Front-line Courts as State Capacity

Micro-Evidence from India

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22nd June 2022

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Judicial Delays Are Costly

Source: World Development Indicators, The World Bank
• **Expectation Effects:** contract enforcement → ↓ transaction costs and uncertainty → stronger financial sector → firm growth

• **Liquidity Effects:** Free tied-up factors of production involved in litigation
Empirical Contribution: Effects of Judicial Incapacity

- Examine **staffing constraints** (judge vacancies) in local (district) courts and its consequences on **court performance** and **local firm production**
- Use a novel **trial-level** dataset across a quarter district courts in **India**
- Exploit judicial staffing changes that **exogenous varies vacancies** for causal identification

**Take-away:**
- Adding judges increases resolution of pending case
- Increases access to operating capital for local firms, and improves firm profitability, generating on average
- **Mechanism:** Local credit markets (bank branches) play an important role
- **> 3X returns** to public investment in the judiciary
Three Key Contributions


• Judicial capacity as state capacity - *high returns on public expenditure* Muralidharan, et al, 2016; Dal Bo and Finan, 2016; Dhaliwal and Hanna, 2017; Finan et al, 2017, Kapur 2020
Indian Judiciary Is Severely Constrained

- Unitary structure of the Indian Judiciary, with district and sub-district judiciary facing bulk of the workload:
  - 1 Supreme Court: 70,000 cases
  - 39 High Courts (state-level): \( \approx 5 \) million cases
  - 3389 District and Sub-District Courts (district-level): \( >40 \) million cases
- High vacancies: 12\% in the Supreme Court, \( >35\% \) in High Courts, \( \approx 25\% \) in district and subordinate courts
- Large backlog in courts: 11\% trials require more than 10 years to be resolved
Novel Data on Courts

- Universe of **trials ($\approx 6$ million)** in 195 district courts of between 2010 and 2018

- **Generate** court-level annual variables - number of judges, litigation filings, resolutions, backlog resolution rate 
  \[
  \left( \frac{\# \text{disposed} \times 100}{\text{total workload}} \right)
  \]

- Observe **changes** in judge staffing levels in data

- Merge with balance sheet data of **local formal sector firms**
  - Single plant
  - Local credit (through bank branches)
  - Location of litigation in debt recovery
Causal Identification

- **Exogenous timing** of addition and removal of judges from courts that varies staffing levels, i.e., the number of judges and vacancy rate
- Vacancies are **persistent** and are only addressed sporadically
- District judges are **mid-career judicial officers**, with career length 15-20 years, and retire at 60
- High Courts **hire and assign** judges to district courts:
  - Substantial recruitment challenges - budgetary, lack of appropriate candidates, etc.
  - Short tenure and frequently rotated without repetition
## Summary Statistics

<table>
<thead>
<tr>
<th>Panel A: Court Variables</th>
<th>No. of Units</th>
<th>Observations</th>
<th>Mean</th>
<th>Std Dev</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Judge Posts</td>
<td>195</td>
<td>1755</td>
<td>18</td>
<td>19</td>
<td>1</td>
<td>108</td>
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<tr>
<td>100-Vacancy(%)</td>
<td>195</td>
<td>1723</td>
<td>77</td>
<td>21</td>
<td>10</td>
<td>100</td>
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<tr>
<td>No. Net Judge Increases</td>
<td>195</td>
<td>195</td>
<td>1.621</td>
<td>1.153</td>
<td>0</td>
<td>6</td>
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<tr>
<td>∆ Judge (+ve) (per event)</td>
<td>158</td>
<td>158</td>
<td>2.31</td>
<td>2.54</td>
<td>1</td>
<td>24</td>
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<tr>
<td>No. Net Judge Decreases</td>
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<td>195</td>
<td>3.6</td>
<td>1.66</td>
<td>1</td>
<td>8</td>
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<tr>
<td>∆ Judge (-ve) (per event)</td>
<td>195</td>
<td>195</td>
<td>3.67</td>
<td>3.97</td>
<td>1</td>
<td>33</td>
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<tr>
<td>Disposal Rate (%)</td>
<td>195</td>
<td>1755</td>
<td>14</td>
<td>12</td>
<td>0</td>
<td>86</td>
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<tr>
<td>Case Duration (days)</td>
<td>195</td>
<td>5706852</td>
<td>420</td>
<td>570</td>
<td>0</td>
<td>4022</td>
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<table>
<thead>
<tr>
<th>Panel B: Bank Variables</th>
<th>No. of Units</th>
<th>Observations</th>
<th>Mean</th>
<th>Std Dev</th>
<th>Min</th>
<th>Max</th>
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<tbody>
<tr>
<td>No. Industry Loans</td>
<td>192</td>
<td>1719</td>
<td>9188.2</td>
<td>15602.58</td>
<td>30</td>
<td>188456</td>
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<tr>
<td>Outstanding Amount</td>
<td>192</td>
<td>1719</td>
<td>310.3</td>
<td>1130.19</td>
<td>0.023</td>
<td>15569.2</td>
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</table>

<table>
<thead>
<tr>
<th>Panel C: Firm Variables</th>
<th>No. of Units</th>
<th>Observations</th>
<th>Mean</th>
<th>Std Dev</th>
<th>Min</th>
<th>Max</th>
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<tr>
<td>Wage Bill</td>
<td>391</td>
<td>3440</td>
<td>844.32</td>
<td>1832.1</td>
<td>0</td>
<td>23192.5</td>
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<td>Plant value</td>
<td>376</td>
<td>3276</td>
<td>6787.64</td>
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<td>Revenue from Sales</td>
<td>393</td>
<td>3471</td>
<td>13470.21</td>
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<td>Accounting Profits</td>
<td>393</td>
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<td>5322.77</td>
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<td>Raw Mat Exp</td>
<td>325</td>
<td>2786</td>
<td>7764.64</td>
<td>33368.59</td>
<td>-63.21</td>
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$$y_{it} = \sum_{j=4}^{4+} \beta^+_j \mathbb{1}\{|t - T_{d,e}| = j\} \times \text{Pos}_{d,e}$$

$$+ \sum_{j=4}^{4+} \beta^-_j \mathbb{1}\{|t - T_{d,e}| = j\} \times \text{Neg}_{d,e}$$

$$+ \alpha_i + \alpha_e + \alpha_{st} + \epsilon_{it}$$
Judge Transfers Generate Sharp Discontinuity In Staffing Unexpectedly

No. of Judges

Coefficient

Net Judge Removal

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(Increase in) Staffing Affects Court Performance

Disposal Rate

Net Judge Removal
(One-Sided) Credit Market Effects: Affects Bank Lending Locally
Affects Local Firms’ Operating Capital (One-Sided)

- Working Capital (IHS)
  - Coefficient: 2.45 (5.91)

- Working Capital (IHS)
  - Coefficient: 2.75 (6.06)

- Interest Expenditure (IHS)
  - Coefficient: 4.350000000000001 (2.22)

- Interest Expenditure (IHS)
  - Coefficient: 4.27 (2.23)

Net Judge Removal
Affects Local Firms Production (Symmetrically)
Better courts enable **contract enforcement**: lender able to recover unpaid debt if chooses to litigate.

Lender-borrower bargaining game with
- **Lender’s strategy set** - \(\{\text{Lend}\}, \{\text{Lend, Litigate}\}, \{\text{Lend, Not Litigate}\}, \{\text{Not Lend}\}\)
- **Borrower’s strategy set** - \(\{\text{Default}\}, \{\text{Default, Accept Litigation}\}, \{\text{Default, Settle}\}, \{\text{Repay}\}\)
- Payoffs a function of judicial capacity \(\gamma\)

Lender **lends more** and lowers interest rates for all borrowers.

Effects **local firms’** value of production through credit markets as well as lower transaction costs.
Credit Contracts Important Litigation Type

- **Percent of firms cases excl. Insurance Claims by Individuals**
  - Debt: 50%
  - Other Enforcement: 10%
  - Arbitration: 5%

- **Share Defendant**
  - Low Leverage: 7.37
  - High Leverage: 7.91

- **Asset Distribution of High Leverage Firms By Litigant Status**
  - Log Ex-Ante Asset Value: 2, 4, 6, 8, 10, 12
  - Density: High Leveraged Non-Litigant and High Leveraged Defendant

- **P-value**: < .0001
Heterogeneity By Leverage

Working Capital (IHS)
Low-Leverage, Small Firms

Interest Expenditure (IHS)
Low-Leverage, Small Firms
3X Returns on Public Investment in Judicial Capacity

Benefit Measured as Tax Revenue

Density

Benefit-Cost Ratio

6.64
Robustness Checks

- Dynamic panel specification, generalized event study design with inverse vacancy rates as exp var
- Cluster standard errors by state (serial correlation between courts due to judge assignment)
- Dropping top industrial states and districts
- Dropping litigating firms
- Repeated cross-section of firms: To address concern about small sample of firms (due to balanced panel restriction)
Summary

• Delays in lowering vacancy has huge implications for economic development
• When judges are added to courts, backlog reduces, more industrial loans, higher working capital for firms, higher wages and profits
• Effect of judge removal is not completely symmetric in mechanism
• Other explanation plausible, but sheds light on oft-neglected role of courts in circulation of capital
Dynamic Panel

Working Cap. (IHS) at t

Interest Exp. (IHS) at t

Wage Bill (IHS) at t

Profit (IHS) at t
Cluster by State: Court Outcomes

No. of Judges
Cluster by State and Event

Disposal Rate
Cluster by State and Event