
(Inter-state) Banking & (Inter-state) Trade:

Does Real Integration Follow
Financial Integration?

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The Research Question

- Does Financial Integration lead to Real Integration?
 - Is there a trade channel to the *finance-growth nexus*?

- Our theory model:
 - Channels of bank integration that spur real integration through trade.

- Our empirical model:
 - We rely on the U.S. inter-state banking entry deregulation to estimate the “gravity model” obtained from our theory model with data from the Commodity Flow Survey.

Finance & Growth Nexus

- Finance and growth:
 - King and Levine (1993a, b)
- Channels through which finance leads to growth:
 - Jayaratne and Strahan (1996), Black and Strahan (2002), Cetorelli and Strahan (2006), Demyanyk (2008), Kerr and Nanda (2009)
- Finance and trade (exports):
 - Depth of financial markets and trade: Beck (2002), Svaleryd and Vlachos (2005), Manova (2008a, b), Becker and Greenway (2003)
 - Credit constraints and trade: Chaney (2005), Ronci (2004), Greenaway, Guariglia and Kneller (2007), Zia (2008)

Finance & Growth Nexus

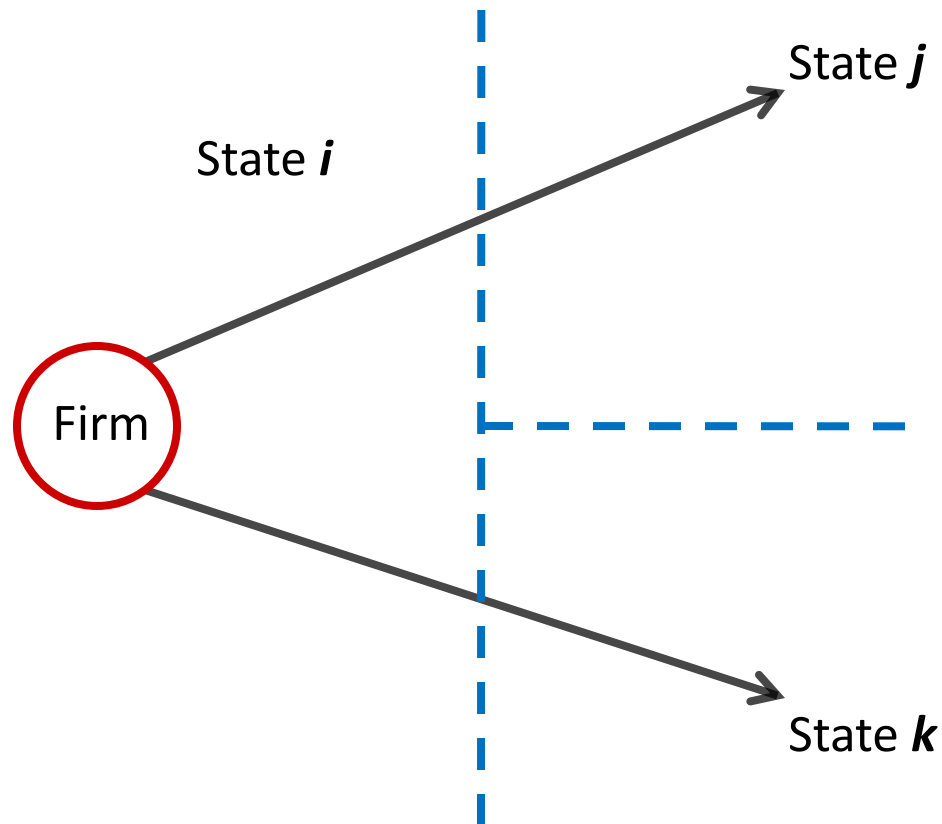
- Morgan, Rime and Strahan (MRS, 2003, 2004):
 - Financial integration & transmission of macroeconomic shocks
 - No pattern in out-of-state shipments for states that are financially integrated with the rest of the U.S.

Finance & Growth Nexus

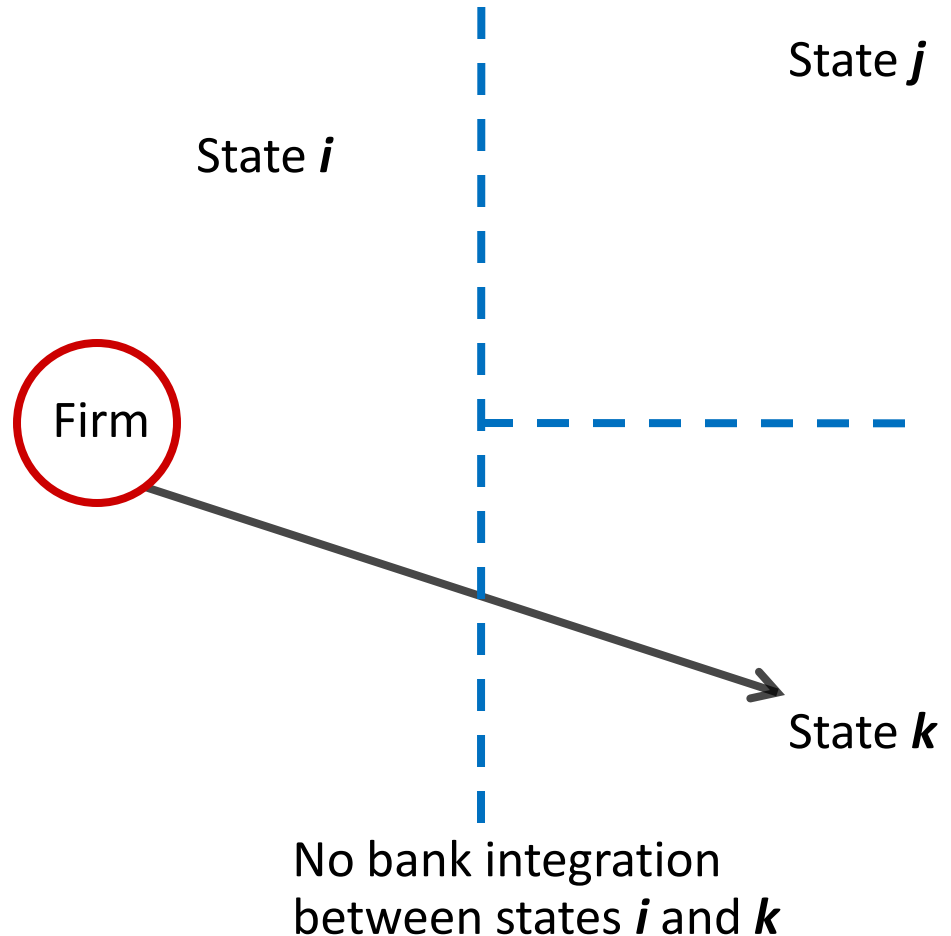
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- Our paper: A new testable hypothesis
 - Our theory suggests an increase in trade shares for state-pairs that become financially integrated after bank entry deregulation.
 - If our theory is economically insignificant or simply wrong, we should not observe a change in trade **shares** as bank integration increases
 - For ex., an easing of credit constraints alone after deregulation would increase all trade **flows** leaving trade **shares** unchanged.

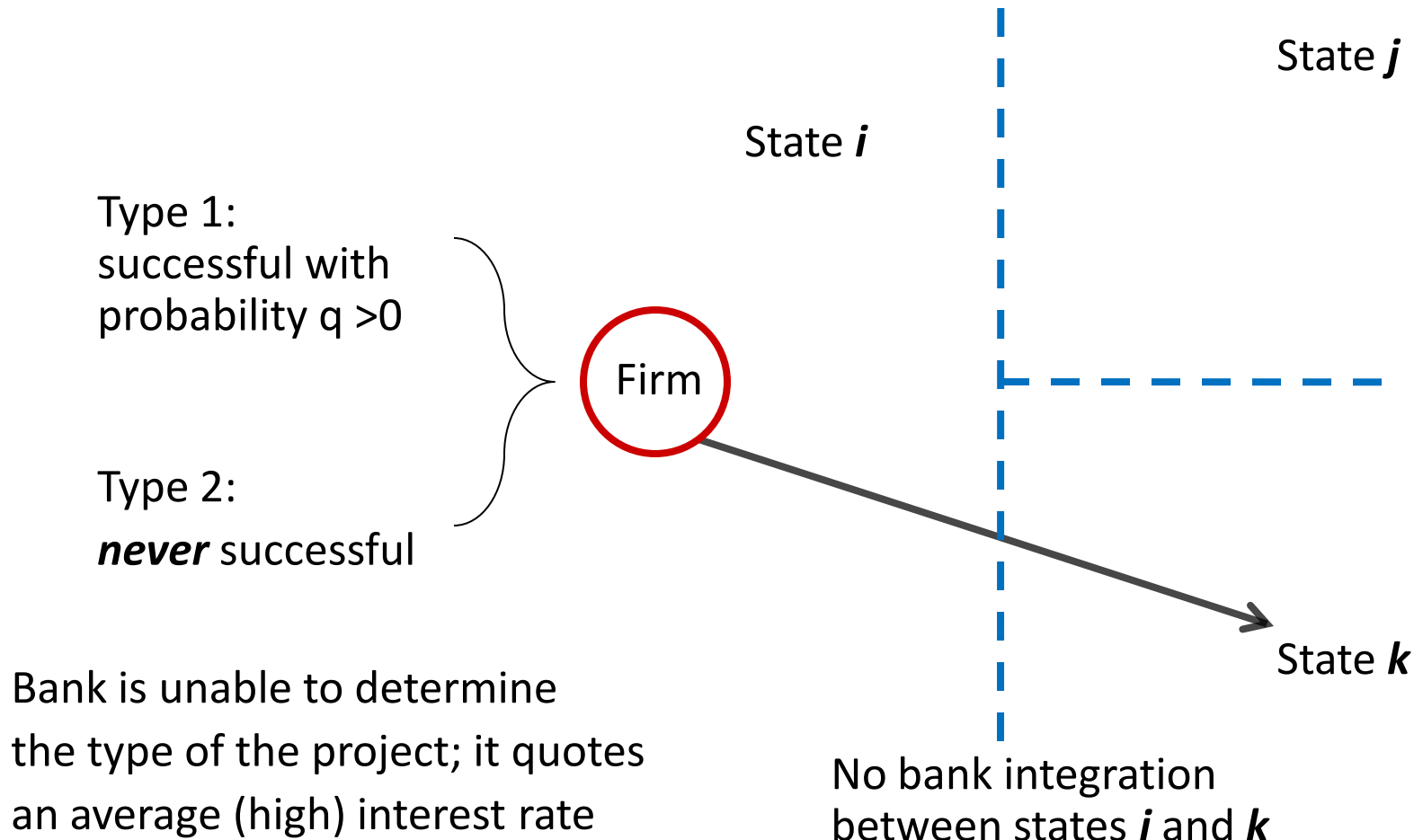
Theory Model: Set-up and Intuition



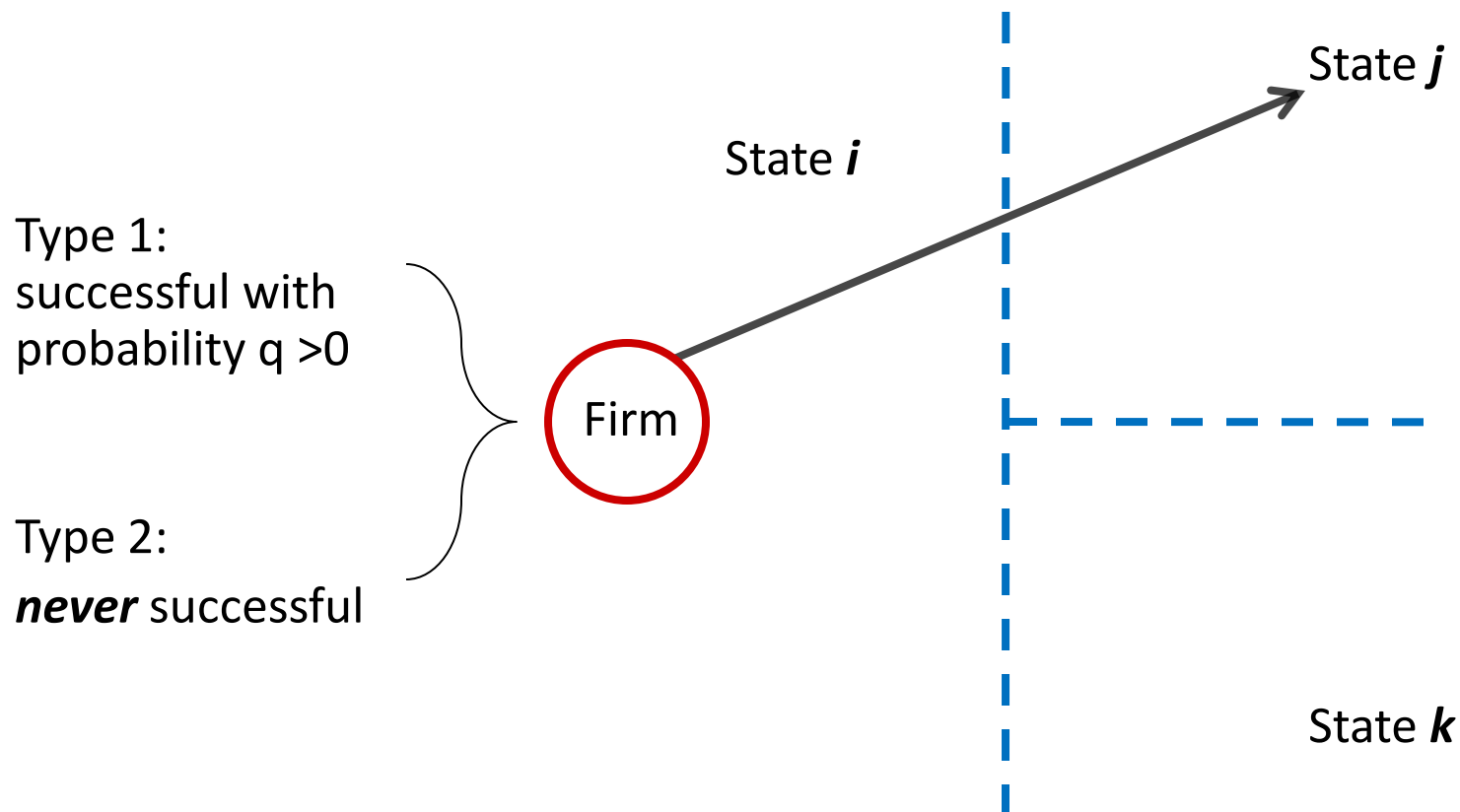
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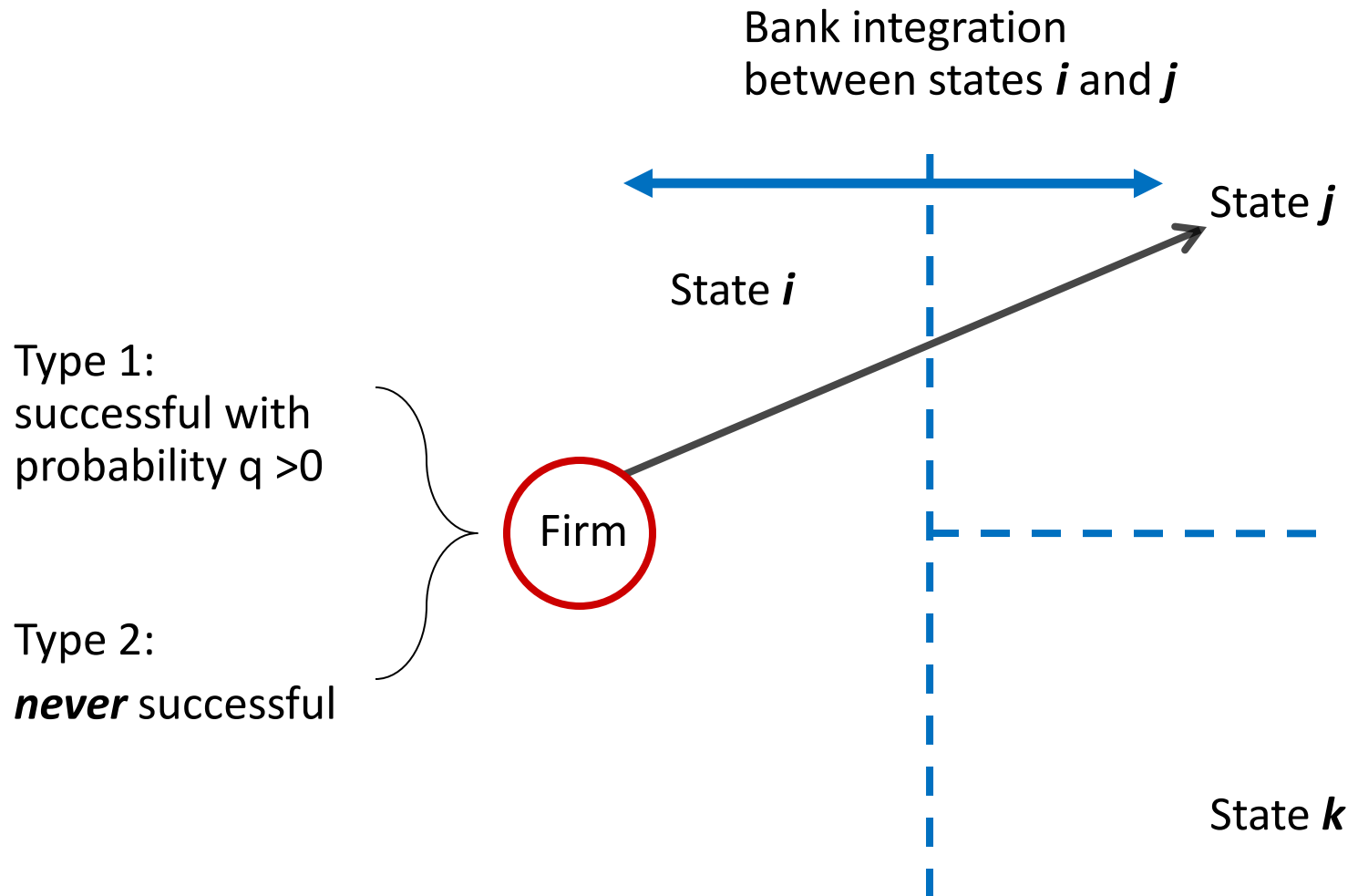
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The bank quotes a loan rate
(lower than in the case of
no information acquisition)

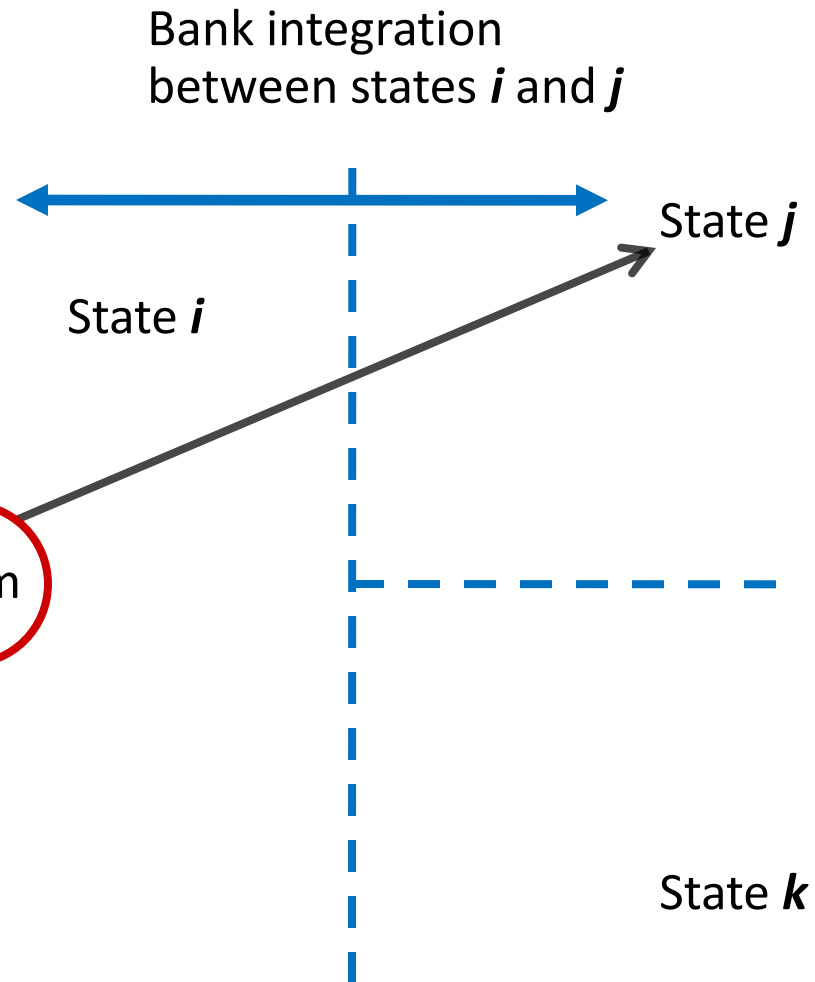


Type 1:
successful with
probability $q > 0$

Type 2:
never successful



The bank does not lend



Implications

- Each of our channels implies (separately and altogether) that there will be higher trade flows between states i and j than between states i and k

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- We embed this mechanism in a standard trade model with monopolistic competition and obtain a “gravity” equation:

$$\ln S_{im} = -\Theta_i + \lambda_1 \ln(I_m) - \lambda_2 \ln(P_m) + \Xi_{im} + \lambda_3 \ln(T_{im})$$

A Conservative Calibration Exercise

- The impact of the **loan price channel** on **trade flows**, embedded into a standard trade model with monopolistic competition, depends on:
 - the industry markups (the level of industry competition) and,
 - the fall in the marginal costs for manufacturers thanks to cheaper (appropriately priced) bank financing

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| | | Fall in marginal costs | |
|---------------|------------|-------------------------------|-------------|
| | | 1% | 2.5% |
| Markup | 10% | 10.5% | 28.8% |
| | 15% | 6.9% | 18.4% |
| | 20% | 5.1% | 13.5% |

Data

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 - We use the 1977 and 1993 surveys for the 48 contiguous states
 - 4,512 origin-destination state-pair-and-year observations
 - Problems: sampling errors that vary over time & “0” trade flows

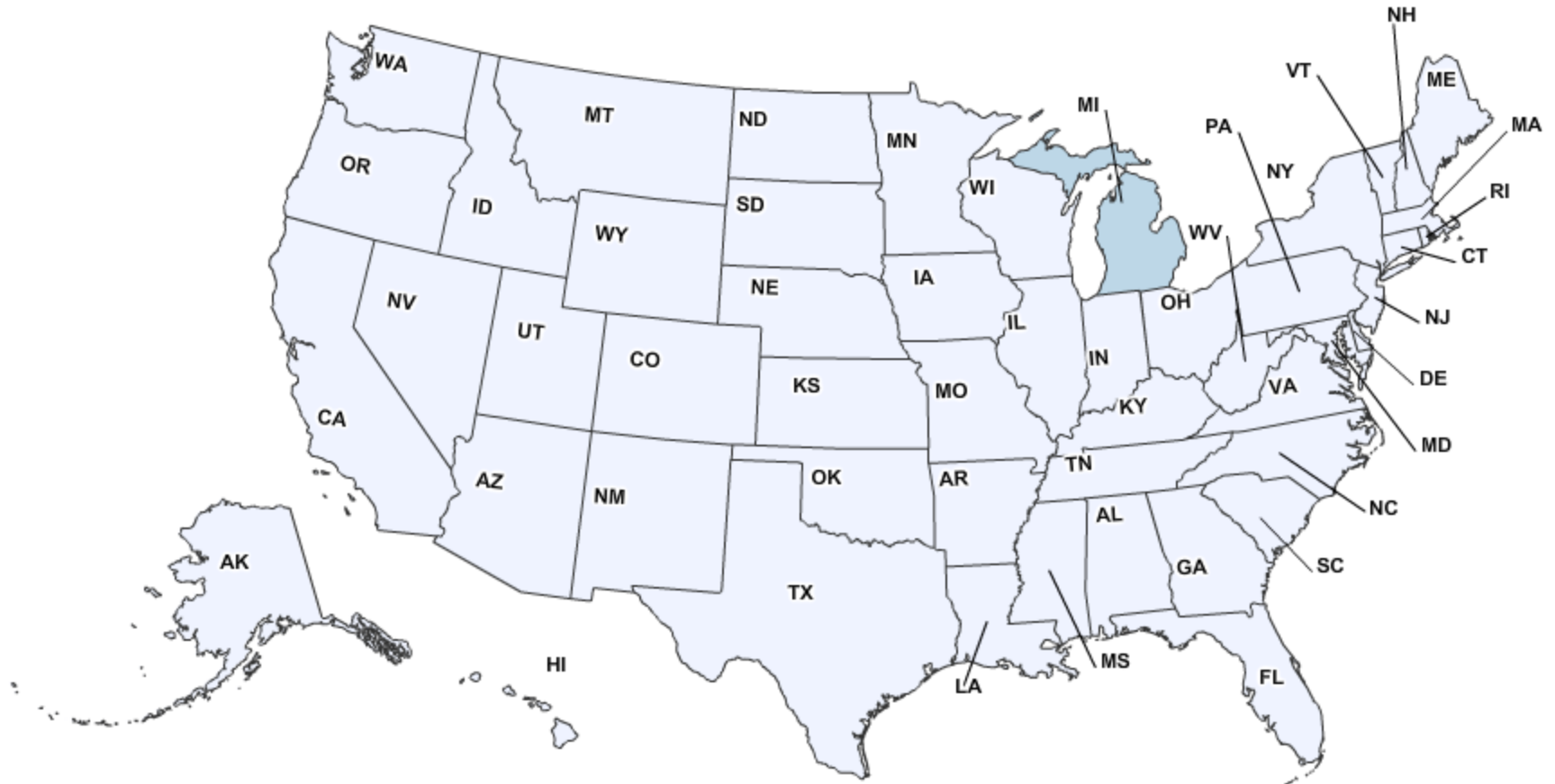
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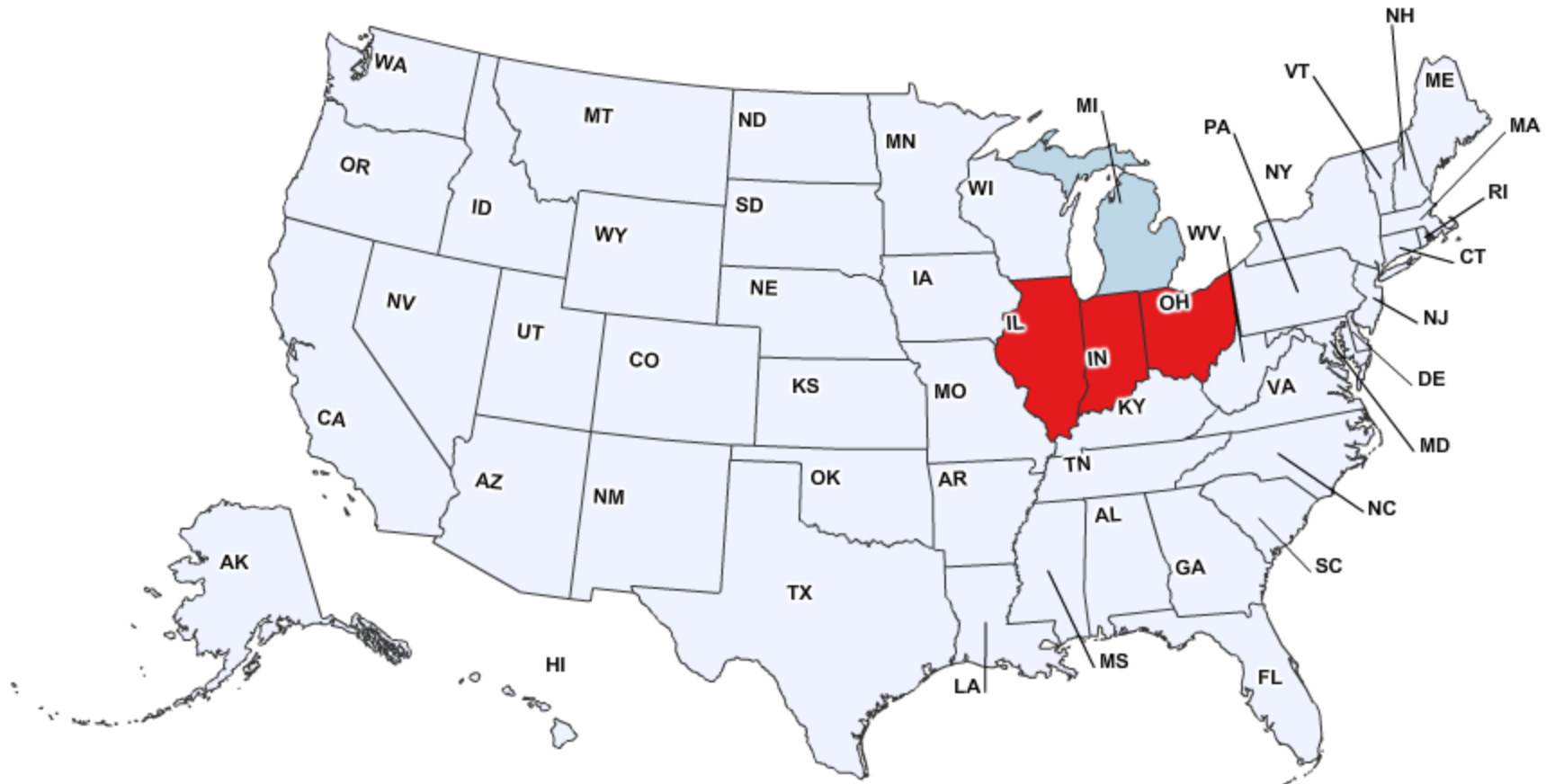
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- *State-level Macro data: BEA*
 - Destination-state GDP and Wage index
- *Geographic characteristics of origin-destination state-pairs*

Bank Entry Deregulation: Michigan 1977

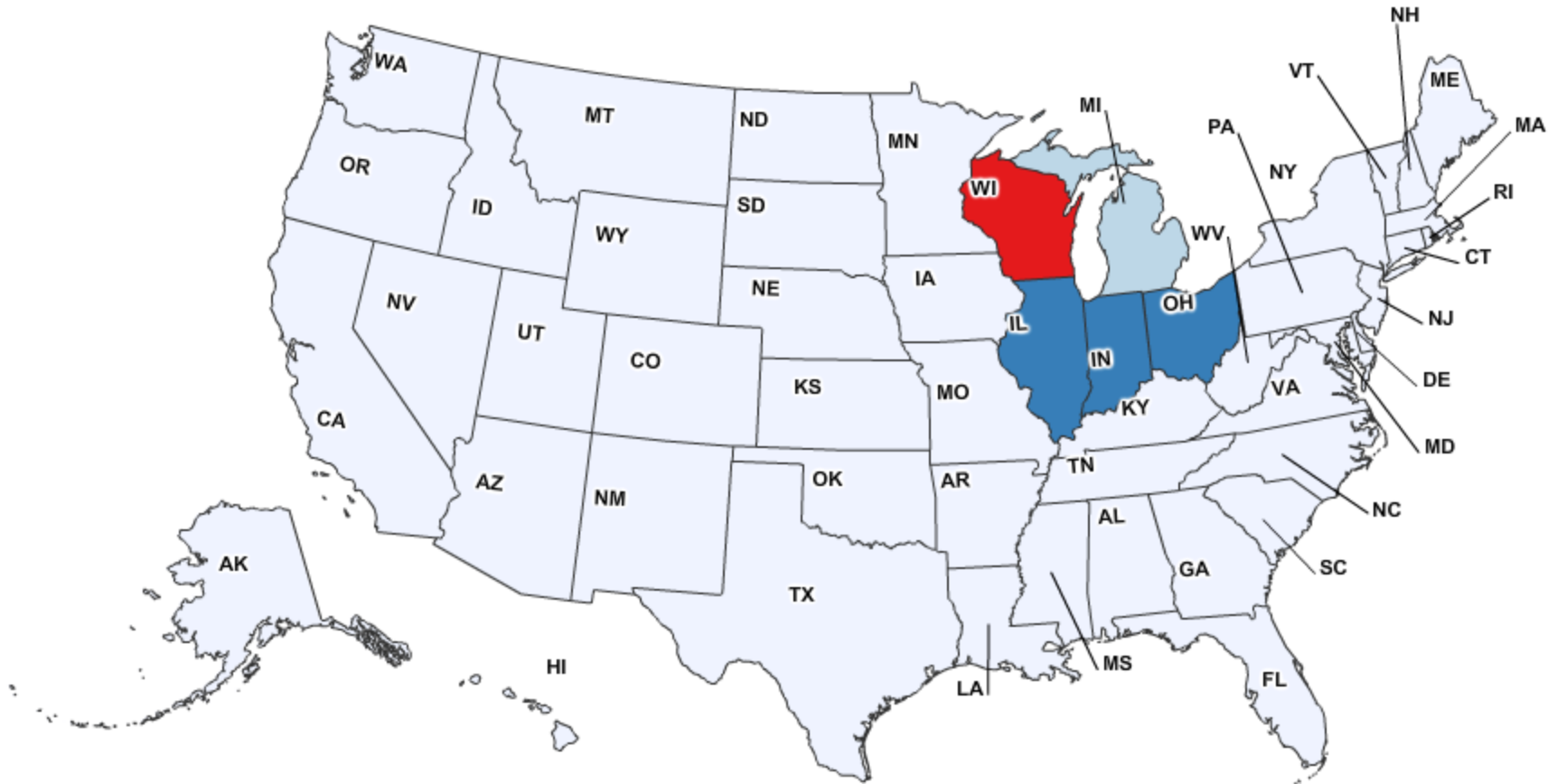


Bank Entry Deregulation: Michigan 1986

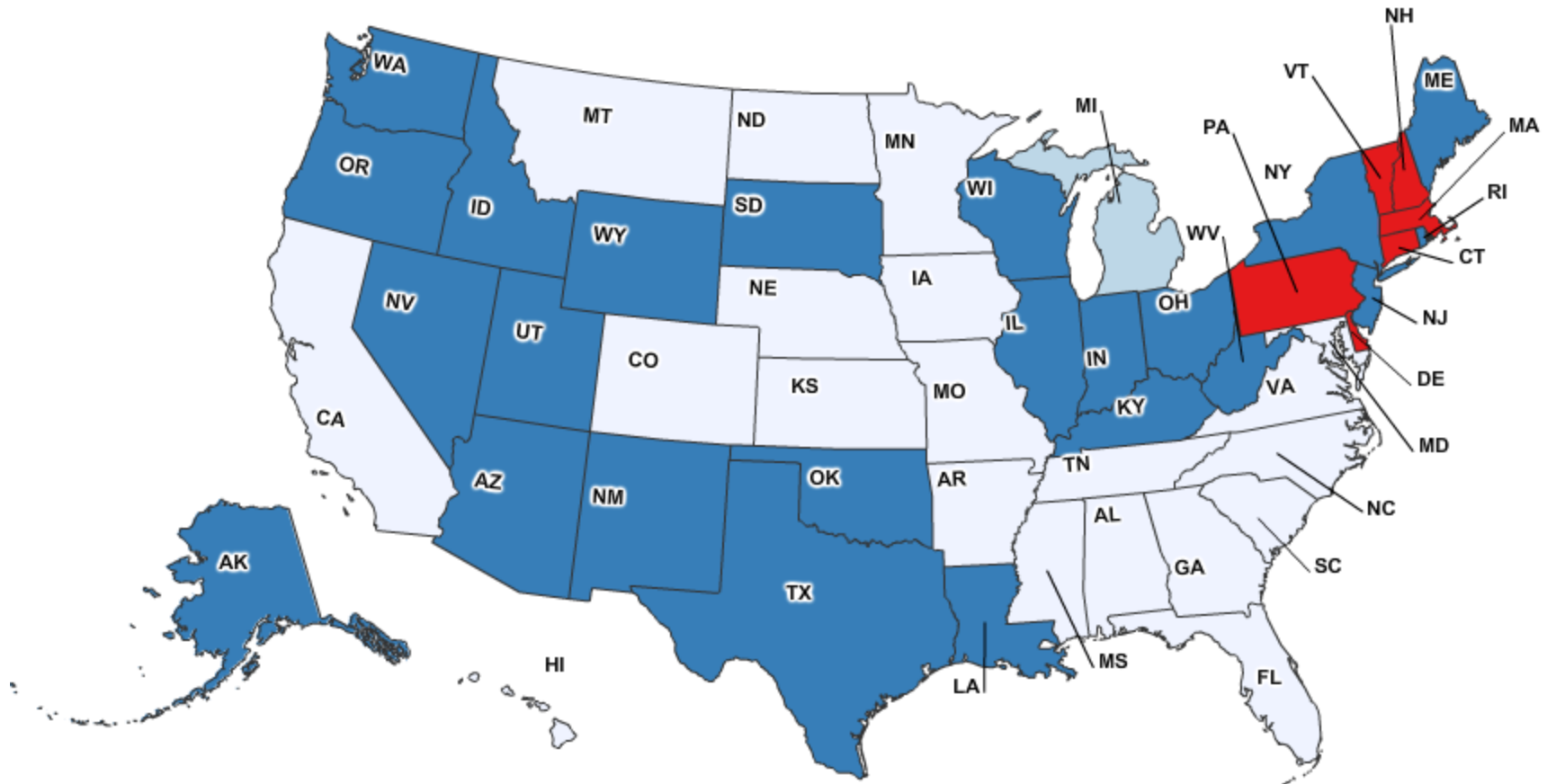
“Regional reciprocal” deregulation mode



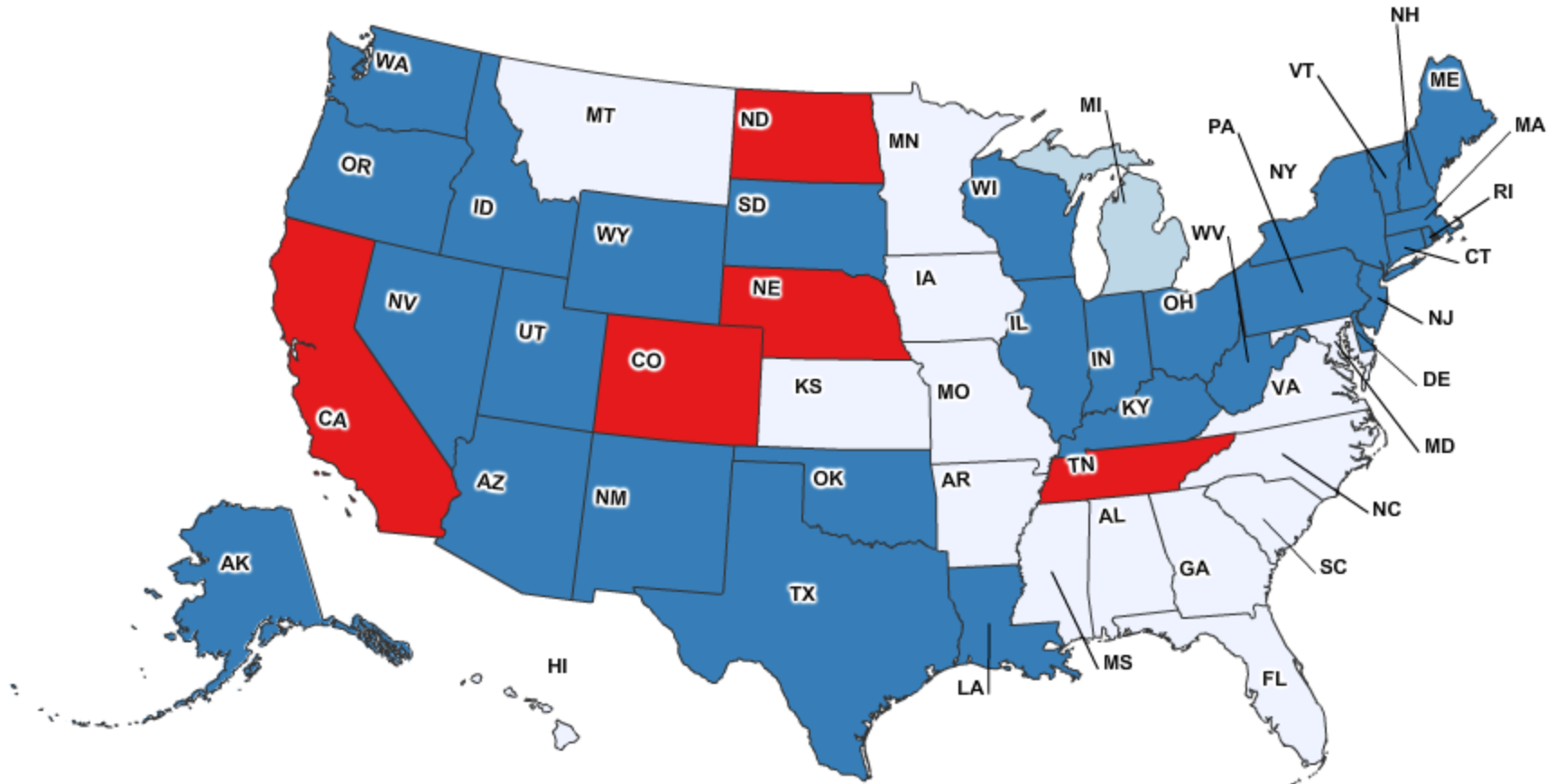
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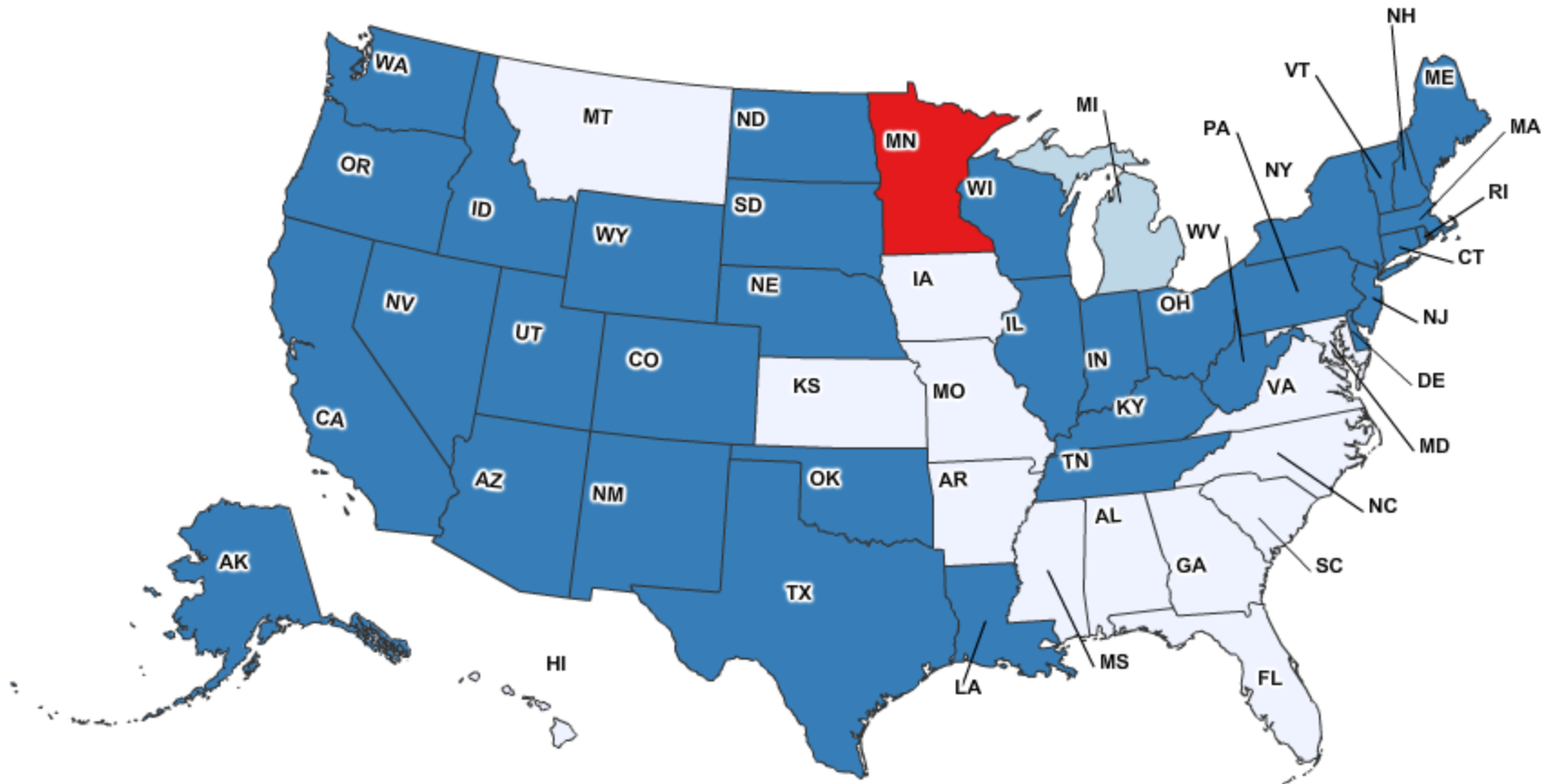
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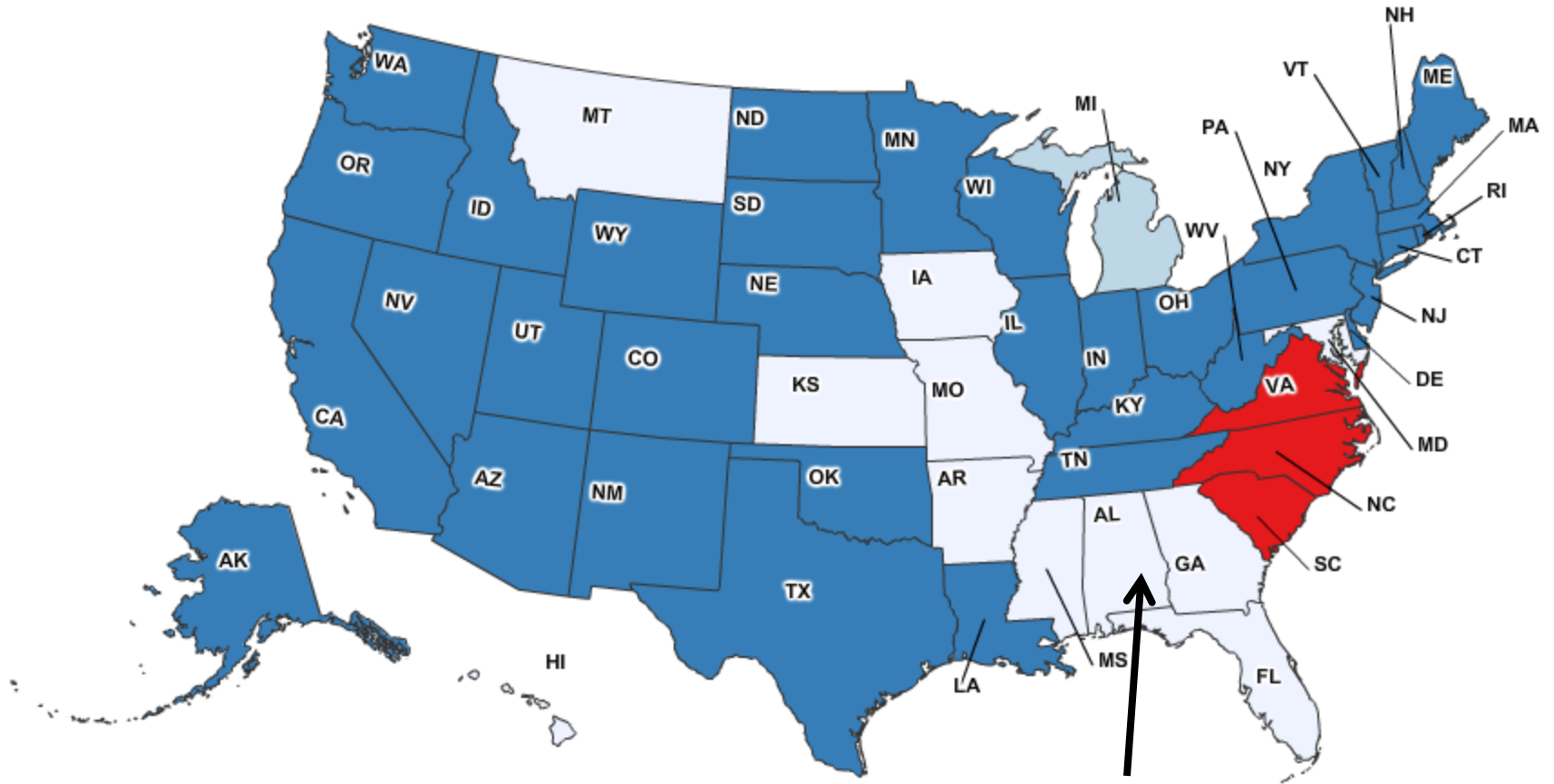
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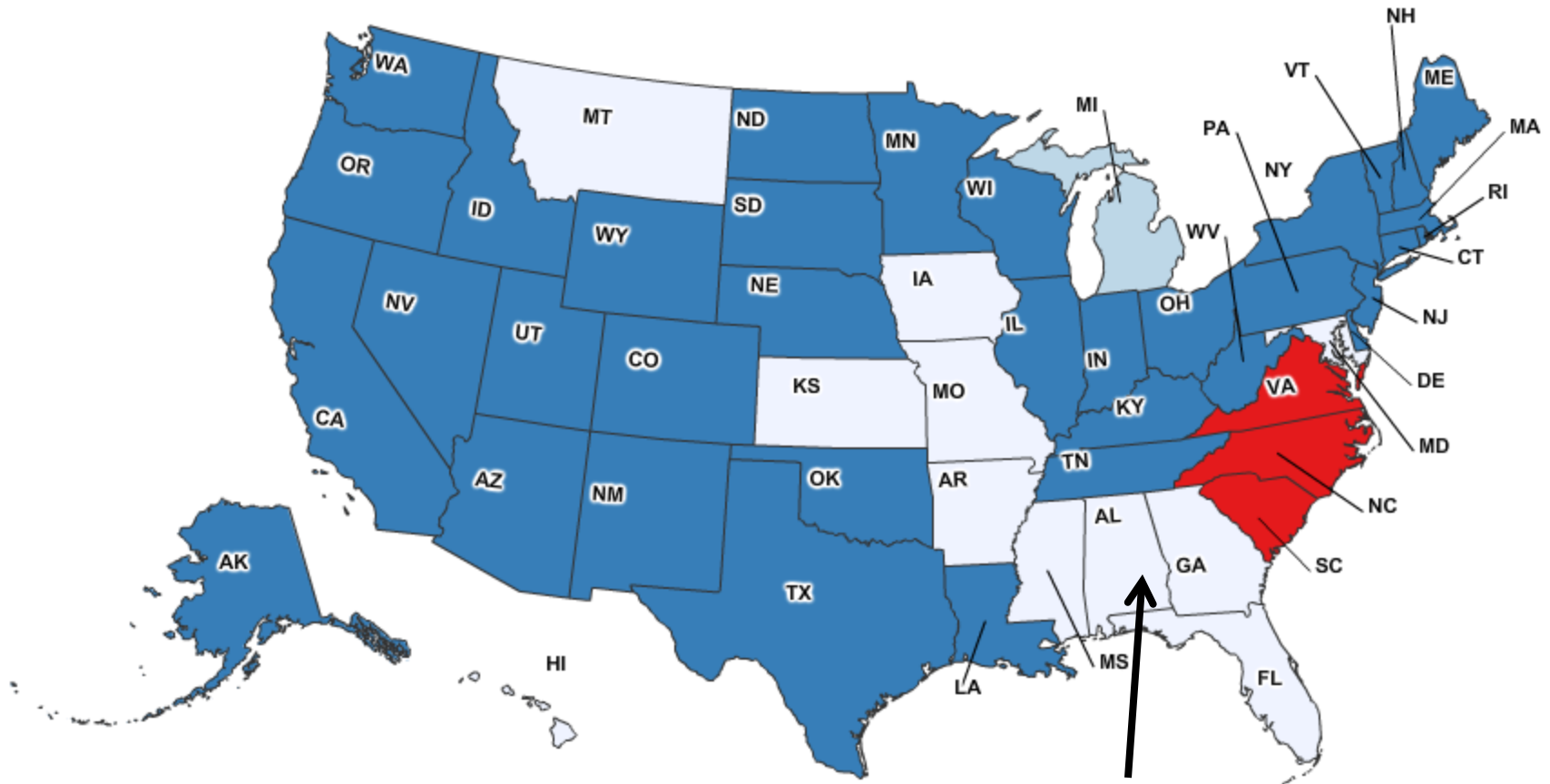
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Empirical Specifications

- *Difference-in-Differences models:*
 - Did interstate banking deregulation between origin-destination state-pairs lead to higher trade *shares* compared to non-deregulating state-pairs over time?
 - We treat interstate bank-entry deregulation as exogenous:
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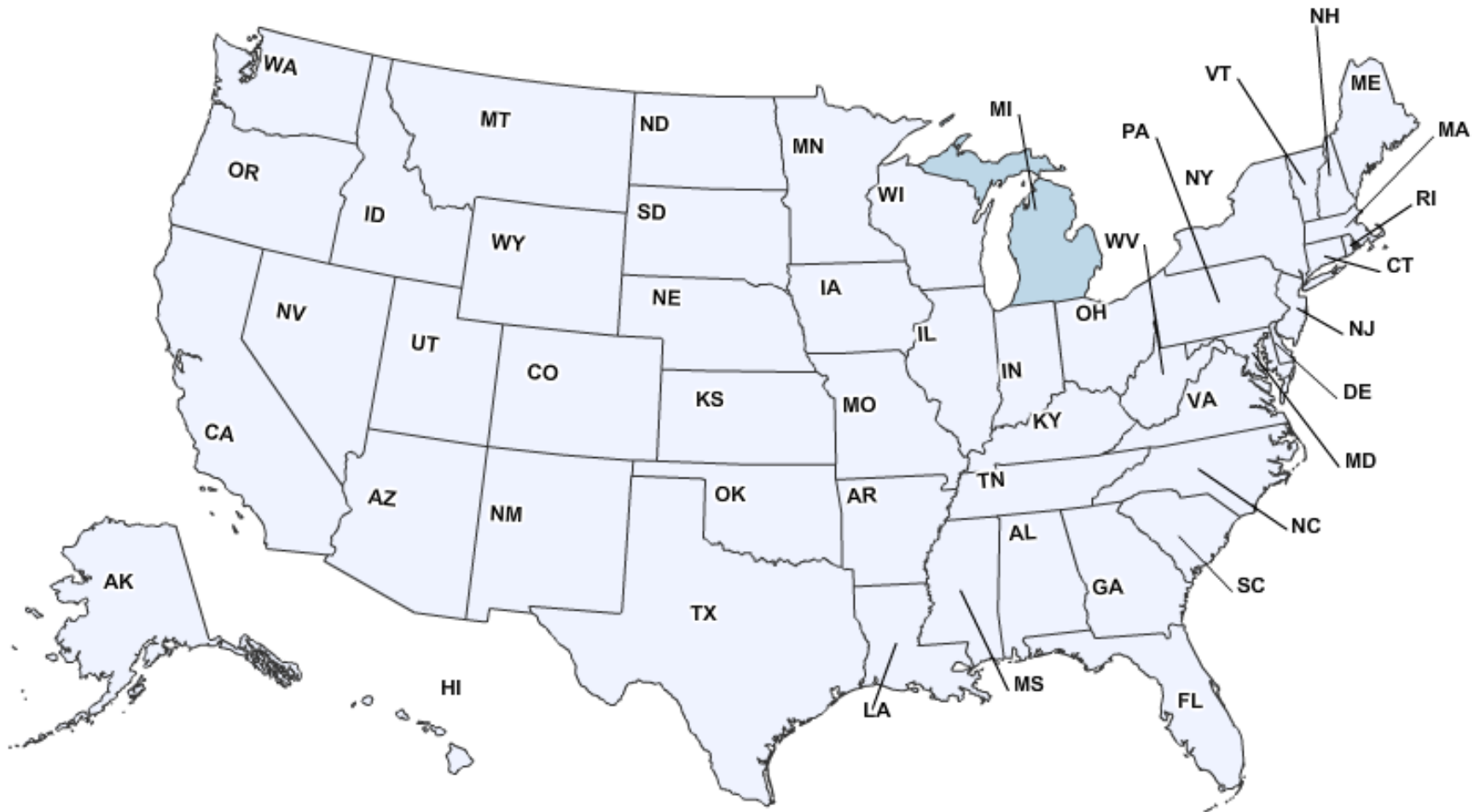
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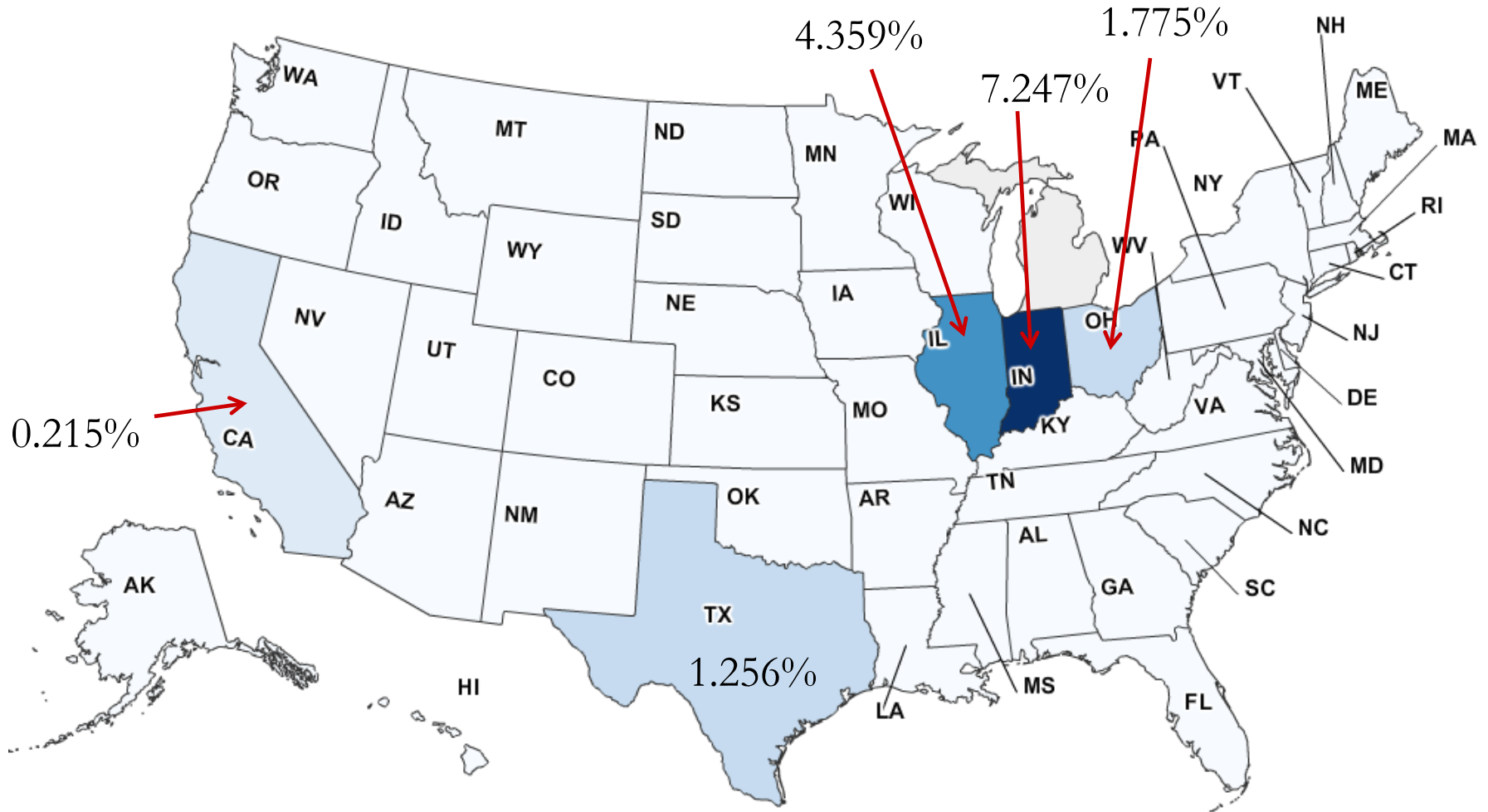
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- But deregulation need not result in actual entry

Bank Integration: Michigan as of 1977



Bank Integration: Michigan as of 1993



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- *Instrumental Variable (IV) regression models:*
 - Test variable: fraction of common bank assets for a state-pair
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Difference-in-Differences Results

- **Coefficient estimate for $D_DEREG \times D_1993$:**

- Log-linear model with fixed-effects:

Pooled-OLS: **0.0752** *

Within: 0.0598 (not significant)

➔ **7.52%** increase in trade shares on average over 11 years

Sub-sample with \$ 10 million trade flows: 3,512 observations

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- Identification tests:
 - Under-identification test: H_0 of under-identification rejected (✓)
 - Weak-identification tests: H_0 of weak instruments rejected (✓)
 - Over-identification test: joint- H_0 of valid instruments & appropriate exclusion restrictions cannot be rejected (✓)

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- Poisson-IV model (with time-varying origin-state fixed-effects and geographical controls):

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- Poisson-IV with trade-shares
 - Highly similar results

Conclusion (I)

- We model & estimate the impact of financial barriers on trade flows:
 - For the 48 contiguous states, we find that the removal of such barriers prior to 1995 lead to approximately **14%** higher trade shares between state-pairs that deregulate banking entry.
 - Actual entry that increases bank integration from **0% to 2.28%** (the mean of the data) leads to **11% to 25%** increase in trade on average.

Conclusion (II)

These results:

- are robust to different specifications
- are economically important
- are consistent with a 10-20% markup range and a 1-2.5% fall in marginal costs as a result of the banking deregulation.

Additional robustness checks

- Excluding state pairs with large trade shares (more than 5%)
 - Similar results as before.
- Difference-in-Differences for 1993 and 1997 data.
 - The treated group: the state-pairs that were federally forced to deregulate
 - The control group: all the remaining state-pairs
 - Again, the treated groups' trade shares increase relative to the control group, though they do not “catch” up with the control group shares (between 1993 and 1997).
 - This indicates the effects we study are “level” effects.