

# Does facetime with the boss matter? Soft information communication and organizational performance

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## Motivation and Question

- ▶ Information collection and dissemination important within firms
- ▶ Friction in producing soft information: Information that is hard to communicate due to subjectivity, verifiability, complexity
  - ▶ Affects employee incentives and organization design (Stein, 2002; Liberti & Petersen, 2019)

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  - ▶ Greater authority leads to more information acquisition
    - ▶ Small banks are more efficient at lending to small firms
- ▶ Question: Can better communication with the 'boss' improve the performance of the employees even if he has the authority to make decisions?
  - ▶ Boss is the person who decides the remuneration of the employee based on his performance

# Key Hypothesis

- ▶ Employee's performance: Effort + luck (luck may be soft information)
- ▶ Communicating this soft information allows the employee to explain why he may have performed poorly (or well).
- ▶ Informativeness principle: Boss can offer more efficient contracts which elicit higher level of effort and share more risk with the employees.
- ▶ This paper: Better communication between bank managers and the CEO improves their productivity.

## Setting: Lead Bank Scheme in India

- ▶ Gadgil report: Banks not catering to needs of priority sectors
- ▶ Lead Bank Scheme (started 1969): Service area approach
  - ▶ Each district was assigned a commercial bank (Lead Bank) to increase the flow of credit to agriculture, small-scale industries and other economic activities included in the priority sector
- ▶ Each state appointed another bank (Convener Bank) to monitor lead bank
- ▶ Quarterly meeting between Lead Banks of districts and Convener Bank of the state, headed by CEO of Convener Bank
- ▶ Lead Banks communicate challenges in Priority Sector Lending

# Setting: Lead Bank Scheme in India

- ▶ Aligned districts: Those districts where Lead and Convener Bank is same

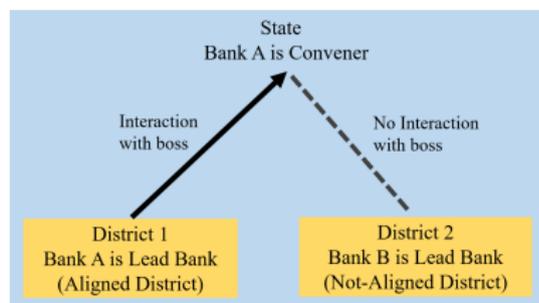


Figure 1: Definition

- ▶ In aligned (non-aligned) districts, Lead Bank Manager (he) interacts with the CEO of his own (different) bank, allowing for soft information communication with his boss and convey soft information
- ▶ **Identification:** Exploit exogenous change in alignment to identify the effect of ability to communicate on employee's performance

## Results summary

- ▶ After becoming aligned, lead banks increase credit in rural areas both at extensive and intensive margin. Increase is driven mostly by agriculture sector.
- ▶ Loan officer efficiency increases (Credit per loan officer  $\uparrow$ ).
  - ▶ No change in lending rate, NPAs, loan officers (rules out alternative channels such as CEO-driven decisions)

## Results summary

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- ▶ Loan officer efficiency increases (Credit per loan officer  $\uparrow$ ).
  - ▶ No change in lending rate, NPAs, loan officers (rules out alternative channels such as CEO-driven decisions)
- ▶ Alternative Identification Strategies: Comparing Lead Banks across districts also shows the effect of alignment change.
- ▶ Placebo Test: No impact on lending by non-lead banks or on deposits

# Implications

## Organization design, authority & use of soft information:

- ▶ Stein (2002): Small banks lend to small firms because the latter can only provide soft information

## Our alternative (complementary) explanation:

- ▶ Unpredictable ex post shocks faced by small firms are local and likely to be soft information
- ▶ Small banks: CEO knows the local economy. Loan officers can communicate with the boss (small hierarchy). More efficient at lending to small firms.

# Literature Review

Organization design and use of soft information: Aghion & Tirole (1997), Stein (2002), Liberti & Mian (2009), Liberti (2017), Skrastins & Vig (2019); Rodrigo & Nanda (2012)

- ▶ Most papers highlight the role of authority in acquisition and use of soft information. We highlight that improved communication (keeping authority constant), can improve performance

Informativeness principle: Holmstrom (1979), Aggarwal and Samwick (1999), Edman et al (2017)

- ▶ Communication can improve measurement of performance

Credit Inclusion: Burgess & Pande (2005), Cole (2009)

- ▶ Study organization design of lead bank scheme and communication channel

# Outline

1. **Institutional Background**
2. Theoretical Model
3. Data, Specification & Results
  - ▶ Robustness Checks
4. Conclusion

# Lead Bank Scheme

- ▶ Lead (for districts) and Convenors (for states) appointed by RBI
  - ▶ Number of branches, asset in district, regional orientation
- ▶ Chief Manager of Lead Bank with dedicated charge of Lead Bank activities
  - ▶ Experienced employee with more than 15 years of tenure. No lateral hiring in PSBs
- ▶ Convenor Bank CEO/Chairman monitors Lead banks through quarterly meetings (SLBC meetings)

# Activities of Lead Bank

- ▶ Increase the flow of credit to priority sector (40%)
  - ▶ Agriculture (18%), Micro-enterprises (7.5%), Weaker Sections (12%), Others
- ▶ Coordination with local financial institutions
- ▶ Interaction with government agencies
- ▶ Public Outreach
  - ▶ Financial Literacy Camps

# Alignment Change

- ▶ **Aligned Districts:** Districts with same Lead and Convenor Bank
- ▶ Once appointed, Lead Banks do not change
- ▶ Exogenous Change in Alignment: 58 districts change alignment
  - ▶ Formation of new states (Jharkhand, Uttarakhand, Chhatisgarh, Telangana): New convener banks are allotted
  - ▶ Change in Convener Bank for Manipur (2004-05) and Jharkhand (2013-2014)

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  - ▶ Change in Convener Bank for Manipur (2004-05) and Jharkhand (2013-2014)
- ▶ Unlikely to be due to district-level credit markets

## How SLBC meetings help in soft information communication

- ▶ Dewatripont and Tirole (2005): Information is neither hard nor soft. Softness of information is endogenous and depends on the communication effort of the sender and the attention effort of the receiver.
- ▶ Limited attention of the CEO: Alignment can overcome this friction
- ▶ Verification cost: SLBC meeting help in verification as it is attended by local bureaucrats
- ▶ When bank is aligned, the preference of CEO and manager are more aligned. CEO may increase attention effort and manager will increase communication effort.

## Examples of soft information communication

Quarterly face-to-face meetings allow communication of soft information between Lead Banker and CEO of Convener Bank.

Examples:

- ▶ Kerala, Feb 2020: Managers noted difficulty in lending to small entrepreneurs due to delays in clearance from Pollution Control Board. These concerns were affirmed by the government officers present in the meeting.
- ▶ Madhya Pradesh, Nov 2019: Managers indicated bureaucratic hurdles from municipal corporations which prevented credit delivery to economically weaker sections.

## Incentives for Lead Banker

- ▶ Lead Banker: Chief manager level employee with more than 15 years experience. No exit in such banks.
- ▶ Incentives for these employees comes from promotions, bonuses and appointments in coveted places or departments within the bank.
- ▶ Performance-based bonuses and incentive pay form upto 40% of the compensation for Chief-Manager in these banks (Khandelwal, 2010).
- ▶ Recommendation have also been made to reserve 25% of all bonuses for employees engaged in financial inclusion activity, and Lead Bank personnel clearly come under this category

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# Data

- ▶ District-wise Lead Banks and Convenor Banks
- ▶ BSR data
  - ▶ Branch level lending in each sector by each bank in each district (Mar 1999 - Mar 2016)
  - ▶ Variables: Total amount, total accounts, lending rate, loan officers, NPA, branch type (rural, semi-urban, urban, metropolitan)

## Lending share by industry

	Sectoral Share- Mean (in %)			
	(1)	(2)	(3)	(4)
	Agri	Industry	Personal	Trade
<b>Panel A: Credit</b>				
Rural	53.28	7.05	16.84	15.72
Urban	7.94	44.58	16.34	9.42
<b>Panel B: Accounts</b>				
Rural	72.37	1.96	12.61	6.13
Urban	29.39	3.24	51.59	5.54

Rural lending comprises mostly of agriculture. Very little agricultural lending in urban areas.

## Loan size

	Average Loan Size (in thousands)				
	(1)	(2)	(3)	(4)	(5)
	Total	Agri	Industry	Personal	Trade
Rural	70.4	57.6	129.2	89.7	123.4
Urban	416.4	128.7	4719.2	139.3	636.1

Average credit size, even for agriculture, is much smaller in rural areas.

We expect to see the impact of alignment to be mostly on rural lending—large part of rural lending is priority sector lending, and untapped market are more likely to exist in rural areas.

## Lead Bank's share in lending

Lead Banks Share- Mean (in %)

	(1)	(2)	(3)	(4)	(5)
	Total	Agri	Industry	Personal	Trade
<b>Panel A: Credit</b>					
Rural	35.6	35.3	35.5	35.5	35.1
Urban	27.1	27.9	26.8	26.7	25.3
<b>Panel B: Accounts</b>					
Rural	32.4	33.1	30.5	32.5	30.9
Urban	26.4	28.4	25.5	26.0	24.5

# Specification

$$y_{bdt} = \beta \cdot 1\{AlignedLead\}_{bdt} + \phi_{bt} + \phi_{dt} + \phi_{bd} + \epsilon_{bdt} \quad (1)$$

For  $\beta$  to be unbiased, we need  $1\{AlignedLead\}_{bdt} \perp \epsilon_{bdt}$

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For  $\beta$  to be unbiased, we need  $1\{AlignedLead\}_{bdt} \perp \epsilon_{bdt}$

- ▶  $\phi_{dt}$  controls for district level time varying characteristics such as demand
- ▶  $\phi_{bd}$  controls for time-constant, bank-district factors such as supply orientation (reasons for being Lead Bank).
- ▶  $\phi_{bt}$  controls for macro-level, time-varying bank factors.

## Impact of becoming aligned on rural lending

	(1)	(2)	(3)	(4)	(5)
	Total	Agri	Industry	Personal	Trade
<b>Panel A: Log (1+Credit)</b>					
<i>AlignedLead<sub>bdt</sub></i>	0.299*** (0.09)	0.290** (0.12)	0.337* (0.18)	0.136 (0.13)	-0.120 (0.22)
Observations	83101	83101	83101	83101	83101
<b>Panel B: Log(1+NOAC)</b>					
<i>AlignedLead<sub>bdt</sub></i>	0.263*** (0.08)	0.235** (0.10)	0.298*** (0.11)	0.175* (0.10)	-0.060 (0.12)
Observations	83101	83101	83101	83101	83101

Result: After becoming aligned, Lead banks increase their lending both at intensive and extensive margin. This increase is mostly driven by increase in agricultural lending.

## Impact of becoming aligned on urban lending

	(1)	(2)	(3)	(4)	(5)
	Total	Agri	Industry	Personal	Trade
<b>Panel A: Log (1+Credit)</b>					
<i>AlignedLead<sub>bdt</sub></i>	0.075 (0.08)	-0.005 (0.16)	-0.025 (0.17)	-0.133 (0.09)	0.052 (0.13)
Observations	179906	179906	179906	179906	179906
<b>Panel B: Log(1+NOAC)</b>					
<i>AlignedLead<sub>bdt</sub></i>	0.037 (0.08)	0.051 (0.13)	0.142 (0.10)	-0.106 (0.07)	0.030 (0.08)
Observations	179906	179906	179906	179906	179906

No impact on urban lending.

# Mechanism

Improved productivity can increase credit but so can other drivers.  
We test for change in various drivers of credit.

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	Log (Credit/LO)	Log(Accounts/LO)	WALR	NPA Ratio	Log(1+ LO)
<i>AlignedLead<sub>bdt</sub></i>	0.285*** (0.08)	0.249*** (0.06)	-0.051 (0.14)	0.012 (0.02)	0.014 (0.05)
Observations	82997	82997	82186	82256	82997
R-Squared	0.890	0.939	0.848	0.512	0.956

- ▶ Productivity increases; consistent with improved effort.
- ▶ No change in WALR, Number of Loan Officers or NPA ratio; CEO-led decisions not likely to be a mechanism.

## Impact of competition from private sector

Presence of an efficient competitor should attenuate the increase in Lead Bank productivity.

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We use the share of pvt. rural credit to proxy a more efficient competitor.

$$y_{bdt} = \beta.1\{AlignedLead\}_{bdt} + \gamma.1\{AlignedLeadBank\}_{bdt} * \%Pvt.RuralCredit_{dt} + \phi_{bt} + \phi_{dt} + \phi_{bd} + \epsilon_{bdt}$$

	Log(Credit)	Log(1+NoACs)	Log(Credit/LO)	Log(1+NoACs/LO)
<i>AlignedLead</i> <sub>bdt</sub>	0.311*** (0.09)	0.271*** (0.08)	0.310*** (0.08)	0.271*** (0.06)
<i>AlignedLead</i> <sub>bdt</sub> × % Rural Lending by Pvt.	-0.019*** (0.01)	-0.014*** (0.00)	-0.016*** (0.00)	-0.011*** (0.00)
Observations	83101	83101	82997	82997

► Marginal return of effort lower  $\implies$  credit increase lower.

# Robustness tests and Additional Results

- ▶ No pre-trend
- ▶ District-level Results
- ▶ Comparison of Lead Banks across districts [Link](#)
- ▶ No impact on non-lead banks [Link](#)
- ▶ No impact on deposits [Link](#)

## Pre-Trend Analysis

$$y_{bdt} = \beta_{-1} \text{Before}^{-1} * 1\{\text{Lead}\}_{bdt} + \beta_0 \text{Before}^0 * 1\{\text{Lead}\}_{bdt} + \beta_{+1} \text{After}^{+1} * 1\{\text{Lead}\}_{bdt} + \phi_{bt} + \phi_{dt} + \phi_{bd} + \epsilon_{bdt}.$$

- ▶  $\text{Before}^0$ ,  $\text{Before}^{-1}$  and  $\text{After}^{+1}$  take value 1 for the year of alignment change, exactly one year before the year of alignment change and for all years after the year of alignment change respectively, and 0 otherwise.
- ▶ If  $\beta_{-1} > 0$ , then pre-trend biases our results.

## Pre-Trend Analysis for Rural Credit

	(1)	(2)	(3)	(4)	(5)
	Total	Agri	Industry	Personal	Trade
<i>Before</i> <sup>-1</sup>	0.024 (0.08)	0.133 (0.12)	-0.052 (0.18)	-0.081 (0.10)	0.086 (0.17)
<i>Before</i> <sup>0</sup>	0.115 (0.09)	0.103 (0.13)	0.093 (0.24)	-0.064 (0.11)	0.153 (0.24)
<i>After</i> <sup>+1</sup>	0.291*** (0.10)	0.268* (0.14)	0.196 (0.21)	0.174 (0.14)	-0.347 (0.27)
Observations	83394	83394	83394	83394	83394

## Pre-Trend Analysis for Rural Accounts

	(1)	(2)	(3)	(4)	(5)
	Total	Agri	Industry	Personal	Trade
<i>Before</i> <sup>-1</sup>	-0.003 (0.07)	0.104 (0.09)	-0.021 (0.12)	-0.178** (0.08)	-0.161* (0.09)
<i>Before</i> <sup>0</sup>	0.107 (0.07)	0.115 (0.10)	0.130 (0.14)	-0.107 (0.09)	-0.077 (0.14)
<i>After</i> <sup>+1</sup>	0.273*** (0.08)	0.263** (0.11)	0.237** (0.11)	0.186* (0.11)	-0.232* (0.13)
Observations	83394	83394	83394	83394	83394

## District level impact

$$y_{dt} = \beta_{-1}\text{Before}^{-1} * 1\{\text{Lead}\}_{dt} + \beta_0\text{Before}^0 * 1\{\text{Lead}\}_{dt} + \beta_{+1}\text{After}^{+1} * 1\{\text{Lead}\}_{dt} + \phi_b + \phi_d + \phi_{st} + \epsilon_{dt}. \quad (2)$$

	(1) Total	(2) Agri	(3) Industry	(4) Personal	(5) Trade
<i>Before</i> <sup>-1</sup>	0.097* (0.05)	0.103* (0.06)	0.342*** (0.11)	-0.024 (0.07)	0.188** (0.08)
<i>Before</i> <sup>0</sup>	0.152* (0.08)	0.103 (0.09)	0.491*** (0.18)	0.007 (0.08)	0.300** (0.12)
<i>After</i> <sup>+1</sup>	0.340*** (0.11)	0.259** (0.12)	0.628*** (0.21)	0.176** (0.08)	0.468*** (0.14)
Observations	10593	10581	10591	10585	10596
R-Squared	0.972	0.973	0.870	0.955	0.907
State-Time FE	Y	Y	Y	Y	Y

# Conclusion

- ▶ Highlight a new channel by which communication can improve productivity of employees
- ▶ Our channel can provide alternative explanation why small banks may be more efficient at lending to small business
- ▶ Good management practices (better intra-hierarchy communication) may improve Public Sector Bank performance

Thank you!  
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# Theoretical Framework

- ▶ Principal (CEO, risk neutral). Agent (Lead banker, CARA utility)
- ▶ Output:

$$\underbrace{q}_{output} = \underbrace{a}_{effort} + \underbrace{\epsilon}_{luck}$$

- ▶  $\epsilon \sim N(0, \sigma)$  is soft information. Can be conveyed when aligned
- ▶ Agent utility function

$$u(w, a) = -e^{-\eta[w - \frac{1}{2}ca^2]}$$

- ▶ Implicit linear wage contracts

# Optimal contracts

**Informativeness principle:** All signals that are informative about agent effort should be included in a contract (Holmstrom, 1979).

- ▶ Not-Aligned case: Contract not contingent on  $\epsilon$ .  $w = t + sq$ .
- ▶ Aligned case: Contract contingent on  $\epsilon$ .  $w = t + sq + r\epsilon$ .

## Proposition

i. Not-Aligned:

$$a = \frac{s}{c}, \quad s = \frac{1}{1 + \eta c \sigma^2}$$

ii. Aligned:

$$a = \frac{s}{c}, \quad s = 1 = -r$$

iii. Higher effort and more risk sharing when aligned

## Pre-Trend Analysis: Urban

	(1)	(2)	(3)	(4)	(5)
	Total	Agri	Industry	Personal	Trade
<i>Before</i> <sup>-1</sup>	-0.003 (0.07)	0.104 (0.09)	-0.021 (0.12)	-0.178** (0.08)	-0.161* (0.09)
<i>Before</i> <sup>0</sup>	0.107 (0.07)	0.115 (0.10)	0.130 (0.14)	-0.107 (0.09)	-0.077 (0.14)
<i>After</i> <sup>+1</sup>	0.273*** (0.08)	0.263** (0.11)	0.237** (0.11)	0.186* (0.11)	-0.232* (0.13)
Observations	83394	83394	83394	83394	83394
R-Squared	0.953	0.929	0.871	0.911	0.890

## Lead Banks Sub-sample

Alternative Identification Strategy: Comparison of Lead Banks across districts; holds constant Lead Bank selection (but does not account for district-level unobservable demand).

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	(1)	(2)	(3)	(4)	(5)
	Total	Agri	Industry	Personal	Trade
<b>Panel A: Log (1+Credit)</b>					
<i>AlignedDist<sub>dt</sub></i>	0.124** (0.06)	0.142* (0.08)	-0.065 (0.16)	0.034 (0.07)	0.076 (0.12)
Observations	10207	10207	10207	10207	10207
<b>Panel B: Log(1+NOAC)</b>					
<i>AlignedDist<sub>dt</sub></i>	0.113*** (0.04)	0.118** (0.06)	0.096 (0.09)	0.102* (0.06)	0.077 (0.09)
Observations	10207	10207	10207	10207	10207

## Non-Lead Banks Subsample

Placebo test: Change in alignment should not affect Non-Lead banks.

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	(1)	(2)	(3)	(4)	(5)
	Total	Agri	Industry	Personal	Trade
<b>Panel A: Log (1+Credit)</b>					
<i>AlignedDist<sub>dt</sub></i>	-0.016 (0.07)	-0.025 (0.11)	0.135 (0.15)	0.033 (0.09)	0.235 (0.15)
Observations	73221	73221	73221	73221	73221
<b>Panel B: Log(1+NOAC)</b>					
<i>AlignedDist<sub>dt</sub></i>	-0.064 (0.06)	-0.018 (0.08)	-0.035 (0.09)	-0.028 (0.08)	0.034 (0.08)
Observations	73221	73221	73221	73221	73221

# Deposits

Placebo test: Deposit mobilization not part of Lead Bank scheme.

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	(1)	(2)
	Log(Deposits Amount)	Log(Deposit Accounts)
<i>AlignedLead<sub>bdt</sub></i>	-0.063 (0.06)	-0.008 (0.05)
Observations	83019	83019