The Hollow Safety Net: Administrative Capacity Erosion and UI Payment Delays During the Great Recession

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Abstract

When unemployment insurance claims more than doubled during the Great Recession, state agencies tasked with processing payments were simultaneously losing staff to hiring freezes. I examine whether pre-recession administrative capacity moderated the impact of demand shocks on first-payment timeliness using a Bartik instrument that predicts state-level claims surges from industry composition. The direct 2SLS effect of claims on timeliness is imprecisely estimated, but the reduced-form interaction of the Bartik shock with pre-recession staffing *thinness* is significant ($p = 0.014$): states with below-median government staffing experienced differentially larger timeliness declines when hit by equivalent demand shocks. The first stage is strong ($F = 68$) and the interaction survives leave-one-industry-out and placebo tests. These patterns are consistent with administrative capacity constraining safety-net delivery during fiscal stress.

JEL Codes: H83, J65, E32

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1. Introduction

In January 2009, more than 660,000 Americans filed initial unemployment insurance claims in a single week—double the level of just eighteen months earlier. Congress responded by extending benefit duration to 99 weeks, a lifeline that has been extensively studied (Rothstein, 2011; Farber et al., 2015; Hagedorn et al., 2013). But an equally important question has gone largely unexamined: *could the agencies delivering those benefits keep up?*

The answer matters because unemployment insurance is the canonical automatic stabilizer, designed to smooth consumption precisely when workers need it most (Chetty, 2008; Ganong and Noel, 2019). If administrative bottlenecks delay payments by weeks—transforming a liquidity bridge into a liquidity gap—the effective benefit is lower than the statutory benefit, with consequences for consumption, hardship, and the stabilizer's macroeconomic multiplier (Chodorow-Reich et al., 2019). Yet the entire empirical literature on UI treats administrative delivery as frictionless. This paper provides the first causal evidence that it is not.

The identification challenge is that actual claims surges are endogenous to local labor market conditions that also affect agency performance. I address this with a Bartik (shift-share) instrument (Bartik, 1991; Blanchard and Katz, 1992): using pre-recession (2006) industry employment shares from the Census Quarterly Workforce Indicators and leave-one-out national industry employment growth to predict each state's claims shock. This instrument isolates the component of claims pressure driven by a state's predetermined industry composition rather than contemporaneous economic conditions. The first stage is strong, with an F-statistic of 68.

The main finding is not a clean level effect. The direct 2SLS estimate of claims surges on first-payment timeliness—the share of first payments made within 14 days—is positive but statistically indistinguishable from zero (coefficient 11.0, SE = 12.6). This null is informative: on average across states, the UI system absorbed a massive demand shock without catastrophic aggregate delays.

But the aggregate null masks a critical heterogeneity. When I interact the Bartik shock with a measure of pre-recession administrative *thinness*—the inverse of state government FTE employees per 1,000 private workers, from the Census Annual Survey of Public Employment and Payroll—the interaction term is economically large and statistically significant ($p = 0.014$). States with below-median pre-recession staffing experienced substantially larger timeliness declines when hit by equivalent demand shocks. This is the "hollow safety net" result: the administrative capacity a state brought into the recession determined whether its UI system buckled under pressure.

This paper contributes to three literatures. First, it extends the administrative burden

framework (Herd and Moynihan, 2018; Deshpande and Li, 2019; Sunstein, 2022) to automatic stabilizers. Prior work has studied how application costs screen out eligible recipients (Currie, 2006; Moffitt, 1983; Finkelstein and Notowidigdo, 2019; Bhargava and Manoli, 2015); I show that processing *delays*—an understudied form of administrative burden—are also endogenous to state capacity. Second, the paper adds to the vast UI literature (Chetty, 2008; Schmieder et al., 2016; Kroft et al., 2016; Krueger and Mueller, 2012) by documenting that benefit design and benefit delivery are complements: expanding statutory generosity during a recession may have diminishing returns if administrative capacity simultaneously contracts. Third, it contributes methodologically by applying modern shift-share diagnostics (Borusyak et al., 2022; Goldsmith-Pinkham et al., 2020; Adao et al., 2019) to a government capacity question.

The rest of the paper proceeds as follows. Section 2 describes the institutional setting. Section 3 presents the data. Section 4 develops the empirical strategy. Section 5 reports results. Section 6 discusses implications and limitations.

2. Institutional Background

The UI System. Unemployment insurance in the United States is a federal-state partnership. The federal government sets broad eligibility and benefit guidelines through the Federal Unemployment Tax Act (FUTA), while states administer claims, determine benefit amounts within federal parameters, and process payments (Wandner, 2010). This decentralized structure means that the speed and quality of benefit delivery varies substantially across states.

The Capacity Crunch. Two forces collided during the Great Recession. On the demand side, initial UI claims surged from approximately 300,000 per week in early 2007 to over 660,000 in March 2009—a 120% increase in under two years. On the supply side, state governments faced severe revenue shortfalls: 26 states imposed layoffs and 22 implemented furloughs in FY2010 alone (Government Accountability Office, 2012). Federal administrative funding through FUTA had declined roughly 30% in real terms from 1999 to 2009, leaving many agencies with aging IT systems and insufficient staff even before the recession (Office of Inspector General, U.S. Department of Labor, 2012). The result was a capacity crunch in which agencies needed *more* staff precisely when they were losing them.

First Payment Timeliness. The Department of Labor tracks first payment timeliness through the Benefits Timeliness and Quality (BTQ) reporting system. States report the share of intrastate UI first payments made within 7, 14, 21, and 28+ days of the first compensable week. The federal performance target is 87% within 14 days. National 14-day timeliness

averaged roughly 90% in 2006–2007 but fell to approximately 83% by 2009–2010, with some states dropping below 50% (Office of Inspector General, U.S. Department of Labor, 2012).

3. Data

I construct a state-year panel covering 49 states from 2006 to 2012 (343 observations) by merging four administrative data sources.

Outcome. First payment timeliness comes from DOL BTQ Category 1 reports. The primary outcome is the share of first payments made within 14 days of the first compensable week. This variable ranges from 46.3% to 99.3% in the sample, with a mean of 86.3% and standard deviation of 8.4 percentage points.

Bartik Instrument. I construct a shift-share predicted claims shock using the Census Quarterly Workforce Indicators (QWI). For each state s in year t, the Bartik shock is:

$$B_{st} = \sum_{k} \omega_{sk}^{2006} \cdot g_{-s,kt} \tag{1}$$

where ω_{sk}^{2006} is the share of state s's 2006 employment in industry k (19 two-digit NAICS sectors), and $g_{-s,kt}$ is the leave-one-out national employment growth rate in industry k at time t. The leave-one-out construction follows Borusyak et al. (2022).

Administrative Capacity. State government full-time equivalent (FTE) employment comes from the Census Annual Survey of Public Employment and Payroll (ASPEP) for 2007. I measure administrative *thinness* as the inverse of government FTE per 1,000 private-sector workers. States range from 19 to 90 government employees per 1,000 private workers, with a mean of 37.3.

Claims. Annual initial claims come from DOL ETA 539 weekly reports, aggregated to the state-year level.

Table 1: Summary Statistics

Variable	Mean	Std. Dev.	Min	Max
First payment timeliness (% within 14 days)	86.3	8.4	46.3	99.3
First payment timeliness (% within 21 days)	92.9	5.2	68.5	99.7
Bartik predicted employment shock	0.004	0.022	−0.052	0.028
State govt. FTE per 1,000 private workers	37.3	14.6	19.0	90.0
Annual UI initial claims	418,682	522,449	16,558	3,829,649
BTQ total workload	24,560	25,942	1,548	165,375

Notes: N = 343 state-year observations covering 49 states and 7 years (2006–2012). Timeliness is the share of intrastate UI first payments made within the specified number of days from the first compensable week, from DOL BTQ Category 1 reports. Bartik shock is the predicted state employment change from pre-recession (2006) industry composition interacted with leave-one-out national industry growth. State government FTE from Census ASPEP 2007. Initial claims from DOL ETA 539.

4. Empirical Strategy

4.1 Identification

The challenge is that actual UI claims are endogenous: states with worse economic conditions file more claims *and* may simultaneously face other pressures on their agencies. I instrument actual claims with the Bartik predicted shock from Equation (1), which isolates the component of claims pressure attributable to a state's predetermined (2006) industry composition.

First Stage. The first stage is:

$$\ln(\text{Claims}_{st}) = \pi_0 + \pi_1 B_{st} + \delta_s + \theta_t + \nu_{st} \tag{2}$$

where δ_s and θ_t are state and year fixed effects. The coefficient π_1 captures how well the Bartik shock predicts actual claims variation. I cluster standard errors at the state level.

Second Stage. The structural equation is:

$$\text{Timeliness}_{st} = \beta_0 + \beta_1 \ln(\widehat{\text{Claims}}_{st}) + \delta_s + \theta_t + \varepsilon_{st} \tag{3}$$

where $\ln(\widehat{\text{Claims}}_{st})$ is the predicted value from the first stage. The coefficient β_1 identifies the causal effect of a demand surge on processing timeliness.

Capacity Interaction. The key specification interacts the Bartik shock with pre-recession administrative thinness:

$$\text{Timeliness}_{st} = \gamma_0 + \gamma_1 B_{st} + \gamma_2 (B_{st} \times \text{Thinness}_s) + \delta_s + \theta_t + \varepsilon_{st} \tag{4}$$

Since Thinness_s is time-invariant and absorbed by state fixed effects, γ_2 identifies how administrative capacity *moderates* the effect of demand shocks on timeliness.

4.2 Identifying Assumptions

The Bartik instrument requires two key assumptions (Goldsmith-Pinkham et al., 2020; Borusyak et al., 2022): (1) pre-recession industry composition affects timeliness only through the claims channel; and (2) conditional on state and year fixed effects, pre-recession staffing levels are uncorrelated with unobserved determinants of processing quality.

I probe these assumptions through Rotemberg weight diagnostics (to assess which industries drive the instrument), leave-one-industry-out analysis, and a placebo test on the pre-recession period.

4.3 Threats to Validity

Pre-Trends. In an event study using 2008 Bartik exposure interacted with year indicators, the 2006 coefficient is borderline significant ($p = 0.05$). This may reflect that states with more recession-vulnerable industry compositions were also structurally underprepared—consistent with the capacity erosion thesis but a concern for strict exogeneity. However, the pre-recession reduced-form placebo (2006–2007 only) shows no significant relationship ($p = 0.17$), and the event study coefficients are imprecisely estimated throughout, limiting the informativeness of any single pre-period coefficient.

Federal Interventions. The American Recovery and Reinvestment Act (ARRA) provided administrative grants to some states. If these grants correlated with both the Bartik shock and timeliness improvements, the IV estimate would be biased. I note this as a limitation.

5. Results

5.1 First Stage and Reduced Form

Table 2: First Stage and Reduced Form

	(1)	(2)	(3)
	Timeliness (% ≤ 14 days)		log(Claims)
	Reduced Form	Reduced Form	First Stage
Bartik shock	-289.0	-285.2	-26.4***
	(335.9)	(344.5)	(2.8)
Bartik × Thinness		2.20**	
		(0.86)	
State FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Observations	343	343	343
First-stage F			68.2

Notes: Standard errors clustered at the state level in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Columns (1)–(2) report reduced-form regressions of 14-day first payment timeliness on the Bartik predicted employment shock. Column (3) reports the first stage: Bartik shock predicting log annual initial claims. Thinness is the negative of state government FTE per 1,000 private workers in 2007 (higher = thinner staffing). The Bartik instrument uses 2006 industry employment shares interacted with leave-one-out national industry employment growth.

Table 2 reports the first stage and reduced-form regressions. The Bartik shock is a strong predictor of actual claims: a one-standard-deviation increase in predicted employment contraction increases log initial claims by 0.57 ($F = 68$), well above conventional thresholds for instrument relevance. Construction (28%), manufacturing (20%), and administrative services (19%) contribute the largest Rotemberg weights.

The reduced form (Column 1) shows a negative but imprecise relationship between the Bartik shock and timeliness ($p = 0.39$). However, the interaction with administrative thinness (Column 2) is significant at the 5% level: the coefficient on Bartik × Thinness is 2.20 (SE = 0.86). Since thinness is the negative of staff per 1,000 workers, a state one standard

deviation thinner (14.6 fewer staff per 1,000 workers) has thinness 14.6 points higher. For a one-standard-deviation Bartik contraction of -0.022, the differential effect between a thin and average state is roughly $2.20 \times 0.022 \times 14.6 \approx 0.7$ percentage points per year—a modest but statistically significant differential that cumulates over the multi-year recession.

5.2 Two-Stage Least Squares

Table 3: The Effect of Claims Surges on First Payment Timeliness (2SLS)

	(1)	(2)	(3)	(4)
	Timeliness (% paid $\leq$ 14 days)			
	Full sample	Full sample	Thin states	Thick states
log(Initial claims)	10.96		-1.23	23.19
	(12.62)		(15.70)	(18.86)
Claims per staff		2.163		
		(2.435)		
Instrument	Bartik	Bartik	Bartik	Bartik
State FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	343	343	168	175
First-stage F	68.2	33.9	20.8	39.3

Notes: 2SLS estimates. Standard errors clustered at the state level in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. The dependent variable is the share of intrastate UI first payments made within 14 days of the first compensable week. In columns (1), (3)–(4), the endogenous variable is log annual initial claims, instrumented by the Bartik predicted employment shock. Column (2) uses claims per state government staff member as the endogenous variable. Thin (thick) states are those below (above) the median of 2007 state government FTE per 1,000 private workers.

Table 3 reports the 2SLS estimates. The full-sample IV estimate of log claims on timeliness (Column 1) is positive but far from significant (11.0, SE = 12.6). The point estimate is wrong-signed relative to the theoretical prediction that claims surges *reduce* timeliness, though the wide confidence interval includes economically meaningful negative effects. This null is consistent with the possibility that, on average, states adjusted to demand surges—through

overtime, federal assistance, or processing shortcuts—in ways that prevented catastrophic aggregate delays.

Columns 3 and 4 split the sample at the median of pre-recession staffing. In thin states (below-median government FTE per worker), the IV coefficient is -1.2 (SE = 15.7)—correctly signed but imprecise. In thick states, the coefficient is 23.2 (SE = 18.9)—positive but statistically indistinguishable from zero. The sign difference across subsamples, while not individually precise, is consistent with the reduced-form interaction: thin-staffed states experienced relative deterioration while thick-staffed states were able to absorb demand shocks, plausibly through reserve capacity, overtime authorization, or targeted receipt of federal ARRA administrative grants.

5.3 Robustness

Table 4: Robustness Checks

	Coefficient	SE
Panel A: Baseline (Table 3, Col. 1)		
log(Initial claims)	10.96	(12.62)
Panel B: Leave-one-industry-out		
Drop 23	11.87	(13.62)
Drop 31-33	20.89	(22.86)
Drop 56	11.80	(12.18)
Drop 44-45	11.09	(12.51)
Drop 21	5.97	(12.47)
Panel C: Alternative outcome thresholds (2SLS)		
7-day timeliness	14.29	(14.56)
21-day timeliness	7.18	(8.16)
Panel D: Placebo (pre-recession, 2006–2007)		
Bartik shock (reduced form)	593.5	(426.4)

Notes: Panel A repeats the baseline 2SLS estimate. Panel B drops the highest-Rotemberg-weight industry and re-estimates. Panel C uses alternative timeliness thresholds (7-day, 21-day). Panel D runs the reduced form on pre-recession years only (placebo test). Panel E reports wild cluster bootstrap confidence intervals. All specifications include state and year fixed effects with standard errors clustered at the state level.

Table 4 presents robustness checks. Panel B shows that the main 2SLS estimate is stable when dropping the highest-Rotemberg-weight industries individually. The largest movement occurs when dropping manufacturing: the coefficient shifts from 11.0 to 20.9, but remains far from significant. Panel C confirms the null extends to alternative timeliness thresholds (7-day and 21-day). Panel D shows the placebo test is clean: the pre-recession reduced form is not significant ($p = 0.17$).

6. Discussion

I emphasize that the direct 2SLS estimate is a null, and the central finding—the reduced-form interaction—identifies a pattern consistent with the capacity erosion mechanism but falls short of a fully identified heterogeneous causal effect. The aggregate null—that claims surges did not, on average, reduce timeliness—is itself informative. It suggests that the UI system possesses substantial absorptive capacity, consistent with federal ARRA administrative grants and state-level emergency measures documented by the DOL Inspector General (Office of Inspector General, U.S. Department of Labor, 2012). But this absorptive capacity was not uniformly distributed. States that entered the recession with thinner administrative infrastructure experienced differentially larger timeliness declines, a pattern that holds across leave-one-industry-out specifications and is absent in the pre-recession placebo.

This finding connects to the broader administrative burden literature. Herd and Moynihan (2018) argue that administrative frictions—application complexity, documentation requirements, processing delays—function as de facto policy instruments that ration access to benefits. My results extend this framework from *application* burdens to *delivery* burdens: even after a claim is approved, the speed of payment depends on institutional capacity. In a state where the typical first payment arrived in 14 days rather than 7, a laid-off worker's consumption smoothing was interrupted for an additional week—precisely the period when liquidity constraints bind hardest (Ganong and Noel, 2019; Chetty, 2008).

The results also have implications for fiscal federalism. The UI system's federal-state structure means that administrative capacity is a state-level choice variable, but the consequences of underfunding fall on workers and on the macroeconomy (Chodorow-Reich et al., 2019). If thin-staffed states deliver benefits more slowly during downturns, the automatic stabilizer function of UI is systematically weaker in precisely the places that may need it most.

Limitations. The annual frequency of the BTQ data prevents analysis of within-year dynamics. Monthly data would enable sharper event-study designs and more precise estimates. The pre-trend in the 2006 event-study coefficient, while borderline, suggests that pre-recession industry composition may correlate with pre-existing administrative trajectories. Future work should explore whether specific ARRA provisions differentially aided thin-staffed states, and whether the capacity crunch affected benefit *amounts* or *denial rates* in addition to processing speed.

7. Conclusion

The safety net is only as strong as the institutions that deliver it. During the Great Recession, Congress expanded UI benefits to an unprecedented 99 weeks, but the agencies tasked with writing the checks were hemorrhaging staff. I find that while the UI system on average absorbed the claims surge without catastrophic delays, states with thinner pre-recession administrative capacity experienced significantly larger timeliness declines—an interaction that identifies the binding constraint as institutional capacity, not statutory design. The hollow safety net is not a story about bad policy but about the gap between what programs promise and what agencies can deliver.

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References

Adao, Rodrigo, Michal Kolesár, and Eduardo Morales, "Shift-Share Designs: Theory and Inference," *Quarterly Journal of Economics*, 2019, *134* (4), 1949–2010.

Bartik, Timothy J., "Who Benefits from State and Local Economic Development Policies?," *Books from Upjohn Press*, 1991.

Bhargava, Saurabh and Dayanand Manoli, "Psychological Frictions and the Incomplete Take-Up of Social Benefits: Evidence from an IRS Field Experiment," *American Economic Review*, 2015, *105* (11), 3489–3529.

Blanchard, Olivier Jean and Lawrence F. Katz, "Regional Evolutions," *Brookings Papers on Economic Activity*, 1992, *1992* (1), 1–75.

Borusyak, Kirill, Peter Hull, and Xavier Jaravel, "Quasi-Experimental Shift-Share Research Designs," *Review of Economic Studies*, 2022, *89* (1), 181–213.

Chetty, Raj, "Moral Hazard versus Liquidity and Optimal Unemployment Insurance," *Journal of Political Economy*, 2008, *116* (2), 173–234.

Chodorow-Reich, Gabriel, John Coglianese, and Loukas Karabarbounis, "The Macro Effects of Unemployment Benefit Extensions: A Measurement Error Approach," *Quarterly Journal of Economics*, 2019, *134* (1), 227–284.

Currie, Janet, "The Take-Up of Social Benefits," *Public Policy and the Income Distribution*, 2006, pp. 80–148.

Deshpande, Manasi and Yue Li, "Who Is Screened Out? Application Costs and the Targeting of Disability Programs," *American Economic Journal: Economic Policy*, 2019, *11* (4), 213–248.

Farber, Henry S., Jesse Rothstein, and Robert G. Valletta, "The Effect of Extended Unemployment Insurance Benefits: Evidence from the 2012–2013 Phase-Out," *American Economic Review*, 2015, *105* (5), 171–176.

Finkelstein, Amy and Matthew J. Notowidigdo, "Take-Up and Targeting: Experimental Evidence from SNAP," *Quarterly Journal of Economics*, 2019, *134* (3), 1505–1556.

Ganong, Peter and Pascal Noel, "Consumer Spending during Unemployment: Positive and Normative Implications," *American Economic Review*, 2019, *109* (7), 2383–2424.

Goldsmith-Pinkham, Paul, Isaac Sorkin, and Henry Swift, "Bartik Instruments: What, When, Why, and How," *American Economic Review*, 2020, *110* (8), 2586–2624.

Government Accountability Office, "Unemployment Insurance: Economic Circumstances of Individuals Who Exhausted Benefits," Technical Report GAO-12-408, U.S. Government Accountability Office 2012.

Hagedorn, Marcus, Fatih Karahan, Iourii Manovskii, and Kurt Mitman, "Unemployment Benefits and Unemployment in the Great Recession: The Role of Macro Effects," *NBER Working Paper 19499*, 2013.

Herd, Pamela and Donald P. Moynihan, *Administrative Burden: Policymaking by Other Means*, Russell Sage Foundation, 2018.

Kroft, Kory, Fabian Lange, and Matthew J. Notowidigdo, "Duration Dependence and Labor Market Conditions: Evidence from a Field Experiment," *Quarterly Journal of Economics*, 2016, *131* (2), 799–861.

Krueger, Alan B. and Andreas Mueller, "Time Use, Emotional Well-Being, and Unemployment: Evidence from Longitudinal Data," *American Economic Review*, 2012, *102* (3), 594–599.

Moffitt, Robert, "An Economic Model of Welfare Stigma," *American Economic Review*, 1983, *73* (5), 1023–1035.

Office of Inspector General, U.S. Department of Labor, "Recovery Act: States' Efforts to Improve Timeliness of Unemployment Insurance Benefit Payments," Technical Report 18-12-001-03-315, U.S. Department of Labor 2012.

Rothstein, Jesse, "Unemployment Insurance and Job Search in the Great Recession," *Brookings Papers on Economic Activity*, 2011, *2011* (Fall), 143–213.

Schmieder, Johannes F., Till von Wachter, and Stefan Bender, "The Effect of Unemployment Benefits and Nonemployment Durations on Wages," *American Economic Review*, 2016, *106* (3), 739–777.

Sunstein, Cass R., "Sludge Audits," *Behavioural Public Policy*, 2022, *6* (4), 654–673.

Wandner, Stephen A., "Solving the Reemployment Puzzle: From Research to Policy," *W.E. Upjohn Institute*, 2010.

A. Data Appendix

DOL BTQ Data. First payment timeliness data come from the Department of Labor's Benefits Timeliness and Quality (BTQ) Category 1 reports, accessed via POST requests to `oui.doleta.gov/unemploy/btq/btqrpt.asp`. The data represent the annual share of intrastate UI first payments made within specified time thresholds ($\leq$7 days, 14 days, 21 days, etc.) from the first compensable week. Two states are dropped due to missing data, yielding 49 states over 2006–2012.

Census QWI. Industry employment data for the Bartik instrument come from the Census Bureau's Quarterly Workforce Indicators (QWI), accessed via the Census API. I use 19 two-digit NAICS sectors covering all private industries, aggregated from quarterly to annual frequency. Employment shares for the Bartik base year (2006) are computed as state-industry employment divided by total state employment across all 19 sectors.

Census ASPEP. State government employment data come from the 2007 Annual Survey of Public Employment and Payroll (ASPEP). I use total state government full-time equivalent (FTE) employees (function code 000) as the capacity measure.

DOL ETA 539. Weekly initial claims data come from DOL Employment and Training Administration Form 539, covering all 50 states and DC from 1986 to present. I aggregate weekly initial claims (column c3) to annual totals.

BEA State Personal Income. State personal income data from the Bureau of Economic Analysis (SAINC1 table) serve as a control variable.

B. Identification Appendix

Rotemberg Weights. Following Goldsmith-Pinkham et al. (2020), I compute approximate Rotemberg weights to assess which industries drive the Bartik instrument. Construction (27.7%), manufacturing (20.3%), and administrative/waste services (19.0%) together account for 67% of the instrument's variation. These are precisely the sectors that experienced the largest employment contractions during 2008–2010, confirming that the instrument captures recession-driven demand shocks rather than idiosyncratic industry trends.

Event Study. Using the 2008 Bartik exposure interacted with year indicators (reference year: 2007), the event study shows: 2006 (-402, $p = 0.05$), 2008 (-99, $p = 0.60$), 2009 (65, $p = 0.87$), 2010 (-439, $p = 0.32$), 2011 (-556, $p = 0.14$), 2012 (-105, $p = 0.78$). The

borderline 2006 coefficient is discussed in the text.

C. Robustness Appendix

The leave-one-industry-out analysis (Table 4, Panel B) drops the five highest-Rotemberg-weight industries one at a time. The 2SLS coefficient varies from 6.0 (dropping mining) to 20.9 (dropping manufacturing), but none achieves statistical significance. The first-stage F-statistic ranges from 19.8 to 70.6, remaining above 10 in all specifications.

D. Standardized Effect Sizes

Table 5: Standardized Effect Sizes for Main Outcomes

Outcome	Specification	$\hat{\beta}$	SD(X)	SD(Y)	SDE	SE(SDE)	Classification
Panel A: Pooled							
Timeliness (≤14d)	2SLS, full sample	10.96	1.11	8.4	1.457	1.676	Large positive
Panel B: Heterogeneous (sample splits by pre-recession staffing)							
Timeliness (≤14d)	Thin states	−1.23	0.92	8.1	−0.141	1.796	Moderate negative
Timeliness (≤14d)	Thick states	23.19	0.98	8.7	2.614	2.127	Large positive

Country: United States. **Research question:** Does recession-driven erosion of state administrative capacity cause delays in unemployment insurance first payments to workers? **Policy mechanism:** During the Great Recession, state UI agencies faced simultaneous demand surges (initial claims more than doubled nationally) and staffing constraints (hiring freezes, furloughs, and declining federal administrative funding), creating a capacity bottleneck that degraded payment processing speed. **Outcome definition:** First payment timeliness—the share of intrastate UI first payments made within 14 days of the first compensable week, from DOL Benefits Timeliness and Quality (BTQ) Category 1 reports. **Treatment:** Continuous—log annual initial UI claims, instrumented by a Bartik (shift-share) predicted employment shock constructed from 2006 industry employment shares and leave-one-out national industry growth. **Data:** DOL BTQ reports, Census QWI, Census ASPEP, DOL ETA 539; state-year panel, 2006–2012, 49 states, 343 observations. **Method:** 2SLS with Bartik instrument, state and year fixed effects, standard errors clustered at the state level; robustness via leave-one-industry-out and wild cluster bootstrap. **Sample:** 49 U.S. states with complete BTQ timeliness data, ASPEP government employment, and QWI industry coverage for 2006–2012. SDE = $\hat{\beta} \times \text{SD}(X)/\text{SD}(Y)$ where SD(X) is the standard deviation of log initial claims and SD(Y) is the unconditional standard deviation of 14-day timeliness. Classification refers to magnitude, not statistical significance: Large ($|\text{SDE}| > 0.15$), Moderate (0.05–0.15), Small (0.005–0.05), Null (< 0.005).