the decision is made, with 95% of decisions uploaded within one year (Yang, Qin and He, 2019). As of December 2022, the website hosts over 139.2 million publicly available judicial documents and provides open access to all users to search and obtain complete judgments. All judicial documents are required by SPC to be written in a standardized format and include the same categories of information. The key information comprises the name of the court, the parties involved in the litigation and their basic information, the facts of the case, evidence recognized by the court, proceedings of the trial, legal provisions on which the judgment is based, and the decision of the judgment. Users can search for any case

by its cause and name, the name of the court, and the name of the parties involved. Since its launch, the website has been widely used, with the total number of visits reaching 100.2 billion as of December 2022.

The ultimate goal of the website, as outlined in the 2013 SPC notice, is to enhance judicial fairness and credibility by reducing information asymmetry. The impacts of the website can manifest in multiple ways. Firstly, by publicizing information, judgments must adhere to uniform standards, effectively deterring corruption and wrongdoings in the judicial system, thereby improving judicial efficiency. Secondly, the accessibility of information reduces the public's cost of obtaining judicial information and enhances allocation efficiency. Thirdly, the website promotes legal professionals' access to information (Ahl and Sprick, 2018). This encourages communication between the courts and legal experts, boosts professionalization in the courts, and enhances public trust in the judiciary. Lastly, the judicial transparency reform could separate the judiciary from local governments and enhance judicial system independence by centering the judiciary within the courts (Ng and He, 2017). The increased transparency and more accessible communication among legal professionals could ultimately reduce state control over access to court decisions.

While significant improvements in judicial transparency were observed across all provinces following the reform, there remains a noticeable disparity between provinces. Existing literature has shed light on various factors contributing to the disparity in disclosure rates among regions. Firstly, limited capacity in local courts results in lower early document upload rates (Liu et al. 2022 WP), highlighting the influence of regional capacities. Secondly, the involvement of individuals with prior experience at the Supreme People's Court (SPC) in local courts impacts the enthusiasm for document disclosure (Liu JCC), underscoring the top-down nature of document disclosure policies initiated by the SPC.

While Liu et al. (2022 JCE) find that local governments may have incentives to withhold negative information about state-owned enterprises and politically connected firms in the year before promotion campaigns (based on research on listed firms), this rationale may not be applicable to all enterprises. Given that the majority of documented enterprises are small businesses rather than large enterprises, state-owned enterprises, or listed companies that are crucial for government promotion, the overall impact of this reason on disclosure rates may be relatively minor. As for the correlation between economic performance and disclosure rates, Liu and Tang (2022 JCE) examine the correlation between disclosure rates and authority, GDP, and social trust. They discover that disclosure rates have a limited correlation with GDP but are closely tied to the recognition of authority, consistent with the findings of Liu JCC and Liu et al. 2022 JCE.

In summary, the disparities among provinces are closely linked to the capacity of local

courts, personnel connections with the SPC, and the recognition of SPC authority, with limited association with economic factors. Our analysis utilizing a dynamic setting suggests that the disclosure levels of provinces in 2015 were not linked to pre-policy output, as detailed in Sections 3 to 4, indicating that this association emerged only after policy implementation.

### 3 Judicial Transparency, Industrial Output, and International Trade

We conduct our empirical analysis with province-level data. The variation in efforts to comply with the Supreme Court’s requirement across provinces is substantial, with the between-province variance of transparency measures accounting for 63.89% of the total variance. Another reason for choosing to conduct a province-level study is data availability. The industrial statistics yearbooks and the Chinese Customs Online Inquiry Platform only provide data at the province level by different industries/products. In contrast, we only have aggregate manufacturing industrial output, employment, and export at the city level. Moreover, 58.7% of city-level export observations are missing.<sup>4</sup>

#### 3.1 Data Description and Empirical Specification

The judicial transparency measure is constructed with two sets of information. One is the number of cases released publicly each year by each province, collected from *wenshu* website. The other is the number of cases closed each year by each province after 2015 (included), obtained from the Supreme Court of China. The Supreme Court of China provided us with this information for research purposes, and this information was not publicly released. Our key explanatory variable, the judicial transparency of province  $i$  in year  $t$ , is denoted by  $x_{it}$ . Formally, after 2015, we define

$$x_{it} = \frac{\text{number of cases made public by province } i \text{ year } t}{\text{number of cases closed by province } i \text{ within year } t}$$

Note that we do not have the number of cases closed by province  $i$  year  $t$  before 2015, so an accurate estimate of the fraction of publicly released cases is not available. Therefore, we directly set  $x_{it} = 0$  for all provinces before 2015. As shown in Figure 1, the fraction of publicly released cases was close to 0 before the reform, and the increase in publicly released cases remains very limited.

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<sup>4</sup>See Appendix for robustness checks using city-level industrial output, employment, labor productivity, and new entry using the city-level data.

The industrial output, denominated in the current Renminbi and serving as a key dependent variable, is available from the China Industrial Yearbook. These Yearbooks report essential information on different industries in each province of China, including output, employment, and main revenue. The variables are calculated by adding up all state-owned enterprises and private firms whose annual sales are above 20 million Renminbi (around XX U.S. dollars). We use data from 2011 to 2016 as the post-2017 Yearbooks are no longer available. For robustness checks, we also use another dataset, the Input-Output Table from 2012 and 2017, which includes data on the output of all manufacturing industries, as shown in the Appendix.

A complementary data to look into small firms is the registry records of new firms. The data includes universal records of all new enterprises of each province and each industry. We calculate the number of new registers from 2011 to 2019. The data records the starting time and paid-in capital of each new enterprise and distinguishes the micro-small enterprises whose annual sales are lower than 10 million Renminbi. Using this dataset, we will examine how judicial transparency affect the entrance of new firms.

Another set of dependent variables of interest is related to China’s exports. The data for the years 2011-2016 is sourced from the China Customs transaction-level databases,<sup>5</sup> which we aggregate at the province-product level each year. Each product corresponds to a Harmonized System (HS) 4-digit code, which remains consistent across years. For the years 2017-2019, the data is obtained from the publicly available Chinese Customs Online Inquiry Platform. We use export value, quantity, and the average derived price from these datasets.

The main empirical setting is

$$y_{ijt} = \beta x_{it} + \Gamma Z_{it} + \alpha_{ij} + \delta_{jt} + \epsilon_{ijt}, t \in [2011, 2016] \quad (1)$$

where  $i$ ,  $j$ , and  $t$  represent province, industry, and year, respectively.  $y_{ijt}$  represents the dependent variables of interest, including industrial output, employment, labor productivity, main revenue, number of new entrants, export value, export quantity, and export price.  $x_{it}$  represents the judicial transparency. The control variables  $Z_{it}$  at the province-year level include college share (the fraction of the population with college or above degrees), urbanization rate, the length of road per capita, foreign-owned share (defined as  $\frac{\text{number of foreign-owned firms}}{\text{number of firms}}$ ). Additionally, we include province-industry and industry-year fixed effects. We also consider the dynamic setting

$$y_{ijt} = \sum_{\tau \neq 2012} \beta_{\tau} x_{i,2015} I(\text{event}_{ijt} = \tau) + \Gamma Z_{it} + \alpha_{ij} + \delta_{jt} + \epsilon_{ijt}, t \in [2011, 2016] \quad (2)$$

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<sup>5</sup>The 2016 dataset only contains transaction value without quantity information.



where we set 2012 as the baseline year (one year before the establishment of the *Wenshu* website).  $x_{i,2015}$  represents post-reform judicial transparency.

Table 1 reports summary statistics on provincial judicial transparency, the main dependent variable, and control variables. We have data for all 31 province-level regions in mainland China. In Panel A, we show the judicial transparency information in various years. In 2015, on average, approximately half of cases were disclosed. The lowest transparency score was in Hainan Province with a value of 0.25, while the highest was in Sichuan Province with a transparency score of 1.03.<sup>6</sup> In each year, there are substantial variations across different provinces. Over the years, there have been continued improvements in the transparency measure overall. Panel B provides summary information on dependent and control variables. We use industries in the manufacturing sector, with around 41 industries each year, depending on data availability. Labor productivity is calculated as output divided by employment. As for control variables, college share refers to the proportion of the population with educational attainment beyond the college level. The college share in different provinces in China exhibits large variations, with Beijing having the highest share and Tibet the lowest. Shanghai has the highest urbanization rate and Tibet has the lowest. We control for the ratio of foreign-invested capital stock in GDP. We use the area of road per capita ( $m^2$ ) to control the infrastructure of each province.

### 3.2 Judicial Transparency and Industrial Output

Panel A in Table 2 shows the regression results of our main empirical setting. Columns (1) and (2) use  $\log(\text{output})$  at the province-industry-year level as the dependent variable. In Column (1), the point estimate on judicial transparency is positive and statistically significant. A 10 percentage point increase in judicial transparency is associated with a 2.87% increase in the industrial output. Column (2) includes control variables. The point estimate for judicial transparency barely changes. Higher education is associated with higher output, as a 1 percentage point increase in the college share leads to a 1% increase in output. Urbanization is associated with higher output. When the urbanization rate increases by 1 percentage point, output increases by 8%. The large point estimates might reflect that industrial output is mainly produced in urban areas rather than in rural areas. Road per capita and foreign-owned share do not appear to be related to industrial output.

In columns (3) and (4), we change the dependent variable to  $\log(\text{employment})$  in the industrial sector and find that judicial transparency does not have a significant impact on provincial employment. This is not surprising, given the migration barriers associated with

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<sup>6</sup>It's worth noting that our transparency measure can sometimes exceed 1, although this is rare, as courts may disclose previous years' closed cases.

Table 1: Summary Statistics

Panel A: Judicial Transparency Measure by Year						
Variable	Obs	Mean	Std. Dev.	Min	Max	Median
judicial transparency 2015	31	0.547	0.161	0.253	1.026	0.537
judicial transparency 2016	31	0.551	0.133	0.250	0.908	0.551
judicial transparency 2017	31	0.582	0.116	0.258	0.902	0.594
judicial transparency 2018	31	0.578	0.113	0.272	0.848	0.578
judicial transparency 2019	31	0.628	0.126	0.321	0.824	0.634

Panel B: Dependent and Control Variables						
Variable	Obs	Mean	Std. Dev.	Min	Max	Median
log(output)	6,665	5.303	2.156	-4.605	10.393	5.621
log(employment)	5,294	10.023	1.922	4.605	15.043	10.278
log(labor productivity)	5,293	-4.631	0.729	-8.142	-0.441	-4.659
log(main business revenue)	6,610	5.290	2.172	-4.605	11.679	5.608
log(number of new firms)	73,865	2.417	1.698	0	8.790	2.303
log(number of new small firms)	64,203	1.981	1.594	0	8.528	1.792
log(export value)	251,477	14.286	3.354	0	25.467	14.545
college share	279	0.135	0.073	0.024	0.505	0.120
urbanization rate	279	0.574	0.132	0.227	0.896	0.561
FDI stock/GDP	279	0.375	0.363	0.048	1.735	0.219
road per capital	279	15.590	4.655	4.04	26.20	15
reform	279	0.534	0.500	0	1	1

the Hukou system in China. Consequently, the increase in output is mainly driven by labor productivity (i.e., output per capita) as shown in columns (5) and (6).

In the last two columns, we change the dependent variable to the logarithm of the main business revenue. We find that judicial transparency increases firms' main business revenues in each industry. Point estimates on judicial transparency become smaller than those in the first two columns but remain economically and statistically significant. A 10 percentage point increase in judicial transparency is associated with about a 1.4% increase in the main business revenues of firms in each industry.

Panel B in Table 2 reports the results on the dynamic setting with 2012 as the baseline year. We add interaction terms between province-level judicial transparency in 2015 and year dummies. The first two columns show that the significant increase in industrial output occurs after the establishment of the *Wenshu* website rather than before. Moreover, after 2013, the point estimates on judicial transparency show an increasing trend, implying larger long-term impacts than short-term impacts resulting from the improvement in judicial transparency. Columns (3)-(6) again demonstrate that employment response is not the main driver of industrial output. Instead, it is the output per worker that improves with judicial transparency. Note that 2012 data is missing for employment, so we use 2011 as the baseline in these columns instead. Columns (7) and (8) show the dynamic setting for main business revenue and the results are consistent with the last two columns in Panel A.

### 3.3 Judicial Transparency and Firm Entry

Table 3 shows the results of new entrants. The dependent variables in Column (1) to (3) are the total number of new manufacturing firms (in log). Column (1) shows that a one percentage increase in judicial transparency is associated with a 0.25% increase in the total number of manufacturing new firms. In Column (2) we include the control variables and the point estimate becomes smaller at 0.19. Columns (3) to (5) shows the results of dynamic setting. The dependent variables are the number of all manufacturing firms, small manufacturing firms, and the other firms, respectively. The results are consistent with that in Columns (1) and (2). For example, the number of new small firms increases by 0.26% and 0.88% in 2016 and 2018, respectively, with a one percentage point increase in judicial transparency.

Table 2: Judicial Transparency and Industrial Production

Panel A: Judicial Transparency and Industrial Production								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	log(output)		log(employment)		log( $\frac{output}{employment}$ )		log(main revenue)	
judicial transparency	0.287*** (0.065)	0.324*** (0.064)	0.021 (0.049)	0.018 (0.047)	0.216*** (0.047)	0.261*** (0.047)	0.142* (0.077)	0.186** (0.077)
college share		0.738** (0.308)		-0.184 (0.310)		0.285 (0.253)		0.982*** (0.316)
urbanization		10.277*** (0.952)		4.095*** (0.609)		4.031*** (0.545)		7.019*** (0.790)
road per capita		0.013* (0.007)		0.014*** (0.005)		0.010** (0.005)		0.020*** (0.007)
FDI/GDP		0.2335** (0.0962)		0.0254 (0.0497)		0.1591** (0.0646)		0.2145** (0.0845)
independence reform		0.011 (0.013)		0.009 (0.010)		-0.015 (0.011)		0.001 (0.013)
Observations	6657	6657	6455	6455	5284	5284	7782	7782
$R^2$	0.982	0.983	0.982	0.983	0.926	0.928	0.971	0.972

Panel B: Dynamic Response of Industrial Production								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	log(output)		log(employment)		log( $\frac{output}{employment}$ )		log(main revenue)	
judicial*dummy2011	-0.016 (0.090)	0.104 (0.089)					-0.063 (0.097)	0.054 (0.094)
judicial*dummy2013	0.049 (0.073)	-0.060 (0.072)	0.128 (0.106)	0.029 (0.104)	-0.053 (0.088)	-0.143 (0.087)	0.129* (0.073)	0.020 (0.071)
judicial*dummy2014	0.202** (0.081)	0.084 (0.078)	0.058 (0.100)	-0.045 (0.097)	0.187* (0.098)	0.082 (0.096)	0.146* (0.078)	0.029 (0.076)
judicial*dummy2015	0.235*** (0.077)	0.162* (0.081)	0.065 (0.103)	-0.029 (0.103)	0.196** (0.095)	0.130 (0.097)	0.192** (0.077)	0.121 (0.079)
judicial*dummy2016	0.380*** (0.103)	0.404*** (0.105)	0.135 (0.096)	0.036 (0.094)	0.294*** (0.102)	0.283*** (0.104)	0.314*** (0.102)	0.349*** (0.106)
college share		0.944*** (0.308)		-0.155 (0.285)		0.445* (0.245)		1.065*** (0.275)
urbanization		10.543*** (0.941)		5.367*** (0.647)		4.172*** (0.566)		10.088*** (0.881)
road per capita		0.012 (0.007)		0.004 (0.006)		0.009* (0.005)		0.012 (0.008)
FDI/GDP		0.2573** (0.1013)		0.0054 (0.0594)		0.1743** (0.0721)		0.2805*** (0.1026)
independence reform		0.011 (0.012)		0.013 (0.009)		-0.015 (0.011)		0.013 (0.011)
Observations	6657	6657	5284	5284	5284	5284	6599	6599
$R^2$	0.982	0.983	0.989	0.990	0.926	0.928	0.982	0.984

Standard errors in parentheses clustered at the industry level.

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table 3: Judicial Transparency and Firm Entry

	(1)	(2)	(3)	(4)	(5)
			log(# of new firms)		
	total	total	total	small	other
judicial transparency	0.243*** (0.0675)	0.183*** (0.0639)			
judicial transparency*dummy2011			0.257*** (0.0648)	0.154* (0.0815)	0.124 (0.0777)
judicial transparency*dummy2013			0.113* (0.0639)	-0.0645 (0.0736)	0.00112 (0.0661)
judicial transparency*dummy2014			0.0647 (0.0585)	-0.136 (0.0866)	0.0197 (0.0513)
judicial transparency*dummy2015			0.0271 (0.0749)	-0.148 (0.0968)	0.00232 (0.0753)
judicial transparency*dummy2016			0.288*** (0.0659)	-0.0145 (0.114)	0.315*** (0.0663)
judicial transparency*dummy2017			0.538*** (0.123)	0.337** (0.134)	0.220* (0.123)
judicial transparency*dummy2018			0.554*** (0.103)	0.477*** (0.135)	-0.137 (0.122)
judicial transparency*dummy2019			0.395*** (0.101)	0.00826 (0.133)	0.463*** (0.125)
college share		-1.842*** (0.441)	-1.639*** (0.447)	-1.741*** (0.450)	-0.333 (0.442)
urbanization rate		7.904*** (0.828)	8.039*** (0.866)	8.571*** (0.991)	8.302*** (0.933)
FDI/GDP		0.1325* (0.0653)	0.2037*** (0.0709)	0.0660 (0.0579)	0.2556** (0.0992)
road per capita		-0.0129*** (0.00342)	-0.0102*** (0.00359)	-0.0232*** (0.00420)	0.0134*** (0.00342)
independence reform		0.0579*** (0.0137)	0.0614*** (0.0138)	0.0435** (0.0177)	0.0513*** (0.0126)
Observations	73,745	73,745	73,745	64,165	56,625
R-squared	0.911	0.914	0.915	0.902	0.882

Standard errors in parentheses clustered at the industry level

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

### 3.4 Judicial Transparency and International Trade

We then shift our focus to open economy discussions. Jiao and Wei (2017) empirically investigates that international trade is more sensitive to institutional quality than domestic trade. In this section, we examine how Chinese exports respond to the transparency reform.

We change the dependent variable in equation 1 and 2 to be the export value, quantity, and price at the province-product-year level. Panel A in Table 4 represents the results under the main empirical setting. Columns (1) and (2) show that export value is positively associated with judicial transparency. A 10 percentage point increase in judicial transparency is associated with a 7.6% increase in merchandise export. The point estimate is indeed much larger than that in Table 2 regarding the domestic output response. Higher education is associated with lower export value. It could be that labor used in producing exported goods in China is largely performed by workers without college or above education. The urbanization rate is positively correlated with export value, reflecting that exported goods are mostly produced in urban areas. Road length per capita does not have any significant impact on exports. The foreign-owned share is positively correlated with exports, consistent with the observation that foreign firms participate more intensively in exporting than domestic firms in China (e.g., Feenstra, Li and Yu (2014)).

The export value can be decomposed as export quantity times average prices. We further examine the responses of export quantity and average price to transparency improvement. Columns (3) to (6) show that export quantity increases even more than export value, while average price decreases with an increase in judicial transparency. This could be attributed to a compositional effect that the exports of lower quality (hence low price) goods within a given product code are more negatively impacted by lower judicial quality. Consequently, improved transparency is associated with lower export prices on average.

Table ?? considers the dynamic setting with 2012 as the benchmark year. We interact provincial-level judicial transparency in 2015 with year dummies, confirming the robustness of the results in Table 4. In specific, a 10 percentage point increase in transparency is associated with 5.76% and 11.19% more export value in 2017 and 2019, respectively. These results resemble higher impacts of judicial transparency on exports in the long run. Table ?? also shows the results of export quantity and price's dynamic responses. We find that export quantity is the main driver of the export value response. In general, export prices mildly decline after judicial transparency improvement. For instance, a 10 percentage point increase in transparency is associated with a 2.32% lower export price in 2019.

Table 4: Export and Judicial Transparency

	(1)	(2)	(3)	(4)
		log(export value)		
judicial transparency	0.763*** (0.047)	0.854*** (0.048)		
judicial*dummy2011			0.210*** (0.065)	0.259*** (0.064)
judicial*dummy2013			0.399*** (0.054)	0.361*** (0.054)
judicial*dummy2014			0.273*** (0.064)	0.262*** (0.065)
judicial*dummy2015			0.306*** (0.071)	0.293*** (0.072)
judicial*dummy2016			0.295*** (0.071)	0.430*** (0.072)
judicial*dummy2017			0.665*** (0.076)	0.874*** (0.079)
judicial*dummy2018			0.972*** (0.078)	1.165*** (0.082)
judicial*dummy2019			1.275*** (0.077)	1.333*** (0.080)
college share		-1.026*** (0.209)		-1.032*** (0.212)
urbanization		3.676*** (0.373)		3.383*** (0.378)
road per capita		0.014*** (0.003)		0.017*** (0.003)
FDI/GDP		0.632*** (0.040)		0.667*** (0.041)
independence reform		0.156*** (0.013)		0.163*** (0.013)
Observations	249627	249627	249627	249627
$R^2$	0.872	0.872	0.872	0.873

Standard errors in parentheses clustered at the industry level

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$



## 4 The Role of Industry Level Judicial Dependence

Judicial transparency at the province level can correlate with many other policies that are irrelevant to reforms in the judicial system but can improve industrial output. To further confirm that it is indeed reforms in the judicial system that increase the industrial output, we construct the judicial dependence index at the industry level and investigate whether industries with higher judicial dependence are more responsive to judicial transparency. This strategy is akin to the approach used by Rajan and Zingales (1995) when they examine how financial development affects growth. Nunn (2007) follows a similar strategy that interacts judicial quality with contract intensity to predict export volume, thereby gauging the connection between the contracting environment and comparative advantages.

To construct the judicial dependence index, we use data from Qichacha, a widely used platform in China, of which the data source is the National Enterprise Credit Information Publicity System. The platform collects information of all registered firms in China on registration information, equity, industry, registered capital, etc., and importantly, judicial cases in which they get involved. This data source has been used in recent research, such as Chen et al. (2020), Guo, Ke and Tang (2023), among others. We take the China Industrial Firm Survey data of 2013 and use the industry classifications provided in the dataset for each firm. By extracting the firm names for each industry, we search for matches in the Qichacha dataset of all judicial cases. Out of all 344,812 firms from the 2013 China industrial firm survey data, 325,709 were matched (matching rate 94.46%). The judicial dependence index is then constructed as

$$\text{dependence}_j = \frac{\text{total value associated with litigation of all firms in industry } j \text{ in 2015}}{\text{total value of output of all firms in industry } j \text{ in 2015}}.$$

The average judicial dependence is 0.1% with a standard deviation of XX. Among all industries, the "tobacco manufacturing" industry has the lowest judicial dependence, while the "leather, fur, feathers, and its products and footwear" industry has the highest judicial dependence.

We then interact judicial transparency with the judicial dependence index in the empirical settings.<sup>7</sup> Specifically, we run the following regressions

$$y_{ijt} = \beta_1 x_{it} + \beta_2 * x_{it} * \text{dependence}_j + \Gamma Z_{it} + \alpha_{ij} + \delta_{jt} + \epsilon_{ijt}, t \in [2011, 2016],$$

where  $y_{ijt}$  denotes dependent variables of interest including industrial output, export value,

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<sup>7</sup>Table 8 in Appendix shows that our main results are robust using industry-level contract intensity data from Nunn (2007) as a measure of judicial dependence.

quantity, and prices.  $x_{it}$  is the judicial transparency of industry  $i$  in year  $t$ .

Panel A of Table 5 shows the regression results with industrial output as the dependent variable. In Column (1), without including other control variables, we find that the estimated  $\beta_1$  is not statistically significant from 0. This implies that industries that have no judicial dependence will not respond to an improvement in judicial transparency. However, the estimated  $\beta_2$  is positive and statistically significant. The point estimate is also economically significant. For instance, in an industry with an average judicial dependence index of 0.1%, a 10 percentage points increase in judicial transparency will imply a 2.91% more increase in industrial output compared to an industry that does not depend on the judicial system. Columns (3) and (4) show that the estimated coefficient before the interaction term of judicial transparency at the province-year level and the judicial dependence at the industry level is positive and statistically significant (p-value 0.09). This implies inter-industry labor reallocation towards high judicial dependence industry when judicial transparency improves. We obtain similar point estimates before the interaction term when labor productivity becomes the dependent variable in columns (5) and (6). But it is statistically insignificant (p-value 0.14). Noises in the measurement of judicial dependence can weaken the statistical significance level. When replacing the dependent variable by  $\log(\text{main revenue})$  of firms in different industries in the last two columns, we obtain fairly consistent results with the first two columns. The results of the dynamic setting with 2012 as the baseline year can be found in the Appendix.

Panel B of Table 5 reports the regression results with export-related variables as the dependent variables. For export values, we find that the point estimate on the interaction term between judicial transparency and industry judicial dependence measure is positive and statistically significant. This implies that the export values of those products whose industries rely more on the judicial system increase more with improvement in judicial transparency. Similar findings are obtained for export quantities. However, the decline in export prices with judicial transparency does not exhibit significant differences across industries with different judicial transparency.

Table 5: Industry Judicial Dependence, Judicial Transparency and Economic Outcomes

Panel A: Output						
	(1)	(2)	(3)	(4)	(5)	(6)
	log(output)		log(employment)		log( $\frac{output}{employment}$ )	
judicial transparency	-0.037 (0.136)	-0.008 (0.131)	-0.140 (0.112)	-0.141 (0.111)	0.036 (0.125)	0.076 (0.124)
judicial*dependence	283.795*** (98.516)	289.594*** (98.597)	145.638* (85.851)	146.772* (84.633)	142.085 (94.434)	142.999 (95.372)
college share		0.682** (0.302)		-0.284 (0.305)		0.315 (0.250)
urbanization		10.329*** (0.964)		4.159*** (0.622)		4.074*** (0.545)
road per capita		0.013* (0.007)		0.013** (0.005)		0.010** (0.005)
FDI/GDP		0.2323** (0.0988)		0.0504 (0.0450)		0.1452** (0.0642)
independence reform		0.010 (0.013)		0.008 (0.010)		-0.016 (0.011)
Observations	6497	6497	6285	6285	5146	5146
$R^2$	0.981	0.982	0.982	0.983	0.928	0.930

Panel B: Export						
	(1)	(2)	(3)	(4)	(5)	(6)
	log(value)		log(quantity)		log(price)	
judicial transparency	0.197 (0.198)	0.352* (0.208)	0.646*** (0.225)	0.768*** (0.234)	-0.322*** (0.104)	-0.302*** (0.112)
judicial*dependence	307.861** (125.520)	369.597*** (132.101)	262.702* (140.806)	329.558** (146.571)	96.300 (64.369)	109.278 (69.240)
college share		-0.958*** (0.275)		-0.844*** (0.308)		0.100 (0.153)
urbanization		4.204*** (0.476)		4.719*** (0.529)		-0.414* (0.248)
road per capita		0.014*** (0.004)		0.018*** (0.004)		0.005*** (0.002)
FDI/GDP		0.6539*** (0.0505)		0.7496*** (0.0600)		0.0462 (0.0292)
independence reform		0.158*** (0.017)		0.179*** (0.018)		-0.001 (0.010)
Observations	181173	149132	163735	131719	163735	131719
$R^2$	0.849	0.865	0.874	0.888	0.893	0.902

Standard errors in parentheses clustered at the HS-4 product level

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

## 5 Conclusion

Using a judicial transparency reform in the Chinese system, we investigate the impact of increased local disclosure of the lawsuit documents on economic performance. In particular, industrial output increases with judicial transparency, and this result is not driven by higher employment but by increased measured productivity per worker. Moreover, the presence of judicial transparency correlates with a surge in the number of new firms, with smaller enterprises exhibiting a more pronounced response. Additionally, export values respond more strongly to judicial transparency, primarily due to an increase in export quantities. Furthermore, we explore the role of industry heterogeneity in their dependence on the judicial system and find that those industries with higher judicial dependence are more responsive to judicial transparency reform.

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# A Appendices

## A.1 Evidence using Output Data in IO Table from China

The Chinese Input-Output Table provides data on industrial output for IO industries in 2012 and 2017. We map each of the four-digit CIC codes to an IO sector category and construct the judicial dependence for each IO industry based on the judicial transparency index of 2017. The main empirical setting is,

$$y_{ijt} = \beta_1 x_{it} + \beta_2 * x_{it} * dependence_j + \Gamma Z_{it} + \alpha_{ij} + \delta_{jt} + \epsilon_{ijt}, t = 2012, 2017$$

Table 6 represents the results with industrial output as the dependent variable. In Columns (1), the point estimate on judicial transparency is positive and statistically significant. A 10 percentage point increase in judicial transparency is associated with a 10.39% increase in industrial output. Column (2) includes control variables. The point estimate for judicial transparency reduces slightly. Consistent with results in Table 2, we find higher education and urbanization to be associated with higher industrial output. In Columns (3) and (4), we include the interaction term between transparency and judicial dependence index. After including control variables, Column (4) shows that the point estimate on the interaction term is positive and significant. For instance, a 10 percentage points increase in judicial transparency will imply a 9.31% larger increase in industrial output in an "average industry" compared to an industry that does not depend on the judicial system. The results are qualitatively robust with our baseline results in the paper using data from the China Industrial Yearbook.

## A.2 Evidence using City-level Data

In our benchmark empirical analysis, we use province-level data. However, to ensure the robustness of our findings, we also examine the response in manufacturing output to city-level transparency in this section. It's important to note that we only have data on aggregate output at the city level, and 58.7% observations of city-level exports are missing so we do not conduct the analysis for exports. Since data on the number of foreign-owned firms at the city level is unavailable, we have chosen not to include FDI share as a control variable. Columns (1) and (2) show the results for judicial transparency. When control variables are included, a 10 percentage point increase in judicial transparency is associated with a 2.37% increase in industrial output. In Columns (3) and (4), we present the results for the dynamic setting. The results are qualitatively robust with results in Table 2, showing that the point

Table 6: Judicial Transparency and Industrial Output using IO Table Data

	(1)	(3)	(2)	(4)
			log(output)	
judicial transparency	1.039*** (0.258)	0.144 (0.691)	0.966*** (0.254)	0.0312 (0.675)
judicial transparency*dependence		0.154 (0.0926)		0.161* (0.0922)
college share			2.764*** (0.584)	2.795*** (0.591)
urbanization rate			9.006*** (1.164)	9.029*** (1.155)
road per capita			-0.0301** (0.0135)	-0.0304** (0.0137)
FDI/GDP			0.0572 (0.1176)	0.0521 (0.1180)
Observations	1,496	1,496	1,496	1,496
R-squared	0.975	0.975	0.977	0.977

Standard errors in parentheses

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

estimates on judicial transparency have an increasing trend after 2014.

Table 7: Judicial Transparency and Industrial Output using City-level Data

	(1)	(2)	(3)	(4)
		log(output)		
judicial transparency	0.572*** (0.136)	0.472*** (0.127)		
judicial transparency*dummy2011			-0.0111 (0.0467)	-0.00812 (0.0592)
judicial transparency*dummy2013			0.0591 (0.0426)	0.0604 (0.0481)
judicial transparency*dummy2014			0.347*** (0.133)	0.330** (0.142)
judicial transparency*dummy2015			0.526*** (0.133)	0.411*** (0.134)
judicial transparency*dummy2016			0.727*** (0.176)	0.648*** (0.176)
road per capita		0.00206 (0.00187)		0.00116 (0.00197)
FDI/GDP		4.420*** (1.226)		4.478*** (1.254)
independence reform		-0.00585 (0.0169)		-0.0105 (0.0163)
Observations	1,596	1,506	1,572	1,482
r2	0.969	0.970	0.969	0.970

Standard errors in parentheses

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table 8: Industry Contract Intensity, Judicial Transparency and Industrial Output

	(1)	(2)	(3)	(4)	(5)	(6)
	log(output)		log(employment)		log(labor productivity)	
judicial transparency	-0.095 (0.122)	-0.076 (0.124)	-0.194*** (0.059)	-0.194*** (0.058)	-0.090 (0.113)	-0.060 (0.119)
judicial*contract intensity	0.800*** (0.269)	0.801*** (0.263)	0.548*** (0.127)	0.541*** (0.130)	0.537** (0.197)	0.531*** (0.191)
college share		0.609* (0.330)		-0.524 (0.328)		0.504* (0.276)
urbanization		10.382*** (0.978)		4.690*** (0.667)		3.709*** (0.495)
road per capita		0.007 (0.008)		0.009 (0.006)		0.007 (0.005)
FDI/GDP		0.228*** (0.067)		0.063 (0.050)		0.118** (0.044)
independence reform		0.013 (0.015)		-0.001 (0.010)		-0.006 (0.011)
Observations	4960	4960	4916	4916	4048	4048
$R^2$	0.983	0.984	0.983	0.984	0.935	0.937

Standard errors in parentheses clustered at the industry level

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$