How Well do Firms Recover from Idiosyncratic Shocks? Evidence from Insurance Claims

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Understanding the Effect of Idiosyncratic Shocks

- Question: How well does insurance work in the real world?
- Relevance: Large and persistent differences in performance between firms.
- Empirical Problem:
  - Evidence on idiosyncratic shocks is rare.
  - Difficult to identify the effect of supply or demand shocks.
- Previous Solutions:
  - Correlated shocks: natural disasters.
  - Exceptions: CEO deaths or hospital stays.
- This Paper: We use unique data on commercial insurance to understand the effect of idiosyncratic shocks on private firms.

Related Literature

- Effect of negative idiosyncratic exogenous events on corporate policy (Bennedsen et al., 2020; Johnson et al., 1985; Foster et al., 2008; Fee et al., 2009; Jäger and Heining, 2022; Barrot and Sauvagnat, 2016; Dessaint and Matray, 2017; Brown et al., 2021)
- Pass-through of shocks to workers
  (Guiso et al., 2005; Michelacci and Lopez-Salido, 2007; Carlsson and Smedsaas, 2007; Carlsson et al., 2016; Roys, 2016; Carlsson et al., 2021, 2022; Maibom and Vejlin, 2021; Gradzewicz, 2022)
- Corporate groups and corporate policy
  (Almeida et al., 2004; Buchuk et al., 2020; Santioni et al., 2020; Dai et al., 2024)
- Adverse selection and moral hazard limit risk management via insurance
  (Rothschild and Stiglitz, 1976; Arrow, 1963; Pauly, 1968)

We Use Unique Data and Link this to Administrative Sources

- Data Sources:
  - Insurance: Claims and premiums from a major Swedish insurance firm (2008–2017).
  - Financing Constraints: Default risk and credit scores for all Swedish firms from a rating bureau.
  - Firm Performance: Administrative data including balance sheets and income statements.
- Claims Details:
  - Covers all claims filed, with compensation for asset replacement, repair, or legal expenses.
  - Observations include payout amounts, cause of damage, and type of assets damaged.
- Sample Selection:
  - Focus on independent firms with ≥ 5 employees in the loss year.
  - Firms must have positive sales, debt, etc., in the treatment year.
  - 21,116 firms in the final sample.
  - Winsorize key monetary variables at the 1% level.

We Estimate the Causal Effects of Experiencing a Fire Loss

- Empirical Challenge:
  - In general, firms with and without losses are likely to differ on many dimensions.
  - We need some exogenous variation in losses.

- Approach:
  - Focus on insured firms and unanticipated fire losses.
  - Focus on firms with one fire loss.
  - Exclude very small losses (below 0.001% of sales).

- Estimation:
  - Use a stacked event study methodology.
  - Compare treated firms (by loss year) with all available control firms in the same year.
  - Include firm-cohort and industry-year-cohort fixed effects.
  - Event Study:

$$ln(y_{ict}) = \alpha + \sum_{k=-3,\neq -1}^{2} \beta_k \text{Loss}_i \times \mathbb{1}\{\text{Event Time}_j = k\} + \gamma_{ic} + \lambda_{tc} + u_{ict}$$

  - Standard errors clustered at the firm level.

Treated and Control Firms are Similar, But Treated are Somewhat Larger

Table: Treated

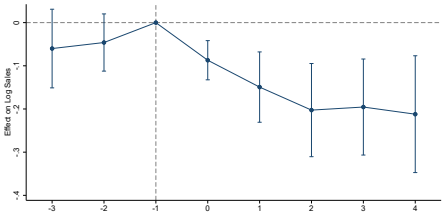
	N	Mean	Median	SD	Min	Max
Sales	202	20,410.90	12,258.22	22,858.04	780.72	(.)
Physical Assets	202	5,988.66	1,674.41	13,588.57	0.00	(.)
Employees	202	14.73	10.00	15.11	3.00	(.)
Debt	202	8,940.10	4,439.29	20,918.59	469.13	(.)
Credit Score	144	2.33	2.00	1.19	1.00	(.)
Premium	165	56.11	37.16	62.48	1.27	(.)

Table: Control

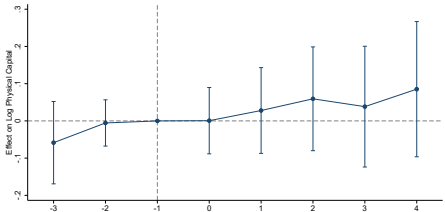
	N	Mean	Median	SD	Min	Max
Sales	77,453	12,434.06	8,058.14	18,427.66	12.54	(.)
Physical Assets	77,447	2,078.17	341.91	5,402.74	0.00	(.)
Employees	77,512	10.33	8.00	9.85	0.00	(.)
Debt	77,448	3,765.60	1,948.32	7,838.40	138.90	(.)
Credit Score	49,798	2.13	2.00	1.03	1.00	(.)
Premium	65,620	21.76	15.36	25.73	1.27	(.)

Firms Experiencing a Fire Loss Have Lower Sales and Employment

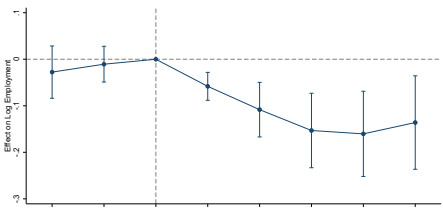
(a) Sales



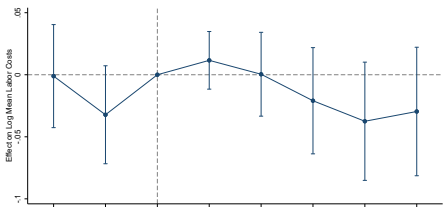
(b) Physical Assets



(c) Employment



(d) Mean Labor Cost



Our Results Are Robust to Many Model Variations

- Results are broadly robust across different specifications, even though precision sometimes weakens. ▸ Tables

- Additional Controls:
  - Industry-cohort-year fixed effects.
  - Insurance coverage and firm size interactions.

- Firm Size:
  - Exclude firms below 10 and above 100 employees.

- Different Loss Cutoffs:
  - Results consistent across cutoffs from 0.01% to 1% of sales.

- Industry Variation:
  - Exclude manufacturing, construction, and retail sectors.

- Manufacturing Sector:
  - Detailed analysis shows similar recovery patterns to the broader dataset.

Self-Insurance and Access to External Finance Helps the Recovery

- Corporate Groups:
  - Reallocate resources during adverse events, acting as buffers against external financing constraints (Almeida et al., 2004; Buchuk et al., 2020; Santioni et al., 2020; Dai et al., 2024).
  - Show resilience to fire losses with smaller declines in sales and employment. ▸ Table ▸ Table
- Multiple Establishments:
  - Exhibit better resilience, with less decline in sales and employment post-loss. ▸ Table
- External Finance and Growth:
  - Financing constraints impact recovery (Whited and Wu, 2006; Bentolila et al., 2013; Chodorow-Reich, 2014; Duygan-Bump et al., 2015; Amiti and Weinstein, 2018; Caggese et al., 2019).
  - Higher-risk (”bad”) firms show greater declines in sales and employment post-loss. ▸ Tables
  - High-growth firms experience more severe sales decline after fire losses. ▸ Tables

(Financial) Insurance Matters, But Real Frictions Remain

- Research Question:
  - How well does insurance work in the real world?
- Data and Method:
  - Unique dataset from a Swedish insurance firm (2008-2017).
  - Stacked event study on fire losses with firm and industry controls.
- Key Results:
  - Insurance aids recovery of physical assets.
  - Persistent declines in sales and employment, especially for higher-risk and high-growth firms.
- Insights:
  - Financial insurance works but cannot fully mitigate real frictions.
  - Importance of robust risk management and external financing support.
- Policy Implications:
  - Support diversification and risk management within firms.
  - Address external financing constraints to enhance resilience.

Thank You!

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Appendix

Robustness: Sales

	First + Calendar	First-Level Ind FE	2D Ind FE	Exclude Large	Exclude Small	Premium Controls	Size Controls	Larger Shocks	No Manufacturing	No Construction	No Retail
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
event_time_adj=0 × is_treated_fire_0001=1	-0.079*	-0.086*	-0.096**	-0.053	-0.080	-0.057	-0.045	-0.067	-0.108*	-0.045	-0.093*
	(0.047)	(0.046)	(0.047)	(0.047)	(0.065)	(0.051)	(0.046)	(0.049)	(0.063)	(0.049)	(0.053)
event_time_adj=1 × is_treated_fire_0001=1	-0.048	-0.055	-0.058*	-0.044	-0.010	-0.036	-0.041	-0.050	-0.063	-0.053	-0.053
	(0.035)	(0.034)	(0.034)	(0.034)	(0.035)	(0.036)	(0.034)	(0.035)	(0.040)	(0.037)	(0.037)
event_time_adj=2 × is_treated_fire_0001=1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
event_time_adj=3 × is_treated_fire_0001=1	-0.077***	-0.071***	-0.068***	-0.099***	-0.075**	-0.097***	-0.075***	-0.084***	-0.058**	-0.077***	-0.098***
	(0.023)	(0.023)	(0.023)	(0.023)	(0.031)	(0.025)	(0.023)	(0.024)	(0.026)	(0.025)	(0.026)
event_time_adj=4 × is_treated_fire_0001=1	-0.119***	-0.120***	-0.121***	-0.151***	-0.108**	-0.146***	-0.119***	-0.142***	-0.108**	-0.134***	-0.167***
	(0.039)	(0.038)	(0.039)	(0.042)	(0.052)	(0.046)	(0.041)	(0.042)	(0.047)	(0.045)	(0.045)
event_time_adj=5 × is_treated_fire_0001=1	-0.153***	-0.146***	-0.150***	-0.199***	-0.197**	-0.203***	-0.168***	-0.202***	-0.164**	-0.182***	-0.204***
	(0.051)	(0.051)	(0.051)	(0.055)	(0.087)	(0.062)	(0.055)	(0.057)	(0.066)	(0.060)	(0.057)
event_time_adj=6 × is_treated_fire_0001=1	-0.142***	-0.135**	-0.136**	-0.192***	-0.136*	-0.201***	-0.158***	-0.195***	-0.178**	-0.176***	-0.158***
	(0.054)	(0.053)	(0.053)	(0.057)	(0.082)	(0.066)	(0.057)	(0.059)	(0.073)	(0.062)	(0.055)
event_time_adj=7 × is_treated_fire_0001=1	-0.147**	-0.141**	-0.146**	-0.209***	-0.138	-0.214***	-0.173**	-0.208***	-0.166*	-0.175**	-0.182**
	(0.062)	(0.061)	(0.061)	(0.069)	(0.100)	(0.081)	(0.069)	(0.072)	(0.086)	(0.073)	(0.073)
Firm-Cohort Fixed Effects	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes
Year-Cohort Fixed Effects	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes
Year-Cohort-Size Fixed Effects	No	No	No	No	No	No	Yes	No	No	No	No
R-Squared	0.762	0.762	0.765	0.749	0.745	0.760	0.754	0.751	0.746	0.766	0.734
Observations	590,500	590,449	589,762	582,879	196,851	497,046	583,742	590,428	514,505	478,178	490,731

▸ Return

Robustness: Physical Capital

	First + Calendar	First-Level Ind FE	2D Ind FE	Exclude Large	Exclude Small	Premium Controls	Size Controls	Larger Shocks	No Manufacturing	No Construction	No Retail
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
event_time_adj=0 × is_treated_fire_0001=1	-0.068	-0.064	-0.052	-0.059	-0.096	-0.096	-0.052	-0.067	-0.080	-0.053	-0.100
	(0.057)	(0.055)	(0.057)	(0.057)	(0.077)	(0.061)	(0.057)	(0.059)	(0.077)	(0.061)	(0.063)
event_time_adj=1 × is_treated_fire_0001=1	-0.013	-0.012	-0.001	-0.006	-0.016	-0.006	-0.005	-0.009	-0.012	-0.008	-0.011
	(0.032)	(0.032)	(0.033)	(0.032)	(0.047)	(0.030)	(0.032)	(0.033)	(0.044)	(0.034)	(0.032)
event_time_adj=2 × is_treated_fire_0001=1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
event_time_adj=3 × is_treated_fire_0001=1	-0.006	-0.008	-0.002	-0.008	0.042	-0.005	0.004	0.005	0.023	0.031	-0.014
	(0.046)	(0.046)	(0.045)	(0.045)	(0.066)	(0.047)	(0.045)	(0.048)	(0.054)	(0.050)	(0.051)
event_time_adj=4 × is_treated_fire_0001=1	0.022	0.018	0.024	0.020	0.045	0.032	0.037	0.033	0.075	0.048	0.015
	(0.058)	(0.059)	(0.059)	(0.059)	(0.081)	(0.065)	(0.059)	(0.061)	(0.077)	(0.064)	(0.063)
event_time_adj=5 × is_treated_fire_0001=1	0.054	0.049	0.048	0.058	0.103	0.075	0.070	0.069	0.118	0.096	0.049
	(0.070)	(0.071)	(0.071)	(0.071)	(0.095)	(0.080)	(0.071)	(0.074)	(0.092)	(0.078)	(0.078)
event_time_adj=6 × is_treated_fire_0001=1	0.033	0.024	0.010	0.036	0.077	0.045	0.048	0.051	0.112	0.085	0.077
	(0.083)	(0.083)	(0.083)	(0.083)	(0.114)	(0.093)	(0.083)	(0.086)	(0.105)	(0.091)	(0.087)
event_time_adj=7 × is_treated_fire_0001=1	0.076	0.069	0.056	0.080	0.013	0.105	0.094	0.093	0.110	0.146	0.187**
	(0.094)	(0.094)	(0.095)	(0.093)	(0.124)	(0.103)	(0.092)	(0.098)	(0.118)	(0.100)	(0.091)
Firm-Cohort Fixed Effects	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes
Year-Cohort Fixed Effects	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes
Year-Cohort-Size Fixed Effects	No	No	No	No	No	No	Yes	No	No	No	No
R-Squared	0.860	0.860	0.861	0.858	0.879	0.860	0.859	0.859	0.857	0.861	0.865
Observations	545,332	545,282	544,660	538,694	185,903	457,344	539,493	545,260	471,578	439,808	451,425

▸ Return

Robustness: Employment

	First + Calendar	First-Level Ind FE	2D Ind FE	Exclude Large	Exclude Small	Premium Controls	Size Controls	Larger Shocks	No Manufacturing	No Construction	No Retail
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
event_time_adj=0 × is_treated_fire_0001=1	-0.043	-0.050*	-0.056*	-0.020	-0.011	-0.040	-0.024	-0.032	-0.051	-0.036	-0.039
	(0.029)	(0.029)	(0.029)	(0.028)	(0.040)	(0.032)	(0.029)	(0.030)	(0.040)	(0.031)	(0.034)
event_time_adj=1 × is_treated_fire_0001=1	-0.015	-0.021	-0.024	-0.010	0.008	-0.018	-0.011	-0.013	-0.036	-0.020	-0.015
	(0.020)	(0.020)	(0.020)	(0.020)	(0.024)	(0.022)	(0.020)	(0.021)	(0.026)	(0.022)	(0.024)
event_time_adj=2 × is_treated_fire_0001=1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
event_time_adj=3 × is_treated_fire_0001=1	-0.052***	-0.047***	-0.045***	-0.061***	-0.032	-0.065***	-0.048***	-0.058***	-0.042**	-0.049***	-0.068***
	(0.015)	(0.015)	(0.015)	(0.015)	(0.022)	(0.017)	(0.015)	(0.016)	(0.019)	(0.016)	(0.018)
event_time_adj=4 × is_treated_fire_0001=1	-0.091***	-0.088***	-0.089***	-0.111***	-0.074*	-0.105***	-0.098***	-0.098***	-0.098***	-0.093***	-0.107***
	(0.030)	(0.030)	(0.031)	(0.030)	(0.045)	(0.030)	(0.030)	(0.028)	(0.036)	(0.031)	(0.035)
event_time_adj=5 × is_treated_fire_0001=1	-0.128***	-0.127***	-0.131***	-0.154***	-0.106*	-0.146***	-0.145***	-0.146***	-0.126***	-0.134***	-0.146***
	(0.039)	(0.038)	(0.038)	(0.041)	(0.062)	(0.044)	(0.041)	(0.040)	(0.047)	(0.043)	(0.047)
event_time_adj=6 × is_treated_fire_0001=1	-0.132***	-0.136***	-0.140***	-0.161***	-0.097	-0.150***	-0.153***	-0.152***	-0.112**	-0.146***	-0.140***
	(0.043)	(0.042)	(0.042)	(0.047)	(0.070)	(0.051)	(0.047)	(0.047)	(0.055)	(0.050)	(0.053)
event_time_adj=7 × is_treated_fire_0001=1	-0.109**	-0.112**	-0.118**	-0.137***	-0.039	-0.119**	-0.130**	-0.134**	-0.080	-0.133**	-0.106*
	(0.050)	(0.048)	(0.048)	(0.052)	(0.073)	(0.058)	(0.051)	(0.053)	(0.063)	(0.056)	(0.058)
Firm-Cohort Fixed Effects	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes
Year-Cohort Fixed Effects	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes
Year-Cohort-Size Fixed Effects	No	No	No	No	No	No	Yes	No	No	No	No
R-Squared	0.723	0.723	0.726	0.705	0.691	0.720	0.717	0.716	0.708	0.727	0.719
Observations	586,454	586,399	585,733	578,899	195,721	493,907	579,773	586,383	510,846	474,913	487,464

▸ Return

Robustness: Mean Labor Costs

	First + Calendar	First-Level Ind FE	2D Ind FE	Exclude Large	Exclude Small	Premium Controls	Size Controls	Larger Shocks	No Manufacturing	No Construction	No Retail
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
event_time_adj=0 × is_treated_fire_0001=1	-0.004	-0.005	-0.002	0.000	-0.025	-0.003	0.002	-0.002	-0.013	0.013	-0.012
	(0.021)	(0.021)	(0.022)	(0.021)	(0.027)	(0.022)	(0.021)	(0.022)	(0.030)	(0.020)	(0.025)
event_time_adj=1 × is_treated_fire_0001=1	-0.032	-0.033	-0.032	-0.031	-0.039	-0.027	-0.031	-0.032	-0.028	-0.030	-0.037*
	(0.020)	(0.020)	(0.020)	(0.020)	(0.025)	(0.021)	(0.020)	(0.021)	(0.027)	(0.022)	(0.022)
event_time_adj=2 × is_treated_fire_0001=1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
event_time_adj=3 × is_treated_fire_0001=1	0.015	0.016	0.019	0.005	-0.008	0.009	0.010	0.015	0.021	0.013	0.018
	(0.012)	(0.012)	(0.012)	(0.012)	(0.016)	(0.011)	(0.012)	(0.012)	(0.016)	(0.013)	(0.013)
event_time_adj=4 × is_treated_fire_0001=1	0.005	0.005	0.008	0.002	-0.024	0.005	0.011	0.002	0.012	0.004	-0.010
	(0.017)	(0.017)	(0.017)	(0.017)	(0.022)	(0.018)	(0.017)	(0.018)	(0.023)	(0.019)	(0.016)
event_time_adj=5 × is_treated_fire_0001=1	-0.014	-0.014	-0.009	-0.017	-0.039	-0.030	-0.007	-0.022	-0.025	-0.022	-0.013
	(0.022)	(0.022)	(0.022)	(0.022)	(0.028)	(0.022)	(0.022)	(0.023)	(0.029)	(0.024)	(0.021)
event_time_adj=6 × is_treated_fire_0001=1	-0.027	-0.028	-0.022	-0.034	-0.036	-0.051**	-0.023	-0.035	-0.019	-0.038	-0.039
	(0.024)	(0.023)	(0.023)	(0.024)	(0.031)	(0.024)	(0.024)	(0.025)	(0.032)	(0.027)	(0.026)
event_time_adj=7 × is_treated_fire_0001=1	-0.022	-0.022	-0.019	-0.026	0.009	-0.043	-0.015	-0.031	0.003	-0.031	-0.041
	(0.026)	(0.026)	(0.026)	(0.027)	(0.034)	(0.029)	(0.027)	(0.028)	(0.031)	(0.030)	(0.028)
Firm-Cohort Fixed Effects	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes
Year-Cohort Fixed Effects	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes
Year-Cohort-Size Fixed Effects	No	No	No	No	No	No	Yes	No	No	No	No
R-Squared	0.618	0.618	0.620	0.616	0.666	0.628	0.618	0.614	0.618	0.634	0.615
Observations	585,267	585,210	584,544	577,740	195,238	492,904	578,614	585,196	509,752	473,831	486,912

▸ Return

Extension: Group Firms

	Sales		Physical Capital		Employees		MLC	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Group	Independent	Group	Independent	Group	Independent	Group	Independent
event_time_adj=0 × is_treated_group_fire_0001=1	0.027	-0.060	-0.013	-0.058	0.050**	-0.028	-0.004	-0.001
	(0.033)	(0.046)	(0.050)	(0.056)	(0.022)	(0.029)	(0.015)	(0.021)
event_time_adj=1 × is_treated_group_fire_0001=1	0.000	-0.046	-0.031	-0.005	0.028*	-0.011	-0.017	-0.032
	(0.026)	(0.034)	(0.042)	(0.032)	(0.015)	(0.020)	(0.013)	(0.020)
event_time_adj=2 × is_treated_group_fire_0001=1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
event_time_adj=3 × is_treated_group_fire_0001=1	-0.012	-0.087***	0.068	0.001	-0.014	-0.058***	0.004	0.012
	(0.017)	(0.023)	(0.042)	(0.045)	(0.012)	(0.015)	(0.009)	(0.012)
event_time_adj=4 × is_treated_group_fire_0001=1	-0.041	-0.149***	0.064	0.028	-0.017	-0.108***	-0.015	0.000
	(0.032)	(0.042)	(0.060)	(0.059)	(0.023)	(0.030)	(0.012)	(0.017)
event_time_adj=5 × is_treated_group_fire_0001=1	-0.044	-0.203***	0.074	0.059	-0.018	-0.153***	-0.021*	-0.021
	(0.039)	(0.055)	(0.074)	(0.071)	(0.032)	(0.041)	(0.013)	(0.022)
event_time_adj=6 × is_treated_group_fire_0001=1	-0.056	-0.195***	0.036	0.038	-0.006	-0.160***	-0.020	-0.037
	(0.051)	(0.057)	(0.083)	(0.083)	(0.039)	(0.047)	(0.014)	(0.024)
event_time_adj=7 × is_treated_group_fire_0001=1	-0.087	-0.212***	0.064	0.085	-0.035	-0.136***	-0.026	-0.030
	(0.057)	(0.069)	(0.092)	(0.093)	(0.043)	(0.051)	(0.017)	(0.026)
Firm-Cohort Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year-Cohort Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-Squared	0.828	0.751	0.858	0.859	0.831	0.716	0.673	0.614
Observations	438,474	590,500	404,901	545,332	434,566	586,454	433,329	585,267

▸ Return

Extension: Spillover Within Groups

	Sales	Physical Capital	Employees	MLC
	(1)	(2)	(3)	(4)
event_time_adj=0 × is_treated_spillover_fire_0001=1	0.056	0.010	0.089	-0.067
	(0.076)	(0.116)	(0.055)	(0.044)
event_time_adj=1 × is_treated_spillover_fire_0001=1	-0.038	0.016	0.034	-0.056
	(0.074)	(0.071)	(0.040)	(0.043)
event_time_adj=2 × is_treated_spillover_fire_0001=1	0.000	0.000	0.000	0.000
	(.)	(.)	(.)	(.)
event_time_adj=3 × is_treated_spillover_fire_0001=1	0.026	0.044	-0.011	0.035
	(0.079)	(0.113)	(0.048)	(0.035)
event_time_adj=4 × is_treated_spillover_fire_0001=1	0.015	-0.275	-0.038	0.035
	(0.106)	(0.209)	(0.075)	(0.038)
event_time_adj=5 × is_treated_spillover_fire_0001=1	-0.008	-0.174	-0.001	0.032
	(0.137)	(0.188)	(0.078)	(0.039)
event_time_adj=6 × is_treated_spillover_fire_0001=1	0.015	-0.295	-0.019	0.029
	(0.120)	(0.216)	(0.077)	(0.040)
event_time_adj=7 × is_treated_spillover_fire_0001=1	-0.025	-0.466*	-0.043	0.041
	(0.146)	(0.274)	(0.111)	(0.041)
Firm-Cohort Fixed Effects	Yes	Yes	Yes	Yes
Year-Cohort Fixed Effects	Yes	Yes	Yes	Yes
R-Squared	0.849	0.867	0.846	0.705
Observations	369,239	341,367	366,379	365,452

Return

Extension: Multi-Establishment Firms

	Sales		Physical Capital		Employees		MLC	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	One	Multiple	One	Multiple	One	Multiple	One	Multiple
event_time_adj=0 × is_treated_fire_0001=1	-0.064	-0.015	-0.063	0.027	-0.031	-0.016	-0.006	0.009
	(0.049)	(0.070)	(0.059)	(0.134)	(0.030)	(0.094)	(0.021)	(0.043)
event_time_adj=1 × is_treated_fire_0001=1	-0.051	0.045	-0.006	0.009	-0.016	0.051	-0.037*	-0.018
	(0.035)	(0.041)	(0.033)	(0.100)	(0.020)	(0.051)	(0.020)	(0.036)
event_time_adj=2 × is_treated_fire_0001=1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
event_time_adj=3 × is_treated_fire_0001=1	-0.096***	0.010	0.003	-0.025	-0.058***	-0.057	0.001	0.044
	(0.023)	(0.044)	(0.047)	(0.214)	(0.016)	(0.054)	(0.011)	(0.039)
event_time_adj=4 × is_treated_fire_0001=1	-0.151***	0.043	0.028	0.148	-0.111***	-0.018	-0.000	0.025
	(0.043)	(0.115)	(0.061)	(0.247)	(0.031)	(0.116)	(0.016)	(0.047)
event_time_adj=5 × is_treated_fire_0001=1	-0.198***	-0.096	0.060	0.236	-0.145***	-0.223	-0.027	0.064*
	(0.055)	(0.293)	(0.075)	(0.259)	(0.040)	(0.289)	(0.021)	(0.038)
event_time_adj=6 × is_treated_fire_0001=1	-0.178***	-0.273	0.047	0.098	-0.146***	-0.281	-0.037*	-0.082
	(0.056)	(0.319)	(0.087)	(0.291)	(0.046)	(0.300)	(0.023)	(0.060)
event_time_adj=7 × is_treated_fire_0001=1	-0.176***	-0.405	0.079	0.339	-0.132**	0.017	-0.035	0.046*
	(0.067)	(0.442)	(0.099)	(0.260)	(0.054)	(0.173)	(0.026)	(0.025)
Firm-Cohort Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year-Cohort Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-Squared	0.750	0.816	0.859	0.857	0.704	0.857	0.618	0.714
Observations	565,378	14,080	522,574	13,179	561,494	14,032	560,387	13,991

▸ Return

Extension: Credit Score

	Sales		Physical Capital		Employees		MLC	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Low	High	Low	High	Low	High	Low	High
event_time_adj=0 × is_treated_fire_0001=1	-0.034	0.061	-0.056	-0.102	-0.046*	-0.039	-0.003	0.102***
	(0.033)	(0.080)	(0.050)	(0.174)	(0.023)	(0.074)	(0.015)	(0.038)
event_time_adj=1 × is_treated_fire_0001=1	0.006	0.011	-0.005	0.029	-0.016	-0.019	-0.000	0.063**
	(0.022)	(0.039)	(0.030)	(0.078)	(0.013)	(0.039)	(0.009)	(0.026)
event_time_adj=2 × is_treated_fire_0001=1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
event_time_adj=3 × is_treated_fire_0001=1	-0.029	-0.039	0.052	-0.030	-0.031*	-0.058	0.014	0.038
	(0.022)	(0.053)	(0.044)	(0.127)	(0.017)	(0.036)	(0.011)	(0.026)
event_time_adj=4 × is_treated_fire_0001=1	-0.101**	-0.102	0.100*	-0.137	-0.068**	-0.093	0.016	0.032
	(0.051)	(0.111)	(0.058)	(0.227)	(0.033)	(0.080)	(0.016)	(0.033)
event_time_adj=5 × is_treated_fire_0001=1	-0.110*	-0.441**	0.109	-0.240	-0.089**	-0.318*	-0.019	0.030
	(0.061)	(0.214)	(0.079)	(0.274)	(0.044)	(0.172)	(0.024)	(0.052)
event_time_adj=6 × is_treated_fire_0001=1	-0.111	-0.516**	0.067	-0.256	-0.073	-0.394**	-0.022	-0.117
	(0.071)	(0.202)	(0.097)	(0.309)	(0.053)	(0.174)	(0.026)	(0.076)
event_time_adj=7 × is_treated_fire_0001=1	-0.101	-0.735***	0.055	-0.040	-0.065	-0.465***	-0.008	-0.094
	(0.084)	(0.253)	(0.110)	(0.269)	(0.064)	(0.156)	(0.032)	(0.093)
Firm-Cohort Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year-Cohort Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-Squared	0.817	0.744	0.878	0.833	0.791	0.692	0.712	0.647
Observations	352,414	32,862	328,434	30,891	351,104	32,662	350,422	32,586

▸ Return

Extension: Sales Growth

	Sales		Physical Capital		Employees		MLC	
	(1) Low	(2) High	(3) Low	(4) High	(5) Low	(6) High	(7) Low	(8) High
event_time_adj=0 × is_treated_fire_0001=1	0.023	-0.059	-0.056	-0.032	0.001	-0.029	-0.004	0.027
	(0.037)	(0.070)	(0.067)	(0.087)	(0.026)	(0.046)	(0.023)	(0.031)
event_time_adj=1 × is_treated_fire_0001=1	0.044**	-0.052	-0.043	0.044	0.016	-0.013	-0.004	-0.031
	(0.017)	(0.048)	(0.051)	(0.039)	(0.012)	(0.032)	(0.012)	(0.031)
event_time_adj=2 × is_treated_fire_0001=1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
event_time_adj=3 × is_treated_fire_0001=1	-0.034	-0.105***	0.026	-0.018	-0.061***	-0.050**	0.010	0.019
	(0.026)	(0.033)	(0.065)	(0.065)	(0.020)	(0.022)	(0.013)	(0.015)
event_time_adj=4 × is_treated_fire_0001=1	-0.059	-0.168**	0.104	-0.022	-0.107***	-0.102**	0.031	0.004
	(0.040)	(0.065)	(0.084)	(0.084)	(0.038)	(0.044)	(0.021)	(0.022)
event_time_adj=5 × is_treated_fire_0001=1	-0.059	-0.264***	0.131	0.016	-0.078	-0.207***	0.006	-0.016
	(0.071)	(0.079)	(0.106)	(0.099)	(0.049)	(0.063)	(0.026)	(0.028)
event_time_adj=6 × is_treated_fire_0001=1	-0.080	-0.228***	0.085	0.016	-0.090	-0.203***	-0.018	-0.029
	(0.079)	(0.079)	(0.125)	(0.113)	(0.067)	(0.066)	(0.031)	(0.030)
event_time_adj=7 × is_treated_fire_0001=1	-0.063	-0.261**	0.118	0.063	-0.068	-0.163**	-0.001	-0.025
	(0.090)	(0.102)	(0.114)	(0.143)	(0.077)	(0.069)	(0.038)	(0.032)
Firm-Cohort Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year-Cohort Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-Squared	0.804	0.764	0.873	0.852	0.764	0.721	0.694	0.599
Observations	269,023	293,543	249,559	271,502	267,598	291,130	267,086	290,557

▸ Return