Regulatory Risk Perception and Small Business Lending

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Government Lending Support to Small Businesses

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- Direct lending or credit guarantees
- Large literature on outcomes of these schemes

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- economic agents with **pecuniary incentives** and **personal experiences**

We focus on the U.S. Small Business Administration (SBA)

- Flagship credit guarantee program; recently: PPP loans

The Paper in a nutshell

- The SBA is exposed to **default risk**
  - It must purchase defaulted loans from private lenders
- We focus on **risk salience**
  - How prominent is the default risk, in the eyes of SBA employees
- Core prediction: **risk salience reduces SBA lending**
  - Mechanism: **risk salience** increases **risk perception**
  - SBA guarantees reallocated to businesses with lower perceived risk
- Utilize a novel **employee-level data set:**
  - A panel of $18,740$ SBA employees over 25 years
  - Bottom-up measure of risk salience, based on **personal experiences**: defaults in past & present workplaces

Key Result: Risk salience reduces lending and job creation
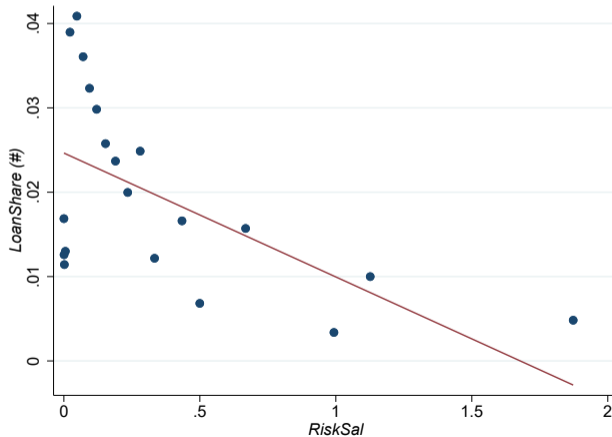
Results:
- Reduction in new originations
- Leads to decline in jobs and small firm creation

Empirical Strategy:
- Instrument risk salience with defaults in distant locations

Mechanisms:
- Bank participation, demand stimulation, screening

3

Background & hypotheses

SBA's strategic goal: support small business growth

- The SBA's main activities include:
  - **Access to finance**: 7(a), 504, Microloan programs
  - Support **innovation** and **exporting** activities of small businesses

- We focus on **7(a) loan guarantees**
  - The SBA's **flagship loan guarantee program**
  - Targets businesses who cannot obtain credit elsewhere
  - Loans are made and administered by private banks
  - The SBA guarantees $\leq 90\%$ of each loan
  - If a loan defaults, the SBA purchases it up to the guarantee rate

SBA jurisdictions & local offices

Local office's tasks:

- **Lender participation**: recruit & supervise banks
- **Loan demand**: outreach to local business owners
- **Screening** of guarantee applications (legacy)

Salient events increase risk perception

People rely on **salient experiences** to assess probability, even though the **actual probability** did not change (Tversky & Kahneman, 1973; Kahneman & Tversky, 2013; Bordalo et al., 2013)

H_1: Risk salience↑ ⇒ risk perception↑ ⇒ SBA lending↓

- Defaults on SBA loans (**salience**) increase perceived default risk (**perception**)
- This triggers concerns of **budget constraints** and **reputational** implications
- Consequently, SBA redirects efforts toward less-risky businesses

H_0: Risk salience ⇏ risk perception ⇏ SBA lending

Data & measurement

Loan-level data (publicly available)

- Sample includes 1,395,888 loan guarantees, 1996-2019
  - Info on borrower & lender
  - Loan date, amount, guarantee rate
  - Ex-post performance (charge-offs)
- **Aggregated to office×industry**
  - SBA office in charge
  - The borrower's (3-digit NAICS) industry

7

Workforce data (new!)

- **All SBA employees, 1996-2020**
- $18,740$ unique employees and $96,535$ employee-year observations
- Includes names, salaries, tenure, bonuses, location, etc.
- Based on repeated **FOIA requests**:
    - **First paper** to tap the SBA's selection-free HR data
- **Matched to loan-level data based on office location**

Main measure: risk salience

- We define risk salience based on SBA loan defaults in a particular industry
- Office×industry risk salience
  - Average of employee×industry risk salience
- Employee×industry risk salience
  - Based on current defaults in present and past workplaces
  - Employees likely keep track of developments in former locations
  - Motivated by recent research on social networks (e.g., Bailey et al., 2018)
- <u>Challenge:</u> Local industry conditions driving both risk salience & SBA lending
- <u>Approach:</u> Use only distant defaults

Visual Illustration of IV Empirical Strategy

Visual Illustration of IV Empirical Strategy

CHICAGO

BOSTON

DALLAS

LOANS

DEFAULTS

13
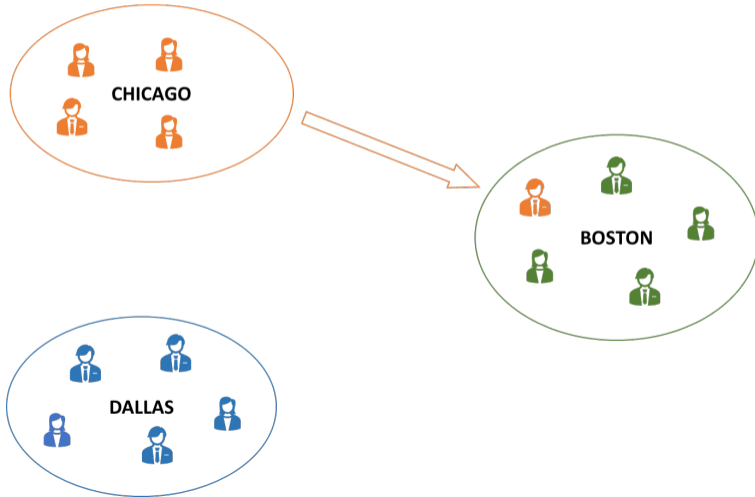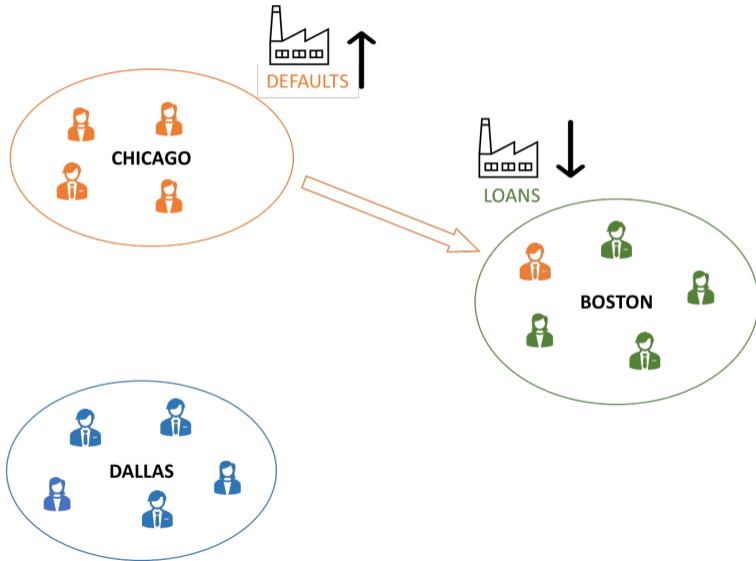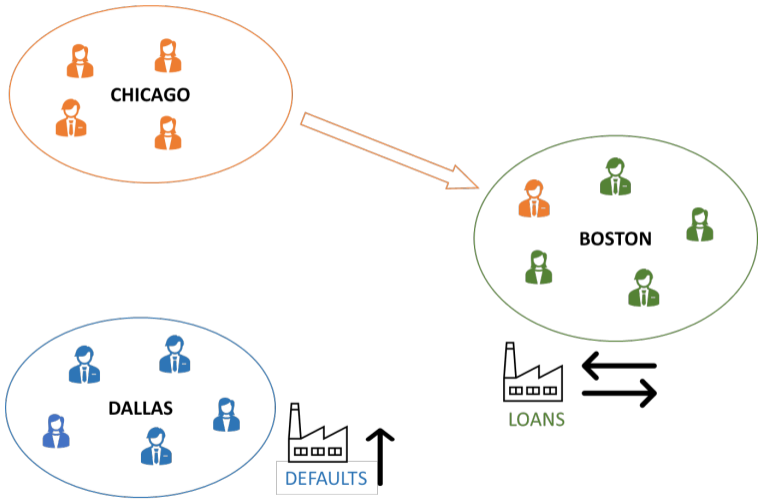
Main results

Baseline specification

$$y_{o,i,t+l} = \alpha + \beta \cdot RiskSal_{o,i,t} + \overrightarrow{X} + \epsilon$$

- $y_{o,i,t+l} =$ **loan guarantees** by office o to industry i
  - Probability of any loan guarantee
  - Industry i's share within office o's loan portfolio
- $RiskSal_{o,i,t} =$ **salience** of industry i's risk, in the eyes of office o
  - Weighted average of industry i's defaults across selected regions
- $\overrightarrow{X}_{o,i} =$ Controls + Fixed Effects
  - Control for office×industry **#workers** (≈**demand**)
  - Office×industry FE (deviation from **long-run trend** in lending relations)
  - Additional FE (next slide)

14

Main result: (Instrumented) Risk Salience reduces Lending

Outcome:	*LoanShare*			
$\widehat{RiskSal}$	**-0.396*****	**-0.441*****	**-0.383*****	**-0.346*****
	(0.033)	(0.030)	(0.023)	(0.018)
Obs.	50,598	50,598	46,837	46,778
$F-$statistic	622	697	712	684
Effect	-0.169	-0.188	-0.167	-0.151
Effect (%)	-10.8	-12.0	-11.4	-10.3
Controls	Y	Y	Y	Y
Office×NAICS3 FE	Y	Y	Y	Y
Year FE	Y	-	-	-
Year×Office FE	-	Y	-	-
Year×Office×NAICS2 FE	-	-	Y	Y
Year×NAICS3 FE	-	-	-	Y

15

Main results: Real Effects and Portfolio Riskiness

- <u>Main result:</u> salient risk reduces SBA lending
  - Larger effect in smaller offices
- This contraction of lending has **real effects**
  - Decline in jobs being created with SBA loans
  - Decline in creation of new firms with 1-4 employees
- The new loans are ex-post **safer**
  - Loans originated when risk salience is high are less likely to default
  - Our interpretation: **risk salience** increases **risk perception**

Mechanisms

Overview

- **Main result**: salient risk reduces SBA lending

- **In this section**:
  - **Why** does risk salience affect risk perception?
    - **Rational learning** versus **Mechanic belief updating**
    - No evidence that distant defaults are informative.
  - **How** does risk perception affect SBA lending?
    - How risk perception changes **specific SBA activities**
    - Lender participation, borrower awareness, screening

How does the SBA reduce lending for "risky" industry?

Local SBA offices do not issue loans, but have indirect influence on bank decisions:

- **Loan supply**: recruiting, training, & supervising participating lenders
- **Loan demand**: education & outreach to local business owners
- **Screening**: review eligibility of guarantee applications

(1) Lender participation

- Local offices affect **lender participation**
  - **Determines eligibility** to become a 7(a) participant
  - **Training** approved lenders on SBA's policies and procedures
  - **Reviewing** lender performance (e.g., how it processes and liquidates SBA loans)
- Risk salience could **discourage lender participation**
- We find that risk salience -
  - **Reduces the number of new entrants**, who struggle to get training or approval
  - **Reduces the number of lenders**, some of whom are not re-approved
  - **Increases market concentration** (HHI) among the remaining lenders

(2) Outreach & education

- Local offices affect **demand by small businesses**
  - **Outreach and education** activities
  - Informing potential borrowers about SBA-backed financing opportunities
- Risk salience could **discourage borrowing**
- We find that risk salience -
  - **Reduces the number of new borrowers**, who respond to outreach campaigns
  - **Reduces the number of borrowers**
  - **Increases market concentration** among the remaining borrowers

(3) Screening: Evidence from loan centralization

- Loan processing activities were **centralized** during 2003-2007
- Post-centralization, local offices **rarely involved in credit determination**
- That yields a natural prediction: Risk salience matters more when local offices screen guarantee applications
- We find a **significant drop in the magnitude** after 2007 (50%)

Conclusions

- **When defaults become more salient, SBA lending is lower**
  - Salient defaults increase the perception of risk
  - Higher risk perception reduces **quantity** of loan guarantees
  - Consistent with **mechanic belief updating** (as opposed to rational)
  - Mechanisms: **bank participation, loan demand, screening**

- **Takeaway**:

  Internal government frictions spill over to the economy

Thank You

Appendix

Why do SBA employees move?

Outcome:	Out_t			
$Promotion_t$	0.044***	0.041***	0.040***	0.039***
	(0.005)	(0.005)	(0.005)	(0.005)
$HighSalary_{t-1}$	0.015***	0.013***	0.020***	0.018***
	(0.002)	(0.002)	(0.004)	(0.003)
$LongTenure_{t-1}$	-0.014***	-0.014***	0.004	0.003
	(0.002)	(0.002)	(0.003)	(0.002)
$\Delta Salary_{t-1}$	0.008	0.006	-0.002	0.001
	(0.020)	(0.020)	(0.013)	(0.015)
$PastTransfer_{t-1}$	0.030***	0.030***	-0.267***	-0.262***
	(0.004)	(0.004)	(0.019)	(0.019)
Obs.	61,714	61,671	59,932	59,885
R^2	0.029	0.083	0.286	0.324
Year FE	Y	-	Y	-
Office FE	Y	-	Y	-
Year×Office FE	-	Y	-	Y
Employee FE	-	-	Y	Y

23

Effects on Business Formation

Outcome:	New^{1-4}			
$\widehat{RiskSal}$	-14.2***	-12.0***	-11.1***	-2.7**
	(4.2)	(3.4)	(3.4)	(1.1)
Obs.	50,598	50,598	46,837	46,778
$F-$statistic	622	697	712	684
Effect	-6.1	-5.1	-4.8	-1.2
Effect (%)	-67.7	-57.3	-74.2	-18.4
Controls	Y	Y	Y	Y
Office×NAICS3 FE	Y	Y	Y	Y
Year FE	Y	-	-	-
Year×Office FE	-	Y	-	
Year×Office×NAICS2 FE	-	-	Y	Y
Year×NAICS3 FE	-	-	-	Y

24

Ex-post default rates are lower

Outcome:	$DefRate^{\#}$		
$\widehat{RiskSal}$	-3.224***	-2.901***	-2.314***
	(0.840)	(0.768)	(0.798)
Obs.	40,948	36,593	36,463
$F-$statistic	587	613	582
Effect	-1.3	-1.2	-1.0
Effect (%)	-7.4	-6.7	-5.3
Controls	Y	Y	Y
Office×NAICS3 FE	Y	Y	Y
Year×Office FE	Y	-	-
Year×Office×NAICS2 FE	-	Y	Y
Year×NAICS3 FE	-	-	Y

25

Lender Participation - Findings

Outcome:	$Lenders$	$Lend^{new}$	$Lend^{HHI,\#}$	$Lend^{HHI,\$}$
$\widehat{RiskSal}$	-1.515***	-0.583***	13.103***	12.616***
	(0.152)	(0.056)	(1.107)	(0.908)
Obs.	48,906	48,906	48,906	48,906
$F-$statistic	719	719	719	719
Effect	-0.611	-0.235	5.287	5.091
Effect (%)	-9.7	-11.7	11.9	9.5
Controls	Y	Y	Y	Y
Office×NAICS3 FE	Y	Y	Y	Y
Year×Office FE	Y	Y	Y	Y

Outreach & Education - Findings

Outcome:	$Borrowers$	$Borr^{new}$	$Borr^{HHI,\#}$	$Borr^{HHI,\$}$
$\widehat{RiskSal}$	-4.330***	-4.125***	15.887***	14.338***
	(0.683)	(0.660)	(1.213)	(1.018)
Obs.	48,906	48,906	48,906	48,906
$F-$statistic	719	719	719	719
Effect	-1.747	-1.664	6.410	5.785
Effect (%)	-12.6	-13.0	17.7	12.1
Controls	Y	Y	Y	Y
Office×NAICS3 FE	Y	Y	Y	Y
Year×Office FE	Y	Y	Y	Y

Screening - Findings

Outcome:	Loans							
Period:	(98-03)	(08-19)	(98-03)	(08-19)	(98-03)	(08-19)	(98-03)	(08-19)
$\widehat{RiskSal}$	-0.61***	-0.34***	-0.63***	-0.38***	-0.52***	-0.34***	-0.48***	-0.33***
	(0.06)	(0.01)	(0.07)	(0.01)	(0.07)	(0.01)	(0.06)	(0.01)
Obs.	8,144	31,073	8,144	31,073	7,071	28,952	7,007	28,926
Δ (in %)		0.45		0.41		0.34		0.31
$p-$val		0.00		0.00		0.00		0.00
Controls	Y	Y	Y	Y	Y	Y	Y	Y
Office×NAICS3 FE	Y	Y	Y	Y	Y	Y	Y	Y
Year FE	Y	-	-	-	Y	-	-	-
Year×Office FE	-	Y	-	-	-	Y	-	-
Year×Office×NAICS2 FE	-	-	Y	Y	-	-	Y	Y
Year×NAICS3 FE	-	-	-	Y	-	-	-	Y