Creditor Rights, Threat of Liquidation, and Labor-Capital Choice of Firms

Shashwat Alok, Ritam Chaurey & Vasudha Nukala

Discussion by Randall Morck

University of Alberta, ABFER, ECGI & NBER

1. **Regurgitate the presentation**
2. **Suggest improvements**
3. **Pick nits**
4. **Suggest extensions**

Econometrics

Difference-in-differences interaction regression

$$LHS_{f,t} = d_f + d_{i,t} + d_t + \langle a_k, x_k \rangle + b_0\, \delta_{t>2002} + b_1\, tangibility + b_2\, \delta_{t>2002} \times tangibility + u_{f,t}$$

Natural Experiment

Time		Treated versus control groups	
		Treated (tangibles = H)	**Control (Tangibles = L)**
	Before drug	Health = baseline	Health = baseline
	After drug	Health = baseline + placebo effect + treatment effect	Health = baseline + placebo effect

	Panel A: Log(Number of Workers)					
	Permanent		Contract		Total	
	(1)	(2)	(3)	(4)	(5)	(6)
Law X Treatment	0.0687***	0.0796***	0.0746***	0.0820***	0.0798***	0.0917***
	(0.0110)	(0.0108)	(0.0187)	(0.0190)	(0.00843)	(0.00796)
N	212,080	206,926	212,080	206,926	212,080	206,926
R^2	0.923	0.927	0.802	0.803	0.947	0.953
	Panel B: Log(Wage per worker)					
	Permanent		Contract		Total	
	(7)	(8)	(9)	(10)	(11)	(12)
Law X Treatment	0.0599**	0.0701***	0.137***	0.149***	0.0403***	0.0443***
	(0.0243)	(0.0246)	(0.0502)	(0.0510)	(0.00513)	(0.00513)
N	212,080	206,926	212,080	206,926	212,080	206,926
R^2	0.816	0.818	0.774	0.775	0.898	0.900
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Controls	No	Yes	No	Yes	No	Yes
Industry-year FE	Yes	Yes	Yes	Yes	Yes	Yes

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- ❑ **If treated patients get multiple drugs, undergo other changes, …. ➔ drug my not be responsible for treatment effect observed**
- ❑ **Treated & control patients otherwise undergo same regimen**

Noisy treatment measure (errors in variables problem)

- ❑ **Unsure when patients are treated ➔ attenuation bias + risk of type 2 error**

Noisy randomization measure (noisy instrument)

- ❑ **Unsure which patients are in which group ➔ attenuation bias + risk of type 2 error**

Data Mining for Type 2 errors

- ❑ **Multiple simultaneous trials with cross randomization**

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In this context, …

Are high & low tangibles factories otherwise same?

Controls, fixed effects helpful; "matched pairs" better?

Are treated factories otherwise unchanged?

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Annual Survey of Industries (ASI) Data

Unit of observation is "factory" (firm-level affiliation unavailable)

❑ **L ≥ 10 if uses electricity; L ≥20 if no electricity**

ASI panel = 1999 to 2008 yearly data for 30,000-40,000 factories all across India

❑ **40% rural, 60% urban**

❑ **21% individual proprietorship, 2% joint family 28% partnership, 27% private limited company; 18% public limited company**

ASI data	Fraction	Frequency	Coverage
Census	35% obs.	Annual	All factories in **industrially backward** states (not covered for labor law?) U "large" factories ('98-00 L ≥ 200; but from 2003 on L ≥ 100) in other states
Sample	65% obs.	Every few yr.s	1/3 of all other factories (randomly selected each year)

A very large number of rather small factories

Annual Survey of Industries (ASI) Data

Data structure is panel of <u>intermittently observed</u> year-factory observations

- ❑ **Clarify that we see the same patients pre & post treatment**

- ❑ **At best observe same factory every few years**

- ❑ **A longer window ➜ higher Pr(other drugs)**

- ❑ **A shorter window ➜ we see fewer factories both before & after**

Tight window **Sample factories**

Intermittent Panel Structure of the Data
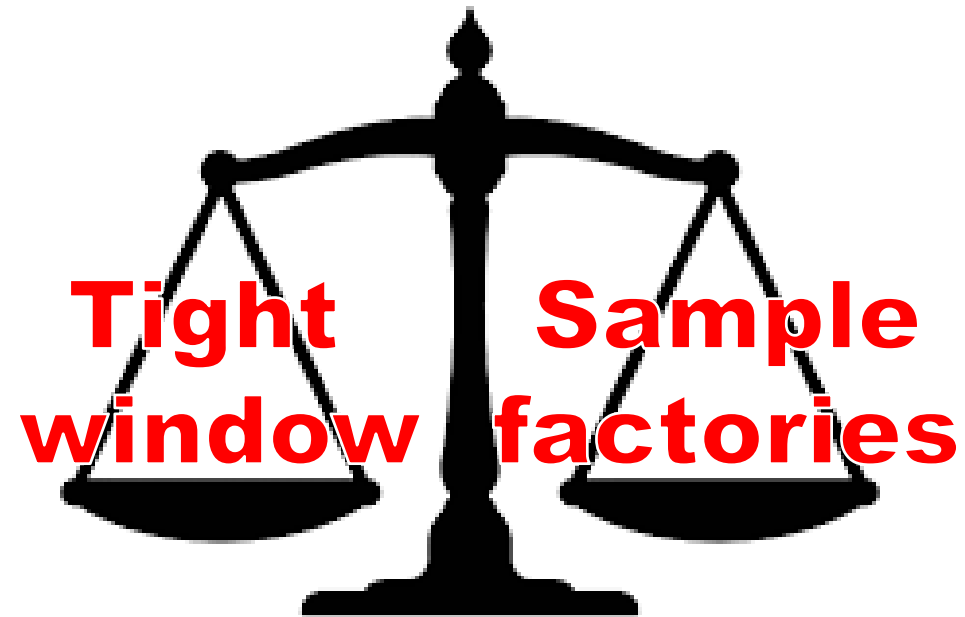
| Length of panel in years	Number of units covered for N years in 98/9 to 07/8 ASI data										Industrially backward	Labor law favors	Criminal cases < 1 yr.
	10	9	8	7	6	5	4	3	2	1			
Andaman & N. Island UT	19	19	20	21	21	21	24	26	29	29	yes	?	
Andhra Pradesh	253	362	509	679	872	1,167	1,875	3,982	9,885	22,552		Employer	11%
Arunachal Pradesh												?	7%
Assam	126	209	320	403	477	581	816	1,216	1,823	2,857		Neutral	51%
Bihar	58	113	164	213	266	359	534	903	1,462	2,587		Neutral	12%
Chandigarh UT	71	95	101	113	139	188	232	325	403	520		?	45%
Chattisgarh	45	91	182	251	324	423	551	872	1,400	2,216		Neutral	
Dadra & Nagar Haveli UT	30	56	88	149	207	300	469	737	1,196	1,886		?	
Daman & Diu UT	34	69	113	153	211	292	450	771	1,389	2,421		?	
Delhi UT	52	104	177	264	385	601	1,055	1,932	3,394	5,181		?	
Goa	78	139	187	250	327	408	470	550	702	861		?	3%
Gujarat	254	388	630	809	1,033	1,345	2,061	4,153	9,435	22,093		Employer	11%
Haryana	129	220	359	469	653	896	1,434	2,558	4,615	7,382		Neutral	12%
Himachal Pradesh	70	115	162	210	275	358	513	767	1,176	1,741		Neutral	24%
Jammu & Kashmir	63	112	149	185	231	275	379	496	654	876		?	9%
Jharkhand	86	137	189	257	357	482	704	1,080	1,661	2,576		?	4%
Kamataka	167	281	497	699	965	1,429	2,221	550	3,898	6,980		?	10%
Kerala	156	271	389	504	656	930	1,381	2,210	3,891	6,377		Employer	21%
Lakshadweep UT												?	
Madhya Pradesh	152	233	341	441	568	775	1,139	1,860	2,968	4,784		Neutral	37%
Maharashtra	461	677	1,001	1,248	1,576	2,015	3,099	5,621	12,089	25,868		Worker	7%
Manipur	29	39	39	42	43	48	77	88	103	145	yes	?	31%
Meghalaya	20	25	31	34	42	48	60	67	80	109	yes	?	10%
Mizoram												?	87%
Nagaland	44	100	104	112	117	126	147	173	189	194	yes	?	100%
Orissa	100	152	218	274	355	498	701	1,084	1,692	2,663		Worker	25%
Pondicherry UT	94	144	193	247	321	408	508	594	847	1,126		?	
Punjab	169	253	327	414	533	744	1,468	3,112	6,382	12,526		Neutral	24%
Rajasthan	120	199	300	382	488	700	1,082	2,108	4,241	7,548		Employer	32%
Sikkim												?	22%
Tamil Nadu	548	809	1,299	1,719	2,243	3,092	4,484	7,253	14,582	30,665		Employer	17%
Tripura	101	172	192	211	245	296	341	422	469	530	yes	?	47%
Uttar Pradesh	233	324	555	727	951	1,283	1,997	3,842	7,960	15,096		Neutral	2%
Uttaranchal	25	54	174	216	255	309	423	670	1,103	1,857		Neutral	7%
West Bengal	231	314	453	591	763	1,022	1,563	2,785	4,841	8,329		Worker	11%
Total	4,018	6,276	9,463	12,287	15,899	21,419	32,258	56,155	107,641	205,905			

Source: P C Mohanan, PC & Anil Chopra. 2012.
Problems & Prospects in the Use of ASI Data: A Study
on ASI Panel Data. *Journal of Industrial Statistics*

Intermittent Panel Structure of the Data

	NIC2004 code				Number of units for different lengths of years					
		10	9	8	7	6	5	4	3	2	1
Agriculture, hunting & related service activities	1	6	13	48	73	106	176	346	838	2,040	4,401
Other mining & quarrying	14			3	11	17	22	39	69	109	209
Manufacture of food products & beverages	15	899	1,346	1,980	2,410	2,933	3,664	5,244	8,974	17,668	33,623
Manufacture of tobacco products	16	72	91	127	217	293	433	590	988	2,097	4,979
Manufacture of textiles	17	602	854	1,217	1,502	1,852	2,441	3,537	5,735	10,708	22,122
Manufacture of wearing apparel; dressing & dyeing of fur	18	78	153	290	424	613	892	1,419	2,308	4,085	8,040
Tanning & dressing of leather; manufacture of leather goods	19	53	88	149	241	338	448	649	1,053	2,032	3,986
Manufacture of wood & of products of wood & cork, except furniture & of straw & plaiting	20	69	133	173	219	290	378	624	1,220	2,461	4,828
Manufacture of paper & paper products	21	72	126	193	264	341	459	707	1,332	2,733	5,651
Publishing, printing & reproduction of recorded media	22	65	132	200	276	363	486	736	1,333	2,546	4,802
Manufacture of coke, refined petroleum products & nuclear fuel	23	43	71	100	129	178	251	369	62s	978	1,561
Manufacture of chemicals & chemical products	24	365	579	929	1,196	1,553	2,005	2,872	4,625	8,601	16,211
Manufacture of rubber & plastics products	25	62	129	226	302	393	561	945	2,048	4,869	1,092
Manufacture of other non-metallic mineral products	26	274	465	650	805	1,009	1,400	2,471	4,682	9,810	20,098
Manufacture of basic metals	27	150	253	404	547	724	1,051	1,576	2,927	5,756	11,580
Manufacture of fabricated metal products, except machinery & equipment	28	81	162	290	404	556	777	1,244	2,468	5,781	13,496
Manufacture of machinery & equipment n.e.c.	29	191	333	501	671	933	1,345	2,036	3,628	7,103	14,524
Manufacture of office, accounting & computing machinery	30		10	28	39	57	89	124	179l	282	493
Manufacture of electrical machinery & apparatus n.e.c.	31	107	198	303	399	538	783	1,178	2,080	3,757	7,015
Manufacture of radio, television & communication equipment & apparatus	32	52	93	144	196	270	362	510	781	1,294	2,318
Manufacture of medical, precision & optical instruments, watches & clocks	33	48	110	169	242	315	422	570	784	1,121	l755
Manufacture of motor vehicles, trailers & semi-trailers	34	90	157	246	335	425	568	788	1,321	2,455	4,711
Manufacture of other transport equipment	35	101	158	206	256	352	464	650	1,050	1,742	3,358
Manufacture of furniture; manufacturing n.e.c.	36	60	125	211	296	391	536	839	1,410	2,487	4,849
Recycling	37			1	3	5	16	30	60	91	265
Electricity, gas, steam & hot water supply	40		4	5	30	47	89	146	222	362	587
Collection, purification & distribution of water	41				3	7	16	26	38	69	121
Construction	45									2	8
Sale, maintenance & repair of motor vehicles & motorcycles; retail sale of auto fuel	50		32	57	92	141	242	403	814	1,978	4,312
Retail trade, ex. motor vehicles & motorcycles; repair of personal & household goods	52		4	11	18	24	37	60	92	141	273
Supporting & auxiliary transport activities; activities of travel agencies	63			6	10	20	39	104	344	860	1,695
Computer & related activities	72					1	6	9	9	12	22
Research & development	73						1	1	1	1	2
Other business activities	74			2	5	8	17	29	37	54	96
Sewage & refuse disposal, sanitation & similar activities	90		3	3	6	16	22	26	33	35	40
Recreational, cultural & sporting activities	92		12	19	20	24	25	29	46	61	88
Other service activities	93		7	10	20	35	55	78	l13	163	223
	yy										749
		3,540	5,841	8,901	11,661	15,168	20,578	31,004	54,267	######	214,020

Intermittent Panel Structure of the Data

Data structure is panel of <u>intermittently observed</u> year-factory observations

Smaller sample of "same patient" data?

❑ **Problematic factory IDs, inconsistent data problems within factories across years**
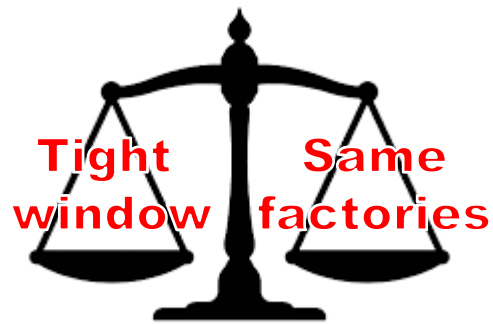
		Open value		Close value		Discrepancy	
Factory	2000-01	₹	45,145	₹	45,755		
# 5	2001-02	₹	72,885	₹	67,096	₹	-27,130
(Tamil	2002-03	₹	42,679	₹	39,911	₹	24,417
Nadu)	2003-04	₹	39,911	₹	37,419		

Source: P C Mohanan, PC & Anil Chopra. 2012. Problems & Prospects in the Use of ASI Data: A Study on ASI Panel Data. *Journal of Industrial Statistics*

Factories are not firms, and common ownership / control not recorded?

❑ **Are a factory's assets collateral for only its debts or its firm's debts?**

❑ **18% of observations are for <u>public</u> limited company factories esp. problematic re this?**

Econometrics

Difference-in-differences interaction regression

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In this context

Are high & low tangibles factories otherwise same?

Controls, fixed effects helpful; matched pairs better?

Are treated factories otherwise unchanged?

Can reliably ID same factories before v after?

Any other treatments at the same time?

Concerns

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How Problematic Is loan Recovery in India?

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Only very large borrowers? ➜
Date are very small factories

Corporate Debt Restructuring (CDR)

The scheme of CDR was institutionalised in 2001–02 to provide a timely and transparent system fo restructuring of corporate debts of Rs 20 crore and above with the banks and financial institutions. Th corporate debt should be outside the purview of the Board for Industrial and Financial Reconstructio (BIFR), DRTs or other legal proceedings. The objective of the scheme is to enable corporates affected b certain internal/external factors to restructure their debt through an orderly and coordinated debtor – creditor agreement and inter-creditor agreement which results in preserving their viability an minimising losses to creditors/other stakeholders.

The RBI revised the guidelines with respect to the CDR mechanism in February 2003. The revise guidelines allow accounts categorised as standard, sub-standard or doubtful for restructu___ independent consultants to help in preparing the restru___

___ucturing includes changes in compan ___pecial audits and divestiture and/or liquidation of non-viable and non-co___

Banks have also successfully used the threat of invoking the SARFAESI Act to recast trouble companies via the CDR mechanism and relieve the stress in their asset books. Under this arrangemen a company's debt is recast if 75 per cent of the lenders (in terms of value) agree to do so. The lender normally compromise on the interest rates and stretch the maturity profile of debt while borrowers to sacrifice in terms of converting part of their debt into equity, offering high collaterals and pumping i fresh money.

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JUST IN   RBI's net buying of dollar from spot market declines in March to $996 mn

Banks want higher limit NPA cases under Lok Adalat ambit

Poornima Mohandas | Mumbai Last Updated at June 14, 2013 15:54 IST

Currently, Lok Adalats ""organised by civil courts to effect a compromise between disputing parties in matters pending before any court"" can handle cases up to a ceiling of Rs 20 lakh. Banks want to increase the limit to Rs 50 lakh.

We find Lok Adalats as a very effective system to recover dues from borrowers. It has been particularly successful in Delhi and states such as Bihar among other states," said a general manager from Punjab National Bank.

In August 2004, the Reserve Bank of India upped the monetary ceiling of cases for compromise settlements referred to the Lok Adalats organised by civil courts to Rs 20 lakh from the earlier limit of Rs 5 lakh.

After Debt Recovery Tribunals were empowered to organise Lok Adalats to decide on cases of NPAs, public sector banks recovered as much as Rs 40.38 crore as on September 2001. The progress through this channel is expected to pick up in coming years, say bankers.

Earlier the role of Lok Adalats was confined to road accidents, matrimonial cases, and compoundable criminal and land acquisition cases until it was broadened to include debt recovery cases and listed cases.

ABI There is also a proposal to bring cases pending in High Courts under Lok Adalats to speed up the legal system.

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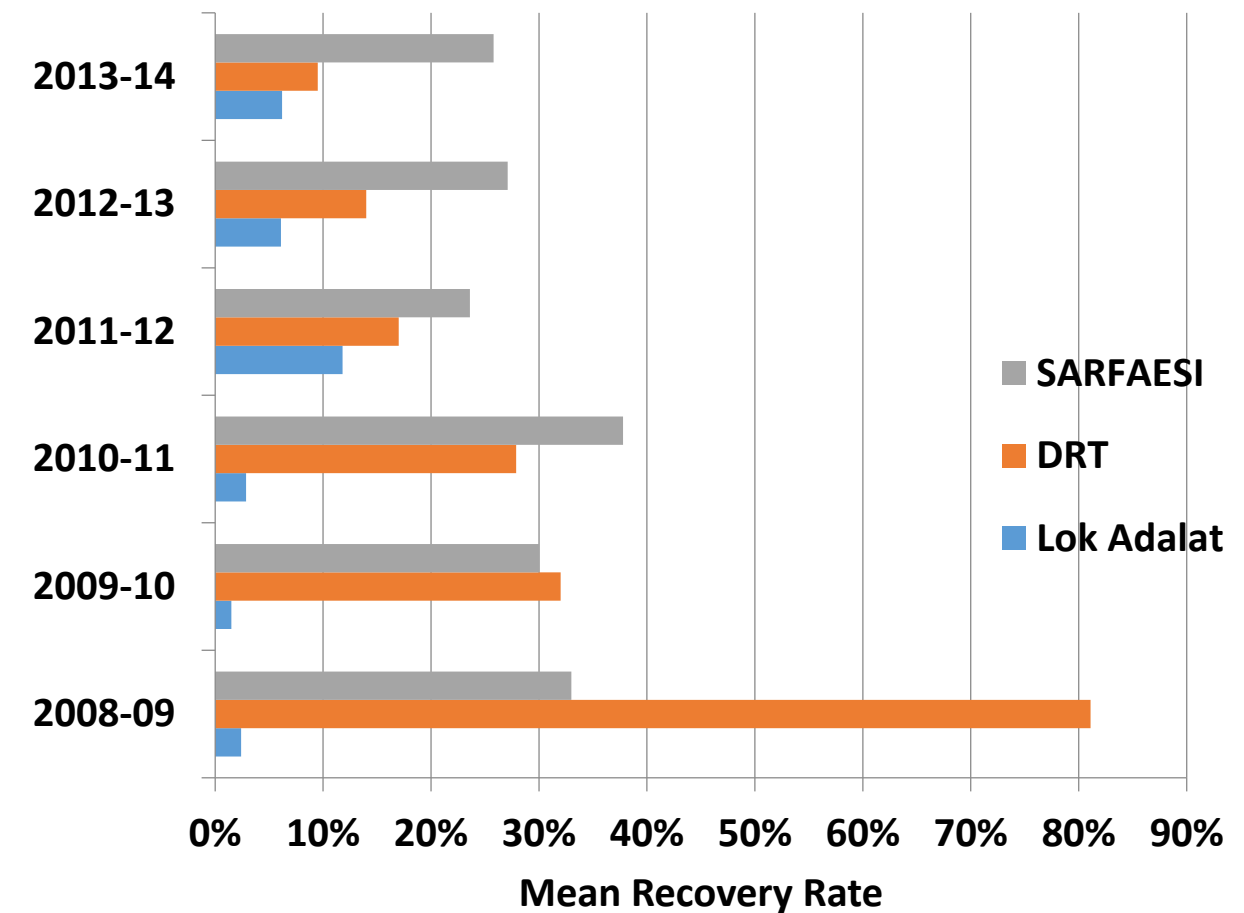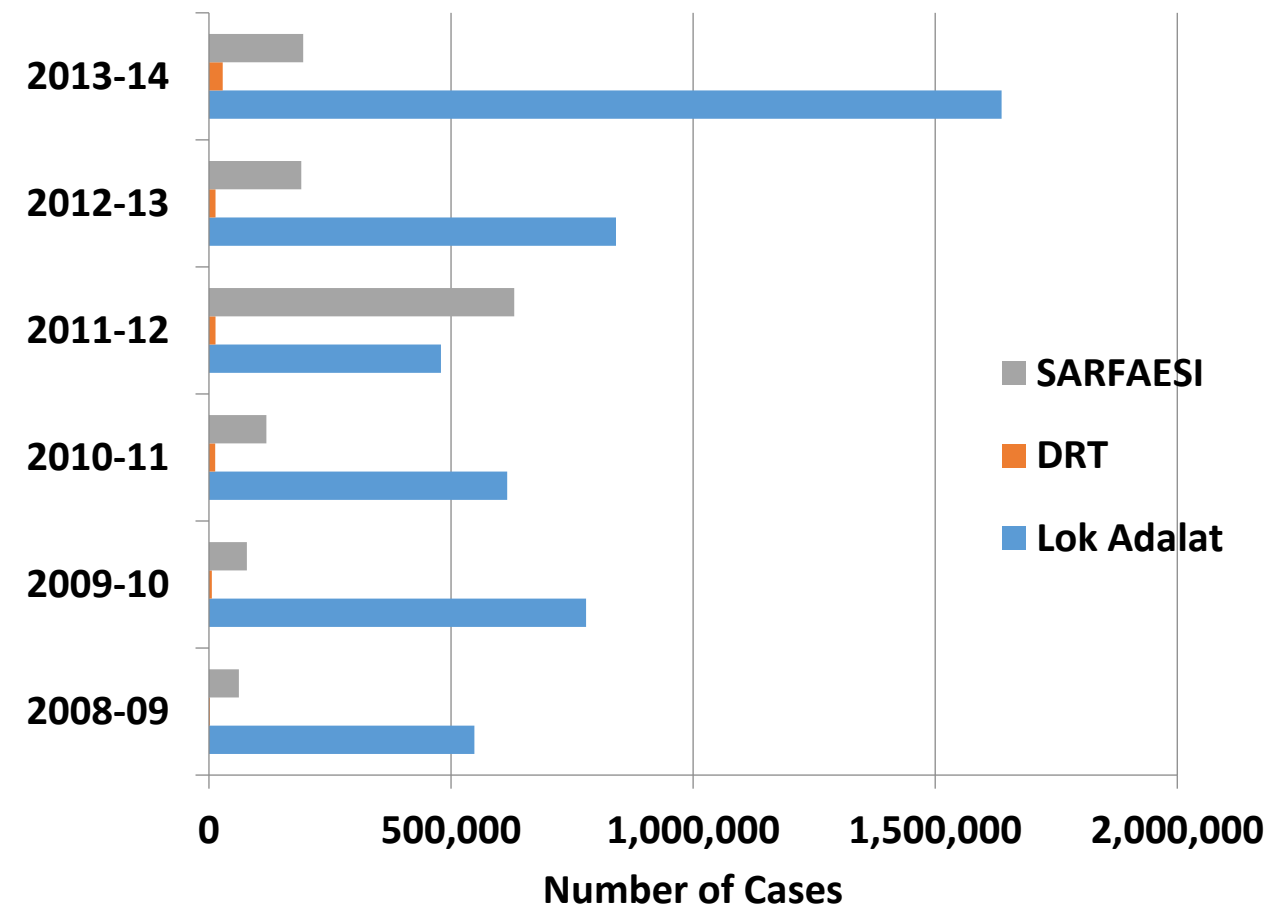
Chandra SC & Jain A. 2016. The Impact of SARFAESI Act 2002 in recovering the Non Performance Assets in Public Sector. International Journal of Applied Engineering Research 11(7)5218-5224
Shaardha, MC. 2016. Role of Lok Adalat in Managing Non-Performing Assets in Scheduled Commercial Banks. International Journal for Innovative Research in Multidisciplinary Field 3(2)

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Do we know when behavior changed?

Resigned to longer window e.g. 2001 to 2004?

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Treatment Year

February	1999	Andhyarjuna Committee (RBI, MoFin, MoLaw, ICICI Bank) est.
March	2000	Andhyarjuna Committee report recommends reforms
November	2000	Final draft of reform submitted to government
June	2001	Legislators discuss reform
June 21st	2002	SARFAESI Ordinance promulgated by President
August 21st	2002	SARFAESI Ordinance repromulgated by President
November 21st	2002	SARFAESI bill presented to Lok Sabha
November 25th	2002	SARFAESI bill presented to Rajya Sabha
		Litigation
April 8th	2004	Supreme Court upholds SARFFAESI constitutionality [Mardia Chem. v ICICI Bank]
		Enforcement concerns
		↓
Aug 2nd	2016	Enforcement of Security Interest & Recovery of Debts Laws & Miscellaneous Provisions (Amendment) Bill, 2016 amends SARFAESI (& 3 other acts)

1. District magistrate must transfer possession within 30 days
2. District magistrate must help lender take control of creditor if debt/equity swap ➜ stake > 51%
3. Establish central debt registry of debts & secured assets
4. Establish system of electronic summons, notices, communications

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Do we know which factories are which?

ASI factory IDs unreliable, data inconsistent across years within same factory observations

Data Mining for Type 2 errors

More likely a problem in US studies

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Difference-in-differences interaction regression

☐ $LHS_{f,t} = d_f + d_{i,t} + d_t + \langle a_k, x_k \rangle + b_0\, \delta_{t>2002} + b_1\, tangibility + b_2\, \delta_{t>2002} \times tangibility + u_{f,t}$
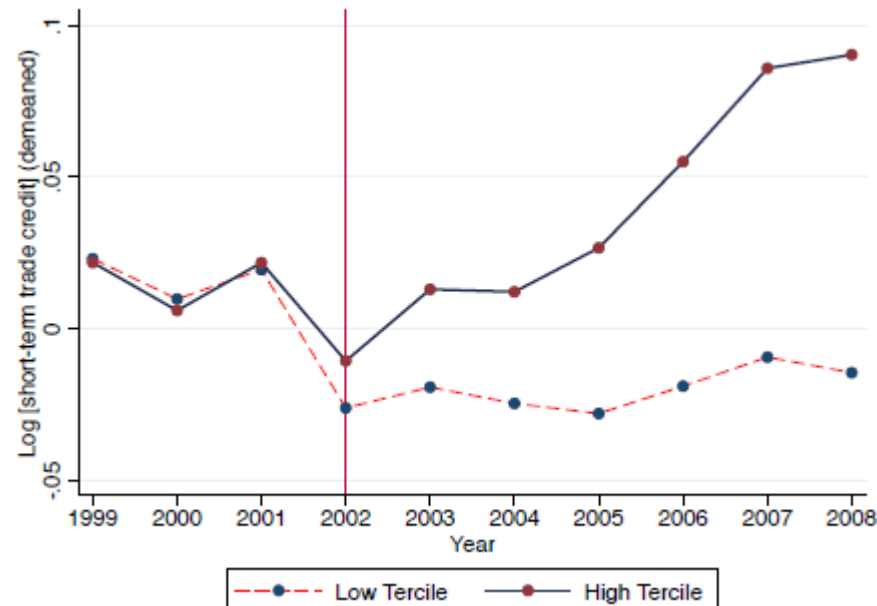
Are the variables proxying for what we hope they are proxying for?

☐ **Does treatment variable, $tangibility = \dfrac{A_{fixed}}{A_{total}} = \dfrac{PP\&E + K_{work-in-progress}}{A_{fixed} + A_{current}}$, do its job?**

If no current assets, $tangibility = 1$ regardless of fixed assets if $A_{fixed} > 0$. Is this what we want?

☐ **Do outcome variables $ln(L)$, $STD_{trade\ credit} = \ln(working\ sundry\ creditors)$ & $STD_{formalcredit} = \ln(working\ overdraft)$ capture outcomes?**

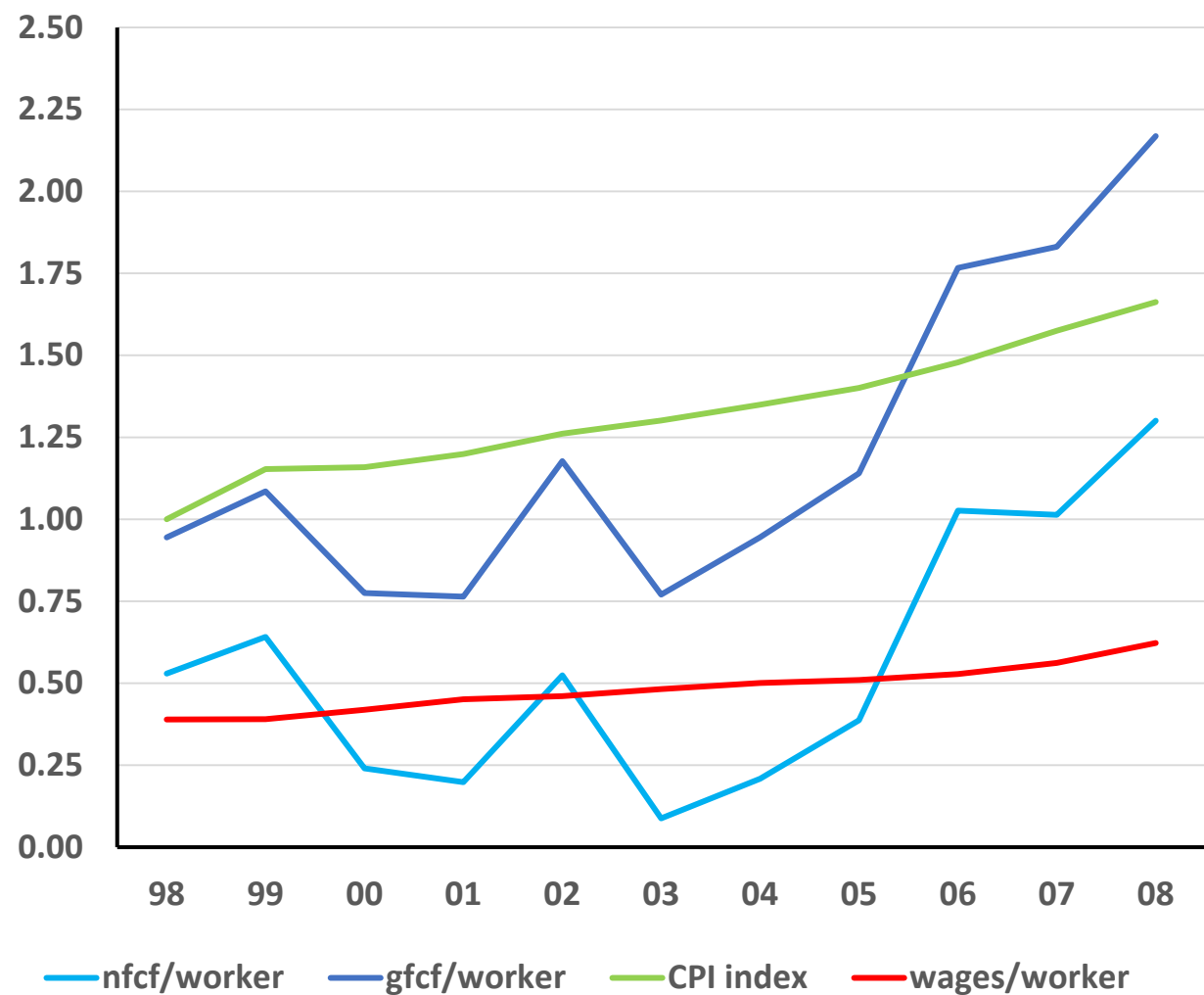**Many outcome variables are ln(measures of factory size) & smaller factorys enter the data after 2002**

Difference-in-differences interaction regression

$$LHS_{f,t} = d_f + d_{i,t} + d_t + \langle a_k, x_k \rangle + b_0\, \delta_{t>2002} + b_1\, tangibility + b_2\, \delta_{t>2002} \times tangibility + u_{f,t}$$

Are the variables proxying for what we hope they are proxying for?

How were nominal values deflated?

	GVAFC/Total workers		GVAPM/Total workers	
	(3)	(4)	(5)	(6)
Law X Treatment	-0.0336*	-0.0277	-0.0295**	-0.0269**
	(0.0189)	(0.0194)	(0.0131)	(0.0134)
Law X Court efficiency	0.00934*	0.0110*	0.00269	0.00341
	(0.00559)	(0.00594)	(0.00313)	(0.00332)
Court efficiency X Treatment	1.179	1.193	0.741	0.749
	(1.026)	(1.040)	(0.681)	(0.690)
Court efficiency X Law X Treatment	-0.121**	-0.125***	-0.0696**	-0.0712**
	(0.0472)	(0.0477)	(0.0278)	(0.0281)
N	204,671	199,637	204,671	199,637
R^2	0.863	0.863	0.373	0.373
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Controls	No	Yes	No	Yes

- ❑ **Year fixed effects remove means by year**
- ❑ **But inflation is geometric growth, so also increases variances by year**
- ❑ **This can fool dif-in-dif tests into finding an effect when their isn't one**

SARFAESI caused high-tangibles firms to

But

❑ **Increase total number of employees by 7.9% to 9.1%**

⬅ **Smaller factories added after treatment have fewer tangible assets, so tilt ratios?**

❑ **Decrease investment in fixed capital by 25%**

⬅ **Smaller factories added after treatment less prone to expand, even if already have high tangibles?**

❑ **Increase their expenditure on rented plant & machinery**

⬅ **Smaller factories added after treatment more apt to rent machinery, even if already have high tangibles?**

⬅ **Need SARFAESI more clearly established as sole "treatment"?**

Weighing in favor of pursuing this further

- ❑ State judicial efficiency & labor regulation interactions allow additional confirmation tests
- ❑ Many findings pointing towards aligned conclusions
- ❑ Sound intuition and sensible development of hypotheses and tests
- ❑ More institutional detail on other contemporaneous bankruptcy / receivership reforms
- ❑ Additional tests from other angles yield consistent results
- ❑ Common dif-in-dif problems (e.g improper estimation given limited dependent variable, incorrect clustering, …) not issues here)

ASI data has strengths as well as weaknesses. Play to its strengths?

- ❑ Feasible to construct better outcome variables scaled by factory size measures
- ❑ Treatment v. control delineation measure $tangibility$ could be made in alt. ways as robustness checks
- ❑ Clarify inflation adjustment, etc.