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Do judiciaries matter for development? Evidence from India

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ABSTRACT

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This paper attempts to measure the causal impact of the speed of judiciaries on economic activity by using three novel instrumental variables measuring judicial procedural ambiguity and complexity. First, I find that Indian High Court amendments complicating procedures to treat a case are related to higher trial duration. Second, I find that temporally exogenous conflicting judicial decisions taken in India due to the Code of Civil Procedure's ambiguity lead to higher expected trial duration as judges are required to spend considerable time in choosing between several conflicting views. By using spatial and temporal variations in the occurrence of enactment of amendments and conflicting decisions as instrumental variables, I am able to measure the impact of judicial speed on credit markets, agricultural development, and manufacturing performance. *Journal of Comparative Economics* **37** (2) (2009) 230–250. University of Quebec at Montreal, Case postale 8888, Succursale Centre-ville, Montréal, Québec, Canada H2X 3X2.

1. Introduction

This paper contributes to the empirical literature related to the effects of institutions on economic performance. As institutions are arguably endogenous, one key question in this body of research is the issue of causation. The first issue is one of reverse causality: states with higher per capita incomes are able to devote more funds to improving institutions and thus have better institutions. The second issue is one of unobservable omitted variables, which may contribute to both judicial and economic outcomes, such as pessimism regarding a particular state's prospects, or the "backwardness" of another. For these reasons, it is important to identify exogenous sources of variation in the quality of institutions if one wishes to relate it to economic performance.

This paper focuses on the judiciary, a topic of first-order importance in this literature, and on its speed, an objective measure identified as a key problem in India. In this paper, I identify procedural complexity and ambiguity as two potential reasons for the slowness of the High Courts in India. While the Code of Civil Procedure (the act regulating how a case is to be processed)[1] was enacted at the central level in 1908, High Courts were awarded the right to amend it locally. I read and classify the 430 High Court amendments to the Code of Civil Procedure between 1971 and 1996, which allows me to

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[1] The Code of Civil Procedure (1908) contains India's laws relating to procedures in suits and civil proceedings. They may be summed up as follows: procedures for filing civil cases, court powers for passing various orders, court fees and stamps involved in the filing of cases, rights of the parties to cases, namely plaintiff and defendant, jurisdictions and parameters within which civil courts must function, specific rules for case proceedings, right of appeals, and reviews and references.

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use both time series and cross-sectional variation to identify the effects of the Code of Civil Procedure on the judiciary. I find that the 94 amendments that complicate procedures followed by the High Courts ("Court red tape" amendments) significantly increase the expected duration High Court trials (although they were not designed to do so). Concerning Code ambiguity, I read and classify all conflicting judicial decisions pertaining to the Code of Civil Procedure taken by High Courts between 1971 and 1996. Conflicting judicial decisions, measured as violations of precedents already established by the same High Court, and as violations of precedents already established by other High Courts, are found to increase trial duration, as judges must spend considerable time choosing between conflicting views. I then exploit the spatial and temporal variation of "Court red tape" amendments and conflicting judicial decisions to instrument the impact of expected duration of a trial in High Court on economic activity.

There are four primary reasons that "Court red tape" amendments and conflicting judicial decisions represent valid instrumental variables. First, I use a panel data analysis and include state fixed-effects to account for permanent differences across states in policies and outcomes. If systematic determinants of amendments are time invariant characteristics, this removes endogeneity concerns. Second, "Court red tape" amendments are not explicitly designed to deteriorate the speed of High Courts. As such, they are not endogenous to the judicial slowness at the time the amendment is passed. Third, the temporal variation in conflicting judicial decisions is exogenous, as they arise after the arbitrary occurrence of cases pertaining to ambiguous sections of the Code of Civil Procedure. Fourth, as it is possible that the conflicting judicial decisions are endogenous to the quality of the judges, or influenced by the legislatures, I attempt to account for the quality of the courts, and for the potential influence of politicians or other interest groups, on these conflicting judicial decisions.

The speed of the judiciary has been identified as a key problem in India. Data on the Indian judiciary indicate that there were 3.1 million cases pending in the 18 High Courts and 20 million in subordinate courts in 2000.[2] At the rate at which cases are solved, this translates into an average of approximately two years for the resolution of any case. The Indian judiciary does not compare well on an international level. Extreme examples of judicial slowness refer to cases taking 47 years to be resolved, by which time the plaintiff had died.[3] Slow judiciaries can heavily shape economic activity. First, slow judicial enforcement may increase the opportunistic behavior of borrowers: anticipating that creditors will not be able to recover their loans quickly through judiciary procedures, borrowers may be more tempted to default. In turn, creditors may respond to this behavior by reducing the availability of credit. Second, the probability of punishment in monetary or non-monetary terms heavily dissuades opportunistic agents to default on contractual agreements. However, slower judiciaries reduce the value of punishment, thereby weakening incentives to cooperate. An efficient judicial system that enforces contracts swiftly could limit post-contractual opportunistic behavior and foster investment. For these reasons, it is important to identify explanatory factors for the slowness of judiciary in India, and to analyze the impact of these factors on economic activity. In this paper, I find that slower judiciaries reduce access to credit markets in the agricultural sector, leading to depressed agricultural outputs. I also find that slower judiciaries are associated with poorer outputs in sectors dependent on strong judicial systems, such as registered manufacturing and trade.

This paper contributes to the empirical literature pertaining to the effects of institutions on economic performance; as well, it attempts to address the endogeneity and causality concerns raised in the previous literature. There are some previous attempts in the literature to resolve endogeneity and causality issues (Acemoglu et al., 2001; Hall and Jones, 1999; Mauro, 1995; Naritomi et al., 2007). The literature often exploits spatial variation in the quality of the judiciary to identify its effect on economic activity. Knack and Keefer (1995) relate professional country risk measures provided by business experts to a measure of judicial quality (the amount of contract-intensive money, or the difference between M2 and cash). However, this finding may be accounted for by other factors. For example, states that have better policies in general are also more likely to have efficient judiciaries. In this case, judicial quality may simply reflect better overall economic policies and may not, in fact, account for better economic outcomes. Jappelli et al. (2005) present a model of the effect of judicial enforcement on credit markets and test it using panel data from Italian provinces. The authors find that the duration of civil trials, as well as the stock of pending civil trials per inhabitant, is negatively correlated with loans granted to domestic companies and positively correlated with measures of credit constraints. Cristini et al. (2001) relate differences in judicial efficiency across Argentinean provinces to the size of provincial credit markets. Pinheiro and Cabral (2001) perform a similar analysis (and attain similar results) with data on Brazil. Lambert-Mogiliansky et al. (2007) relate differences in judicial efficiency across Russian regions to the performance of firms that reorganized following a bankruptcy law. However, these five papers fail to address the potential endogeneity of the judicial inefficiency measures.

Djankov et al. (2003) address concerns of endogeneity in their study, which measures judicial formalism in 109 countries around the world, by using legal origin as an instrumental variable. Their study finds judicial formalism to be greater in countries with civil, rather than common-law, systems, and to be associated with a lack of consistency, honesty, and fairness in judicial decisions. Acemoglu and Johnson (2005) use the same data to relate judicial efficiency to economic outcomes, also using legal origin as an instrumental variable. They find that contracting institutions have no impact on economic performance after controlling for property rights institutions. In a similar spirit, and also close to Berkowitz and Clay (2006), where two initial conditions (having been settled by a country with a civil law legal system (France, Spain, or Mexico)

[2] Law's Delays: Arrears in Courts, 85th Report, Department-related parliamentary standing committee on Home affairs, Parliament of India, Rajya Sabha. http://rajyasabha.nic.in/book2/reports/home_aff/85threport%20.htm.

[3] Krishnamoorty, Dasu, Judicial Delays, Indolink, editorial analysis, 2003.

and membership in the Confederacy during the Civil War) are found to have lasting effects on state courts in the United States, the current paper tries to find determinants of the quality of courts, in this case "Court red tape" amendments and conflicting judicial decisions, as instrumental variables. However, the current paper differs from the research by Acemoglu and Johnson in three ways. First, I use a within-country analysis of India. By limiting myself to one country, I am able to control for a range of factors and influences that cannot be as convincingly controlled for in cross-country data. This allows me to identify the effect of judicial efficiency independently from the laws, legal origins, and other country-wide characteristics. Second, this paper advances this literature because it exploits both time series and cross-sectional variations. Third, it generates clear policy implications regarding the desirability of simplifying reforms to the Indian Code of Civil Procedure.

One notable exception in the literature is Visaria (2006), who examines the effect of tribunals on loan repayment delinquency using a difference-in-differences strategy based on two sources of variation (the monetary threshold for claims to be eligible for these tribunals and the staggered introduction of tribunals across Indian states). She finds that the establishment of tribunals reduces delinquency in loan repayment by between 3 and 11 percent. This paper differs from Visaria (2006) in two ways. First, I focus on the speed of the judiciary by explicitly demonstrating the impact of "Court red tape" amendments and conflicting judicial decisions on decreased judicial speed. Second, I not only relate the judiciary's speed to credit access, but also to other outcomes such as the development of the registered manufacturing, unregistered manufacturing, trade, hospitality, banking and insurance, and real estate sectors, and ultimately to poverty.

The paper is structured as follows. Section 2 describes data collected concerning amendments to the Code of Civil Procedure and conflicting decisions made by High Courts between 1971 and 1996. Section 3 focuses on theoretical issues, explaining the reasons for these amendments and the potential impact of the judiciary on economic activity. This section clarifies the econometric specification used by specifying what control variables and what economic outcomes should be used. Section 4 contains an empirical analysis of the effects of both conflicting decisions and amendments on the expected duration of High Court trials. Section 5 examines the effects of the judiciary on economic outcomes. Section 6 concludes.

2. Data

Legal experts have identified the speed of the judiciary as a key problem in India (Debroy, 2000). Data on cases pending, filed, and solved[4] indicate that there were 3.1 million cases pending in 18 High Courts[5] in 2000. From this data, it is possible to estimate the expected duration of a High Court trial. If one assumes that the judiciary does not accept any more cases in subsequent years, dividing the number of cases pending (plus the number of cases filed within the year) by the number of cases solved during a year represents the number of years it would take the judiciary to address the backlog of cases. If we further assume that the technology of the judiciary is on a "last in, last out" basis, this estimate also represents the time it will take to treat a case filed at any point in time. This variable indicates that it takes an average of approximately two years to solve any case.[6] Fig. 1 shows the variation in this variable across the 18 High Courts between 1971 and 1996. The Indian judiciary does not compare well on an international level. For example, the World Bank's "Doing Business" project, which measures the ease or difficulty of enforcing commercial contracts, estimates that it takes 1420 days to solve a payment dispute in India,[7] compared to an average of 1053 days in South Asian and 463 in days in the OECD countries. As a result, India's judiciary has been ranked 180th in the world in 2008,[8] compared to a 120th place according to the full set of measures.[9] Legal experts argue that the Code of Civil Procedure is one of the primary reasons for India's slow judiciary (Debroy, 2000). While the Code of Civil Procedure was enacted in 1908 at the central level, High Courts were granted the right to amend its Codes (Section 122). This gives rise to both time series and cross-sectional variation that can be used to identify the effects of the Code of Civil Procedure on the judiciary. In particular, some amendments complicate procedures that have to be followed by the High Courts (subsequently named "Court red tape" amendments).

2.1. Amendments to the Code of Civil Procedure

In this paper, I identify spatial and temporal variations in the complexity of the Code of Civil Procedure that will be used in a difference-in-differences analysis. This analysis will compare states that enacted changes to the Code of Civil Procedure to states that did not, before and after these changes. The advantage of this difference-in-differences approach is that it accounts for any pre-existing systematic differences between states and, therefore, isolates the causal impact of these spatial and temporal variations in the complexity of the Code of Civil Procedure on judicial speed. However, this is contingent on the fact that the common time effects assumption[10] is true.

[4] From the Law commission reports, Annual Report, Ministry of Law, Justice and Company Affairs and archives of the Supreme Court of India.

[5] The Indian judiciary operates on three levels: a single Supreme Court at the federal level; High Courts in each of the States; and, at lower levels, district judges for civil cases and session judges for criminal cases. See Table 1 for the names and description of the 18 High Courts in India.

[6] Descriptive statistics available upon request.

[7] http://www.doingbusiness.org/ExploreTopics/EnforcingContracts/.

[8] http://www.doingbusiness.org/ExploreEconomies/?economyid=89.

[9] Starting a Business, Dealing with Construction Permits, Employing Workers, Registering Property, Getting Credit, Protecting Investors, Paying Taxes, Trading Across Borders, Enforcing Contracts, and Closing a Business.

[10] States that enacted changes, had they not enacted these changes, would have evolved in the same way as states that did not enact changes.

Table 1
Jurisdiction and seat of High Courts, states matched and dropped from the analysis.

Name	Territorial establishment jurisdiction	Seat	State matched with in the paper	States dropped from the analysis
Allahabad	Uttar Pradesh	Allahabad (Bench at Lucknow)	Uttar Pradesh	
Andhra Pradesh	Andhra Pradesh	Hyderabad	Andhra Pradesh	
Bombay	Maharashtra, Goa, Dadra and Nagar Haveli and Daman and Diu	Bombay (Benches at Nagpur, Panaji and Aurangabad)	Maharashtra	Goa, Dadra and Nagar Haveli and Daman and Diu
Calcutta	West Bengal	Calcutta (Circuit Bench at Port Blair)	West Bengal	
Delhi	Delhi	Delhi	Delhi	
Guwahati	Assam, Manipur, Meghalaya, Nagaland, Tripura, Mizoram and Arunachal Pradesh	Guwahati (Benches at Kohima, Aizwal and Imphal. Circuit Bench at Agartala and Shillong)	Assam	Manipur, Meghalaya, Nagaland, Tripura, Mizoram and Arunachal Pradesh
Gujarat	Gujarat	Ahmedabad	Gujarat	
Himachal Pradesh	Himachal Pradesh	Shimla	Himachal Pradesh	
Jammu and Kashmir	Jammu and Kashmir	Srinagar and Jammu	Jammu and Kashmir	
Karnataka	Karnataka	Bangalore	Karnataka	
Kerala	Kerala and Lakshadweep	Ernakulam	Kerala	Lakshadweep
Madhya Pradesh	Madhya Pradesh	Jabalpur (Benches at Gwalior and Indore)	Madhya Pradesh	
Madras	Tamil Nadu and Pondicherry	Madras	Tamil Nadu	Pondicherry
Orissa	Orissa	Cuttack	Orissa	
Patna	Bihar	Patna (Bench at Ranchi)	Bihar	
Punjab and Haryana	Punjab, Haryana and Chandigarh	Chandigarh	Punjab	Haryana, Chandigarh
Rajasthan	Rajasthan		Rajasthan	
Sikkim	Sikkim		Sikkim	
Fraction of population in 1991 in these states			97%	3%

Notes. – On the particular issue of multiple benches, data on pending, filed and solved cases, from the Law commission reports, Annual Report, Ministry of Law, Justice and Company Affairs and archives of the Supreme Court of India, aggregates files from different benches at the level of the High Court. I thus have only 18 observations per year of duration between 1971 and 1996. The three instrumental variables (court red tape amendments, conflicting judicial decisions in a High Court, and conflicting judicial decisions with other High Courts) are always collected at the level of the High Court, not at the level of the Benches. Indeed, these High Court amendments and violations set precedents for the entire State since India functions according to the common law system — the actions of High Court judges set precedents for the functioning of subordinate courts or other benches in their particular State.
– On the particular issue of High Courts with multiple jurisdictions, this creates a problem when High Courts have to be matched to a state. I have therefore chosen to drop from the analysis the small states. I thus kept the 18 biggest states in India. The states that I kept represent 97% of the population in India. We can thus be confident that we still have a representative sample of India.

The Code of Civil Procedure has been periodically amended by various Acts of Central and State Legislatures. According to Section 122,[11] High Courts have the power to amend procedures laid down by the Orders. As India functions according to the common law system, these High Court amendments set precedents for every one of the subordinate courts in that particular state. There have been a total of 430 amendments to the Orders by various High Courts since 1971. I read each of these amendments and labeled those that require additional procedures of the Court as "Court red tape" amendments. An example of such amendments concerns Order 39 – Temporary Injunctions and Interlocutory Orders, Rule 4:

"**Order for injunction may be discharged, varied or set aside**. – Any order for an injunction may be discharged, or varied, or set aside, by the Court, on application made thereto by any party dissatisfied with such order [...]."

[11] The Code is divided into two parts, namely Sections and Orders. While the main principles are contained in the former, the detailed procedures with regard to matters dealt with by the Sections are spelled out in the latter.

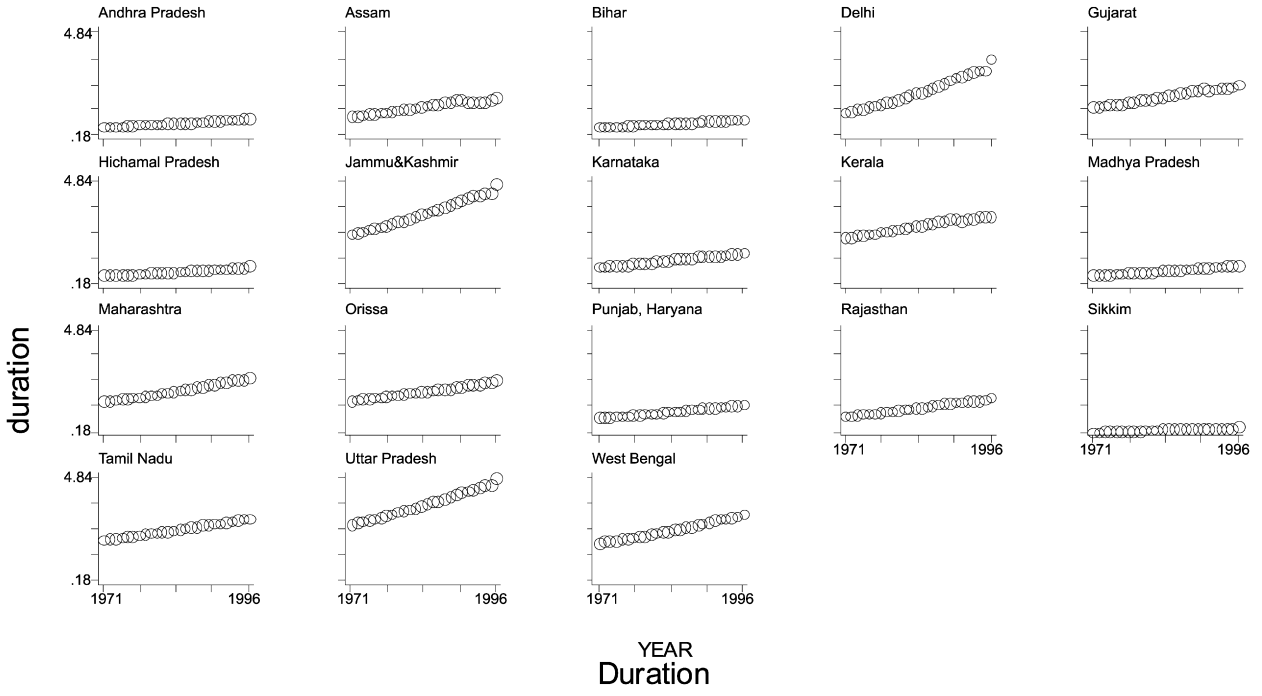

Fig. 1. Expected duration of a trial in High Court.

Compare this with the Madhya Pradesh High Court amendment enacted in 1984:

"**Order for injunction may be discharged, varied or set aside**. – Any order for an injunction may be discharged, or varied, or set aside, by the Court *for reasons to be recorded, either on its own motion* or on application made thereto by any party dissatisfied with such order [...]."

Thus, as of (or after) 1984, all courts in Madhya Pradesh must record their reasons for changing an injunction. Consequently, this process may slow down judiciary procedures in that state. Therefore, I classify this amendment as a "+1" in the "Court red tape" variable from 1984 onward for Madhya Pradesh and expect a positive correlation with the estimated duration of High Court trials. There have been 94 "Court red tape" amendments in India between 1971 and 1996 (see Fig. 2 for a graph of these amendments by state and year). Such amendments were designed to increase the quality of the courts by forcing judges to justify and record decisions in written form.

2.2. Quality of the instrumental variable "Court red tape" amendments

This paper first attempts to identify causes of judicial inefficiency in India. The paper's second objective is to relate the judiciary's speed to economic performance. Cross section analyses relating these two variables are insufficient, as unobserved state heterogeneity might influence the results. I employ a panel data analysis that accounts for unobserved time constant state heterogeneity. However, unobserved time variant state heterogeneity may still exist. One response to this problem would be to find exogenous sources of variation in the quality of the judiciary, which would allow for a causal interpretation of judicial quality on economic outcomes. This paper seeks to locate sources of variation in the speed of the judiciary. Immediately after a "Court red tape" amendment in a particular state, I expect the duration of a High Court trial to increase, which should subsequently affect economic performance. In this way, "Court red tape" amendments can be used as an instrumental variable for the expected duration of High Court trials in a regression on economic performance.

An important assumption concerning instrumental variables is that they must be exogenous. Therefore, it is important to note that I consider in this analysis "Court red tape" amendments, amendments not especially designed to increase or reduce speed. These amendments were likely enacted to improve the quality of the procedures (as in the example given above). I will control in the following analysis for the quality of the courts. Even if these amendments were not enacted to affect speed, they might have unexpected consequences for the estimated duration of High Court trials, due to the time required for these additional procedures.

Interestingly, I found many amendments with an explicit objective to affect speed, which are further labeled "explicit speed" amendments. These amendments are by definition endogenous to the economic, political, and judicial conditions of the time, and may have been enacted to or increase the speed of slow judiciaries. Thus, these amendments were purpose-

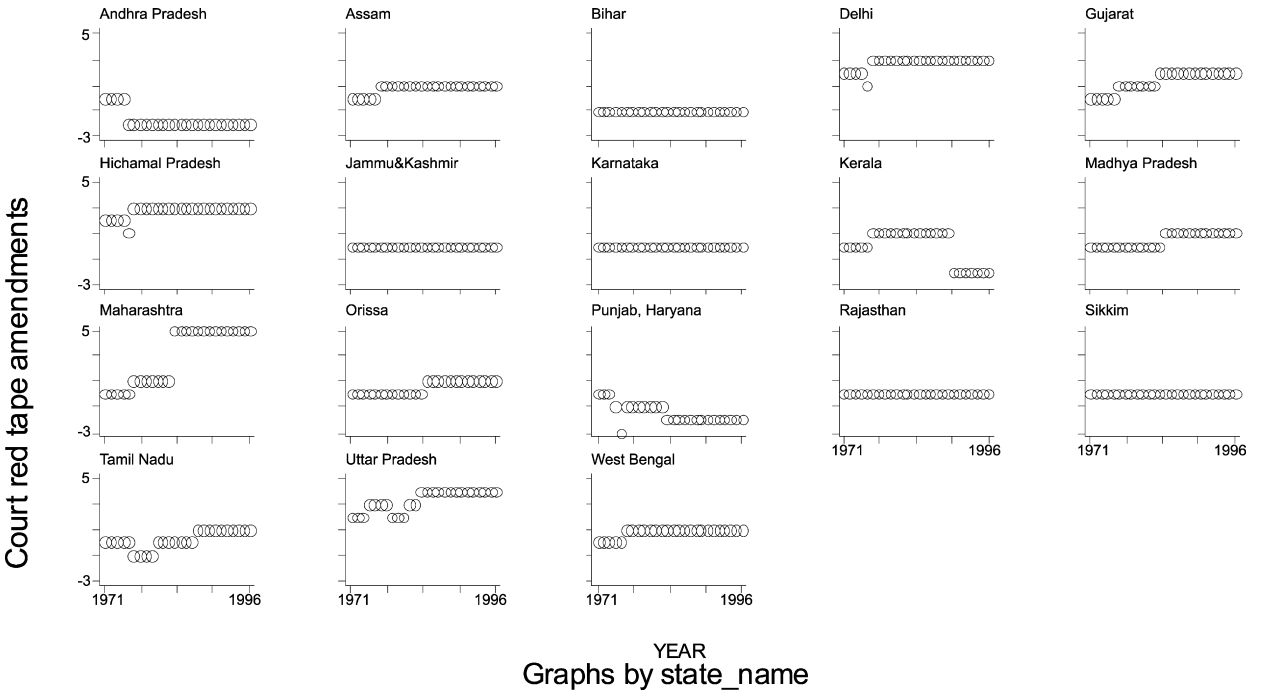

Fig. 2. Cumulative index of the "Court red tape" amendments per state between 1971 and 1996.

fully excluded from the analysis. An example of such "explicit speed" amendments is Order 9 – Appearance of Parties and Consequences of Non-Appearance, Rule 5 of the Civil Procedure Code:

> "**Dismissal of suit where plaintiff, after summons returned unserved, fails for one month to apply for fresh summons**. – Where, after a summons has been issued to the defendant, or to one of several defendants, and returned unserved, the plaintiff fails, for a period of one month from the date of the return made to the Court by the officer certifying to the Court returns made by the serving officers, to apply for the issue of a fresh summons the Court shall make an order that the suit be dismissed as against such defendant, unless [...]."

Compare it with the Bombay High Court amendment enacted in 1987:

> "**Dismissal of suit where plaintiff, after summons returned unserved, fails for *two months* to apply for fresh summons**. – Where, after a summons has been issued to the defendant, or to one of several defendants, and returned unserved, the plaintiff fails, for a period of *two months* from the date of the return made to the Court by the officer certifying to the Court returns made by the serving officers, to apply for the issue of a fresh summons the Court shall make an order that the suit be dismissed as against such defendant, unless [...]."

I have italicized the difference between the two amendments. This difference could potentially impact case backlog. It implies that, in India, a case is dismissed after only one month if the plaintiff fails to apply for a fresh summons once a defendant summons returns unserved. However, in the Bombay High Court, and consequently in all Maharashtra courts, cases are dismissed after two months. This may have slowed down case dismissal in the state of Maharashtra after 1987. Therefore, I classify this amendment as a "−1" in the "explicit speed" variable after 1987 for Maharashtra.[12,13] I do not consider "explicit speed" amendments in the analysis, as these amendments are endogenous. Instead, I consider only "Court red tape" amendments, which add procedures to the courts and do not explicitly aim to affect judiciary speed.

[12] It is interesting to note that this one month period was originally a three month period before a pan-India amendment in 1976. It was later changed in 1999, in another pan-India amendment, to just 7 days! The 1999 amendment had the explicit objective of facilitating the swift disposal of civil suits and proceedings. The fact that this duration was modified in 1999 seems to indicate that this order is of particular importance in determining judicial speed.

[13] There have been 50 such amendments in India between 1971 and 1996. It is also worth noting that the time limit imposed in this particular example cannot be modified or extended by courts. I noted "explicit speed" amendments where provisions state that a court may extend a time limit if it wishes to do so. This is important because it is often said that any amendment is inefficient if it goes against the habits of the court and if the latter retains the possibility of modifying time limits on a case by case basis. There are 42 explicit speed amendments where discretion regarding time limits is left to the courts. It is important to keep this in mind when evaluating the impact of these amendments.

Table 2
Descriptive statistics of the amendments.

Type of amendment		Definition	No. of amendments (1)	Overall sum weighted by the direction of the amendment (2)	Ratio weighted sum/number of amendments (3)
Supply-side amendments	"Explicit speed"	Is it explicitly written that the amendment is made for expeditious justice?	50	+24	0.48
	Mention of court power to extend limits	Does that leave the possibility to the court to set the time limits? = Reforms defeated by courts	42	+34	0.81
	"Court red tape"	More red tape for the court?	94	+36	0.383
Demand-side amendments	"Defendant red tape"	More red tape for the defendant?	34	+24	0.71
	"Poor"	Explicitly pro-poor?	50	+17	0.3
	"Agricultural"	Explicitly pro-agricultural?	22	+18	0.8
	"Business"	Explicitly mentioned pro-business?	33	−1	−0.03
	"Government"	Explicitly pro-government?	34	+26	0.8
	"Judgment-debtor"	Explicitly pro-judgment debtor?	149	+31	0.208
	"Demand-side solution"	Will that decrease demand for justice = Less incentive to file a complaint?	47	+19	0.404
	"Plaintiff red tape"	Does that constitute more red tape for the plaintiff?	35	+2	0.714
	"Certainty"	Does that increase certainty of the outcome	32	+10	0.313

An overall assessment of the amendments to the Code of Civil Procedure shows that there are two types of amendments: supply-side and demand-side. Table 2 defines each amendment category and presents a number of descriptive statistics (Column (2) presents the sum of the amendments weighted by their direction, Column (3) presents the ratio of the weighted sum by the total number of amendments: "explicit speed" amendments in India generally favor the shortening of procedures). If one visualizes demand and supply curves for dispute resolution, supply-side amendments involve a shift of the supply curve. Due to the shift, the number of disposed cases will go up or down. There are two types of supply-side amendments found in the Code of Civil Procedure: "Court red tape" and "explicit speed" amendments. Demand-side amendments, which involve shifting the demand curve, may also affect judicial speed. For example, Some amendments are likely to affect litigants' willingness to go to court; in turn, this may affect case backlog and, thus, overall judicial speed. I classify these demand-side amendments in nine different categories according to the section of the population that they are likely to affect: "defendant red tape", "poor", "agricultural", "business", "government", "judgment-debtor", "demand-side solution", "plaintiff red tape" and "certainty". Table 2 provides a definition for each amendment as well as descriptive statistics.[14] Based on these categories, I further define broad indexes: "speed" amendments include all amendments likely to have an impact on speed, namely the nine demand-side categories and the two supply-side categories. This allows me to define a final category: "implicit speed" amendments, which are defined as the difference between "speed" and "explicit speed" amendments. There have been 288 amendments of this type in India between 1971 and 1996 (see Fig. 3 for a graph of "implicit speed" amendments by state and year).[15]

From this, it is clear that the instrumental variable used in this analysis, "Court red tape" amendments, does not include "explicit speed" amendments, and, thus, was not enacted to affect judiciary speed.

Another concern frequently cited by legal experts is regarding the ambiguity of the Code of Civil Procedure. To explore this issue, I will use the 144th Report on "*Conflicting Judicial Decisions Pertaining to the Code of Civil Procedure, 1908*" to analyze situations in which a High Court violated their own precedent. These conflicting judicial decisions may increase expected durations of High Court trials and, thus, may be included in the analysis.

2.3. Conflicting judicial decisions

Legal experts have long argued that ambiguity in Indian law causes case-processing delays. For example, the Indian Law Commission's 136th report, titled "*Conflicts in High Courts decisions on central laws – how to foreclose and how to resolve*",

[14] Examples of such amendments, and their classification, are available upon request.
[15] The complete amendment history is available upon request.

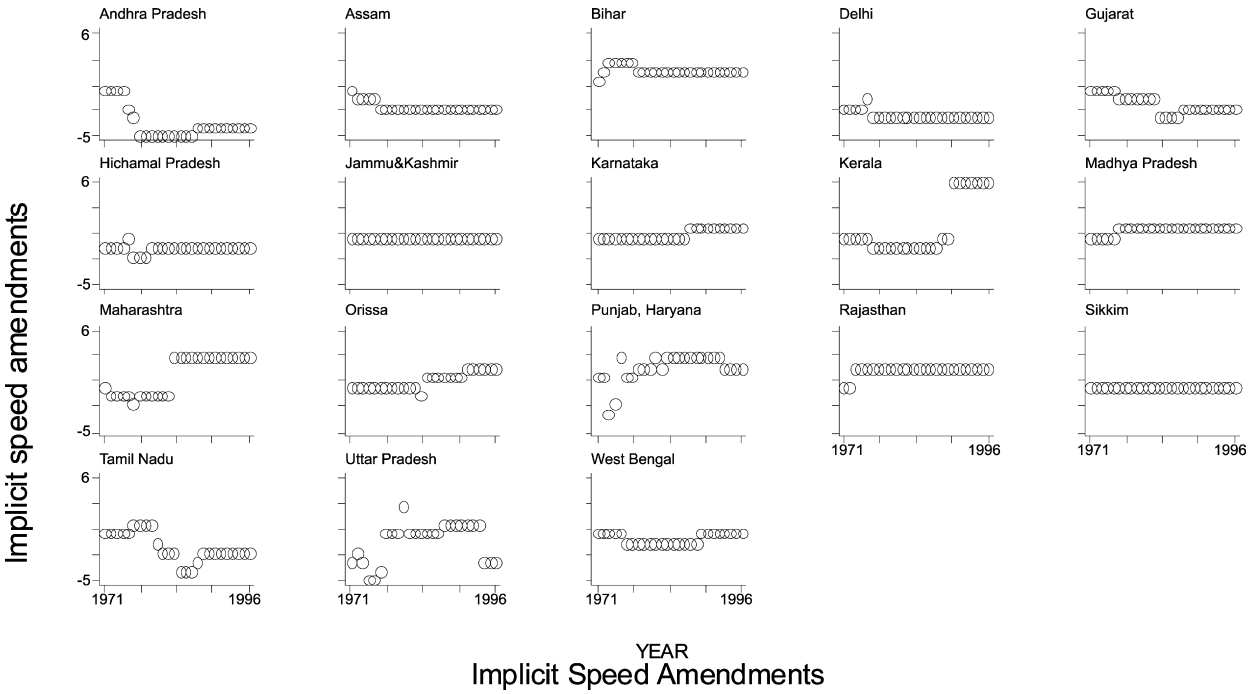

Fig. 3. Cumulative index of the "implicit speed" amendments per state between 1971 and 1996.

states that "those who are entrusted with the function of adjudicating on questions of law must spend considerable time in choosing between two or more possible views on a subject which falls to be considered before them".[16] This is also true for the Code of Civil Procedure. This code is so ambiguous that opposite decisions on similar cases have been reached by different states' High Courts, and even by the same High Court. The underlying intuition is that, after a violation of its own precedent by a High Court, judges may be required to spend a considerable amount time choosing between two or more precedents. As will be presented in the empirical section, studying every such violation in the period between 1971 and 1996 will allow me to relate the occurrence of such conflicting precedents in particular states and at certain times, to the expected duration of High Court trials. This will allow me to determine whether conflicting judicial decisions caused by the Civil Procedure Code's ambiguity can explain the country's slow judiciary.

The occurrence of conflicting judicial decisions could have another effect on the judiciary. As the Law Commission of India's 136th report states, "those whose business is to advise persons who consult them on questions of law, find it difficult to give such advice with confidence where the decisions are conflicting".[17] In other words, such High Court reversals may lead to increased uncertainty about case outcome. In return, this may decrease litigants' willingness to file cases and subsequently increase judicial speed. Therefore, the net impact of conflicting judicial decisions on the expected duration of a High Court trial is an empirical question. The empirical section of this paper will relate the occurrence of High Court precedent violations to the expected duration of High Court trials. I will now provide a description of the data.

In 1992, the Law Commission of India published its 144th report on "*Conflicting Judicial Decisions Pertaining to the Code of Civil Procedure, 1908*", by K.N. Singh, India's Chief Justice from 25/11/1991 to 12/12/1991. This report summarizes conflicting decisions made by High Courts arising from ambiguity in the Civil Procedure Code. It presents a total of 30 different Code rules that have led to opposite decisions by different High Courts, succinctly describing the Code's ambiguity and listing each High Court's opposing view. It includes 163 opposing decisions by different High Courts involving these 30 rules (see Fig. 3 for a graph of all the decisions taken by High Court violating ("+1") or confirming ("−1") prior judgments). In the following paragraph I will provide an extreme example in which a High Court contradicted itself in two different cases based on the same Code.

Order 23, Rule 1(3) allows for the withdrawal of a suit, with the liberty to file a new suit, under circumstances of "formal defect" or "sufficient grounds". However, ambiguity arises regarding whether this rule can apply in cases with partial or total suit abatement, such as in the occurrence of the death of a member of one of the parties involved in the suit, as another Rule explicitly mentions the judiciary procedures involved with the death of a party. Specifically, Order 22 – Death, Marriage

[16] p. 1, "Conflicts in High Courts decisions on central laws – how to foreclose and how to resolve", Law Commission of India's 136th report. Available at: http://lawcommissionofindia.nic.in/101-169/Report136.pdf.

[17] p. 1, "Conflicts in High Courts decisions on central laws – how to foreclose and how to resolve", Law Commission of India's 136th report. Available at: http://lawcommissionofindia.nic.in/101-169/Report136.pdf.

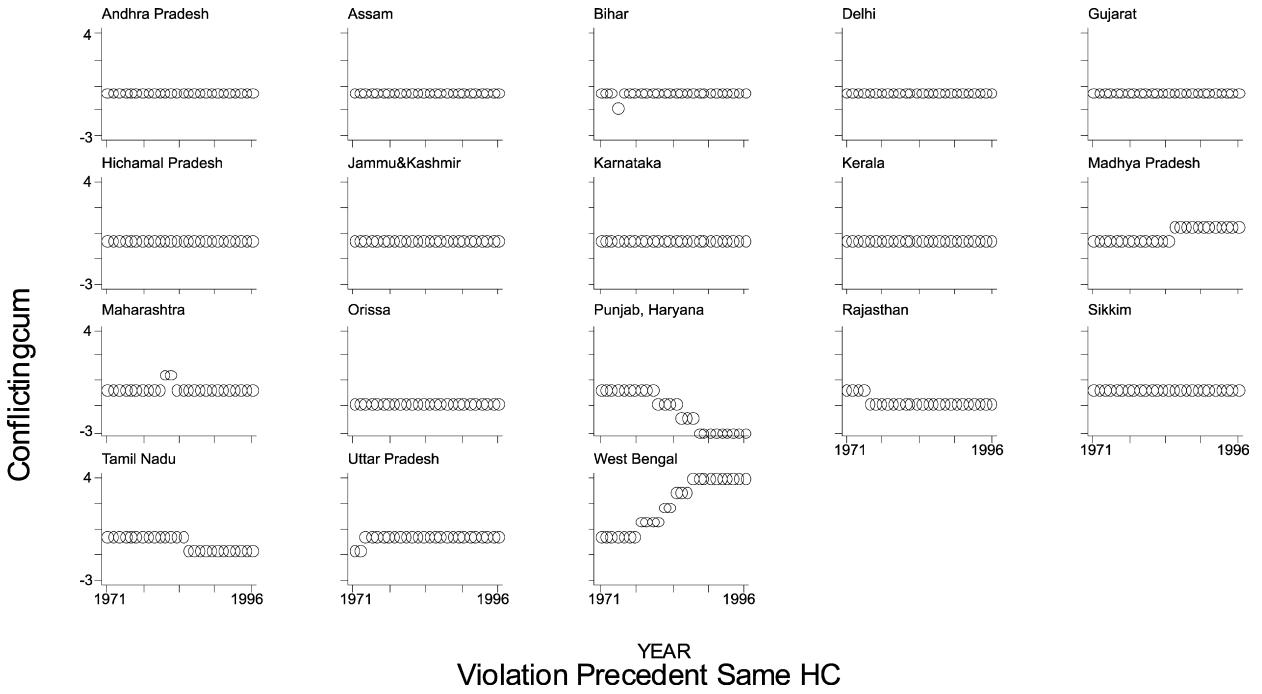

Fig. 4. Cumulative index of the "violation of a precedent established by the same High Court" per state between 1971 and 1996.

and Insolvency of Parties, Rule 4 states that in the case of the death of a sole defendant (or in the case of the death of one of several defendants wherein the right to sue does not endure against the surviving defendant), the Court, on an application made on behalf of the deceased party, shall appoint the legal representative of the deceased defendant as a party and will proceed with the suit. However, if no application is made, the suit shall be dismissed. Rule 9 further states that when a suit is dismissed under this order, a new suit regarding the same cause of action will not be permitted to be filed. In this way, allowing the plaintiff to withdraw in such circumstances and file a fresh suit would allow him to bypass Order 22. This was the decision taken in a 1936 Calcutta Case.[18] In this case, a suit was directed against a sole dependent for possession. Upon his death, his legal representatives were not substituted and, consequently, the suit was dismissed. Withdrawal was not permitted. However, in a later 1953 Calcutta Case,[19] a leave to withdraw was granted in a case where the suit abated upon the death of one co-trespasser. Nevertheless, the precedent set in the 1936 case was later used for a decision in a 1984 case.[20] It is worth noting that the Law Commission of India's 144th report recommended clarifying the code in such a way that the death of a party would not constitute grounds for case dismissal. However, this recommendation was never introduced and the ambiguity remains to this day.

I argue that such High Court reversals increase the likelihood of longer case duration. As outlined above, for cases that involve the death of a defendant, judges must not only consider Order 23, Rule 1(3), Order 22 – Death, Marriage and Insolvency of Parties – Rule 4 and Rule 9, but also the following precedents: the 1936 Calcutta Case: Ramesh v Deo Mehar Bibi, 40 CWN 1019 (RC Mitter J.); the 1953 Calcutta Case: Hakir Mahamed v Abdul Majid, AIR 1953 Cal 588, para 3; and the 1984 Calcutta Case: Shyam Ray v Harnam De, AIR 1984 Cal 67, 70 para 12. Without the implementation of Singh's recommendations, decisions in such cases become complex and time-consuming. Thus, in this case, from 1984 on West Bengal, I increment the "violation of a precedent established by the same High Court" variable by "1". In accordance, I also decrease this variable by "1" when a decision taken in a case is confirmed explicitly by another later case. There have been 31 such occurrences in India's States between 1971 and 1996 (see Fig. 4 for the graph of this variable per state, per year). I expect to see a positive correlation between this variable and the expected duration of High Court trials.

In the coding of the "violation of a precedent established by the same High Court" variable, the implicit assumption is that each High Court needs only to consider its own precedents. However, this may not be a valid assumption if decisions by High Court judges set precedents for High Courts in other States, or if judges are routinely transferred to High Courts in differing states.[21] To address this concern, I also consider the variable "violation of a precedent established by another High Court". This variable is incremented by "1" when a High Court violates the precedent established by another High Court, and

[18] Ramesh v Deo Mehar Bibi, 40 CWN 1019 (RC Mitter J.).
[19] Hakir Mahamed v Abdul Majid, AIR 1953 Cal 588, para 3.
[20] Shyam Ray v Harnam De, AIR 1984 Cal 67, 70 para 12.
[21] I thank an anonymous referee for raising this concern.

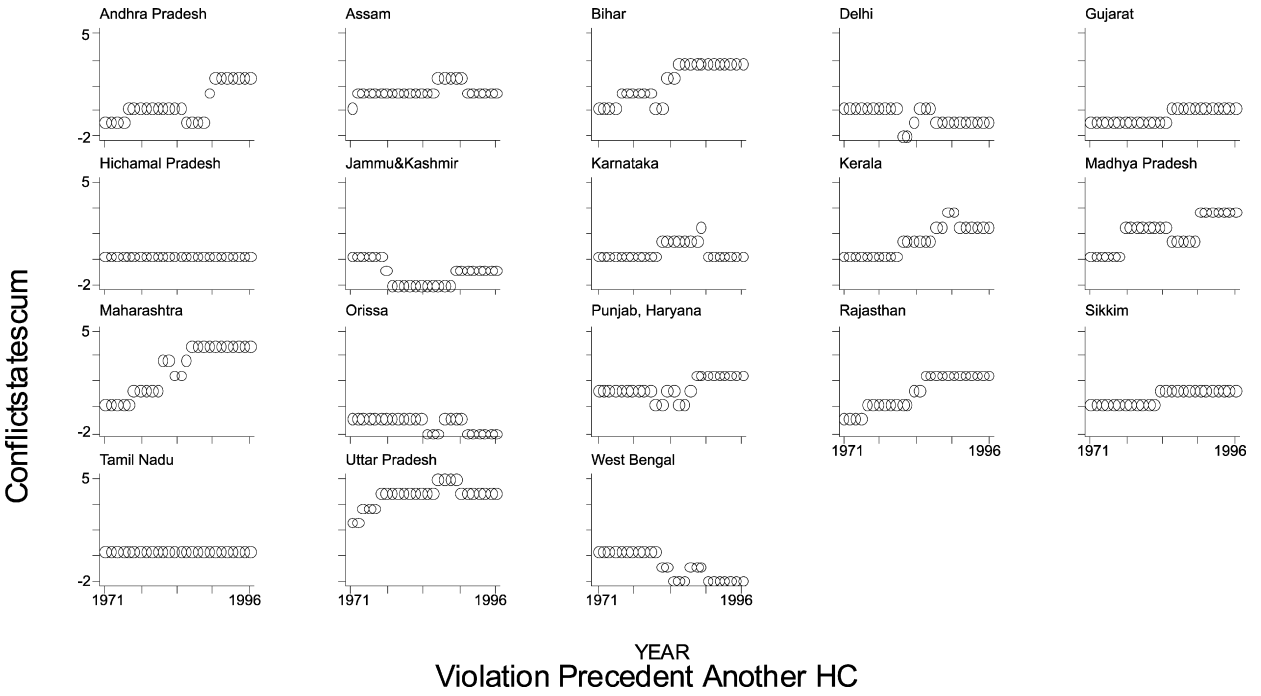

Fig. 5. Cumulative index of the "violation of a precedent established by another High Court" per state between 1971 and 1996.

is decreased by "1" when a High Court follows an established precedent. Using data from the Law Commission of India's 144th report on "Conflicting Judicial Decisions Pertaining to the Code of Civil Procedure, 1908", this variable accounts for the possibility that the actions of other High Court judges set precedents across states, and that judges can be transferred across High Courts. There have been 133 such violations (or confirmations); Fig. 5 presents the spatial and temporal variation in this variable.

2.4. Quality of the instrumental variable "Conflicting judicial decisions"

The crucial feature of the "Conflicting judicial decisions" variable is the temporally random occurrence of these ambiguous cases. In the example involving West Bengal, the "violation of a precedent established by the same High Court" variable takes the value "1" in 1984, as the presence of Orders 22 and 23 creates ambiguity in the occurrence of death of one party involved in a case. Therefore, the temporal variation in this variable is not endogenous to the economic, political, or judicial conditions, but is instead due to the arbitrary occurrence of cases pertaining to ambiguous sections of the Code of Civil Procedure. However, spatial variation in this variable is not necessarily random; a contradiction in precedents made by a High Court judge may merely be a reflection of their ability. In this way, some judges may find ambiguity more frequently than other judges. For example, corrupt judges may have incentives to exploit ambiguity in the Code, while honest judges do not.[22] Thus, the "violation of a precedent established by the same High Court" variable may simply reflect the quality of a High Court. Consequently, an empirical analysis relating this variable to the expected duration of a High Court trial may confound the Code of Civil Procedure ambiguity with the quality of a particular court. Therefore, I control for the competency of a particular High Court in the analysis by including the "ratio of dismissed appeals" by the Supreme Court in all regressions. This variable reflects the probability that a High Court decides correctly, with the underlying assumption that the Supreme Court is not biased and not subject to errors,[23] and that the majority of decisions made by the High Courts are appealed.[24]

It is also be possible that conflicting judicial decisions may be influenced by outside parties. For example, it might be that private sector parties that are facing a robust economy with ample opportunity for profit will put greater pressure on judges (through legislatures) to increase judiciary efficiency, while those with fewer opportunities will not.[25] Indeed, at certain times in India judges were heavily influenced by politicians through the punitive action of transfer. Thus, I examine

[22] I thank an anonymous referee for this example.

[23] Even if the Supreme Court was biased or subject to error, it is defining the laws and setting the precedents that all courts must follow. Given that the Supreme Court is consistent in its decisions, lower courts can, in fact, predict the Supreme Court decisions; thus, it is the benchmark for the quality of the High Courts.

[24] Although the number of cases appealed is only a fraction of all cases instituted, it is much larger than in most other countries.

[25] I thank an anonymous referee for this comment.

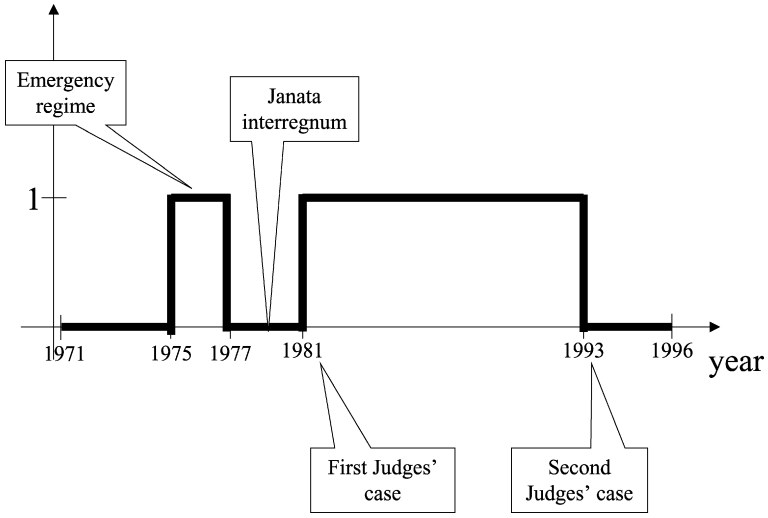

Fig. 6. Dummy variable indicating the likelihood of political interference with the judiciary in time.

the history of conflicts between the Indian Executive and Judiciary between 1971 and 1996, with particular focus on the history of judge appointments, in order to determine the degree of independence enjoyed by decision-making courts. To do this, I will borrow from the survey by Dua (1983), titled "A Study in Executive–Judicial Conflict: The Indian Case".

Up until the 1970s, India's judiciary was free from political interference. However, in June 1975, the High Court of Allahabad found the Prime Minister, Indira Gandhi, guilty of electoral fraud and ordered her to be removed from Parliament and banned from running in an election for six years. Rather than confronting the charges levied against her, Gandhi declared a State of Emergency and launched a massive crackdown on civil liberties and political opposition. Thereafter, judges began interpreting the Constitution in light of the new political climate.

After her electoral defeat in 1977, the Janata Interregnum (1977–1979) attempted to restore confidence to judges by canceling Gandhi's practice of mass punitive transfers (i.e., transfers without the consultation of India's Chief Justice) of High Court judges. However, the return to power of Gandhi's Congress (I) Party in 1980 revived memories of the Emergency regime. Indeed, Gandhi often viewed the courts as centers of political opposition and, in 1981, bluntly called into question the judicial integrity of the Janata-appointed judges.[26] Chief Justice Chandrachud complained that:

> "Since the Executive is controlled by political leaders … it may, it is feared, transfer a judge to a far-off place like Sikkim, the Andaman Islands or Assam, or refuse to grant him further extension if he does not toe the line".[27]

In the same year, due to internal dissension, the Supreme Court undermined its own independence in the Judges' Transfer Case, wherein the majority of a seven-judge Constitutional Bench offered the government carte blanche to hire Supreme Court judges, fire temporary judges, and transfer High Court judges (except for on a mass scale) without the consent of India's Chief Justice. In other words, Gandhi was empowered to manage the judiciary as she desired. Finally, in 1993 following the Second Judges' case, the practice of transferring judges without consent was abandoned, as the Supreme Court introduced the primacy of the Chief Justice of India in matters of recommending persons for appointment to the higher judiciary.[28]

This short survey exemplified how political interference may influence the actions taken by High Court judges at certain times in India. More specifically, the ideologies of certain political parties might have been particularly salient in encouraging efficiency-increasing actions and discouraging "conflicting judicial decisions". Thus, I include political controls in the analysis. I measure a state's political inclination by the proportion of seats won in Legislative Assemblies by four different party groupings: the Congress parties (Indian National Congress, Indian Congress Socialist, Indian National Congress Urs), hard- (or ultra-left) left-political parties (Communist Party of India, Communist Party of India Marxist), center-left political parties (Socialist Party, Praja Socialist Party), and Hindu political parties (Bhartiya Janata Party, Bhartiya Jana Sangh). In addition, I interact these variables with an all-India dummy at value "1" in cases where political interference is expected, such as during the Emergency Regime (1975–1977) and during the years 1981–1993 when the First Judges' case was prevalent (described in Fig. 6). I include the political variables and interactions as control variables in all regression analyses in order to remove bias resulting from omission of these variables.

[26] India Today, January 31, 1982, p. 62.
[27] Statesman weekly, May 2, 1981.
[28] Frontline, A flawed mechanism, ZV. Venkatesan, 06/06/2003.

Another endogeneity concern is that certain non-politically aligned groups that share common interests might succeed in influencing the judiciary and, subsequently, "conflicting judicial decisions". An intuitive hypothesis would posit the influence of scheduled castes and tribes in the Legislative Assemblies on the judiciary, in order to favor their particular groupings. Thus, such castes and tribes should strive to improve access to justice for poorer sections of the society by increasing their confidence in the judiciary and removing any ambiguity in the judgments. As such, I expect "Scheduled Castes and Scheduled Tribes in Legislative Assemblies" to exert pressure on courts regarding the reduction of "violation of precedents". Therefore, I have included into the analyses, a variable that represents the proportion of seats reserved for Scheduled Castes and Scheduled Tribes, as well as the group's population share according to government census (according to Pande, 2003).

In sum, this section has isolated three potential determinants of judicial speed between 1971 and 1996. Specifically, I identified 94 Code of Civil Procedure amendments likely to affect expected durations of trials ("Court red tape" amendments), 31 conflicting judicial decisions violating a precedent established by the same High Court, and 133 conflicting judicial decisions violating a precedent established by another High Court. This section also shows that the use of panel data, the "Court red tape" amendments not explicitly designed to increase judicial speed, the temporally exogenous "conflicting judicial decisions" are good theoretical reasons to believe that "Court red tape" amendments and "conflicting judicial decisions" might be good instrumental variables. Additionally, the composition of the representation of executive power and Scheduled Castes/Scheduled Tribes must be accounted for in all regressions because there are certain periods that the judiciary is not free from political interference that might affect the occurrence of "conflicting judicial decisions". The next section describes how the judiciary may affect economic activity.

3. Theory

There is growing evidence suggesting that court-system efficiency is a key component for a well-functioning economy. Slow judiciaries increase the costs associated with accessing the legal system, and favor those with greater legal bargaining power. There are two primary areas where courts may play a role in India: credit markets (i.e. difficulties in repaying loans) and contract enforcement. I expect legal-system inefficiency to contribute to worse conditions for the poorest members of the society, as well as for the judiciary's most intensive users. More specifically, I expect that the lowest income earners, creditors (as opposed to debtors), members of the registered sectors (as opposed to unregistered sectors that use extra legal dispute resolution mechanisms), and those involved in contract-intensive activities (such as trade) will be adversely affected by inefficient legal systems. I will now describe the mechanisms through which the judiciary affects credit markets and firms' contracting behavior.

Judicial systems influence firms' debt contracts. As Jappelli et al. (2005) explain:

> "The key function of courts in credit relationships is to force solvent borrowers to repay when they fail to do so spontaneously. By the same token, poor judicial enforcement increases the opportunistic behavior of borrowers: anticipating that creditors will not be able to recover their loans easily and cheaply via courts, borrowers will be more tempted to default. Creditors respond to this strategic behavior of borrowers by reducing the availability of credit."

The authors develop a model in which collateral is used as a device to solve credit rationing. They find that improved judicial efficiency reduces credit rationing and expands lending. Therefore, one should expect inefficient judiciaries to disproportionately affect sections of society unable to provide collateral. I will test this theoretical proposition by examining the situation of farmers, who typically comprise the poor in India.

The second potential consequence of an imperfect judiciary is change in economic agents' willingness to cooperate with previously signed contracts. We know that judiciaries act as important deterrents to fraud that might be economically attractive in the short-run. Within in context of an efficient judiciary, the probability of harsh punishment in monetary or non-monetary terms would heavily dissuade opportunistic agents to default ex-post on previous agreements. However, these judicial consequences may not be salient within a weak judiciary system. As a consequence, I expect trade to be negatively affected by weak judiciaries. Woodruff et al. (1999) state that firms work to sustain relationships in order to avoid searching for new trading partners. In order to maintain these partnerships, firms offer trade credit; however, these business transactions require that firms trust that this credit will be repaid.

One could also expect judiciary quality to impact investments undertaken by firms. I consider the case of a firm that makes an investment in order to supply another firm with a particular asset. However, as Klein et al. (1978) emphasize, there exists the possibility of post-contractual opportunistic behavior (on the part of the latter firm). To counteract the risks associated with post-contractual opportunistic behavior, and to encourage the supplier to undertake an investment, a firm can either write a long-term contract with favorable terms for the supplier or guarantee exclusivity rights. However, once the costs of the investment are sunk, there is an immediate incentive for the firm to renege on the contract and capture the suppliers' rents. Alternatively, if the search costs of finding a new supplier are high, there is an immediate incentive for the supplier to use its monopoly power to impose higher prices. The possibility of these frictions could reduce firms' incentives to invest. Klein et al. (1978) conclude that vertical integration will supersede market systems in such cases. However, another way to limit post-contractual opportunistic behavior is an efficient judicial system that enforces contracts swiftly, thus lowering the incentives for firms to renege on their contracts. In this way, judiciaries should affect the economic performance of contract-intensive activities. I will test this suggestion by examining the performance of manufacturing. If

agriculture, trade, and manufacturing are negatively affected by weak judiciaries, I also expect poverty to increase. In the next section, I will test these theoretical implications and present the econometric method used.

4. Methods and results

This section will relate both amendments to the Code of Civil Procedure and conflicting decisions to judicial functioning. Of note, this section is, in fact, the first stage of an Instrumental Variable estimation of the impact of the judiciary on economic activity. In the next section I will relate judicial functioning to economic activity using these amendments and conflicting decisions as Instrumental Variables.

In this section, the outcome variable is the expected duration of a trial in High Court ($duration_{it}$), measured in years. This is equal to the number of pending cases plus the number of filed cases within the year, divided by the number of cases disposed of within the year. Fig. 1 shows the graphs of expected trial duration in 18 states between 1971 and 1996. To relate amendments of the Code of Civil Procedure ($amendments_{it}$), "violation of a precedent established by the same High Court" ($violation\_same_{it}$), and "violation of a precedent established by another High Court" ($violation\_other_{it}$) to the expected duration of a trial in High Court, I perform regressions in the form of:

$$duration_{it} = \alpha_i + \beta_t + \gamma amendments_{it} + \delta violation\_same_{it} + \eta violation\_other_{it} + \theta x_{it} + u_{it} \quad (1)$$

where i corresponds to a state, t to time. α_i are state fixed effects, β_t time fixed effects. x_{it} are control variables. These x_{it} will incrementally include the ratio of dismissed appeals to total appeals from the respective High Court, two years in the future. This variable determines the probability that a High Court decides correctly. This variable is an indicator of the probability that a High Court decides correctly, with the underlying assumption that the Supreme Court is not biased and not subject to errors, and that the majority of the cases from the High Courts are appealed.[29] As this variable is a measure of the quality of the High Courts, it is an important variable to take into account when attempting to isolate the impact of ambiguity in the Code of Civil Procedure through $violation\_same_{it}$ and $violation\_other_{it}$. In addition, I include political controls into the regressions, which include the proportion of seats won by Congress parties, hard left parties, soft left parties, and Bharatiya Janata parties, interacted with a dummy indicating when Legislative Assemblies are likely to influence judicial process.[30] I then include the proportion of seats reserved to Scheduled Castes/Scheduled Tribes in State Legislative Assemblies interacted with a dummy indicating when Legislative Assemblies are likely to influence judicial process. Further, according to the reasoning developed in the theoretical section above. I also include a variable that takes into account the proportion of Scheduled Castes/Scheduled Tribes in the population according to censuses. I include the number of Panchayats, an informal institution that deals with dispute-resolution, per million capita in the state to account for alternative dispute resolution mechanisms; as well, I control for the proportion of total revenue expenditure spent on Organs of State, lagged for two years, to account for the budget devoted to judicial functioning. It might also be that courts are asked to speed up processing in election years; therefore, I include a control for whether the state had elections in that year.[31] u_{it} is a disturbance term. I cluster the standard errors by state in order to deal with concerns of serial correlation (Bertrand et al., 2004). State fixed-effects capture time-constant state-specific factors such as culture and geography. Year fixed-effects capture common shocks, such as the central amendments to the Code of Civil Procedure that took place in 1976, as well as other centrally implemented policies. The coefficients of interest are γ, δ, and η.

Table 3 first presents a regression of the impact of "explicit speed" amendments on expected trial duration. Results indicate that the coefficient is not significantly different from zero; however, this might be explained by endogeneity issues. "Explicit speed" amendments are designed to reduce trial duration, but may also be enacted when duration is the longest. These conflicting effects may render this coefficient insignificant. Regardless, I do not use these "explicit speed" amendments in the analysis, but rather, as explained in Section 2.2, focus on "Court red tape" amendments. Column (2) relates "Court red tape" amendments and conflicting judicial decisions to expected duration of High Court trials, and includes state fixed-effects and year fixed-effects. Results show that one additional "Court red tape" amendment increases the expected duration of a trial in High Court by 5.3 days. This coefficient is statistically significant, and confirms the intuition that adding or complicating High Court procedures increases delays. One additional violation of a precedent established by the same High Court will increase the expected duration of a trial by 8.4 days; however, this coefficient is not statistically significant. Surprisingly, one additional violation of a precedent established by another High Court reduces the expected duration of a trial; however, this result disappears when additional controls are included.

The remainder of Table 3 consists of robustness checks addressing concerns raised about the identification strategy in Section 2. For example, a hypothesis is that increased representation of Scheduled Castes/Scheduled Tribes in Legislative Assemblies affects judiciary quality, as Scheduled Castes/Scheduled Tribes advocate reforms disproportionately favoring their groups of origin. Thus, in Column (3) I include the proportion of seats reserved for Scheduled Castes/Scheduled Tribes in State Legislative Assemblies, interacted with a dummy indicating when the former are likely to influence the judicial process

[29] I have included the variable "ratio of dismissed appeals" for one, two, three and four years in the future into my analyses. None of these variables affected the results. I thank an anonymous referee for this suggestion.

[30] I also tried with the level terms not interacted with the dummy. Results are similar.

[31] I thank an anonymous referee for this comment.

Table 3
Impact of Court red tape amendments and conflicting judicial decisions on the expected duration of a trial in High Court.

	Expected duration of a trial in High Court									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Explicit speed amendments	0.018047 (0.98)									
Court red tape amendments		0.014589 (3.15)***	0.014107 (3.00)***	0.014107 (2.99)***	0.014130 (3.21)***	0.011103 (2.91)**	0.011485 (3.05)***	0.008635 (2.22)**	0.014285 (2.42)**	0.010248 (3.25)***
Violation of a precedent established by the same High Court		0.022694 (0.78)	0.035637 (1.83)*	0.035633 (1.83)*	0.040099 (1.63)	0.028628 (1.91)*	0.029740 (2.08)*	0.030521 (2.03)*	0.029877 (2.09)*	0.011835 (0.62)
Violation of a precedent established by another High Court		−0.075311 (2.13)**	−0.036697 (1.26)	−0.036700 (1.26)	−0.041647 (1.54)	−0.032251 (1.58)	−0.030134 (1.54)	−0.034056 (1.70)	−0.030957 (1.55)	−0.016995 (0.90)
Sc/st seats (interacted)	no	no	yes	yes	yes	yes	yes	yes	yes	yes
Election year				0.000105 (0.01)	−0.001077 (0.08)	−0.003087 (0.23)	−0.003071 (0.23)	−0.002817 (0.21)	−0.002909 (0.22)	−0.007590 (0.48)
Political controls (interacted)	no	no	no	no	yes	yes	yes	yes	yes	yes
Exp. Org. of State (−2)						0.001747 (0.18)	0.001774 (0.18)	0.001527 (0.17)	0.001741 (0.18)	−0.002003 (0.25)
Ratio of dismissed appeals (2 years in the future)							−0.001559 (0.85)	−0.001374 (0.81)	−0.001521 (0.83)	−0.001002 (0.58)
Speed amendments								0.018874 (1.59)		
Implicit speed amendments									0.010275 (0.82)	
Panchayats										−0.000987 (1.66)
State fixed effects	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Time fixed effects	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
F-test of the joint significance of violation and court red tape (p-value)		5.41 (0.009)	6.65 (0.005)	6.59 (0.005)	5.22 (0.013)	3.46 (0.045)	3.80 (0.034)	3.01 (0.065)	4.20 (0.025)	3.93 (0.031)
Observations	468	468	330	330	330	281	281	281	281	281
R-squared	0.97	0.97	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99

Notes. Panel data fixed effects regressions, robust t statistics in parentheses, clustered at the level of the state.
– The dependent variable is the expected duration of a case in High Court, measured in number of pending cases plus number of filed cases within the year divided by the number of cases disposed of within the year (unit = years).
– Explicit speed amendments are amendments purposefully designed to increase speed.
– Court red tape amendments is a cumulative variable increased by 1 forever after an amendments that add procedures to the court is enacted.
– Violation of a precedent established by the same High Court is a cumulative variable increased by 1 forever after a High Court violated its own precedent. It decreases by 1 if a High Court confirms its own precedent.
– Violation of a precedent established by another High Court is a cumulative variable increased by 1 forever after a High Court violated a precedent established by another High Court. It decreases by 1 if a High Court confirms a precedent established by another High Court.
– Sc/St seats (interacted) includes the proportion of seats reserved to Scheduled Castes/Scheduled Tribes in state legislative assemblies interacted with a dummy indicating when the legislative assemblies are likely to influence the judicial process and the proportion of Scheduled Castes/Scheduled Tribes in the population according to censuses. Election year is a dummy variable equal to 1 if there is an election in a certain year for a certain state. Political controls (interacted) means the proportion of seats won by Congress parties, hard left parties, soft left parties and Bharatiya Janta parties interacted with a dummy indicating when the legislative assemblies are likely to influence the judicial process. Exp. Org. of State (−2) means the proportion of total revenue expenditure spent on the Organs of State lagged two years. Ratio of dismissed appeals is the ratio of dismissed appeals to total appeals from the respective high court (in percentage and measured 2 years in the future). Speed amendments is a cumulative variable increased by 1 after any amendment likely to have an impact on the speed of the courts is passed (includes explicit speed, court red tape, defendant red tape, judgment-debtor, demand-side solution, plaintiff red tape, certainty amendments). Implicit speed amendments is the difference between speed amendments and explicit speed amendments. Panchayats means the number of Panchayats per million capita in the state. 18 State and 26 year fixed effects are always included.
– The F-test is a test of joint significance of the three instruments: court red tape amendments, violation of the precedents established by the same High Court, and violation of the precedents established by another High Court. The p-value is presented in parentheses.
* Significant at 10%.
** Significant at 5%.
*** Significant at 1%.

and the proportion of Scheduled Castes/Scheduled Tribes in the population according censuses following Pande's (2003) methodology. The results show coefficients that are very similar to the ones in Column (2). One additional violation of a precedent established by the same High Court will increase the expected duration of a trial by 13.1 days. This coefficient is

statistically significant, and confirms the intuition that judges must spend more time considering conflicting views when a High Court violates its own precedents. One additional violation of a precedent established by another High Court does not significantly affect the duration of a trial in High Court.

Column (4) tests for the potential impact of electoral cycles, without much impact on the instrumental variables coefficients. Column (5) includes the political controls discussed in Section 2, which highlighted the possibility that conflicting judicial decisions may be an artifact of political conditions. I measure a state's political inclination as the proportion of seats won in the Legislative Assembly by the four different party groupings: the Congress parties, ultra-left political parties, center-left political parties, and Hindu political parties. In addition, I interact these variables with an all-India dummy at value "1" in cases where political interference is expected, such as during the Emergency Regime (1975–1977) and during the years 1981–1993 when the First Judges' case was prevalent (described in Fig. 6).[32] The coefficients are very similar to those in Column (3). In Column (6), I also include the proportion of total revenue expenditure spent on the Organs of State[33] lagged two years in order to account for budgets devoted to judicial functioning. Further, it is possible that the "violation of a precedent established by the same High Court" variable is correlated with the quality of judges; therefore, I include the ratio of dismissed appeals in Column (7). Results show that the coefficients remain similar. Other types of amendments could potentially affect the expected duration of a trial in High Court. In Column (8), I include a cumulative "speed" amendments variable, which is increased by "1" when any amendment is passed that is likely to have an impact on the speed of the courts. This variable includes explicit speed, court red tape, defendant red tape, judgment-debtor, demand-side solution, plaintiff red tape, and certainty amendments. There is no effect of this variable on the expected duration of a trial in High Court. In Column (9), I include a variable that includes "implicit speed" amendments, and is equal to the difference between speed amendments and explicit speed amendments. I subtract "explicit speed" amendments as these amendments are clearly responses to judicial conditions and are, thus, endogenous to the expected duration High Court trials. I do not argue that "Court red tape" amendments are any less endogenous; however, at the very least, they are not designed to explicitly reduce delays. Column (6) shows no significant impact of "implicit speed" amendments. Further, I also include the combination and independent effects of every different type of amendment into the analysis and consistently find that only "Court red tape" amendments and "violation of a precedent established by the same High Court" yielded significant results.[34] Finally, it is often argued that judicial systems have only limited impact on economies due to the availability of alternative dispute resolution institutions. Thus, in Column (10), in order to account for such alternative dispute resolution mechanisms, I include the number of Panchayats per million capita in each state. As Koehling (2002) describes, Panchayats are used to settle disputes about land usage, tenure, and commons. Working within their limited judicial authority, they play a crucial role in settling and avoiding rural disputes. As locally-bound institutions, they are highly efficient since they are familiar with village situations and litigants. As a result, their level of acceptance among the population is high. In cases of dispute resolutions, Panchayats can impose very limited sanctions; however, the social pressure created by judgments serves as a strong incentive to comply with their rulings.

Column (7) is the preferred specification because it includes the three instrumental variables and a set of controls addressing the endogeneity concerns raised in Section 2. According to this column, one additional "Court red tape" amendment increases the expected duration of a trial in High Court by four days, and one additional violation of a precedent established by the same High Court increases the expected duration of a trial in High Court by ten days. Although the "violation of a precedent established by the same High Court" coefficient never reaches significance, it is interesting to note that the F-test of the joint significance of the three instrumental variables in the first stage is always significant at 5 percent. This means that "Court red tape" amendments, "violation of a precedent established by the same High Court", and "violation of a precedent established by another High Court" significantly affect the expected duration of a trial in High Court.

This analysis is worthy of note, but the overall measure of "duration" does not reveal the nuances about the demand-side of the judiciary (number of cases filed per year) or the supply-side of the judiciary (number of cases solved per year). To explore these issues, Table 4 illustrates the impact of the three instrumental variables on number of cases filed per year and number of cases solved per year. Column (1) indicates that "Court red tape" amendments reduce the number of cases filed by 23, per million capita, per year. This finding might be explained by plaintiffs' realizations of the additional procedures that will need to be fulfilled in order to solve their case, thus discouraging some of them from initially attempting to file a case. In this way, "Court red tape" amendments would actually reduce duration. However, Column (2) shows that "Court red tape" amendments also reduce the number of cases solved by 22, per million capita, per year. This finding might be explained by the increase in the number of procedures that need to be fulfilled in order to resolve a case. As found in Table 3, the overall effect on duration depends on first-order derivatives and, in this case, is shown to be negative.[35] As shown in Columns (3) and (4), it is also interesting to examine the number of cases filed per year and number of cases solved per year, four years in the future. The effect of "Court red tape" amendments on the demand-side seem to vanish, perhaps as plaintiffs adapt to this new situation; on the other hand, the effect on the supply-side is sustained, as these procedures are still required to be fulfilled. It is also interesting to observe that there does not seem to be strong effects of

[32] I also included level terms not interacted with the dummy, and results were similar.

[33] This measure is not perfect as it encompasses the State budget for both Executive and Legislative branches.

[34] Results not presented for clarity.

[35] $duration = \frac{pending+filed}{solved}$, $\frac{\partial duration}{\partial filed} = \frac{1}{solved}\frac{\partial filed}{\partial redcourt}$, $\frac{\partial duration}{\partial solved} = -\frac{pending+filed}{solved^2}\frac{\partial solved}{\partial redcourt}$. In this case $\frac{\partial filed}{\partial redcourt} \simeq \frac{\partial solved}{\partial redcourt}$. However, $\frac{1}{solved} < \frac{pending+filed}{solved^2} \iff 1 < duration$, which is true here ($duration \simeq 2$, in India).

Table 4
Impact of court red tape amendments and conflicting judicial decisions on the number of cases filed and solved per year.

Dependent variable	Number of cases filed per year (1)	Number of cases solved per year (2)	Number of cases filed per year, 4 years later (3)	Number of cases solved per year, 4 years later (4)
Court red tape amendments	−23.05	−21.78	−12.76	−20.91
	(1.87)*	(1.94)*	(1.68)	(2.12)*
Violation of a precedent established by the same High Court	29.07	17.34	−117.47	−77.21
	(0.39)	(0.31)	(3.83)***	(1.75)*
Violation of a precedent established by another High Court	−4.79	8.07	−16.89	−8.59
	(0.08)	(0.24)	(0.29)	(0.14)
Sc/st seats (interacted)	yes	yes	yes	yes
Election year	65.33	3.09	111.26	22.82
	(1.01)	(0.10)	(1.88)*	(0.45)
Political controls (interacted)	yes	yes	yes	yes
Exp. Org. of State (−2)	−0.03	0.34	−20.15	−8.69
	(0.00)	(0.06)	(1.97)*	(0.98)
Ratio of dismissed appeals (2 years in the future)	3.16	3.12	7.63	3.22
	(1.02)	(1.31)	(2.22)**	(1.54)
Panchayats	0.22	0.31	−0.85	−0.20
	(0.26)	(0.49)	(0.94)	(0.24)
State fixed effects	yes	yes	yes	yes
Time fixed effects	yes	yes	yes	yes
Observations	281	281	266	281
R-squared	0.85	0.92	0.77	0.87

Notes. Panel data fixed effects regressions, robust t statistics in parentheses, clustered at the level of the state.
– The dependent variable is the number of cases filed (or solved) per million capita per year (in the current year, or 4 years later).
– Court red tape amendments is a cumulative variable increased by 1 forever after an amendments that add procedures to the court is enacted.
– Violation of a precedent established by the same High Court is a cumulative variable increased by 1 forever after a High Court violated its own precedent. It decreases by 1 if a High Court confirms its own precedent.
– Violation of a precedent established by another High Court is a cumulative variable increased by 1 forever after a High Court violated a precedent established by another High Court. It decreases by 1 if a High Court confirms a precedent established by another High Court.
– In every column, the full set of controls as used in Column (10) of Table 1 is included (Sc/St seats (interacted), Election year, Political controls (interacted), Exp. Org. of State (−2), Ratio of dismissed appeals 2 years in the future, Panchayats, 18 State and 26 year fixed effects).
* Significant at 10%.
** Significant at 5%.
*** Significant at 1%.

conflicting judicial decisions in the short-run, whereas, similar to "Court red tape" amendments, these conflicting judicial decisions seem to reduce the number of cases filed and solved per year in the long-run. In this way, the overall effect on duration again depends on first-order derivatives.

Having found three sources of variation in judicial speed, I am now able to relate it to economic performance; in particular, I am able to relate judicial speed to the functioning of credit markets, and to the performance of registered manufacturing and trade sectors.

5. The impact of the judiciary on economic outcomes

This section relates the expected duration of High Court trials to economic activity. I use the following regressions:

$$e_{it} = \epsilon_i + \eta_t + \lambda duration_{it} + \rho x_{it} + \mu_{it} \quad (2)$$

where i corresponds to a state, t to time, and e_{it} is an economic outcome of interest. I will first look at credit markets, specifically in the agricultural sector where issues of credit availability are more stringent, by using measures of agricultural credit supply and development. I will then look at the second issue of cooperation and relationship-specific investments, by using measures of the development of registered manufacturing, unregistered manufacturing, trade, hospitality, banking and insurance, and real estate sectors, and by ultimately examining poverty rates. ϵ_i are state fixed-effects and η_t are time fixed-effects, while x_{it} are control variables. I use the exact same control variables used in Table 3. Several other factors can affect outcomes such as agricultural credit. For instance, Cole (2009) shows that agricultural credit is significantly higher in election years due to political pressures. Therefore, in the analysis I include a variable that accounts for the presence of an election in a state during a given year. μ_{it} is a disturbance term. Standard errors are clustered by state in order to deal with concerns of serial correlation (Bertrand et al., 2004). State fixed-effects capture state-specific factors, such as culture and geography. Year fixed-effects capture common shocks, such as central amendments to the Code of Civil Procedure as well as other centrally implemented policies. The coefficient of interest is λ.

Clearly, there can be some endogeneity between the efficiency of a particular institution and the economic performance of a particular state. The first issue is one of reverse causality: states with higher per capita incomes are able to devote more funds to improving institutions and thus have better institutions. The second issue is one of unobservable omitted variables, which may contribute to both judicial and economic outcomes, such as pessimism regarding a particular state's prospects, or the "backwardness" of another. This is why three instrumental variables are exploited for the expected duration of High Court trials: "Court red tape" amendments, "violation of a precedent established by the same High Court" and "violation of a precedent established by another High Court". In this section, I will present over-identification tests[36] to test the quality of these instruments.

Table 5 examines the relationship between High Court trial duration and credit supply to agricultural sectors. For reasons highlighted in the theoretical section, I expect credit availability to be reduced in regions with slower judiciaries. Column (1) shows an OLS regression of real per capita agricultural bank finance on the expected duration of a High Court trial. Column (2) presents a reduced-form version of the impact of "Court red tape" amendments, "violation of a precedent established by the same High Court" and "violation of a precedent established by another High Court" on per capita agricultural bank finance. The results confirm that these three variables have an impact on per capita agricultural bank finance; one additional "Court red tape" amendment decreases per capita agricultural bank finance by 1 percent, one additional "violation of a precedent established by the same High Court" decreases it by 13 percent, and one additional "violation of a precedent established by another High Court" decreases it by almost 4 percent. This is consistent with the hypothesis that "Court red tape" amendments and conflicting judicial decisions increase the expected duration of High Court trials, which can, in turn, discourage creditors from offering credit since they know it will more difficult to recover defaulted loans. It is possible to present some instrumental variable evidence. Column (3) instruments the expected duration of a trial in High Court with "Court red tape" amendments, "violation of a precedent established by the same High Court" and "violation of a precedent established by another High Court". The coefficient of duration is negative and significantly different from zero. For example, an additional four days in the expected duration of a trial in High Court[37] decreases real per capita agricultural bank finance by 1 percent. Similarly, an additional ten days in the expected duration of a trial in High Court[38] decreases real per capita agricultural bank finance by 2.4 percent. The fact that the instrumented coefficient is much larger than the coefficient obtained with OLS regression may be due to the presence of unobserved state heterogeneity. For example, suppose that in a particular state, citizens are especially fastidious and display meticulous attention to detail. As a result, they may be excessively sensitive to even the slightest deviation in the terms of a contract, making them more litigious and prone to filing more cases. This will increase the expected duration of a High Court trial in that particular state. On the other hand, economic performance may also increase, due to individuals' meticulous attention to detail. If omitted, this unobserved variable will upwardly bias the coefficient between duration and economic performance; however, if the instrumental variables are appropriate, then this bias should be removed. This may account for why I find a significantly lower coefficient in Column (3), as opposed to Column (1). However, the over-identification test in Column (3) shows that the correlation between the instruments and the error term is significantly different from zero, which casts some doubt on the validity of these instruments. It is important to note that in all other columns, the instrumental variables pass the over-identification test. This confirms that these two instruments are appropriate.

Credit problems are likely to be more stringent for borrowers with less collateral. Typically, these borrowers would consist primarily of farmers; however, not all farmers are without collateral. In fact, we would expect the impact to be much weaker in areas dominated by middle- or large-size farms, and much greater in states with predominantly small farms. This hypothesis can be tested by interacting the "duration" variable with the proportion of the landless laborers,[39] as is seen in Column (4). As predicted, results show that the speed of the judiciary is significantly related to access to credit, but only when it is interacted with the proportion of households own no land. In particular, the speed of the judiciary seems to especially be of importance in areas where small farm are the majority.

The result of Column (3) is confirmed by the results shown in Columns (5) and (6). An increase of four days in the expected duration of a High Court trial decreases the number of commercial bank advances to agriculture by 0.2 percent per capita, and significantly decreases advances by 0.8 percent per capita when the proportion of households owning no land goes from 0 to 100 percent. This reduced credit availability hampers agricultural development; an increase of four days in the expected duration of a High Court trial decreases the ratio of irrigated agricultural land by 0.2 percentage points. As a result, agricultural performance is impeded by a weak judiciary, however insignificantly. The over-identification tests are always conclusive.

Table 6 examines the relationship between the expected duration of a High Court trial and the economic performance of various sectors. In each case, I instrument the expected duration with the "Court red tape" amendments, "violation of a precedent established by the same High Court", and "violation of a precedent established by another High Court"

[36] An over-identification test is a test of joint significance of both instruments in a regression of the fitted residuals from the second-stage on these instruments (and all exogenous variables). This test effectively measures the correlation between instrumental variables and the error term, which should be insignificantly different from zero for appropriate instrumental variables.

[37] This was the increase implied by an additional "Court red tape" amendment in the preferred specification of Column (7) of Table 3.

[38] This was the increase implied by an additional "violation of a precedent established by the same High Court" in the preferred specification of Column (7) of Table 3.

[39] I thank an anonymous referee for this suggestion.

Table 5
Impact of the expected duration of a trial in High Court on agricultural development.

	Real per capita agricultural bank finance				Number of account of commercial bank advances to agriculture per capita		Irrigated Agricultural Land (Percentage)	Per capita state agric dom. prod.	Rural head count poverty index
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Model	OLS	OLS	IV	IV	IV	IV	IV	IV	
Duration	−33.56		−90.60	20.75	−19.02	−4.83	−19.41	−0.20	−10.90
	(2.17)**		(2.16)**	(1.06)	(1.58)	(0.64)	(2.31)**	(0.71)	(1.59)
Duration ∗ Proportion of households owning no land (%)				−4.02		−0.76			
				(2.53)**		(1.95)*			
Court red tape amendments		−0.99							
		(3.62)***							
Violation of a precedent established by the same High Court		−13.28							
		(3.38)***							
Violation of a precedent established by another High Court		−3.85							
		(2.02)*							
Proportion of households owning no land (%)				6.21		1.29			
				(2.83)**		(1.86)*			
Sc/st seats (interacted)	yes	yes	yes	yes	yes	yes	yes	yes	
Election year	−2.80	−2.39	−3.37	−1.99	−0.85	−0.58	−0.02	0.02	−0.24
	(1.55)	(1.73)	(1.53)	(0.97)	(1.06)	(0.68)	(0.04)	(1.28)	(0.68)
Political controls (interacted)	yes	yes	yes	yes	yes	yes	yes	yes	
Exp. Org. of State (−2)	−0.40	0.03	−0.48	−0.79	0.03	−0.03	0.11	0.00	−0.07
	(1.17)	(0.12)	(0.72)	(1.95)*	(0.19)	(0.22)	(0.60)	(0.38)	(0.56)
Ratio of dismissed appeals (2 years in the future)	−0.10	−0.02	−0.13	−0.00	−0.04	−0.02	−0.05	0.00	−0.01
	(0.95)	(0.15)	(0.74)	(0.03)	(0.69)	(0.42)	(1.80)*	(0.90)	(0.33)
Panchayats	0.01	0.02	−0.06	−0.02	−0.00	−0.00	−0.02	−0.00	−0.01
	(0.21)	(0.70)	(0.84)	(0.70)	(0.18)	(0.21)	(1.37)	(0.26)	(1.21)
Overid test (p-value of F-test)			0.003	0.1	0.01	0.1	0.83	0.15	0.11
Observations	266	266	266	266	266	266	281	281	280
R-squared	0.90	0.92	0.87	0.87	0.91	0.91	0.98	0.97	0.86

Notes. Panel data fixed effects regressions (instrumented when indicated IV), robust t statistics in parentheses, clustered at the level of the state.
– In Columns (1), (2), (3), and (4), the dependent variable is the real per capita agricultural bank finance (total). Column (1) presents a simple OLS regression. In Column (2), a reduced form specification is presented, including the three variables (court red tape amendments, conflicting judicial decisions in a High Court, conflicting judicial decisions with other High Courts) found to have an influence on the duration of a case in Table 2.
– In every column, the full set of controls as used in Column (10) of Table 1 is included (Sc/St seats (interacted), Election year, Political controls (interacted), Exp. Org. of State (−2), Ratio of dismissed appeals 2 years in the future, Panchayats, 18 State and 26 year fixed effects).
– In Column (3), duration is instrumented with three IVs (court red tape amendments, violation of a precedent established by the same High Court and violation of a precedent established by another High Court.
– In Column (4), duration is further interacted with the proportion of households owning no land. Level variables (duration and proportion) are included, the interaction term is instrumented.
– The overid test in Columns (3), (4), (5), (6), (7), (8), and (9) is a test of joint significance of the instruments in a regression of the fitted residuals from the second-stage on these instruments.
– The Hausman test is a test of the equality of coefficients between OLS and IV. Under H0, OLS and IV are consistent and the coefficients should be equal. The chi2 value and the p-value of the chi2 is presented.
* Significant at 10%.
** Significant at 5%.
*** Significant at 1%.

variables. Column (1) shows that an increase of four days in the expected duration of a trial in High Court (caused by one additional "Court red tape" amendment) decreases a state's per capita registered manufacturing domestic product by 2 percent. This indicates that this sector should be affected by weak judiciaries, since it is typically characterized by a relationship-specific investment that is heavily dependent on strong judiciaries. Column (2) shows a falsification exercise by looking at the unregistered manufacturing sector. Results show that the judiciary does not affect the performance of this sector, most likely because it is less affected by formal institutions of contract enforcement. Column (3) shows no significant impact of the expected duration of a trial in High Court on per capita state trade, hotel and restaurant domestic product. As agricultural output and (registered) manufacturing are affected by judicial inefficiency, one might expect the overall state output to be lower, since these sectors comprise of the majority of most state economies. As shown in Column (4) of Table 6,

Table 6
Impact of the expected duration of a trial in High Court on output in India.

	Log per capita st. reg. manufact. dom. prod. (1)	Log per capita st. unreg. manufact. dom. prod. (2)	Log per capita st. trade, restaurants dom. prod. (3)	Log per capita st. dom. prod. all sectors (4)	Urban head count poverty index (5)
Model	IV	IV	IV	IV	IV
Duration	−1.83	0.01	−0.67	−0.89	30.29
	(2.25)**	(0.01)	(1.67)	(2.18)**	(2.18)**
Sc/st seats (interacted)	yes	yes	yes	yes	yes
Election year	0.01	0.03	−0.01	0.01	0.22
	(0.25)	(1.27)	(0.93)	(0.66)	(0.38)
Political controls (interacted)	yes	yes	yes	yes	yes
Exp. Org. of State (−2)	0.00	0.01	0.00	0.00	0.01
	(0.04)	(0.82)	(0.44)	(0.76)	(0.05)
Ratio of dismissed appeals (2 years in the future)	−0.00	0.01	−0.00	−0.00	0.11
	(0.99)	(2.67)**	(0.42)	(1.14)	(2.07)*
Panchayats	−0.00	−0.00	−0.00	−0.00	0.02
	(1.24)	(0.98)	(1.49)	(2.14)*	(0.77)
Overid test (p-value of F-test)	0.31	0.06	0.11	0.79	0.91
Observations	281	281	195	194	280
R-squared	0.93	0.95	0.99	0.94	0.89

Notes. Panel data fixed effects regressions (instrumented when indicated IV), robust t statistics in parentheses, clustered at the level of the state. In Columns (1), (2), (3), (4), (5), (6), (7), duration is instrumented with court red tape amendments, violation of a precedent established by the same High Court and violation of a precedent established by another High Court.
– In every column, the full set of controls as used in Column (10) of Table 1 is included (Sc/St seats (interacted), Election year, Political controls (interacted), Exp. Org. of State (−2), Ratio of dismissed appeals 2 years in the future, Panchayats, 18 State and 26 year fixed effects).
– The overid test in Columns (1), (2), (3), (4), (5), (6), (7) is a test of joint significance of both instruments in a regression of the fitted residuals from the second-stage on these instruments.
– The Hausman test is a test of the equality of coefficients between OLS and IV. Under H0, OLS and IV are consistent and the coefficients should be equal. The chi2 value and the p-value of the chi2 is presented.
* Significant at 10%.
** Significant at 5%.

this is indeed the case. An increase of four days in the expected duration of a High Court trial, caused by one additional "Court red tape" amendment (or by ten days, caused by one additional "violation of a precedent established by the same High Court"), decreases state domestic product by 1 percent (or by 2.4 percent). I also expect people employed in these sectors to be affected. I use the urban head count index (in percentage) as the dependent variable in Column (5) to measure the impact of the judiciary on poverty. The results show that an increase of four days in the expected duration of a High Court trial increases the urban head count index by 0.3 percentage points. Over-identification tests are always conclusive.

These effects might seem large in magnitude; thus it is of interest to compare them with estimates derived from other sources of data/other data sets. The most rigorous source of international data on duration in courts is the World Bank's "Doing Business" project. This duration measure is available for 187 countries.[40] I then matched this variable with economic outcomes from the Penn World Tables.[41] A simple OLS regression shows that an increase of four days in the duration to resolve a dispute decreases the real gross domestic product by 0.5 percent per capita. This result is clearly subject to criticisms about cross-country regressions; nonetheless, it seems to indicate that the estimate found in this paper is reasonable, and in accordance with other sources.

These results indicate that the judiciary appears to plays a considerable role in the economic outcomes of India's states. I find that farmers have less access to credit markets and, as a result, agricultural development is impeded. I also find that contract-intensive sectors of the economy, such as registered manufacturing, are adversely affected by weak judiciaries. The judiciary impacts the weaker sections of the country, such as the poor and farmers, as well as affects the overall economy.

6. Conclusion

In this paper, I have found two sources of variation of judicial speed that are used to evaluate its impact on economic activity. First, amendments to the Code of Civil Procedure that add or complicate procedures to be followed by the Court

[40] Available at http://www.doingbusiness.org/ExploreTopics/EnforcingContracts/.
[41] Available at http://pwt.econ.upenn.edu/.

affect expected durations of High Court trials. Second, the ambiguity of the Code of Civil Procedure, measured by the violation of precedents established by the same High Court or other High Courts, affects expected duration of High Court trials, as judges must spend time choosing between two conflicting views.

I then relate the expected duration of High Court trials to economic outcomes using three variables, "Court red tape" amendments, "violation of a precedent established by the same High Court" and "violation of a precedent established by the another High Court", as instrumental variables for the expected duration of a trial in High Court. There are four reasons that these three variables represent valid instrumental variables. First, I use a panel data analysis and include state fixed-effects to account for permanent differences across states in policies and outcomes. If systematic determinants of amendments are time invariant characteristics, this will remove endogeneity concerns. Second, "Court red tape" amendments were not explicitly designed to deteriorate the speed of High Courts. As such, they were not endogenous to the judicial slowness at the time the amendment was passed. Third, the temporal variation in conflicting judicial decisions is exogenous as they arise after the arbitrary occurrence of cases pertaining to ambiguous sections of the Code of Civil Procedure. Fourth, as it is possible that the conflicting judicial decisions are endogenous to the quality of the judges, or influenced by the legislatures, I attempt to account for the quality of the courts, and for the potential influence of politicians or other interest groups, on these conflicting judicial decisions.

In addition, I present statistical tests concerning the validity of these instruments. First, in a first-stage regression, these three instruments are significantly related to trial duration. Second, these three instruments are not related to the error term of the second-stage regression and, thus, pass the over-identification test of the endogeneity of the instrumental variables.

In this paper, I find that the judiciary heavily shapes the economic outcomes of India's states. I find that farmers have less access to credit markets and, as a result, agricultural development is impeded. I also find that contract-intensive sectors of the economy, such as registered manufacturing, are adversely affected by weak judiciaries. The judiciary impacts the weaker sections of the country, such as the poor and farmers, as well as affects the overall economy.

A final note must be said on what this paper does not do. The research design does not permit the comparison of common law and civil law systems, as the analysis focuses on India, a common law country. This paper documents the costs of flexibility (such as procedural ambiguity caused by conflicting judicial decisions) inherent to common law systems, but completely omits the potential benefits of such flexibility, compared to civil law systems.[42]

The policy implications of this paper are clear. To reduce expected duration of High Court trials, the number and complexity of procedures to be followed by the Courts must be reduced. The ambiguity of the Code of Civil Procedure must also be reduced by simplifying and clarifying confusing and redundant rules. For example, the findings of this paper support the recommendations of the 144th Law Commission Report by India's Ex-Chief Justice K.N. Singh, titled "Conflicting Judicial Decisions Pertaining to the Code of Civil Procedure, 1908". Thus this report can provide suitable guidelines that may be followed to increase judiciary efficiency in India, but that have not yet been incorporated into the Civil Procedure Code. Clarifying each ambiguous rule will allow judges to save time by liberating them from having to deliberate over many conflicting views. This will not only expedite procedures, but may also enhance the economic conditions of the state, and for the poor in particular.

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References

Acemoglu, Daron, Johnson, Simon, 2005. Unbundling institutions. Journal of Political Economy 113, 949–995.

Acemoglu, Daron, Johnson, Simon, Robinson, James A., 2001. The colonial origins of comparative development: An empirical investigation. The American Economic Review 91, 1369–1401.

Berkowitz, Daniel, Clay, Karen, 2006. The effect of judicial independence on courts: Evidence from the American states. Journal of Legal Studies 35 (2), 399–440.

Bertrand, Marianne, DuFlo, Esther, Mullainathan, Sendhil, 2004. How much should we trust differences-in-differences estimates? The Quarterly Journal of Economics 119, 249–275.

Cole, Shawn, 2009. Fixing market failures or fixing elections? Agricultural credit in India. American Economic Journals: Applied Economics 1, 219–250.

Cristini, Marcela, Moya, Ramiro, Powell, Andrew, 2001. The importance of an effective legal system for credit markets: The case of Argentina. In: Pagano, Marco (Ed.), Defusing Default: Incentives and Institutions. John Hopkins University Press, Washington, pp. 119–156.

Debroy, Bibek, 2000. Some issues in law reform in India. In: Dethier, Jean-Jacques (Ed.), Governance, Decentralization and Reform in China, India and Russia. Kluwer Academic Publishers, Boston/Dordrecht/London, pp. 339–368.

Djankov, Simeon, La Porta, Rafael, Lopez-De-Silanes, Florencio, Shleifer, Andrei, 2003. Courts. The Quarterly Journal of Economics 118, 453–517.

Dua, Bhagwan D., 1983. A study in the executive–judicial conflict: The Indian case. Asian Survey 23, 463–483.

[42] La Porta et al. (2008) documents, in a cross-country setting, the multiple benefits of common law judicial systems compared to civil law systems.

Hall, Robert E., Jones, Charles I., 1999. Why do some countries produce so much more output per worker than others? Quarterly Journal of Economics 114, 83–116.
Jappelli, Tullio, Pagano, Marco, Bianco, Magda, 2005. Courts and banks: Effects of judicial enforcement on credit markets. Journal of Money, Credit, and Banking 37, 223–244.
Klein, Benjamin, Crawford, Robert G., Alchian, Armen A., 1978. Vertical integration, appropriable rents, and the competitive contracting process. Journal of Law & Economics 21, 297–326.
Knack, Stephen, Keefer, Philip, 1995. Institutions and economic performance: Cross country tests using alternative institutional measures. Economics & Politics 7, 207–227.
Koehling, Wolfgang, 2002. The economic consequences of a weak judiciary: Insights from India. Law and Economics Working Paper Archive No. 0212001. Available at http://econpapers.repec.org/paper/wpawuwple/0212001.htm. EconWPA, St. Louis.
La Porta, Rafael, Lopez-de-Silanes, Florencio, Shleifer, Andrei, 2008. The economic consequences of legal origins. Journal of Economic Literature 46, 285–332.
Lambert-Mogiliansky, Ariane, Sonin, Konstantin, Zhuravskaya, Ekaterina, 2007. Are Russian commercial courts biased? Evidence from a bankruptcy law transplant. Journal of Comparative Economics 35, 254–277.
Mauro, Paolo, 1995. Corruption and growth. Quarterly Journal of Economics 110, 681–712.
Naritomi, Joana, Soares, Rodrigo, Assunção, Juliano J., 2007. Rent seeking and the unveiling of 'de facto' institutions: Development and colonial heritage within Brazil. Mimeo, University of Maryland.
Pande, Rohini, 2003. Can mandated political representation increase policy influence for disadvantaged minorities? Theory and evidence from India. American Economic Review 93, 1132–1151.
Pinheiro, Armando C., Cabral, Celia, 2001. Credit markets in Brazil: The role of judicial enforcement and other institutions. In: Pagano, Marco (Ed.), Defusing Default: Incentives and Institutions. John Hopkins University Press, Washington, pp. 157–188.
Visaria, Sujata, 2006. Legal reform and loan repayment: The microeconomic impact of debt recovery tribunals in India. IED Working Paper No. 157, Boston University, Boston.
Woodruff, Christopher, McMillan, John, Johnson, Simon, 1999. Contract enforcement in transition. Discussion Paper Series No. 2081, CEPR, London.