Recovery from Disasters

June 5, 2022

1. Vietnam: "default" specification

As before, the main average treatment method is the following regression:

$$100 * ln(y_{it}) = \sum_{l=0}^{5} \beta_l Storm_{i,t-l} + \alpha_i + \gamma_t + \varepsilon_{it}, \tag{1}$$

where y_{it} is an outcome of a firm i in year t. $Storm_{i,t-l}$ is a measure of storm aggregated at an ADM2 level, lagged 5 times. α_i is firm fixed effect, γ_t is year fixed effect. We cluster standard errors ε_{it} at the plant/firm and region-by-year level.

Table 1: 2007-2013 (dropping VA and Materials since they are not reported in 2007-2009)

	(1) 100Log(Sales)	(2) 100Log(L)	(3) 100Log(K)	(4) 100Log(L Cost)	(5) 100Log(Avg Wage)
Max Speed (m/s)	0.0781	-0.0293	-0.253**	-0.0452	0.0101
	(0.0596)	(0.0201)	(0.0923)	(0.0331)	(0.0174)
Lag 1	0.261***	0.107***	0.112	0.270***	0.0178
	(0.0471)	(0.0184)	(0.0693)	(0.0373)	(0.0136)
Lag 2	0.302***	0.0969***	0.0549	0.231***	-0.0200
	(0.0686)	(0.0223)	(0.0677)	(0.0402)	(0.0180)
Lag 3	-0.112	0.0523**	0.118	0.111**	-0.124***
	(0.0690)	(0.0194)	(0.0631)	(0.0338)	(0.0155)
Lag 4	-0.132*	0.102***	0.0847	0.192***	-0.0836***
	(0.0554)	(0.0202)	(0.0792)	(0.0419)	(0.0169)
Lag 5	0.0880	0.0223	-0.498***	0.194***	0.00999
	(0.0466)	(0.0157)	(0.113)	(0.0338)	(0.0187)
N	1363767	1363767	1363767	1363767	1363767
Plant FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.739	0.832	0.652	0.702	0.574

Standard errors in parentheses

Plant and year fixed effects are included in each specification. All variables are real values.

Errors are clustered on both plant-level and region-by-year level.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 2: 2009-2013: subsample of firms that have all the characteristics

	(1) 100Log(Sales)	(2) 100Log(L)	(3) 100Log(K)	(4) 100Log(L Cost)	(5) 100Log(Avg Wage)
Max Speed (m/s)	-0.0221	0.000450	-0.174	-0.174***	-0.0359
	(0.0433)	(0.0211)	(0.0979)	(0.0450)	(0.0214)
Lag 1	0.0836	0.0230	0.00996	0.106***	0.0108
	(0.0430)	(0.0177)	(0.0648)	(0.0321)	(0.0156)
Lag 2	0.111**	0.0692***	0.397***	0.202***	-0.0622**
	(0.0360)	(0.0196)	(0.0790)	(0.0415)	(0.0197)
Lag 3	-0.123***	0.0762***	-0.0183	0.192***	-0.122***
	(0.0338)	(0.0165)	(0.0824)	(0.0431)	(0.0160)
Lag 4	-0.0750*	0.0947***	0.0774	0.247***	-0.0899***
	(0.0354)	(0.0198)	(0.0788)	(0.0544)	(0.0172)
Lag 5	-0.0162	-0.000559	-0.612***	0.268***	0.000683
	(0.0322)	(0.0170)	(0.129)	(0.0437)	(0.0201)
N	864287	864287	864287	864287	864287
Plant FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.820	0.863	0.673	0.731	0.584

Standard errors in parentheses

Plant and year fixed effects are included in each specification. All variables are real values.

Errors are clustered on both plant-level and region-by-year level.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 3: 2009-2013: subsample of firms that have all the characteristics

	(1) 100Log(Mat)	(2) 100Log(VA)	(3) 100Log(VA/L)
Max Speed (m/s)	-0.0219	0.120	0.120
	(0.0454)	(0.0880)	(0.0815)
Lag 1	0.0707	0.211**	0.188*
	(0.0447)	(0.0790)	(0.0748)
Lag 2	0.152***	-0.207**	-0.276***
	(0.0381)	(0.0734)	(0.0726)
Lag 3	-0.119***	-0.350***	-0.427***
	(0.0354)	(0.0771)	(0.0783)
Lag 4	-0.128***	-0.0458	-0.140
	(0.0378)	(0.0988)	(0.103)
Lag 5	-0.0504	-0.130	-0.129
	(0.0334)	(0.0913)	(0.0897)
N	864287	864287	864287
Plant FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Adjusted R-squared	0.807	0.713	0.506

Standard errors in parentheses

Plant and year fixed effects are included in each specification. All variables are real values. Errors are clustered on both plant-level and region-by-year level.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 4: 2007-2013 (dropping VA and Materials since they are not reported in 2007-2009)

	(1) 100Log(Sales)	(2) 100Log(L)	(3) 100Log(K)	(4) 100Log(L Cost)	(5) 100Log(Avg Wage)
N of Storms	0.829	0.1000	0.602	-2.078**	-0.344
	(1.051)	(0.383)	(1.938)	(0.682)	(0.344)
Lag 1	4.696***	1.993***	-0.0883	9.597***	0.570
	(1.128)	(0.454)	(1.770)	(1.180)	(0.345)
Lag 2	4.264***	0.507	-5.897***	1.114	-0.634
	(1.292)	(0.431)	(1.319)	(0.635)	(0.343)
Lag 3	-1.470	1.239**	4.548***	1.104	-2.559***
	(1.625)	(0.460)	(1.379)	(0.683)	(0.368)
Lag 4	-3.128*	1.746***	-1.962	4.616***	-1.502***
	(1.244)	(0.423)	(1.951)	(0.904)	(0.360)
Lag 5	1.219	-0.516	-13.69***	2.715***	0.587
	(0.957)	(0.384)	(2.203)	(0.664)	(0.417)
N	1363767	1363767	1363767	1363767	1363767
Plant FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.739	0.832	0.653	0.702	0.574

Standard errors in parentheses

Plant and year fixed effects are included in each specification. All variables are real values.

Errors are clustered on both plant-level and region-by-year level.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 5: 2009-2013: subsample of firms that have all the characteristics

	(1) 100Log(Sales)	(2) 100Log(L)	(3) 100Log(K)	(4) 100Log(L Cost)	(5) 100Log(Avg Wage)
N of Storms	-2.442***	0.198	2.888	-3.020***	-0.956**
	(0.655)	(0.355)	(1.827)	(0.806)	(0.367)
Lag 1	1.115	0.0508	-2.065	8.966***	0.622
	(0.811)	(0.414)	(1.655)	(1.416)	(0.380)
Lag 2	0.599	0.0241	-0.889	-0.246	-0.999*
	(0.749)	(0.397)	(1.465)	(0.769)	(0.431)
Lag 3	-1.820*	2.217***	1.584	2.777**	-2.809***
	(0.728)	(0.406)	(2.006)	(0.897)	(0.403)
Lag 4	-1.786*	0.987*	-4.062*	5.517***	-1.290***
	(0.790)	(0.398)	(2.011)	(1.140)	(0.368)
Lag 5	-1.258	-1.256**	-15.94***	3.924***	0.696
	(0.703)	(0.390)	(2.443)	(0.817)	(0.447)
N	864287	864287	864287	864287	864287
Plant FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.820	0.863	0.673	0.731	0.584

Standard errors in parentheses

Plant and year fixed effects are included in each specification. All variables are real values.

Errors are clustered on both plant-level and region-by-year level.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 6: 2009-2013: subsample of firms that have all the characteristics

	(1) 100Log(Mat)	(2) 100Log(VA)	(3) 100Log(VA/L)
N of Storms	-2.283***	0.912	0.713
	(0.681)	(1.285)	(1.260)
Lag 1	0.913	-5.735*	-5.786*
	(0.871)	(2.389)	(2.491)
Lag 2	1.155	-0.702	-0.726
	(0.796)	(1.523)	(1.516)
Lag 3	-1.844*	-3.513	-5.730**
	(0.776)	(1.800)	(1.823)
Lag 4	-2.745**	-2.773	-3.760
	(0.835)	(2.191)	(2.241)
Lag 5	-1.668*	-3.835*	-2.579
	(0.740)	(1.683)	(1.677)
N	864287	864287	864287
Plant FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Adjusted R-squared	0.807	0.713	0.505

Standard errors in parentheses

Plant and year fixed effects are included in each specification. All variables are real values. Errors are clustered on both plant-level and region-by-year level.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

2. Redefining exposure - bins

To control for repeated exposures to the disaster, we run the following regressions:

$$100 * ln(y_{it}) = \sum_{l=0}^{5} (\beta_{1l} Storm_{i,t-l} + \beta_{2l} Storm_{i,t-l} \times Quart_i) + \beta_3 Quart_i + \alpha_i + \gamma_t + \varepsilon_{it}, \quad (2)$$

where y_{it} is an outcome of a firm i in year t. $Storm_{i,t-l}$ is a measure of storm (speed or number of storms) aggregated at an ADM2 level, lagged 5 times. $Quart_{i,t-l}$ is a variable from 0 to 3 that indicates regions' quartile in terms of LR average wind speed (we model it as continuous here). α_i is plant/firm fixed effect, γ_t is year fixed effect. We cluster standard errors ε_{it} at the plant/firm and region-by-year level.

Table 7: 2007-2013 (dropping VA and Materials since they are not reported in 2007-2008)

	(1) 100Log(Sales)	(2) 100Log(L)	(3) 100Log(K)	(4) 100Log(L Cost)	(5) 100Log(Avg Wage)
N of Storms	-19.30***	0.633	30.47***	-1.325	-0.434
	(4.212)	(1.361)	(6.126)	(2.357)	(1.293)
Quart	-19.81	2.857	-6.156	0.315	-9.744
	(20.48)	(6.266)	(9.913)	(11.11)	(8.396)
N of Storms × Quart	7.696***	-0.245	-9.727***	-0.740	0.211
	(1.591)	(0.520)	(2.242)	(0.880)	(0.502)
Lag 1	15.74***	5.083***	-5.114	10.69***	-3.623***
	(2.606)	(0.964)	(3.724)	(2.249)	(0.766)
Lag 1 × Quart	-6.253***	-1.569***	4.207**	-0.747	2.138***
	(1.071)	(0.388)	(1.420)	(0.760)	(0.327)
Lag 2	25.62***	5.248***	-17.40***	10.68***	-1.977
	(4.075)	(1.475)	(3.609)	(2.115)	(1.020)
Lag 2 × Quart	-9.529***	-2.135***	5.419***	-4.706***	0.470
	(1.563)	(0.600)	(1.446)	(0.862)	(0.423)
Lag 3	0.998	3.482***	10.10**	5.596***	-4.148***
	(3.273)	(0.947)	(3.286)	(1.598)	(0.775)
Lag 3 × Quart	1.181	-0.681	-2.866*	-1.625*	0.923**
	(1.276)	(0.413)	(1.294)	(0.693)	(0.335)
Lag 4	-12.43***	1.628	3.531	4.509*	-3.814***
	(2.934)	(0.925)	(3.107)	(1.789)	(0.746)
Lag 4 × Quart	4.921***	0.426	1.496	0.178	1.299***
	(1.100)	(0.389)	(1.185)	(0.638)	(0.312)
Lag 5	0.242	-1.949**	-42.32***	4.489***	-1.426
	(1.943)	(0.729)	(5.094)	(1.324)	(0.834)
Lag 5 × Quart	-0.154	0.854*	17.14***	-0.910	1.003**
	(0.915)	(0.340)	(2.037)	(0.590)	(0.364)
N	1363767	1363767	1363767	1363767	1363767
Plant FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.739	0.832	0.654	0.702	0.574

Standard errors in parentheses

Plant and year fixed effects are included in each specification. All variables are real values.

Errors are clustered on both plant-level and region-by-year level.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 8: 2009-2013: subsample of firms that have all the characteristics

	(1) 100Log(Sales)	(2) 100Log(L)	(3) 100Log(K)	(4) 100Log(L Cost)	(5) 100Log(Avg Wage)
N of Storms	-4.102	1.179	32.22***	-4.236	-2.778*
	(2.657)	(1.419)	(6.560)	(2.875)	(1.410)
Quart	-13.88	0.249	-5.046	-0.357	1.067
	(11.56)	(6.877)	(11.22)	(10.01)	(4.633)
N of Storms × Quart	1.124	-0.352	-10.31***	0.536	0.892
	(1.026)	(0.528)	(2.381)	(1.001)	(0.530)
Lag 1	8.924**	3.017*	-3.558	17.61***	-3.309**
	(3.205)	(1.457)	(4.534)	(4.458)	(1.239)
Lag 1 × Quart	-3.253*	-1.174*	3.269	-3.619*	1.830***
	(1.278)	(0.544)	(1.702)	(1.510)	(0.485)
Lag 2	6.316*	9.887***	22.58***	11.11**	-11.07***
	(3.068)	(1.616)	(5.114)	(3.405)	(1.698)
Lag 2 × Quart	-2.197	-3.998***	-9.819***	-4.625***	4.096***
	(1.161)	(0.620)	(1.936)	(1.279)	(0.653)
Lag 3	-5.687**	2.606**	-0.827	3.701*	-3.561***
	(1.986)	(0.866)	(3.538)	(1.797)	(0.717)
Lag 3 × Quart	2.467*	-0.121	2.395	-0.362	0.468
	(1.060)	(0.407)	(1.426)	(0.810)	(0.354)
Lag 4	-7.961***	1.231	1.530	7.385***	-1.304
	(1.678)	(0.792)	(2.954)	(2.081)	(0.734)
Lag 4 × Quart	3.147***	0.181	1.689	-0.583	0.160
	(0.709)	(0.325)	(1.112)	(0.650)	(0.308)
Lag 5	-4.112**	-2.278**	-45.22***	2.980*	-1.333
	(1.498)	(0.696)	(5.405)	(1.336)	(0.853)
Lag 5 × Quart	1.032	0.745*	18.22***	0.870	1.120**
	(0.767)	(0.341)	(2.180)	(0.607)	(0.385)
N	864287	864287	864287	864287	864287
Plant FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.821	0.863	0.675	0.731	0.584

Standard errors in parentheses

Plant and year fixed effects are included in each specification. All variables are real values.

Errors are clustered on both plant-level and region-by-year level.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 9: 2009-2013: subsample of firms that have all the characteristics

	(1) 100Log(Mat)	(2) 100Log(VA)	(3) 100Log(VA/L)
N of Storms	-3.662	-16.11**	-17.29***
	(2.769)	(5.028)	(4.876)
Quart	-12.50	-20.04	-20.29
	(13.59)	(13.50)	(11.29)
N of Storms × Quart	1.132	6.790***	7.142***
	(1.078)	(2.006)	(1.937)
Lag 1	8.246*	-2.764	-5.781
	(3.438)	(7.864)	(8.208)
Lag 1 × Quart	-2.959*	-1.360	-0.185
	(1.366)	(2.827)	(2.915)
Lag 2	5.871	-3.734	-13.62*
	(3.123)	(6.413)	(6.526)
Lag 2 × Quart	-1.775	1.296	5.294*
	(1.206)	(2.444)	(2.471)
Lag 3	-5.257*	-10.16**	-12.77***
	(2.111)	(3.618)	(3.589)
Lag 3 × Quart	2.280*	3.803*	3.924*
	(1.113)	(1.664)	(1.616)
Lag 4	-8.964***	-4.667	-5.899
	(1.741)	(4.055)	(4.113)
Lag 4 × Quart	3.424***	0.118	-0.0629
	(0.736)	(1.494)	(1.443)
Lag 5	-5.877***	-2.790	-0.512
	(1.555)	(3.526)	(3.412)
Lag 5 × Quart	1.832*	-0.798	-1.542
	(0.791)	(1.474)	(1.393)
N	864287	864287	864287
Plant FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Adjusted R-squared	0.807	0.714	0.506

Standard errors in parentheses

Plant and year fixed effects are included in each specification. All variables are real values. Errors are clustered on both plant-level and region-by-year level.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 10: 2007-2013 (dropping VA and Materials since they are not reported in 2007-2008)

	(1) 100Log(Sales)	(2) 100Log(L)	(3) 100Log(K)	(4) 100Log(L Cost)	(5) 100Log(Avg W
Max Speed (m/s)	-1.146***	-0.0376	1.491***	-0.139	0.00729
	(0.220)	(0.0701)	(0.288)	(0.121)	(0.0720)
Quart	-20.81	2.735	-3.447	-1.029	-9.225
	(20.51)	(6.211)	(9.745)	(11.06)	(8.403)
Max Speed (m/s) × Quart	0.433***	-0.00885	-0.547***	-0.00362	0.0178
	(0.0861)	(0.0276)	(0.106)	(0.0432)	(0.0281)
Lag 1	0.772***	0.227***	-0.241	0.487***	-0.117***
	(0.110)	(0.0425)	(0.164)	(0.0972)	(0.0330)
Lag 1 × Quart	-0.259***	-0.0603***	0.179**	-0.112**	0.0633***
	(0.0437)	(0.0175)	(0.0614)	(0.0360)	(0.0139)
Lag 2	1.177***	0.253***	-0.513***	0.553***	-0.0256
	(0.185)	(0.0695)	(0.153)	(0.103)	(0.0447)
Lag 2 × Quart	-0.425***	-0.0801**	0.220***	-0.157***	-0.000751
	(0.0693)	(0.0275)	(0.0623)	(0.0390)	(0.0185)
Lag 3	-0.0935	0.0991**	0.0736	0.131*	-0.192***
	(0.130)	(0.0374)	(0.135)	(0.0659)	(0.0280)
Lag 3 × Quart	0.0584	-0.0168	0.0489	0.00497	0.0511***
	(0.0509)	(0.0173)	(0.0595)	(0.0288)	(0.0129)
Lag 4	-0.263*	0.144***	0.332*	0.201**	-0.170***
	(0.119)	(0.0404)	(0.134)	(0.0755)	(0.0328)
Lag 4 × Quart	0.101*	-0.0165	-0.0251	-0.00963	0.0571***
	(0.0463)	(0.0164)	(0.0496)	(0.0276)	(0.0138)
Lag 5	-0.0102	0.0142	-1.741***	0.321***	-0.147***
	(0.0845)	(0.0289)	(0.231)	(0.0666)	(0.0347)
Lag 5 × Quart	0.0747	0.0111	0.766***	-0.0713**	0.0931***
	(0.0403)	(0.0142)	(0.0901)	(0.0267)	(0.0149)
N	1363767	1363767	1363767	1363767	1363767
Plant FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.740	0.832	0.654	0.702	0.574

Standard errors in parentheses

Plant and year fixed effects are included in each specification. All variables are real values.

Errors are clustered on both plant-level and region-by-year level.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 11: 2009-2013: subsample of firms that have all the characteristics

	(1) 100Log(Sales)	(2) 100Log(L)	(3) 100Log(K)	(4) 100Log(L Cost)	(5) 100Log(Avg W
Max Speed (m/s)	-0.226	0.0347	1.262***	-0.147	-0.131
	(0.134)	(0.0689)	(0.300)	(0.134)	(0.0765)
Quart	-13.97	0.269	-3.011	0.0792	0.996
	(11.62)	(6.829)	(11.28)	(10.07)	(4.633)
Max Speed (m/s) × Quart	0.0915	-0.0217	-0.515***	-0.0164	0.0621*
	(0.0560)	(0.0271)	(0.115)	(0.0471)	(0.0301)
Lag 1	0.376*	0.0738	-0.0165	0.886***	0.0300
	(0.159)	(0.0709)	(0.221)	(0.197)	(0.0649)
Lag 1 × Quart	-0.124*	-0.0292	0.0280	-0.312***	0.0125
	(0.0601)	(0.0262)	(0.0782)	(0.0712)	(0.0244)
Lag 2	0.517**	0.570***	1.478***	0.741***	-0.651***
	(0.161)	(0.0883)	(0.256)	(0.173)	(0.0905)
Lag 2 × Quart	-0.152*	-0.207***	-0.554***	-0.225***	0.227***
	(0.0592)	(0.0324)	(0.0931)	(0.0614)	(0.0333)
Lag 3	-0.232**	0.109**	-0.227	0.0226	-0.201***
	(0.0796)	(0.0349)	(0.145)	(0.0635)	(0.0270)
Lag 3 × Quart	0.0712	-0.0164	0.257***	0.101***	0.0596***
	(0.0455)	(0.0167)	(0.0616)	(0.0280)	(0.0128)
Lag 4	-0.243***	0.122***	0.250*	0.169*	-0.0967***
	(0.0708)	(0.0317)	(0.123)	(0.0721)	(0.0293)
Lag 4 × Quart	0.110**	-0.0104	0.0293	0.0531*	0.0199
	(0.0339)	(0.0141)	(0.0486)	(0.0246)	(0.0136)
Lag 5	-0.125	-0.0137	-1.919***	0.185**	-0.185***
	(0.0720)	(0.0278)	(0.245)	(0.0631)	(0.0340)
Lag 5 × Quart	0.0654	0.0229	0.926***	0.0628*	0.114***
	(0.0437)	(0.0150)	(0.100)	(0.0276)	(0.0155)
N	864287	864287	864287	864287	864287
Plant FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.821	0.863	0.675	0.731	0.585

Standard errors in parentheses

Plant and year fixed effects are included in each specification. All variables are real values.

Errors are clustered on both plant-level and region-by-year level.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 12: 2009-2013: subsample of firms that have all the characteristics

	(1) 100Log(Mat)	(2) 100Log(VA)	(3) 100Log(VA/L)
Max Speed (m/s)	-0.231	-0.997***	-1.032***
	(0.141)	(0.252)	(0.240)
Quart	-12.66	-21.48	-21.75*
	(13.64)	(13.15)	(11.07)
Max Speed (m/s) × Quart	0.101	0.436***	0.458***
	(0.0585)	(0.0998)	(0.0930)
Lag 1	0.287	0.0908	0.0170
	(0.170)	(0.333)	(0.343)
Lag 1 × Quart	-0.0956	0.0912	0.120
	(0.0641)	(0.121)	(0.124)
Lag 2	0.534**	-0.484	-1.054***
	(0.166)	(0.285)	(0.291)
Lag 2 × Quart	-0.144*	0.0991	0.306**
	(0.0617)	(0.103)	(0.105)
Lag 3	-0.198*	-0.366**	-0.476***
	(0.0846)	(0.131)	(0.127)
Lag 3 × Quart	0.0600	-0.0116	0.00477
	(0.0477)	(0.0638)	(0.0593)
Lag 4	-0.305***	0.208	0.0856
	(0.0727)	(0.157)	(0.157)
Lag 4 × Quart	0.123***	-0.154*	-0.144*
	(0.0346)	(0.0625)	(0.0590)
Lag 5	-0.210**	-0.0634	-0.0497
	(0.0743)	(0.167)	(0.160)
Lag 5 × Quart	0.0965*	-0.00610	-0.0290
	(0.0452)	(0.0708)	(0.0648)
N	864287	864287	864287
Plant FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Adjusted R-squared	0.807	0.714	0.506

Standard errors in parentheses

Plant and year fixed effects are included in each specification. All variables are real values. Errors are clustered on both plant-level and region-by-year level.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

3. Same set of regressions for storms in Indonesia

As before, the main average treatment method is the following regression:

$$100 * ln(y_{it}) = \sum_{l=0}^{5} \beta_l Storm_{i,t-l} + \alpha_i + \gamma_t + \varepsilon_{it}, \tag{3}$$

where y_{it} is an outcome of a firm i in year t. $Storm_{i,t-l}$ is a measure of storm aggregated at an ADM2 level, lagged 5 times. α_i is firm fixed effect, γ_t is year fixed effect. We cluster standard errors ε_{it} at the plant/firm and region-by-year level.

Table 13: Indonesia, cyclones, 1988-2015

	(1) 100Log(Output)	(2) 100Log(VA)	(3) 100Log(L)	(4) 100Log(Avg Wage)	(5) 100Log(Mat)	(6) 100Log(VA/L)
Max Speed (m/s)	1.139*	1.407*	0.796***	0.239	1.100*	0.612
	(0.492)	(0.587)	(0.233)	(0.427)	(0.472)	(0.444)
Lag 1	0.171	0.257	0.977***	-0.0414	0.0163	-0.720
	(0.538)	(0.624)	(0.242)	(0.346)	(0.577)	(0.551)
Lag 2	0.446	0.502	1.186***	0.258	0.837	-0.684
	(0.547)	(0.572)	(0.229)	(0.396)	(0.563)	(0.445)
Lag 3	1.922***	1.815***	1.123***	1.518***	2.060***	0.692**
	(0.343)	(0.319)	(0.167)	(0.309)	(0.440)	(0.253)
Lag 4	1.501***	1.244***	0.958***	1.104***	1.713***	0.286
	(0.325)	(0.302)	(0.182)	(0.281)	(0.419)	(0.256)
Lag 5	0.819*	0.649*	0.439*	0.453	0.914*	0.210
	(0.384)	(0.306)	(0.219)	(0.363)	(0.456)	(0.180)
N	446641	446641	446641	446641	446641	446641
Plant FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.847	0.817	0.874	0.803	0.800	0.645

Standard errors in parentheses

Plant and year fixed effects are included in each specification. All variables are real values.

Errors are clustered on both plant-level and region-by-year level.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 14: Indonesia, cyclones, 1988-2015

	(1) 100Log(Output)	(2) 100Log(VA)	(3) 100Log(L)	(4) 100Log(Avg Wage)	(5) 100Log(Mat)	(6) 100Log(VA/L)
N of Storms	28.39*	36.10*	20.68***	2.411	26.65*	15.42
	(13.09)	(14.92)	(5.702)	(12.87)	(12.93)	(11.50)
Lag 1	4.077	5.912	24.40***	-2.989	-2.296	-18.49
	(13.36)	(15.92)	(6.948)	(9.002)	(15.09)	(15.00)
Lag 2	11.51	12.87	30.41***	6.064	20.81	-17.54
	(13.55)	(14.01)	(6.001)	(10.14)	(14.24)	(11.54)
Lag 3	47.74***	44.75***	27.40***	37.26***	51.57***	17.35**
	(8.516)	(8.042)	(4.412)	(7.528)	(10.90)	(6.329)
Lag 4	37.04***	29.89***	23.52***	26.17***	43.34***	6.370
	(7.965)	(7.596)	(4.630)	(7.077)	(10.25)	(6.343)
Lag 5	21.79*	16.69*	11.96*	11.94	24.30*	4.732
	(8.996)	(7.540)	(5.179)	(8.759)	(10.80)	(4.919)
N	446641	446641	446641	446641	446641	446641
Plant FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.847	0.817	0.874	0.803	0.800	0.645

Standard errors in parentheses

Plant and year fixed effects are included in each specification. All variables are real values.

Errors are clustered on both plant-level and region-by-year level.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

4. Same set of regressions for shaking in Indonesia

missing capital when/where disasters occur (a lot of 0s) vehicle, machine, building capital have negative values..

Table 15: Indonesia, 1988-2015

	(1) 100Log(Output)	(2) 100Log(VA)	(3) 100Log(L)	(4) 100Log(Avg Wage)	(5) 100Log(Mat)	(6) 100Log(VA/L)
Max PGA	-0.194*	-0.175	0.0200	-0.211*	-0.171	-0.195*
	(0.0810)	(0.0911)	(0.0452)	(0.0939)	(0.0958)	(0.0844)
Lag 1	-0.0647	-0.0577	0.0361	-0.0502	-0.105	-0.0937
	(0.0939)	(0.102)	(0.0436)	(0.0937)	(0.117)	(0.110)
Lag 2	-0.0815	-0.173	0.0372	0.223	-0.0165	-0.210*
	(0.0873)	(0.0964)	(0.0440)	(0.176)	(0.104)	(0.0865)
Lag 3	-0.149	-0.204	-0.0314	-0.312*	-0.0631	-0.173
	(0.0971)	(0.105)	(0.0480)	(0.135)	(0.112)	(0.0939)
Lag 4	-0.113	-0.191	-0.00506	0.214	-0.0244	-0.186
	(0.112)	(0.119)	(0.0511)	(0.240)	(0.126)	(0.110)
Lag 5	0.0288	-0.0660	-0.0168	-0.187	0.0899	-0.0491
	(0.111)	(0.116)	(0.0545)	(0.209)	(0.131)	(0.116)
N	446641	446641	446641	446641	446641	446641
Plant FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.847	0.817	0.874	0.803	0.800	0.645

Standard errors in parentheses

Plant and year fixed effects are included in each specification. All variables are real values.

Errors are clustered on both plant-level and region-by-year level.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 16: Indonesia, 1988-2015

	(1) 100Log(Output)	(2) 100Log(VA)	(3) 100Log(L)	(4) 100Log(Avg Wage)	(5) 100Log(Mat)	(6) 100Log(VA/L)
N of EQs	-4.972***	-4.737**	-0.298	-0.237	-6.279**	-4.439**
	(1.426)	(1.619)	(0.978)	(2.228)	(1.923)	(1.624)
Lag 1	-1.298	-0.0728	-0.870	2.068	-3.183	0.797
	(2.410)	(2.651)	(0.886)	(1.618)	(3.019)	(2.994)
Lag 2	-4.638**	-5.666**	-1.659	1.273	-5.230**	-4.006*
	(1.684)	(1.810)	(0.917)	(2.695)	(2.007)	(1.724)
Lag 3	-6.001**	-5.188*	-0.974	-1.898	-7.185***	-4.214*
	(1.988)	(2.079)	(0.874)	(2.246)	(2.134)	(1.873)
Lag 4	-6.200*	-6.747**	-1.223	-3.226	-5.619	-5.524*
	(2.657)	(2.531)	(1.015)	(3.061)	(3.043)	(2.373)
Lag 5	-3.940	-3.571	-0.637	0.927	-3.407	-2.934
	(2.779)	(2.871)	(0.969)	(5.176)	(3.050)	(2.745)
N	446641	446641	446641	446641	446641	446641
Plant FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.847	0.817	0.874	0.803	0.800	0.645

Standard errors in parentheses

Plant and year fixed effects are included in each specification. All variables are real values.

Errors are clustered on both plant-level and region-by-year level.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 17: Indonesia, 1988-2015

	(1) 100Log(Output)	(2) 100Log(VA)	(3) 100Log(L)	(4) 100Log(Avg Wage)	(5) 100Log(Mat)
Max PGA	-0.186*	-0.150	0.0289	-0.198	-0.191
	(0.0895)	(0.101)	(0.0499)	(0.107)	(0.105)
Rep	6.181**	7.047**	-0.146	3.422	4.755*
	(2.006)	(2.267)	(1.252)	(3.127)	(2.419)
Max PGA × Rep	0.0434	-0.000112	-0.0662	0.00105	0.109
	(0.0867)	(0.0998)	(0.0430)	(0.118)	(0.102)
Lag 1	-0.202	-0.209	0.0902	-0.161	-0.215
	(0.140)	(0.145)	(0.0656)	(0.155)	(0.166)
Lag 1 × Rep	0.0365	0.0332	-0.0554	0.0633	0.0371
	(0.0854)	(0.0881)	(0.0446)	(0.124)	(0.119)
Lag 2	-0.106	-0.210	0.124	0.346	0.0914
	(0.131)	(0.145)	(0.0679)	(0.239)	(0.149)
Lag 2 × Rep	-0.110	-0.115	-0.0877*	-0.209	-0.231*
	(0.0796)	(0.0896)	(0.0439)	(0.167)	(0.101)
Lag 3	-0.142	-0.258	-0.0135	-0.418*	0.0322
	(0.150)	(0.170)	(0.0745)	(0.202)	(0.161)
Lag 3 × Rep	-0.142	-0.0944	-0.00888	0.0415	-0.202
	(0.0872)	(0.103)	(0.0467)	(0.130)	(0.106)
Lag 4	-0.139	-0.262	0.0199	0.464	-0.0381
	(0.148)	(0.161)	(0.0746)	(0.399)	(0.171)
Lag 4 × Rep	-0.119	-0.0887	-0.0150	-0.373	-0.0888
	(0.0862)	(0.0942)	(0.0471)	(0.228)	(0.112)
Lag 5	-0.00543	-0.188	-0.0249	-0.402	0.113
	(0.147)	(0.156)	(0.0699)	(0.280)	(0.178)
Lag 5 × Rep	-0.119	-0.0430	0.0231	0.173	-0.145
	(0.0800)	(0.0815)	(0.0442)	(0.145)	(0.119)
N	446641	446641	446641	446641	446641
Plant FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.847	0.817	0.874	0.803	0.800

Standard errors in parentheses

Plant and year fixed effects are included in each specification. All variables are real values.

Errors are clustered on both plant-level and region-by-year level.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 18: Indonesia, 1988-2015

	(1) 100Log(Output)	(2) 100Log(VA)	(3) 100Log(L)	(4) 100Log(Avg Wage)	(5) 100Log(Mat)
N of EQs	-5.517***	-5.500**	-0.261	-0.258	-6.887***
	(1.522)	(1.708)	(1.049)	(2.424)	(2.032)
Rep	7.410***	7.204***	-0.0854	2.665	6.762**
	(1.733)	(1.914)	(1.174)	(3.083)	(2.135)
N of EQs × Rep	2.799	3.942	-0.0651	-0.189	3.302
	(2.226)	(2.763)	(1.199)	(2.335)	(2.628)
Lag 1	-3.986	-3.739	-1.592	1.409	-3.460
	(4.521)	(4.985)	(1.959)	(3.894)	(5.716)
Lag 1 × Rep	-2.082	-1.144	0.649	-0.843	-3.691
	(2.203)	(2.582)	(1.268)	(2.798)	(3.110)
Lag 2	-14.14***	-13.73***	-1.658	3.742	-9.833*
	(3.402)	(3.610)	(2.036)	(7.543)	(4.674)
Lag 2 × Rep	3.835	2.608	-0.0481	-3.280	0.113
	(2.114)	(2.260)	(1.272)	(6.163)	(3.180)
Lag 3	-13.63***	-13.09**	-1.708	-4.317	-14.14**
	(4.067)	(4.247)	(1.912)	(4.891)	(5.025)
Lag 3 × Rep	2.259	2.511	0.438	0.913	2.207
	(2.339)	(2.449)	(1.125)	(3.065)	(3.345)
Lag 4	-9.512	-10.77*	-2.939	-0.0696	-8.737
	(4.864)	(4.600)	(2.056)	(5.700)	(6.006)
Lag 4 × Rep	-1.311	-0.608	1.297	-3.538	-0.961
	(2.324)	(2.357)	(1.165)	(3.387)	(3.236)
Lag 5	-8.400	-8.603	-3.672*	3.371	-8.607
	(4.491)	(4.625)	(1.832)	(9.279)	(5.315)
Lag 5 × Rep	-0.151	0.383	2.407*	-3.188	0.749
	(1.859)	(1.985)	(1.117)	(4.309)	(2.706)
N	446641	446641	446641	446641	446641
Plant FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.847	0.817	0.874	0.803	0.800

Standard errors in parentheses

Plant and year fixed effects are included in each specification. All variables are real values.

Errors are clustered on both plant-level and region-by-year level.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$