Online Appendix

Is the Supply of Charitable Donations Fixed? Evidence from Deadly Tornadoes

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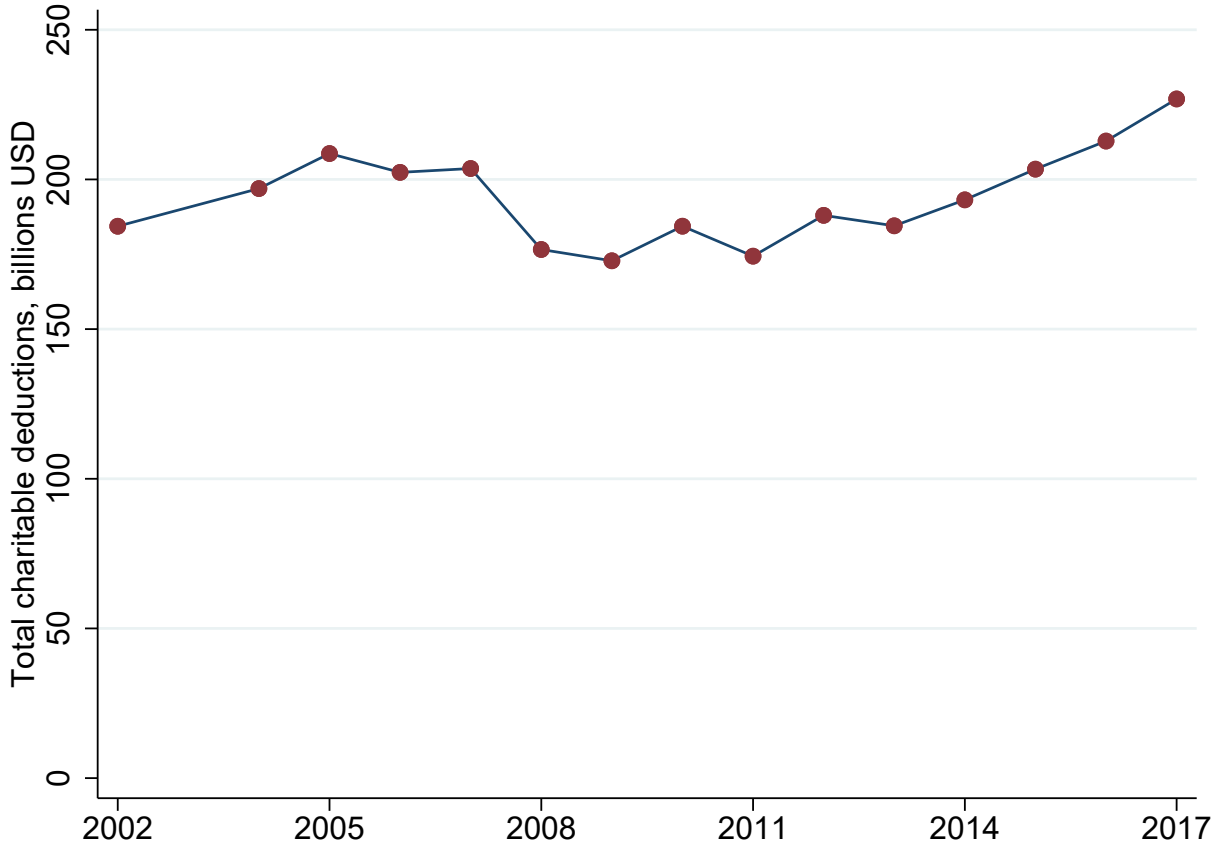
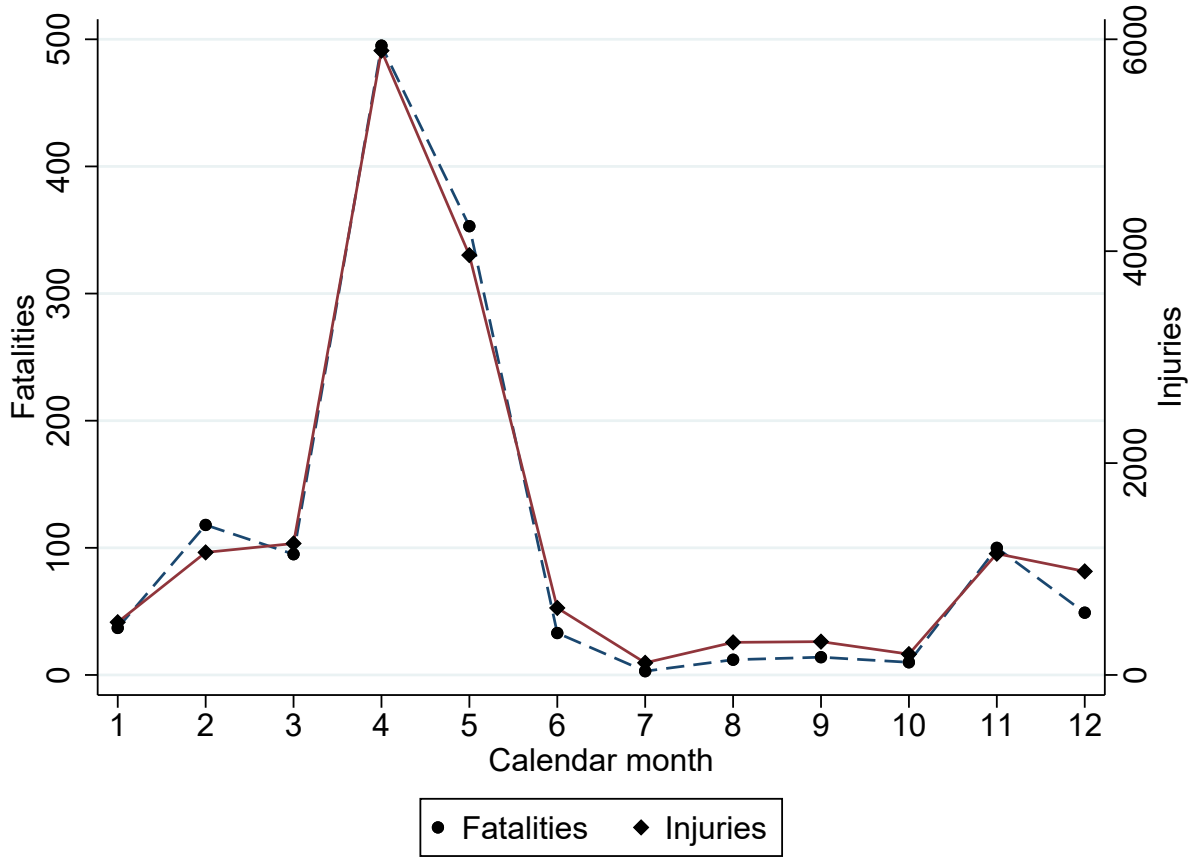
Figure A.1: Total charitable donations claimed for tax deductions



Source: IRS. Donation amounts are in billions of 2017 U.S. dollars.

Figure A.2: Fatalities and injuries caused by tornadoes, by month (2002–2017)



Source: NOAA. Black circles connected by the dashed blue line correspond to the total number of tornado-caused fatalities in a given month over the time period 2002–2017. The scale for fatalities is indicated by the left y-axis. Black diamonds connected by the solid red line correspond to the total number of tornado-caused injuries in a given month over the time period 2002–2017. The scale for injuries is indicated by the right y-axis.

Table A.1: Tornado-level summary statistics

	(1) Mean	(2) Median	(3) Std. dev.	(4) Max.	(5) Obs.
Panel A: All damaging tornadoes					
Fatalities	0.16	0	2.26	158	8,438
Injuries	1.95	0	23.88	1,500	8,438
Property damage (millions USD)	3.11	0	52.43	2,800	8,438
Panel B: Fatal tornadoes					
Fatalities	4.03	2	10.77	158	327
Injuries	34.80	9	114.90	1,500	327
Property damage (millions USD)	50.74	2	251.34	2,800	327

Notes: Source is the National Oceanic and Atmospheric Administration's Tornado Database. The unit of observation is a tornado. Panel A shows summary statistics for all tornadoes with reported property damage, fatalities, or injuries. Pabel B shows summary statistics for all tornadoes with reported fatalities.

Table A.2: Summary statistics, charity information returns

	(1) Tornado within 20 miles	(2) No tornado within 20 miles	(3) In-state tornado > 20 miles away	(4) No in-state tornado > 20 miles away
		Panel A: Levels		
Contributions received (mill. USD)	2.21	1.38	1.30	1.73
	(19.15)	(16.39)	(13.03)	(20.73)
Total expenses (mill. USD)	7.70	5.13	5.53	5.32
	(67.40)	(51.99)	(52.47)	(56.27)
Total revenue (mill. USD)	13.42	7.32	7.77	8.47
	(218.04)	(96.66)	(100.91)	(138.68)
		Panel B: Trends		
Contributions received (mill. USD)	0.0155	0.0365	-0.0163	0.0482
Total revenue (mill. USD)	-0.1468	0.2976	-0.1637	0.3731
Total expenses (mill. USD)	0.0802	0.1861	-0.0330	0.2163
Contributions received (IHS)	0.0053	-0.0027	0.0019	-0.0030
Total revenue (IHS)	0.0041	0.0001	0.0044	-0.0019
Total expenses (IHS)	0.0010	0.0156	0.0007	0.0153
Number of charities	39344	375392	199994	214742

Notes: Sources are the National Oceanic and Atmospheric Administration's Tornado Database and the Internal Revenue Service. The unit of observation in panel A is an EIN. The unit of observation in panel B is EIN-year. Dollar values are inflation-adjusted to 2017 dollars. Panel A is based on the year 2002. Standard errors are in parentheses. Panel B includes years 2002–2016. Test statistics are based on standard errors that are clustered by state.

Table A.3: Effect of fatal tornadoes on the number of returns, adjusted gross income, and number of returns with contributions

	(1) Returns (IHS)	(2) AGI (IHS)	(3) Returns with contributions (IHS)
In-state fatalities, 0–20 miles (IHS)	0.0017	0.0013	0.0020
	(0.0012)	(0.0019)	(0.0019)
In-state fatalities, 20+ miles (IHS)	-0.00015	0.00076	0.0020
	(0.00060)	(0.0016)	(0.0020)
Observations	368,120	368,120	341,511
Adj. R-squared	1.0	0.99	1.0

Notes: The table reports estimates of the effect of nearby tornado fatalities on the total reported income and the number of returns filed. The dependent variable is specified above each column. All regressions include ZIP Code fixed effects; year fixed effects that vary by AGI ventile; and 3-digit-ZIP linear time trends. The specification in column (3) additionally includes cubic functions of the number of tax returns and total AGI. Standard errors (in parentheses) are clustered by state.

Table A.4: Effect of fatal tornadoes on charitable donations, controlling for fatality leads and lags

	(1)	(2)	(3)	(4)
0–20 miles, IHS	0.0010	0.00069	-0.00025	-0.00041
	(0.0023)	(0.0024)	(0.0021)	(0.0022)
20+ miles, IHS	0.0028	0.0040	0.0032	0.0040
	(0.0014)	(0.0016)	(0.0015)	(0.0019)
Lead fatality controls		Yes		Yes
Lagged fatality controls			Yes	Yes
Observations	368,120	313,388	313,388	286,479
Adj. R-squared	0.99	0.99	0.99	0.99

Notes: The table reports estimates of a version of equation (1) that controls for leads and lags of tornado fatalities. The dependent variable is the inverse hyperbolic sine of donations reported on individual tax returns. The unit of observation is a ZIP-Code-year. All tornado fatalities are measured on an in-state basis. All regressions include ZIP Code fixed effects; year fixed effects that vary by AGI ventile; 3-digit-ZIP linear time trends; and cubic functions of the number of tax returns and total AGI. Standard errors (in parentheses) are clustered by state.

Table A.5: Effect of fatal tornadoes on charitable donations, alternative specifications

	(1)	(2)	(3)	(4)	(5)	(6)
In-state fatalities 0–20 miles away, IHS	0.0010	0.0027	0.0050	0.00073	0.0013	0.0014
	(0.0023)	(0.0028)	(0.0034)	(0.0023)	(0.0022)	(0.0012)
In-state fatalities 20+ miles away, IHS	0.0028	0.0032	0.0062	0.0025	0.0028	0.0025
	(0.0014)	(0.0021)	(0.0019)	(0.0014)	(0.0013)	(0.00078)
Cubic in AGI and returns	Yes	Yes		Yes	Yes	Yes
ZIP3 trends	Yes			Yes	Yes	Yes
Exclude never-treated ZIPs				Yes		
Balanced panel					Yes	
Spatially clustered standard errors						Yes
Observations	368,120	368,120	368,120	288,691	342,075	361,345
Adj. R-squared	0.99	0.99	0.99	0.99	0.99	0.99

Notes: The table reports estimates of a version of equation (1). The dependent variable is the inverse hyperbolic sine of donations reported on individual tax returns. The unit of observation is a ZIP-Code-year. All regressions include ZIP Code and AGI-ventile-by-year fixed effects. Standard errors in column (6) are calculated using spatial clustering with a 200-mile bandwidth and an autocorrelation coefficient of 2 (Conley, 1999). Standard errors (in parentheses) in all other columns are clustered by state.

Table A.6: Effect of fatal tornadoes on charitable donations, varying the distance band

	(1)	(2)	(3)	(4)
0–X miles, IHS	0.0028	0.0010	0.00075	0.0019
	(0.0029)	(0.0023)	(0.0021)	(0.0018)
X+ miles, IHS	0.0027	0.0028	0.0028	0.0026
	(0.0014)	(0.0014)	(0.0014)	(0.0015)
X	10	20	30	40
Observations	368,120	368,120	368,120	368,120
Adj. R-squared	0.99	0.99	0.99	0.99

Notes: The table reports estimates of a version of equation (1) that varies the radius around the location struck by the tornado. The dependent variable is the inverse hyperbolic sine of donations reported on individual tax returns. The unit of observation is a ZIP-Code-year. All tornado fatalities are measured on an in-state basis. All regressions include ZIP Code fixed effects; year fixed effects that vary by AGI ventile; 3-digit-ZIP linear time trends; and cubic functions of the number of tax returns and total AGI. X denotes the upper bound of the distance (in miles) over which tornado fatalities are aggregated. Standard errors (in parentheses) are clustered by state.

Table A.7: Effect of fatal tornadoes on contributions collected by charities, excluding largest charities

	(1)	(2)	(3)	(4)
In-state fatalities 0–20 miles away, IHS	0.0061	0.0062	0.0072	0.0075
	(0.0036)	(0.0036)	(0.0035)	(0.0036)
In-state fatalities 20+ miles away, IHS	0.00046	0.00054	-0.00018	-6.7e-06
	(0.0015)	(0.0015)	(0.0015)	(0.0014)
Largest percentile included	100	99	95	90
Observations	3,219,489	3,192,758	3,083,262	2,942,416
Adj. R-squared	0.85	0.84	0.83	0.82

Notes: The table reports estimates of equation (1). The dependent variable is the inverse hyperbolic sine of annual contributions collected by a charity. Charities with maximum annual revenue exceeding the percentile specified in each column are excluded from the sample. All regressions include EIN and year fixed effects, as well as 3-digit-ZIP linear time trends. Standard errors (in parentheses) are clustered by state.

Table A.8: Effect of fatal tornadoes on contributions collected by charities, excluding 2003 data

	(1)	(2)	(3)
In-state fatalities 0–20 miles away, IHS	0.0049	0.0047	
	(0.0035)	(0.0035)	
In-state fatalities 20+ miles away, IHS		0.00078	0.00078
		(0.0016)	(0.0016)
Satefy and disaster * IHS(in-state fat. 0–20 miles)			0.019
			(0.029)
Arts * IHS(in-state fat. 0–20 miles)			-0.0046
			(0.0089)
Education * IHS(in-state fat. 0–20 miles)			0.022
			(0.0080)
Health * IHS(in-state fat. 0–20 miles)			-0.0020
			(0.015)
Human services * IHS(in-state fat. 0–20 miles)			-0.0024
			(0.0090)
Other * IHS(in-state fat. 0–20 miles)			0.0038
			(0.0040)
Observations	3,025,885	3,025,885	3,025,885
Adj. R-squared	0.83	0.83	0.83

Notes: The table reports estimates of equation (1). The dependent variable is the inverse hyperbolic sine of annual contributions collected by a charity. To conform with coverage of the individual income tax data, this sample excludes the year 2003. All regressions include EIN and year fixed effects, as well as 3-digit-ZIP linear time trends. Standard errors (in parentheses) are clustered by state.

Table A.9: Effect of fatal tornadoes on charitable donations, excluding 2017 data

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	In-state fatalities			In-state injuries		In-state damage	
0–20 miles, IHS	0.00053			0.0013		0.0016	
	(0.0022)			(0.0010)		(0.00097)	
20+ miles, IHS	0.0028			0.0014		0.0014	
	(0.0015)			(0.00089)		(0.00089)	
0–20 miles, any		0.00032	-0.0011		0.0014		0.00081
		(0.0043)	(0.0053)		(0.0053)		(0.0038)
0–20 miles, num.			0.00036		0.000028		0.000015
			(0.00042)		(0.000027)		(6.9e-06)
20+ miles, any		0.0050	0.0033		0.0046		0.0056
		(0.0030)	(0.0032)		(0.0034)		(0.0029)
20+ miles, num.			0.00038		0.000010		4.0e-06
			(0.00029)		(0.000013)		(0.000013)
Observations	344,986	344,986	344,986	344,986	344,986	344,986	344,986
Adj. R-squared	0.99	0.99	0.99	0.99	0.99	0.99	0.99

Notes: The table reports estimates of equation (1). The dependent variable is the inverse hyperbolic sine of donations reported on individual tax returns. The unit of observation is a ZIP-Code-year. To conform with coverage of the charity receipts data, this sample excludes the year 2017. The measure of tornado severity is in-state fatalities (columns (1)–(3)), in-state injuries (columns (4)–(5)), or in-state property damage, in millions of dollars (columns (6)–(7)). All regressions include ZIP Code fixed effects; year fixed effects that vary by AGI ventile; 3-digit-ZIP linear time trends; and cubic functions of the number of tax returns and total AGI. Standard errors (in parentheses) are clustered by state.