Regional Financial Crises

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MOTIVATION

- Existing crisis studies focus on nationwide events, overlooking financially distressed regions *within* countries.
- In the U.S., regional financial distress may generate large local output costs, even in years without a systemic nationwide crisis.
- Yet historical regional data are scarce: we build a new macro-financial panel covering 48 U.S. states from 1863 to 2022.
- Considerable disagreement remains over which years count as "crisis years": we survey 25 crisis chronologies to classify systemic crisis years and narrative evidence of regional financial distress.

MAIN RESULTS

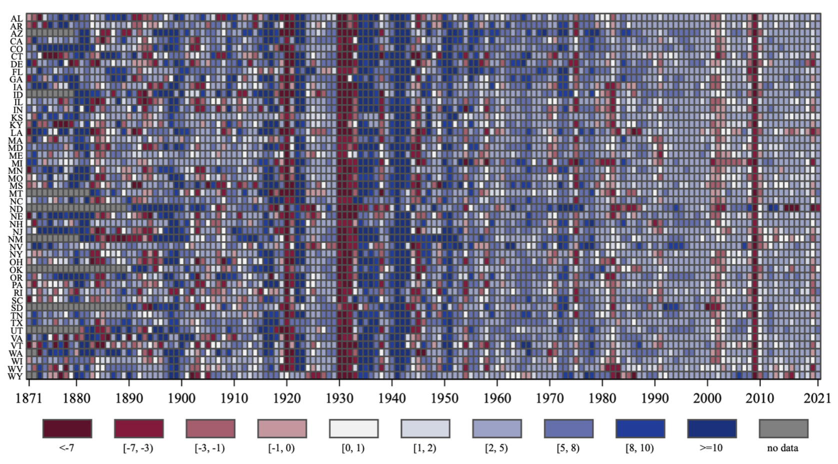
- Regional crises are costly.
- Combining narrative evidence of regional financial distress with state-level banking data on deposits, wholesale funding, and bank failures, we find:
  - **1,565** regional crisis episodes,
  - and they predict state-level output losses of about **4%**.
- Regional crises are **contagious**: output losses extend beyond the affected state to nearby states.
- Our **"states-in-crisis"** measure (i.e., the fraction of states experiencing a regional crisis in a given year) predicts future U.S. output losses.

160 Years of Regional Macro-Financial Data

1. U.S. State-Level Index of Economic Activity

(Hoon, Liu, Müller, Zheng, 2026)

- **Newly constructed annual panel:** 62 variables, 48 states, 1870–2021.
- **Key outcome variable:** State-level economic activity index, 1871–2021, estimated separately by state; highly correlated with state GDP, 1964–2021.



2. State-Level Banking Data

- **1863–1960:** State-level balance sheet aggregates for all bank charter types, digitized at the line-item level from the **OCC's Annual Reports**.
- **1961–2022:** State-level aggregates (1961–1980) and bank-level call reports (1981–2022) from the **FDIC**.
  - **Issue:** Post-1980 interstate branching renders headquarter-based state aggregates difficult to interpret.
  - **Solution:** Estimate state-level measures using branch-level FDIC Summary of Deposits.

PENNSYLVANIA.

Resources.	DECEMBER 19. 336 banks.	MARCH 5. 336 banks.	MAY 7. 337 banks.	JULY 11. 339 banks.	SEPTEMBER 28. 340 banks.
Loans and discounts	$103,786,937.87	$103,518,931.76	$106,952,502.85	$105,654,893.43	$108,049,044.49
Overdrafts	339,572.92	327,147.49	339,922.23	368,693.63	373,212.11
Bonds for circulation	15,362,500.00	15,082,300.00	15,819,800.00	16,613,300.00	16,893,300.00
Bonds for deposits	310,000.00	310,000.00	310,000.00	310,000.00	310,000.00
U. S. bonds on hand	686,350.00	821,850.00	943,750.00	815,200.00	933,400.00
Premiums on bonds	1,186,475.76	1,187,517.26	1,334,790.72	1,411,340.67	1,475,661.45
Stocks, securities, etc	20,370,016.39	20,567,560.90	20,593,811.88	20,928,460.73	20,724,761.85
Banking house, etc	4,971,624.58	5,034,756.51	5,088,905.47	5,206,168.62	5,233,035.32
Real estate, etc	1,522,218.86	1,688,920.98	1,862,480.71	1,836,493.19	1,946,018.83
Due from nat'l banks	2,370,275.43	2,071,567.13	2,537,390.93	3,142,147.14	3,743,808.33
Due from State banks	1,054,944.30	898,019.66	1,078,259.08	1,305,036.67	1,305,576.77
Due from res've ag'ts	15,638,201.19	16,292,525.69	16,462,581.63	16,766,352.43	18,840,037.12
Cash items	987,974.34	933,333.65	891,920.04	1,028,095.87	1,093,424.27
Clear'g-house exch'gs	81,181.00	91,535.02	114,827.34	122,343.85	102,289.60
Bills of other banks	919,175.00	924,334.00	1,184,033.00	1,108,678.00	875,280.00
Fractional currency	87,486.53	101,320.86	101,484.04	95,519.99	89,347.30
Specie	8,195,946.51	8,331,685.06	8,750,226.82	8,580,063.19	8,169,590.45
Legal-tender notes	3,509,932.00	3,520,495.00	3,859,875.00	3,597,022.00	3,465,044.00
U. S. cert's of deposit	....	....	....	....	....
5% fund with Treas.	669,457.65	657,604.20	674,701.64	728,994.59	738,933.10
Due from U. S. Treas.	31,066.20	31,645.86	27,711.92	13,963.32	27,722.01
Total	182,081,336.53	182,393,051.03	188,928,975.30	189,632,767.32	194,389,487.00

3. A Survey of 25 U.S. Crisis Chronologies (1790–2022)

- Our survey yields two annual crisis-year series:
  - **Benchmark crisis years: 9** systemic crisis years (**7** after 1870) where the majority of chronologies agree.
  - **"Any-crisis" years: 89** years with narrative evidence of financial distress somewhere within the U.S. (as flagged by at least one chronology).

Year	B/V/X	B/D/W	B/H	B/W	C/G	C	D/R	DL/S	F/S	G	J	J/K/M/S	J/S/T	Ju	K	L/V	LS/N	M/S	R/R	Rb	Ro	So	Sp	T	W
1899	—	—	—	—	—	—		Yes	—	—	Yes*	—	—	—	Yes			—	—	—	—	—	—	—	—
1901	—	—	—	—	—	—		Yes	—	—	Yes*	—	—	—	Yes			—	—	—	—	Yes	—	—	—
1902	—	—	—	—	—	—		—	—	—	—	—	—	—	Yes*			—	—	—	—	—	—	—	—
1903	—	—	—	—	—	—		Yes	—	—	Yes*	—	—	Yes	Yes			—	—	—	—	—	—	—	—
1904	—	—	—	—	—	—		—	—	—	—	—	—	—	Yes*			—	—	—	—	—	—	—	—
1905	—	—	—	—	—	—		Yes	—	—	Yes*	—	—	—	Yes*			Yes	—	—	—	—	—	—	—
1906	—	—	—	—	—	—		—	—	—	—	—	—	—	Yes*			—	—	—	—	—	—	—	—
1907	Yes	—	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
1908	—	—	—	—	—	—		—	—	—	Yes*	—	—	—	Yes*			—	—	—	—	—	—	—	—
1909	—	—	—	—	—	—		Yes	—	—	—	—	—	—				Yes	—	—	—	—	—	—	—
1913	—	—	—	—	—	—		—	—	—	—	—	—	Yes				—	—	—	—	—		—	—
1914	—	—	Yes	—	Yes	—			—	Yes	—	—	—	—				Yes	Yes	—	—	Yes		—	—
1917	—	—	—	—					—		—	—	—					Yes	—	—	—	—		—	—
1920	—	—	—	—					—		Yes*	—	—					Yes	—	—	—	—		—	—
1923	—	—	—	—			Yes*		—		—	—	—					—	—	—	—	—		—	—
1924	—	—	—	—			Yes*		—		—	—	—					—	—	—	—	—		—	—
1926	—	—	—	—			Yes*		—		Yes*	—	—					—	—	—	—	—			—
1927	—	—	—	—			Yes*		—		Yes*	—	—					—	—	—	—	—			—
1929	—	—	—	—			Yes*		—		Yes*	Yes	—					Yes	Yes	Yes	—	Yes			—
1930	Yes	—	Yes	Yes					Yes			Yes	Yes					—	O	—	Yes	—			Yes
1931	—	Yes	O	Yes					Yes			—	—					—	O	—	—	—			Yes
1932	—	O	O	—					—			Yes	—					—	O	—	—	—			Yes
1933	—	—	O	Yes					Yes			—	—					—	O	—	—	—			Yes
1939	—	—	—						—			—	—					Yes	—	—	—	—			
1958	—	—	—						—			—	—					Yes	—		—	—			

Sources: **B/V/X** (Baron, Verner and Xiong, 2021); **B/D/W** (Bordo, Dueker and Wheelock, 2002); **B/H** (Bordo and Haubrich, 2017); **B/W** (Bordo and Wheelock, 1998); **C/G** (Calomiris and Gorton, 1991); **C** (Conant, 1915); **D/R** (Davison and Ramirez, 2014); **DL/S** (DeLong and Summers, 1986); **F/S** (Friedman and Schwartz, 1963); **G** (Gorton, 1988); **J** (Jalil, 2015); **J/K/M/S** (Jamilov, König, Müller and Saidi, 2024); **J/S/T** (Jordà, Schularick and Taylor, 2017); **Ju** (Juglar, 1916); **K** (Kemmerer, 1910); **L/V** (Laeven and Valencia, 2020); **LS/N** (Lopez-Salido and Nelson, 2010); **M/S** (Metrick and Schmelzing, 2021); **R/R** (Reinhart and Rogoff, 2009); **Rb** (Rothbard, 2002); **Ro** (Rockoff, 2021); **So** (Sobel, 1988); **Sp** (Sprague, 1910); **T** (Thorp, 1926); **W** (Wicker, 2000, 2006). We use the most recent updates of these chronologies whenever possible, including those by J/K/M/S, J/S/T, and R/R.

Identifying Regional Crises

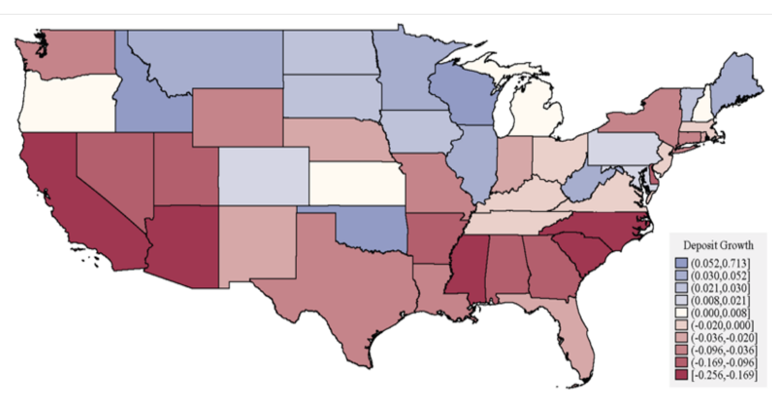
Regional crisis indicator

A state-year (i, t) is classified as a **regional crisis** if the following two conditions hold:

- **Narrative evidence:** Year t is flagged as a crisis year by at least one existing crisis chronology.
- **State-level statistical evidence:** State i shows banking sector distress in the window $t-1$ through $t+1$:
  - Negative year-over-year growth in **deposits** or **wholesale liabilities**; and
  - At least one **bank failure**.

Panic of 1893

Deposit growth rate

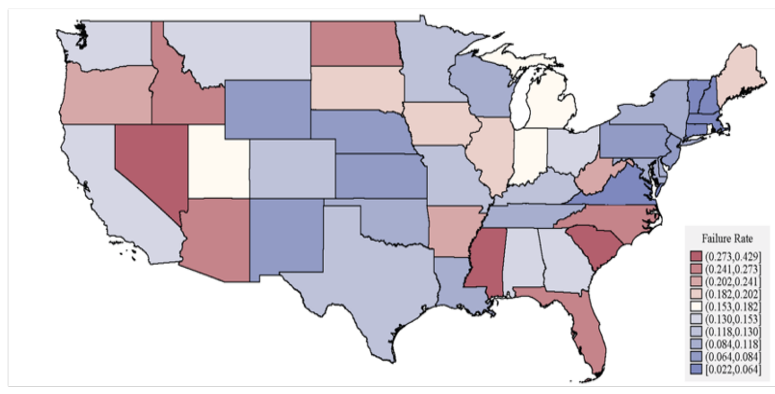


Why use banking-sector distress as statistical evidence?

- Banking sector distress varies sharply across states, even during systemic crises.
- The maps show this heterogeneity: crisis-year narratives identify *candidate years* of regional distress, and state-level banking data identify *where* distress is concentrated.

Great Depression of 1930

Bank failure rate



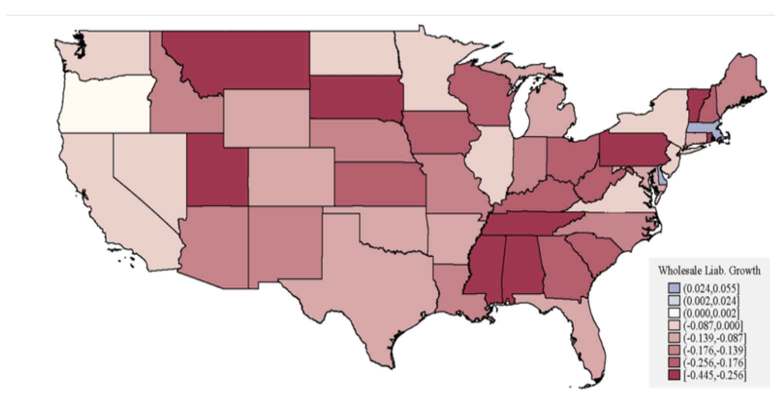
Result: New state-level chronology of regional financial crises.

1,565
regional crisis episodes

- Vastly more than the number of financial crises in cross-country data.

GFC of 2007

Wholesale funding growth rate



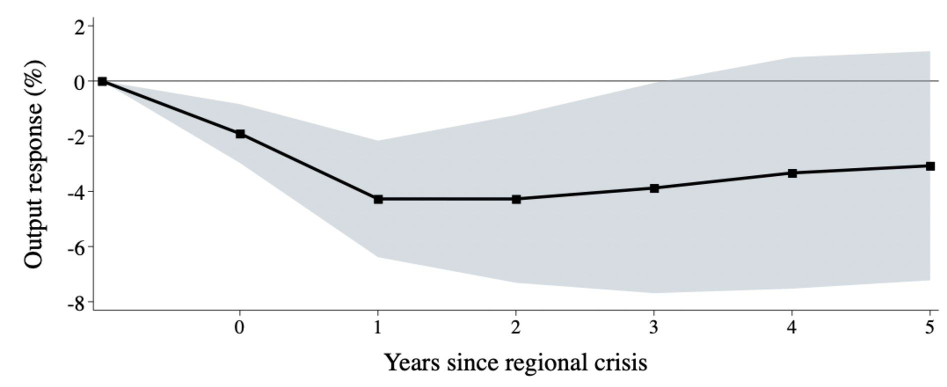
Core Findings: Regional Crises are Costly

A.1. Regional crises predict output losses of 4%

Empirical specification à la Jordà (2005):

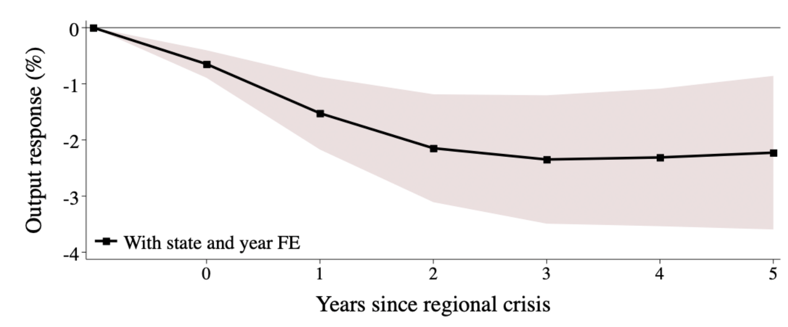
$$\boldsymbol{Y}_{i,t+h} - \boldsymbol{Y}_{i,t-1} = \boldsymbol{\alpha}_i^h + \boldsymbol{\beta}^h \mathbf{1}_{i,t}^{\text{reg. crisis}} + \sum_{k=1}^{5} \boldsymbol{\gamma}_k^h \left(\boldsymbol{Y}_{i,t-k} - \boldsymbol{Y}_{i,t-k-1}\right) + \boldsymbol{\varepsilon}_{i,t+h}^h, \quad h = 0, \ldots, 5.$$

- $\boldsymbol{Y}_{i,t}$: log state-level economic activity index.
- $\mathbf{1}_{i,t}^{\text{reg. crisis}}$: state-year regional crisis indicator.
- Standard errors two-way clustered by state and year.



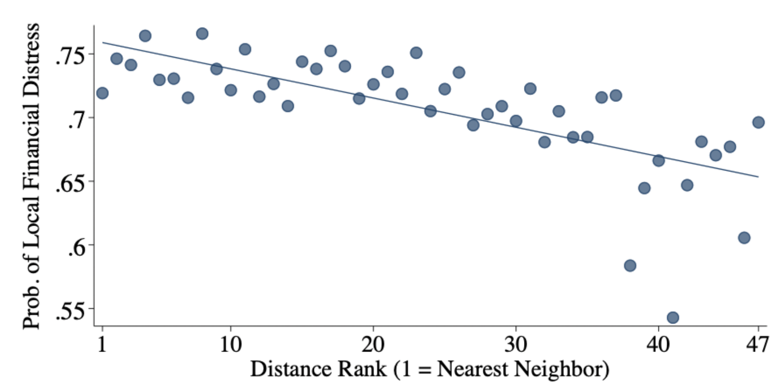
A.2. With year fixed effects, regional crises predict output losses of 2.4%

- Year fixed effects absorb shocks common to all states in a given year, including U.S.-wide crisis effects.
- The **regional-crisis coefficient** is identified by comparing crisis and non-crisis states within the same year.



B.1. Regional crises are contagious

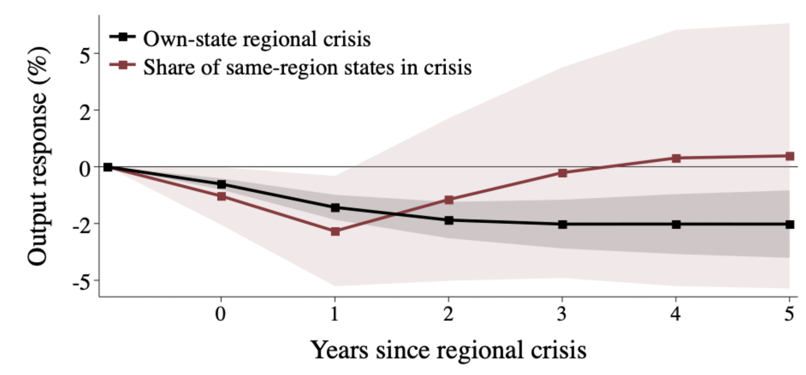
- Crisis risk rises with proximity to a state already experiencing a regional crisis.
- Therefore, nearby states face a materially higher risk of crisis.



B.2. Regional crises are costly not just for the state, but also for its neighbors

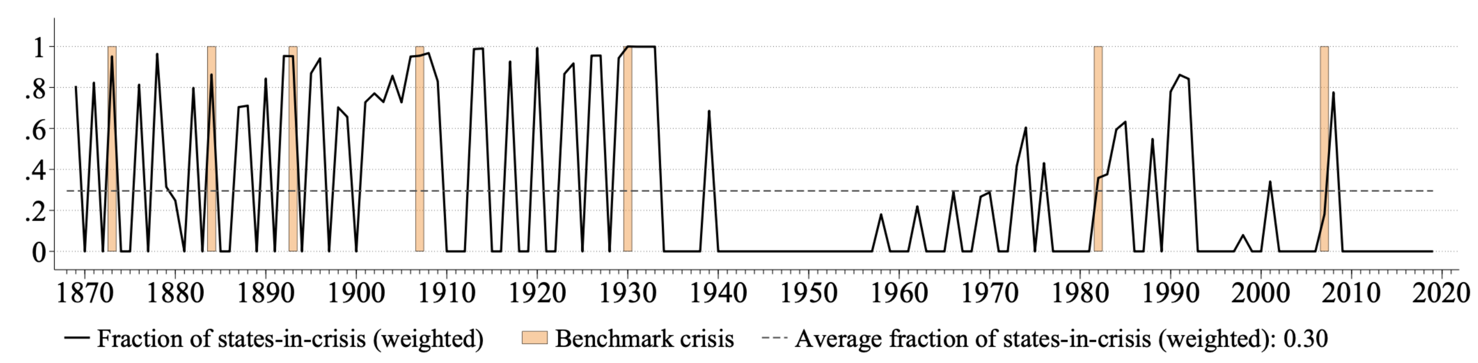
$$\begin{aligned}\boldsymbol{Y}_{i,t+h} - \boldsymbol{Y}_{i,t-1} = \boldsymbol{\alpha}_i^h &+ \boldsymbol{\beta}^h \mathbf{1}_{i,t}^{\text{reg. crisis}} \\ &+ \boldsymbol{\eta}^h\, \mathbf{1}_t^{\text{U.S. crisis}} \\ &+ \boldsymbol{\beta}^{s,h}\, \boldsymbol{R}_{i,t} \\ &+ \sum_{k=1}^{5} \gamma_k^h \left(\boldsymbol{Y}_{i,t-k} - \boldsymbol{Y}_{i,t-k-1}\right) + \boldsymbol{\varepsilon}_{i,t+h}^h\end{aligned}$$

- $\boldsymbol{R}_{i,t}$: share of other states in state i's U.S. region that are in a regional crisis.
- $\mathbf{1}_t^{\text{U.S. crisis}}$: U.S.-wide systemic crisis indicator.
- Standard errors two-way clustered by state and year.



From regional crises to a national "states-in-crisis" measure

- We aggregate state-level regional crisis indicators into a national **"states-in-crisis"** measure.
- **States-in-crisis**: Bank-asset-weighted share of states experiencing a regional crisis in year t.



C.1. States-in-crisis predicts lower U.S. GDP and industrial production growth

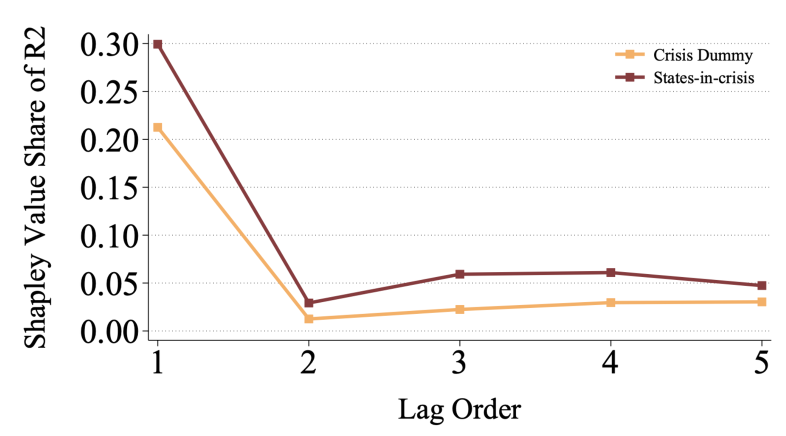
$$\begin{aligned}100\,\Delta \boldsymbol{Z}_t = \boldsymbol{\alpha} &+ \boldsymbol{\eta} \mathbf{1}_{t-1}^{\text{U.S. crisis}} \\ &+ \boldsymbol{\phi}\, \textbf{States-in-crisis}_{t-1} \\ &+ \sum_{k=1}^{5} \gamma_k 100\,\Delta \boldsymbol{Z}_{t-k} + \boldsymbol{\varepsilon}_t\end{aligned}$$

- $\boldsymbol{Z}_t$: log U.S. GDP or log U.S. industrial production.

Dependent var.:	$100 \times \Delta GDP_t$			$100 \times \Delta IP_t$		
	(1)	(2)	(3)	(4)	(5)	(6)
$\mathbf{1}\{\text{BenchmarkCrisis}_{t-1}\}$	-5.210*		-4.105	-11.162***		-9.199***
	(2.737)		(2.660)	(3.482)		(3.418)
States-in-crisis$_{t-1}$		-1.256***	-1.092**		-2.129**	-1.697*
		(0.480)	(0.481)		(0.957)	(0.975)
AR(5)	Yes	Yes	Yes	Yes	Yes	Yes
Observations	147	147	147	147	147	147

C.2. The "states-in-crisis" measure explains more predictive variation than a U.S.-wide crisis dummy

- Shapley decomposition asks how much each crisis measure contributes to predictive R^2.
- Across lag orders, the **states-in-crisis** measure accounts for a larger share of explained variation than a binary U.S.-wide crisis dummy.



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