Online Appendix
Unraveling the Effects of Tropical Cyclones on Economic Sectors Worldwide: Direct and Indirect Impacts

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Contents

A Online Appendix

A.1 Tropical Cyclone Data

The unified data of the IBTrACS data set identifies each storm uniquely by assigning an identification number, its geospatial position and its intensity given by maximum sustained wind speed and minimum sea level pressure. The data are reported at six-hour intervals. Data from IBTrACS are available from 1842 until today, but global coverage of the measurement has only been guaranteed since the start of satellite remote sensing in the late 1970s (Schreck et al., 2014). However, this restriction is for the most part only a concern for non-land-falling tropical cyclones as land-falling tropical cyclones were already covered by the other measurement methods (Knapp, 2016). For my analysis, I use the latest published version, the "IBTrACS-All data" version v03r09, for the 1950–2015 period.

One pitfall of the IBTrACS data is that the data of the maximum sustained wind speed of the different weather agencies are aggregated according to different rules. Weather agencies in the North Atlantic basin use the maximum sustained wind speed average over a one-minute period, agencies from China and Hong Kong use two-minute periods, agencies from India use three-minute periods, and the remaining agencies use ten-minute periods, which is the norm of the World Meteorological Organization (Kruk et al., 2010). As the conversion factor to consistent ten-minute averages is contested, the IBTrACS data set stopped converging it since version 03 (Kruk et al., 2010). This inconsistent measurement introduces a measurement error in the data, where maximum sustained wind speed over a one-minute period is approximately 13% higher than over a ten-minute period (National Weather Service, 2015). However, this bias can partly be attenuated by country fixed effects.[1]

A.2 Lists of Countries in the Sample

Exposed Countries: Algeria, Andorra, Anguilla, Antigua and Barbuda, Aruba, Australia, Bahamas, Bangladesh, Barbados, Belgium, Belize, Brazil, Burma/Myanmar, Cambodia, Canada, Cape Verde, China, Colombia, Comoros, Cuba, Democratic Republic of Vietnam, Denmark, Dominica, Dominican Republic, El Salvador, Fiji, France, Germany, Greenland, Grenada, Guatemala, Haiti, Honduras, Hong Kong, India, Indonesia, Iran, Ireland, Jamaica, Japan, Laos, Madagascar, Malaysia, Mauritius, Mexico, Montserrat, Morocco, Mozambique, Netherland Antilles, Netherlands, New Caledonia, New Zealand, Nicaragua, North Korea, Norway, Oman, Pakistan, Panama, Papua New Guinea, Philippines, Portugal, Puerto Rico, Russia, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Samoa, Solomon Islands, Somalia, South Korea, Spain, Sri Lanka, Sweden, Thailand, Timor-Leste, Tonga, Trinidad and Tobago, Turks and Caicos Islands, United Kingdom, United States, Vanuatu, Venezuela, Yemen, Zimbabwe.

[1] To further control for this potential bias, I calculate a specification with tropical cyclone basin fixed effects, instead of country fixed effects. Appendix Table 42 and Figures 26–32 show the respective robustness tests.

Full Sample: Afghanistan, Albania, Algeria, Andorra, Angola, Anguilla, Antigua and Barbuda, Argentina, Armenia, Aruba, Australia, Austria, Azerbaijan, Bahamas, Bahrain, Bangladesh, Barbados, Belarus, Belgium, Belize, Benin, Bermuda, Bhutan, Bolivia, Bosnia and Herzegovina, Botswana, Brazil, British Virgin Islands, Brunei, Bulgaria, Burkina Faso, Burma/Myanmar, Burundi, Cambodia, Cameroon, Canada, Cape Verde, Cayman Islands, Central African Republic, Chad, Chile, China, Colombia, Comoros, Cook Islands, Costa Rica, Croatia, Cuba, Cyprus, Czech Republic, Democratic Republic of Congo, Democratic Republic of Vietnam, Denmark, Djibouti, Dominica, Dominican Republic, Ecuador, Egypt, El Salvador, Equatorial Guinea, Eritrea, Estonia, Ethiopia, Fiji, Finland, France, French Polynesia, Gabon, Gambia, Georgia, Germany, Ghana, Greece, Greenland, Grenada, Guatemala, Guinea, Guinea-Bissau, Guyana, Haiti, Honduras, Hong Kong, Hungary, Iceland, India, Indonesia, Iran, Iraq, Ireland, Israel, Italy, Ivory Coast, Jamaica, Japan, Jordan, Kazakhstan, Kenya, Kiribati, Kuwait, Kyrgyzstan, Laos, Latvia, Lebanon, Lesotho, Liberia, Libya, Liechtenstein, Lithuania, Luxembourg, Macedonia, Madagascar, Malawi, Malaysia, Maldives, Mali, Malta, Marshall Islands, Mauritania, Mauritius, Mexico, Micronesia, Moldova, Mongolia, Montenegro, Montserrat, Morocco, Mozambique, Namibia, Nepal, Netherlands, New Caledonia, New Zealand, Nicaragua, Niger, Nigeria, Norway, Oman, Pakistan, Palau, Palestine/West Bank, Panama, Papua New Guinea, Paraguay, Peru, Philippines, Poland, Portugal, Puerto Rico, Qatar, Republic of the Congo, Romania, Russia, Rwanda, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Samoa, Saudi Arabia, Senegal, Serbia, Seychelles, Sierra Leone, Singapore, Slovakia, Slovenia, Solomon Islands, Somalia, South Africa, South Korea, South Sudan, Spain, Sri Lanka, Sudan, Suriname, Swaziland, Sweden, Switzerland, Syria, São Tomé och Príncipe, Tanzania, Thailand, Timor-Leste, Togo, Tonga, Trinidad and Tobago, Tunisia, Turkey, Turkmenistan, Turks and Caicos Islands, Tuvalu, Uganda, Ukraine, United Arab Emirates, United Kingdom, United States, Uruguay, Uzbekistan, Vanuatu, Venezuela, Yemen, Zambia, Zimbabwe.

A.3 Detailed Description ISIC Sector Classification

A) Agriculture, hunting and forestry

1) Agriculture, hunting and related service activities
2) Forestry, logging and related service activities

B) Fishing

3) Fishing, aquaculture and service activities incidental to fishing

C) Mining and quarrying

4) Mining of coal and lignite; extraction of peat
5) Extraction of crude petroleum and natural gas; service activities incidental to oil and gas extraction, excluding surveying
6) Mining of uranium and thorium ores
7) Mining of metal ores
8) Other mining and quarrying

D) Manufacturing

9) Manufacture of food products and beverages
10) Manufacture of tobacco products
11) Manufacture of textiles
12) Manufacture of wearing apparel; dressing and dyeing of fur
13) Tanning and dressing of leather; manufacture of luggage, hand-bags, saddlery, harness and footwear
14) Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials
15) Manufacture of paper and paper products
16) Publishing, printing and reproduction of recorded media
17) Manufacture of coke, refined petroleum products and nuclear fuel
18) Manufacture of chemicals and chemical products
19) Manufacture of rubber and plastics products
20) Manufacture of other non-metallic mineral products
21) Manufacture of basic metals
22) Manufacture of fabricated metal products, except machinery and equipment
23) Manufacture of machinery and equipment n.e.c.
24) Manufacture of office, accounting and computing machinery
25) Manufacture of electrical machinery and apparatus n.e.c.
26) Manufacture of radio, television and communication equipment and apparatus
27) Manufacture of medical, precision and optical instruments, watches and clocks
28) Manufacture of motor vehicles, trailers and semi-trailers
29) Manufacture of other transport equipment
30) Manufacture of furniture; manufacturing n.e.c.
31) Recycling

E) Electricity, gas and water supply

32) Electricity, gas, steam and hot water supply
33) Collection, purification and distribution of water

F) Construction

34) Construction

G) Wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods

35) Sale, maintenance and repair of motor vehicles and motorcycles; re-tail sale of automotive fuel
36) Wholesale trade and commission trade, except of motor vehicles and motorcycles
37) Retail trade, except of motor vehicles and motorcycles; repair of personal and household goods

H) Hotels and restaurants

38) Hotels and restaurants

I) Transport, storage and communication

39) Land transport; transport via pipelines
40) Water transport
41) Air transport
42) Supporting and auxiliary transport activities; activities of travel agencies
43) Post and telecommunications

J) Financial intermediation

44) Financial intermediation, except insurance and pension funding
45) Insurance and pension funding, except compulsory social security
46) Activities auxiliary to financial intermediation

K) Real estate, renting and business activities

47) Real estate activities
48) Renting of machinery and equipment without operator and of personal and household goods
49) Computer and related activities
50) Research and development
51) Other business activities

L) Public administration and defense; compulsory social security

52) Public administration and defense; compulsory social security

M) Education

53) Education

N) Health and social work

54) Health and social work

O) Other community, social and personal service activities

55) Sewage and refuse disposal, sanitation and similar activities
56) Activities of membership organizations n.e.c.
57) Recreational, cultural and sporting activities
58) Other service activities

P) Activities of private households as employers and undifferentiated production activities of private households

59) Activities of private households as employers of domestic staff
60) Undifferentiated goods-producing activities of private households for own use
61) Undifferentiated service-producing activities of private households for own use

Q) Extraterritorial organizations and bodies

62) Extraterritorial organizations and bodies

A.4 Definitions and Sources of Variables

Table 2: Definitions and sources of variables

Variable	Definition	Units	Source
Growth rate pc sector A&B	Annual per capita growth rate of the ISIC sector A&B: agriculture, hunting, forestry, and fishing	2005 const. USD, %	United Nations Statistical Division (2015)
Growth rate pc sector C&E	Annual per capita growth rate of the ISIC sector C&E: mining, manufacturing, and utilities	2005 const. USD, %	United Nations Statistical Division (2015)
Growth rate pc sector D	Annual per capita growth rate of the ISIC sector D: manufacturing	2005 const. USD, %	United Nations Statistical Division (2015)
Growth rate pc sector F	Annual per capita growth rate of the ISIC sector F: construction	2005 const. USD, %	United Nations Statistical Division (2015)
Growth rate pc sector G–H	Annual per capita growth rate of the ISIC sector G–H: wholesale, retail trade, restaurants, hotels	2005 const. USD, %	United Nations Statistical Division (2015)
Growth rate pc sector I	Annual per capita growth rate of the ISIC sector I: transport, storage, communication	2005 const. USD, %	United Nations Statistical Division (2015)
Growth rate pc sector J–P	Annual per capita growth rate of the ISIC sector J–P: other activities	2005 const. USD, %	United Nations Statistical Division (2015)
Input-Output coefficients	Input-Output coefficients: Specific input divided by total input		Lenzen et al. (2012, 2013)
Damage	Weighted cubic wind speed by exposed population or agricultural land	km^3/h^3	Own modeling after Knapp et al. (2010)
Population Count	Population counts	Inhabitants/gridcell	Klein Goldewijk et al. (2011)
Cropland	Total cropland area	km^2/gridcell	Klein Goldewijk et al. (2011)
Grazing Land	Total land used for grazing	km^2/gridcell	Klein Goldewijk et al. (2011)
Temperature	Yearly mean air temperature	Degree Celsius	University of East Anglia Climatic Research Unit et al. (2017)
Precipitation	Yearly precipitation	mm	University of East Anglia Climatic Research Unit et al. (2017)
Log pc value added	Logarithm of the per capita value added of the respective ISIC sector	2005 const. USD	United Nations Statistical Division (2015)
Trade openness	Imports plus exports divided by GDP	2005 const. USD, %	United Nations Statistical Division (2015)
Population growth	Annual population growth rate	%	United Nations Statistical Division (2015)
Capital growth	Annual growth rate of the gross capital formation	2005 const. USD, %	United Nations Statistical Division (2015)

A.5 Additional Statistics and Results

Table 3: Summary statistics

Variable	Obs.	Mean	St. dev.	Min	Max
Damage (agriculture)	8,750	74,433.30	600,971.10	0.00	23700000.00
Damage (population)	8,750	74,753.80	613,559.80	0.00	25100000.00
Growth rate pc sector A&B	8,500	0.88	10.63	-80.28	167.28
Growth rate pc sector C&E	8,500	3.75	30.44	-99.75	995.48
Growth rate pc sector D	8,500	2.61	26.63	-95.24	1,745.50
Growth rate pc sector F	8,500	3.24	25.78	-96.31	1,453.02
Growth rate pc sector G–H	8,500	2.53	12.74	-80.57	459.62
Growth rate pc sector I	8,500	3.70	15.50	-91.94	659.28
Growth rate pc sector J–P	8,500	2.55	10.45	-77.67	375.99
Temperature	8,229	19.77	8.25	-17.30	29.60
Precipitation	8,229	1,247.85	867.93	9.80	6,699.00
Log pc value added A&B	8,683	5.40	0.79	2.34	8.23
Log pc value added C&E	8,676	4.97	2.23	-4.13	11.26
Log pc value added D	8,683	5.66	1.82	-3.06	10.52
Log pc value added F	8,685	5.06	1.85	-1.97	9.31
Log pc value added G–H	8,684	6.04	1.67	0.49	10.30
Log pc value added I	8,683	5.36	1.76	-0.84	9.23
Log pc value added J–P	8,685	6.78	1.92	0.43	11.03
Trade openness	8,428	195.47	834.45	0.07	18,015.42
Population growth	8,500	1.73	1.94	-54.70	19.27
Capital growth	8,293	6.27	30.73	-376.22	1,263.33

Table 4: Summary statistics Input-Output coefficients

	Obs.	Mean	St. dev.	Min	Max
$IO^{A\&B,A\&B}$	4647	.1662722	.1709245	1.00e-06	.974811
$IO^{A\&B,C\&E}$	4647	.0121479	.0124637	4.56e-06	.1369842
$IO^{A\&B,D}$	4647	.0846725	.0552218	.000056	.299829
$IO^{A\&B,F}$	4647	.0037546	.0043553	0	.131224
$IO^{A\&B,G\text{-}H}$	4647	.0356446	.0355103	4.56e-08	.4175104
$IO^{A\&B,I}$	4647	.0219238	.0179971	9.25e-06	.1859521
$IO^{A\&B,J\text{-}P}$	4647	.070706	.0536481	.000173	.4691
$IO^{C\&E,A\&B}$	4647	.0008422	.0016779	3.97e-08	.0258813
$IO^{C\&E,C\&E}$	4647	.1514745	.1176578	.0000802	.9996359
$IO^{C\&E,D}$	4647	.0537984	.0564091	.000087	.884369
$IO^{C\&E,F}$	4647	.0277999	.0226761	2.06e-08	.1834678
$IO^{C\&E,G\text{-}H}$	4647	.0192595	.0145801	1.29e-06	.1063142
$IO^{C\&E,I}$	4647	.0486505	.0301493	.000016	.398454
$IO^{C\&E,J\text{-}P}$	4647	.0881599	.0518342	.0000348	.4748183
$IO^{D,A\&B}$	4647	.0563642	.0542414	1.42e-07	.5359839
$IO^{D,C\&E}$	4647	.0393183	.0466088	.000141	.60063
$IO^{D,D}$	4647	.2399205	.1103603	.000605	.998675
$IO^{D,F}$	4647	.0045227	.002871	7.39e-08	.0316864
$IO^{D,G\text{-}H}$	4647	.0536236	.0230651	4.00e-06	.214414
$IO^{D,I}$	4647	.0359096	.0153304	.0000742	.1480716
$IO^{D,J\text{-}P}$	4647	.0855877	.040535	.0000556	.3476429
$IO^{F,A\&B}$	4647	.0033265	.0053454	0	.080139
$IO^{F,C\&E}$	4647	.0161254	.0139202	2.74e-07	.1273087
$IO^{F,D}$	4647	.2098782	.0715656	8.39e-07	.4854064
$IO^{F,F}$	4647	.0395914	.0822892	0	.996022
$IO^{F,G\text{-}H}$	4647	.0645109	.0290355	1.10e-06	.2101925
$IO^{F,I}$	4647	.0395516	.0194235	4.22e-06	.1451188
$IO^{F,J\text{-}P}$	4647	.098781	.0484502	.000022	.376105
$IO^{G\text{-}H,A\&B}$	4647	.0084109	.010755	1.65e-06	.1156533
$IO^{G\text{-}H,C\&E}$	4647	.0158055	.0088905	9.37e-06	.0968774
$IO^{G\text{-}H,D}$	4647	.0711979	.0433933	4.00e-06	.624181
$IO^{G\text{-}H,F}$	4647	.0061702	.0042947	5.93e-09	.0553494
$IO^{G\text{-}H,G\text{-}H}$	4647	.053871	.0695904	.0000693	.9245332
$IO^{G\text{-}H,I}$	4647	.061231	.0328779	.000019	.473436
$IO^{G\text{-}H,J\text{-}P}$	4647	.1391351	.0555886	.0003702	.5434914
$IO^{I,A\&B}$	4647	.0004068	.0012979	2.22e-08	.015707
$IO^{I,C\&E}$	4647	.0099685	.0087259	.00002	.099051
$IO^{I,D}$	4647	.0620294	.0393132	.0000266	.3060028
$IO^{I,F}$	4647	.0087888	.0061438	2.04e-08	.0458489
$IO^{I,G\text{-}H}$	4647	.0276095	.0295263	3.00e-06	.252107
$IO^{I,I}$	4647	.1094513	.0749535	.0000306	.9978023
$IO^{I,J\text{-}P}$	4647	.1300935	.0564797	.0001369	.313433
$IO^{J\text{-}P,A\&B}$	4647	.0026576	.0092353	6.00e-06	.257432
$IO^{J\text{-}P,C\&E}$	4647	.0122318	.0075814	.000102	.0716968
$IO^{J\text{-}P,D}$	4647	.0565184	.029694	.0000751	.2703193
$IO^{J\text{-}P,F}$	4647	.0173059	.0090651	0	.076051
$IO^{J\text{-}P,G\text{-}H}$	4647	.0231643	.0119405	.0000253	.1070365
$IO^{J\text{-}P,I}$	4647	.0318075	.0144938	.0000448	.1364643
$IO^{J\text{-}P,J\text{-}P}$	4647	.1450746	.0787744	.000394	.740301

Table 5: Past influence of tropical cyclone damages on GPD growth in sector aggregate agriculture, hunting, forestry, fishing

Dependent Variables: *Per capita growth rate (%) in sector aggregate*

	Agriculture, hunting, forestry, fishing	Agriculture, hunting, forestry, fishing	Agriculture, hunting, forestry, fishing	Agriculture, hunting, forestry, fishing
	(1)	(2)	(3)	(4)
$Damage_t$	-2.6275***	-2.6406***	-2.5945***	-2.5847***
	(0.4531)	(0.4556)	(0.4503)	(0.4556)
	[0.0000]	[0.0000]	[0.0000]	[0.0000]
$Damage_{t-1}$	-0.4314	-0.4681	-0.4076	-0.4047
	(0.4467)	(0.4532)	(0.4500)	(0.4497)
	[0.3353]	[0.3029]	[0.3662]	[0.3691]
$Damage_{t-2}$	1.4378***	1.4368***	1.4179***	1.4161***
	(0.3995)	(0.4028)	(0.4083)	(0.4022)
	[0.0004]	[0.0005]	[0.0006]	[0.0005]
$Damage_{t-3}$	0.2373	0.2169	0.2185	0.2152
	(0.3331)	(0.3256)	(0.3279)	(0.3305)
	[0.4771]	[0.5060]	[0.5059]	[0.5156]
$Damage_{t-4}$	1.1155*	1.1231*	1.1233*	1.1374*
	(0.5863)	(0.5828)	(0.5793)	(0.5818)
	[0.0585]	[0.0553]	[0.0539]	[0.0519]
$Damage_{t-5}$	-0.0860	-0.0638	-0.0172	-0.0268
	(0.3097)	(0.3083)	(0.3104)	(0.3077)
	[0.7815]	[0.8363]	[0.9559]	[0.9306]
$Damage_{t-6}$		-0.3046	-0.3012	-0.2889
		(0.4460)	(0.4259)	(0.4235)
		[0.4953]	[0.4802]	[0.4958]
$Damage_{t-7}$		-0.1822	-0.1972	-0.2056
		(0.5307)	(0.5404)	(0.5513)
		[0.7317]	[0.7156]	[0.7095]
$Damage_{t-8}$		-0.8401	-0.8437	-0.8357
		(1.2063)	(1.1881)	(1.1967)
		[0.4870]	[0.4784]	[0.4858]
$Damage_{t-9}$		-0.2056	-0.2377	-0.2458
		(0.4608)	(0.4477)	(0.4542)
		[0.6559]	[0.5960]	[0.5890]
$Damage_{t-10}$		0.2774	0.2851	0.2979
		(0.4825)	(0.4631)	(0.4773)
		[0.5659]	[0.5387]	[0.5332]
$Damage_{t-11}$			0.6831	0.6864
			(0.7825)	(0.7740)
			[0.3837]	[0.3762]
$Damage_{t-12}$			0.5987	0.5896
			(0.4491)	(0.4456)
			[0.1841]	[0.1873]
$Damage_{t-13}$			0.5975**	0.6132**
			(0.3017)	(0.3059)
			[0.0490]	[0.0463]
$Damage_{t-14}$			-0.6914*	-0.6979*
			(0.4100)	(0.4051)
			[0.0932]	[0.0865]
$Damage_{t-15}$			-0.2214	-0.2189
			(0.4041)	(0.4006)
			[0.5844]	[0.5854]
$Damage_{t-16}$				0.0631
				(0.2907)
				[0.8283]
$Damage_{t-17}$				-0.1343
				(0.3827)
				[0.7261]
$Damage_{t-18}$				0.2813
				(0.3274)
				[0.3912]
$Damage_{t-19}$				-0.1659
				(0.5556)
				[0.7655]
$Damage_{t-20}$				0.0244
				(0.1876)
				[0.8966]
N	8,500	8,500	8,500	8,500
Clusters	205	205	205	205
P-value	0.0000	0.0000	0.0000	0.0000
Mean DV	0.8800	0.8800	0.8800	0.8800

Notes: $*p < 0.1, **p < 0.05, ***p < 0.01$. Panel OLS regression results with clustered standard errors by countries in parentheses (), and p-values in brackets []. The coefficients show the effect of a one standard deviation increase in tropical cyclone damage on the per capita growth rate in a given sectoral aggregate. The standard deviations are 2,236,738 for the agricultural and 2,269,395 for the remaining sectors, calculated for the whole sample of positive wind speed observations. $Damage_t$ is the weighted damage measure for tropical cyclone intensity in year t. For the sector aggregate agriculture, hunting, forestry and fishing it is weighted by exposed agricultural land in t-1, whereas for the remaining sector aggregates it is weighted by exposed population in t-1. All regressions include country and year fixed effects as well as country-specific linear trends.

Table 6: Past influence of tropical cyclone damages on GPD growth in sector aggregate Mining, utilities.

Dependent Variables: *Per capita growth rate (%) in sector aggregate*

	Mining, utilities	Mining, utilities	Mining, utilities	Mining, utilities
	(1)	(2)	(3)	(4)
$Damage_t$	-0.6876	-0.5101	-0.4927	-0.4347
	(0.8734)	(0.9150)	(0.8834)	(0.9616)
	[0.4321]	[0.5778]	[0.5776]	[0.6517]
$Damage_{t-1}$	-0.7455	-0.8769	-0.8343	-0.8934
	(0.7873)	(0.8026)	(0.7857)	(0.8479)
	[0.3448]	[0.2759]	[0.2896]	[0.2933]
$Damage_{t-2}$	0.7484	0.7583	0.8130	0.8259
	(0.6098)	(0.6138)	(0.6176)	(0.6286)
	[0.2212]	[0.2181]	[0.1895]	[0.1904]
$Damage_{t-3}$	-0.9537**	-0.9694**	-0.9714**	-0.9672**
	(0.4539)	(0.4599)	(0.4579)	(0.4729)
	[0.0368]	[0.0363]	[0.0351]	[0.0421]
$Damage_{t-4}$	-0.3247	-0.3908	-0.3862	-0.3796
	(0.3517)	(0.3638)	(0.3695)	(0.3960)
	[0.3569]	[0.2840]	[0.2972]	[0.3389]
$Damage_{t-5}$	-0.4838*	-0.4029*	-0.3679	-0.3992
	(0.2583)	(0.2437)	(0.2536)	(0.2476)
	[0.0625]	[0.0998]	[0.1484]	[0.1085]
$Damage_{t-6}$		-1.1859**	-1.2196**	-1.1819**
		(0.4730)	(0.5131)	(0.4967)
		[0.0129]	[0.0184]	[0.0183]
$Damage_{t-7}$		-0.5146	-0.4506	-0.4911
		(0.3822)	(0.3920)	(0.4168)
		[0.1797]	[0.2517]	[0.2400]
$Damage_{t-8}$		0.2670	0.2856	0.3268
		(0.3256)	(0.3305)	(0.3144)
		[0.4131]	[0.3885]	[0.2998]
$Damage_{t-9}$		-1.8192*	-1.8233*	-1.8472*
		(1.0021)	(1.0098)	(1.0186)
		[0.0709]	[0.0725]	[0.0712]
$Damage_{t-10}$		0.9977	1.0499	1.1008
		(0.6531)	(0.6605)	(0.6855)
		[0.1281]	[0.1135]	[0.1098]
$Damage_{t-11}$			-0.5780	-0.6148
			(0.5170)	(0.5562)
			[0.2648]	[0.2703]
$Damage_{t-12}$			0.6477	0.6350
			(0.4428)	(0.4434)
			[0.1451]	[0.1536]
$Damage_{t-13}$			0.3826	0.4128
			(0.5633)	(0.5500)
			[0.4977]	[0.4537]
$Damage_{t-14}$			-0.0418	-0.0526
			(0.6378)	(0.6398)
			[0.9478]	[0.9345]
$Damage_{t-15}$			0.6175	0.6515
			(0.7947)	(0.8284)
			[0.4381]	[0.4325]
$Damage_{t-16}$				-0.0241
				(0.8067)
				[0.9762]
$Damage_{t-17}$				-0.3680
				(0.5713)
				[0.5202]
$Damage_{t-18}$				0.2299
				(0.5707)
				[0.6874]
$Damage_{t-19}$				-0.6999
				(0.5209)
				[0.1805]
$Damage_{t-20}$				0.7053
				(0.8842)
				[0.4260]
N	8,500	8,500	8,500	8,500
Clusters	205	205	205	205
P-value	0.0000	0.0000	0.0000	0.0000
Mean DV	3.7458	3.7458	3.7458	3.7458

Notes: $*p < 0.1, **p < 0.05, ***p < 0.01$. Panel OLS regression results with clustered standard errors by countries in parentheses (), and p-values in brackets []. The coefficients show the effect of a one standard deviation increase in tropical cyclone damage on the per capita growth rate in a given sectoral aggregate. The standard deviations are 2,236,738 for the agricultural and 2,269,395 for the remaining sectors, calculated for the whole sample of positive wind speed observations. $Damage_t$ is the weighted damage measure for tropical cyclone intensity in year t. For the sector aggregate agriculture, hunting, forestry and fishing it is weighted by exposed agricultural land in t-1, whereas for the remaining sector aggregates it is weighted by exposed population in t-1. All regressions include country and year fixed effects as well as country-specific linear trends.

Table 7: Past influence of tropical cyclone damages on GPD growth in sector aggregate Manufacturing.

Dependent Variables: *Per capita growth rate (%) in sector aggregate*

	Manufacturing	Manufacturing	Manufacturing	Manufacturing
	(1)	(2)	(3)	(4)
$Damage_t$	-0.7744	-0.6328	-0.5932	-0.6580
	(0.5118)	(0.4759)	(0.4708)	(0.4413)
	[0.1318]	[0.1852]	[0.2091]	[0.1375]
$Damage_{t-1}$	-0.3449	-0.3864	-0.4121	-0.3278
	(0.5540)	(0.5974)	(0.5993)	(0.6004)
	[0.5343]	[0.5184]	[0.4925]	[0.5857]
$Damage_{t-2}$	-0.8700	-0.8277	-0.8301	-0.8441
	(0.5939)	(0.5821)	(0.5779)	(0.5906)
	[0.1445]	[0.1566]	[0.1524]	[0.1545]
$Damage_{t-3}$	0.3528	0.2814	0.2392	0.2274
	(0.4764)	(0.4708)	(0.4590)	(0.4481)
	[0.4598]	[0.5508]	[0.6028]	[0.6123]
$Damage_{t-4}$	0.3191	0.3004	0.3181	0.3357
	(0.4506)	(0.4650)	(0.4647)	(0.4519)
	[0.4797]	[0.5190]	[0.4944]	[0.4585]
$Damage_{t-5}$	-0.2016	-0.1280	-0.1582	-0.1330
	(0.4904)	(0.4855)	(0.5077)	(0.5085)
	[0.6814]	[0.7923]	[0.7556]	[0.7939]
$Damage_{t-6}$		0.4072	0.4422	0.4179
		(0.4026)	(0.4073)	(0.4064)
		[0.3131]	[0.2788]	[0.3049]
$Damage_{t-7}$		1.6369**	1.6176**	1.6485**
		(0.7152)	(0.7124)	(0.7055)
		[0.0231]	[0.0242]	[0.0204]
$Damage_{t-8}$		-0.3192	-0.3443	-0.3760
		(0.5348)	(0.5369)	(0.5329)
		[0.5512]	[0.5221]	[0.4813]
$Damage_{t-9}$		-1.5212	-1.5311	-1.5149
		(0.9531)	(0.9427)	(0.9532)
		[0.1120]	[0.1059]	[0.1135]
$Damage_{t-10}$		0.6595	0.6194	0.5703
		(0.4769)	(0.4789)	(0.4961)
		[0.1682]	[0.1973]	[0.2517]
$Damage_{t-11}$			0.2667	0.3225
			(0.2858)	(0.3103)
			[0.3518]	[0.2999]
$Damage_{t-12}$			0.1428	0.1468
			(0.4045)	(0.4030)
			[0.7244]	[0.7161]
$Damage_{t-13}$			-0.1894	-0.2056
			(0.3984)	(0.4187)
			[0.6350]	[0.6238]
$Damage_{t-14}$			0.2558	0.2630
			(0.3295)	(0.3233)
			[0.4385]	[0.4168]
$Damage_{t-15}$			-0.7252*	-0.7666*
			(0.3965)	(0.4048)
			[0.0689]	[0.0597]
$Damage_{t-16}$				0.2342
				(0.3046)
				[0.4428]
$Damage_{t-17}$				0.2235
				(0.2860)
				[0.4354]
$Damage_{t-18}$				0.1259
				(0.2085)
				[0.5464]
$Damage_{t-19}$				0.7305*
				(0.3708)
				[0.0502]
$Damage_{t-20}$				-0.9221
				(0.6077)
				[0.1307]
N	8,500	8,500	8,500	8,500
Clusters	205	205	205	205
P-value	0.2321	0.1081	0.0087	0.0000
Mean DV	2.6095	2.6095	2.6095	2.6095

Notes: $*p < 0.1, **p < 0.05, ***p < 0.01$. Panel OLS regression results with clustered standard errors by countries in parentheses (), and p-values in brackets []. The coefficients show the effect of a one standard deviation increase in tropical cyclone damage on the per capita growth rate in a given sectoral aggregate. The standard deviations are 2,236,738 for the agricultural and 2,269,395 for the remaining sectors, calculated for the whole sample of positive wind speed observations. $Damage_t$ is the weighted damage measure for tropical cyclone intensity in year t. For the sector aggregate agriculture, hunting, forestry and fishing it is weighted by exposed agricultural land in t-1, whereas for the remaining sector aggregates it is weighted by exposed population in t-1. All regressions include country and year fixed effects as well as country-specific linear trends.

Table 8: Past influence of tropical cyclone damages on GPD growth in sector aggregate Construction.

Dependent Variables: *Per capita growth rate (%) in sector aggregate*

	Construction	Construction	Construction	Construction
	(1)	(2)	(3)	(4)
$Damage_t$	0.6080	0.5245	0.4851	0.4199
	(0.6260)	(0.6393)	(0.6323)	(0.6430)
	[0.3325]	[0.4129]	[0.4439]	[0.5144]
$Damage_{t-1}$	2.6311**	2.6978**	2.7381**	2.7534**
	(1.1531)	(1.1470)	(1.1793)	(1.1488)
	[0.0235]	[0.0196]	[0.0212]	[0.0174]
$Damage_{t-2}$	-1.6493*	-1.6037*	-1.5749*	-1.6063*
	(0.8377)	(0.8226)	(0.8130)	(0.8257)
	[0.0503]	[0.0526]	[0.0541]	[0.0531]
$Damage_{t-3}$	-1.7602***	-1.6796***	-1.6273***	-1.6556***
	(0.4487)	(0.4626)	(0.4648)	(0.4489)
	[0.0001]	[0.0004]	[0.0006]	[0.0003]
$Damage_{t-4}$	-0.0905	-0.1140	-0.1654	-0.2049
	(0.6021)	(0.5750)	(0.5996)	(0.6076)
	[0.8806]	[0.8430]	[0.7829]	[0.7363]
$Damage_{t-5}$	0.0690	0.0223	0.0271	0.0113
	(0.7443)	(0.7373)	(0.7371)	(0.7475)
	[0.9262]	[0.9759]	[0.9707]	[0.9879]
$Damage_{t-6}$		-1.0995**	-1.0783**	-1.1177**
		(0.4633)	(0.4671)	(0.4647)
		[0.0186]	[0.0220]	[0.0171]
$Damage_{t-7}$		0.0687	0.0857	0.0964
		(0.4763)	(0.4669)	(0.4873)
		[0.8855]	[0.8545]	[0.8433]
$Damage_{t-8}$		1.6210*	1.6803*	1.6541*
		(0.9750)	(0.9757)	(0.9884)
		[0.0980]	[0.0866]	[0.0958]
$Damage_{t-9}$		1.4358**	1.4250**	1.4181**
		(0.6005)	(0.5921)	(0.5756)
		[0.0177]	[0.0170]	[0.0146]
$Damage_{t-10}$		-0.6059**	-0.5987**	-0.6467**
		(0.2685)	(0.2791)	(0.2885)
		[0.0251]	[0.0331]	[0.0261]
$Damage_{t-11}$			-0.5109	-0.5271
			(0.5518)	(0.5639)
			[0.3555]	[0.3510]
$Damage_{t-12}$			-0.5298	-0.5381
			(0.6212)	(0.6260)
			[0.3947]	[0.3910]
$Damage_{t-13}$			1.2311	1.2136
			(1.1028)	(1.0968)
			[0.2656]	[0.2698]
$Damage_{t-14}$			0.2925	0.2873
			(0.9485)	(0.9502)
			[0.7581]	[0.7627]
$Damage_{t-15}$			-0.0251	-0.0529
			(0.3925)	(0.3886)
			[0.9491]	[0.8919]
$Damage_{t-16}$				-0.5861*
				(0.3420)
				[0.0880]
$Damage_{t-17}$				-0.4172
				(0.6622)
				[0.5294]
$Damage_{t-18}$				-0.1922
				(0.3900)
				[0.6226]
$Damage_{t-19}$				0.4175
				(0.4051)
				[0.3039]
$Damage_{t-20}$				-0.2049
				(0.2578)
				[0.4276]
N	8,500	8,500	8,500	8,500
Clusters	205	205	205	205
P-value	0.0000	0.0000	0.0000	0.0000
Mean DV	3.2388	3.2388	3.2388	3.2388

Notes: $*p < 0.1, **p < 0.05, ***p < 0.01$. Panel OLS regression results with clustered standard errors by countries in parentheses (), and p-values in brackets []. The coefficients show the effect of a one standard deviation increase in tropical cyclone damage on the per capita growth rate in a given sectoral aggregate. The standard deviations are 2,236,738 for the agricultural and 2,269,395 for the remaining sectors, calculated for the whole sample of positive wind speed observations. $Damage_t$ is the weighted damage measure for tropical cyclone intensity in year t. For the sector aggregate agriculture, hunting, forestry and fishing it is weighted by exposed agricultural land in t-1, whereas for the remaining sector aggregates it is weighted by exposed population in t-1. All regressions include country and year fixed effects as well as country-specific linear trends.

Table 9: Past influence of tropical cyclone damages on GPD growth in sector aggregate Wholesale, retail trade, restaurants, hotels.

Dependent Variables: *Per capita growth rate (%) in sector aggregate*

	Wholesale, retail trade, restaurants, hotels	Wholesale, retail trade, restaurants, hotels	Wholesale, retail trade, restaurants, hotels	Wholesale, retail trade, restaurants, hotels
	(1)	(2)	(3)	(4)
$Damage_t$	-1.1769**	-1.1636**	-1.1665**	-1.1895**
	(0.5216)	(0.5343)	(0.5317)	(0.5317)
	[0.0251]	[0.0306]	[0.0294]	[0.0263]
$Damage_{t-1}$	-0.0479	-0.0801	-0.1049	-0.0936
	(0.5161)	(0.5332)	(0.5395)	(0.5403)
	[0.9261]	[0.8807]	[0.8461]	[0.8626]
$Damage_{t-2}$	-0.2738	-0.2956	-0.3109	-0.2848
	(0.2400)	(0.2435)	(0.2374)	(0.2390)
	[0.2554]	[0.2262]	[0.1917]	[0.2347]
$Damage_{t-3}$	-0.2410	-0.2624	-0.2908	-0.2768
	(0.2378)	(0.2306)	(0.2278)	(0.2258)
	[0.3120]	[0.2564]	[0.2032]	[0.2216]
$Damage_{t-4}$	0.2640	0.2649	0.2323	0.2346
	(0.2349)	(0.2428)	(0.2496)	(0.2561)
	[0.2625]	[0.2765]	[0.3531]	[0.3607]
$Damage_{t-5}$	-0.1599	-0.1490	-0.1426	-0.1183
	(0.2364)	(0.2377)	(0.2484)	(0.2544)
	[0.4996]	[0.5315]	[0.5665]	[0.6424]
$Damage_{t-6}$		-0.0454	-0.0794	-0.0722
		(0.2788)	(0.2764)	(0.2760)
		[0.8708]	[0.7741]	[0.7940]
$Damage_{t-7}$		-0.3164	-0.3272	-0.3076
		(0.3797)	(0.3849)	(0.3855)
		[0.4056]	[0.3963]	[0.4258]
$Damage_{t-8}$		-0.6149	-0.6285	-0.6202
		(0.5242)	(0.5272)	(0.5252)
		[0.2422]	[0.2345]	[0.2390]
$Damage_{t-9}$		-0.3311	-0.3650	-0.3482
		(0.2344)	(0.2388)	(0.2340)
		[0.1594]	[0.1278]	[0.1383]
$Damage_{t-10}$		0.1107	0.1148	0.1026
		(0.3226)	(0.3186)	(0.3101)
		[0.7319]	[0.7190]	[0.7411]
$Damage_{t-11}$			-0.3550	-0.3461
			(0.2501)	(0.2556)
			[0.1574]	[0.1772]
$Damage_{t-12}$			0.0860	0.0966
			(0.1860)	(0.1853)
			[0.6444]	[0.6027]
$Damage_{t-13}$			0.0246	0.0273
			(0.2290)	(0.2291)
			[0.9146]	[0.9053]
$Damage_{t-14}$			-0.6195	-0.5974
			(0.4335)	(0.4253)
			[0.1545]	[0.1617]
$Damage_{t-15}$			-0.2120	-0.2104
			(0.1901)	(0.1802)
			[0.2662]	[0.2443]
$Damage_{t-16}$				0.0808
				(0.1772)
				[0.6490]
$Damage_{t-17}$				0.0653
				(0.1978)
				[0.7418]
$Damage_{t-18}$				-0.1388
				(0.2015)
				[0.4918]
$Damage_{t-19}$				0.4196**
				(0.1768)
				[0.0185]
$Damage_{t-20}$				0.1802
				(0.3450)
				[0.6019]
N	8,500	8,500	8,500	8,500
Clusters	205	205	205	205
P-value	0.0000	0.0003	0.0000	0.0000
Mean DV	2.5256	2.5256	2.5256	2.5256

Notes: $*p < 0.1, **p < 0.05, ***p < 0.01$. Panel OLS regression results with clustered standard errors by countries in parentheses (), and p-values in brackets []. The coefficients show the effect of a one standard deviation increase in tropical cyclone damage on the per capita growth rate in a given sectoral aggregate. The standard deviations are 2,236,738 for the agricultural and 2,269,395 for the remaining sectors, calculated for the whole sample of positive wind speed observations. $Damage_t$ is the weighted damage measure for tropical cyclone intensity in year t. For the sector aggregate agriculture, hunting, forestry and fishing it is weighted by exposed agricultural land in t-1, whereas for the remaining sector aggregates it is weighted by exposed population in t-1. All regressions include country and year fixed effects as well as country-specific linear trends.

Table 10: Past influence of tropical cyclone damages on GPD growth in sector aggregate Transport, storage, communication.

Dependent Variables: *Per capita growth rate (%) in sector aggregate*

	Transport, storage, communication	Transport, storage, communication	Transport, storage, communication	Transport, storage, communication
	(1)	(2)	(3)	(4)
$Damage_t$	-0.5071	-0.4901	-0.4922	-0.5464
	(0.3708)	(0.3755)	(0.3607)	(0.3582)
	[0.1729]	[0.1933]	[0.1738]	[0.1287]
$Damage_{t-1}$	0.1078	0.1025	0.0706	0.0890
	(0.3787)	(0.3723)	(0.3672)	(0.3592)
	[0.7761]	[0.7834]	[0.8477]	[0.8046]
$Damage_{t-2}$	-0.6321**	-0.6508**	-0.6910**	-0.7171***
	(0.2768)	(0.2757)	(0.2697)	(0.2694)
	[0.0234]	[0.0192]	[0.0111]	[0.0084]
$Damage_{t-3}$	0.0341	0.0355	0.0165	0.0016
	(0.2741)	(0.2647)	(0.2700)	(0.2691)
	[0.9010]	[0.8935]	[0.9513]	[0.9952]
$Damage_{t-4}$	0.0163	-0.0151	-0.0287	-0.0614
	(0.3971)	(0.3990)	(0.3957)	(0.3952)
	[0.9673]	[0.9698]	[0.9422]	[0.8768]
$Damage_{t-5}$	0.2730	0.2602	0.2475	0.2535
	(0.2892)	(0.2842)	(0.2921)	(0.2955)
	[0.3462]	[0.3609]	[0.3978]	[0.3920]
$Damage_{t-6}$		-0.4360	-0.4293	-0.4769*
		(0.2875)	(0.2779)	(0.2798)
		[0.1309]	[0.1240]	[0.0899]
$Damage_{t-7}$		-0.3668	-0.4075	-0.3878
		(0.3245)	(0.3420)	(0.3499)
		[0.2596]	[0.2348]	[0.2690]
$Damage_{t-8}$		0.1728	0.1510	0.1112
		(0.5338)	(0.5449)	(0.5508)
		[0.7465]	[0.7819]	[0.8402]
$Damage_{t-9}$		-0.1954	-0.2129	-0.1991
		(0.2675)	(0.2621)	(0.2635)
		[0.4661]	[0.4176]	[0.4508]
$Damage_{t-10}$		-0.4255**	-0.4540**	-0.4994**
		(0.1894)	(0.1972)	(0.1996)
		[0.0257]	[0.0223]	[0.0131]
$Damage_{t-11}$			0.2563	0.2603
			(0.4631)	(0.4645)
			[0.5805]	[0.5758]
$Damage_{t-12}$			-0.1970	-0.1973
			(0.2412)	(0.2407)
			[0.4150]	[0.4134]
$Damage_{t-13}$			-0.2124	-0.2478
			(0.2475)	(0.2563)
			[0.3917]	[0.3348]
$Damage_{t-14}$			-0.3103	-0.3094
			(0.3806)	(0.3797)
			[0.4159]	[0.4161]
$Damage_{t-15}$			-0.4994***	-0.5263***
			(0.1736)	(0.1711)
			[0.0044]	[0.0024]
$Damage_{t-16}$				-0.2597
				(0.2497)
				[0.2994]
$Damage_{t-17}$				0.0558
				(0.2539)
				[0.8264]
$Damage_{t-18}$				-0.4558**
				(0.1959)
				[0.0209]
$Damage_{t-19}$				0.3820
				(0.2513)
				[0.1300]
$Damage_{t-20}$				-0.4261*
				(0.2430)
				[0.0811]
N	8,500	8,500	8,500	8,500
Clusters	205	205	205	205
P-value	0.0024	0.0002	0.0007	0.0000
Mean DV	3.7030	3.7030	3.7030	3.7030

Notes: $*p < 0.1, **p < 0.05, ***p < 0.01$. Panel OLS regression results with clustered standard errors by countries in parentheses (), and p-values in brackets []. The coefficients show the effect of a one standard deviation increase in tropical cyclone damage on the per capita growth rate in a given sectoral aggregate. The standard deviations are 2,236,738 for the agricultural and 2,269,395 for the remaining sectors, calculated for the whole sample of positive wind speed observations. $Damage_t$ is the weighted damage measure for tropical cyclone intensity in year t. For the sector aggregate agriculture, hunting, forestry and fishing it is weighted by exposed agricultural land in t-1, whereas for the remaining sector aggregates it is weighted by exposed population in t-1. All regressions include country and year fixed effects as well as country-specific linear trends.

Table 11: Past influence of tropical cyclone damages on GPD growth in sector aggregate Other activities.

Dependent Variables: *Per capita growth rate (%) in sector aggregate*

	Other activities	Other activities	Other activities	Other activities
	(1)	(2)	(3)	(4)
$Damage_t$	-0.1957	-0.1992	-0.1983	-0.1986
	(0.2653)	(0.2701)	(0.2741)	(0.2726)
	[0.4616]	[0.4616]	[0.4701]	[0.4672]
$Damage_{t-1}$	0.3164*	0.3095*	0.3163*	0.3207*
	(0.1764)	(0.1782)	(0.1716)	(0.1743)
	[0.0743]	[0.0840]	[0.0667]	[0.0672]
$Damage_{t-2}$	0.0273	-0.0005	-0.0147	0.0115
	(0.2312)	(0.2195)	(0.2134)	(0.2190)
	[0.9060]	[0.9983]	[0.9451]	[0.9582]
$Damage_{t-3}$	-0.0826	-0.0844	-0.0872	-0.0737
	(0.1412)	(0.1356)	(0.1354)	(0.1317)
	[0.5593]	[0.5342]	[0.5203]	[0.5762]
$Damage_{t-4}$	0.0314	0.0175	0.0105	0.0145
	(0.2182)	(0.2183)	(0.2235)	(0.2171)
	[0.8856]	[0.9364]	[0.9625]	[0.9470]
$Damage_{t-5}$	0.1313	0.1167	0.1297	0.1435
	(0.1549)	(0.1588)	(0.1625)	(0.1602)
	[0.3976]	[0.4630]	[0.4256]	[0.3714]
$Damage_{t-6}$		-0.2200	-0.2209	-0.1996
		(0.1667)	(0.1638)	(0.1623)
		[0.1884]	[0.1788]	[0.2200]
$Damage_{t-7}$		-0.5182	-0.5235	-0.5060
		(0.3682)	(0.3664)	(0.3610)
		[0.1609]	[0.1546]	[0.1625]
$Damage_{t-8}$		-0.1524	-0.1565	-0.1374
		(0.1293)	(0.1302)	(0.1258)
		[0.2396]	[0.2305]	[0.2761]
$Damage_{t-9}$		-0.0685	-0.0803	-0.0805
		(0.1915)	(0.1868)	(0.1871)
		[0.7207]	[0.6677]	[0.6673]
$Damage_{t-10}$		-0.3355**	-0.3338**	-0.3326**
		(0.1636)	(0.1630)	(0.1598)
		[0.0416]	[0.0419]	[0.0387]
$Damage_{t-11}$			0.1267	0.1200
			(0.2717)	(0.2727)
			[0.6414]	[0.6605]
$Damage_{t-12}$			0.0901	0.1043
			(0.2600)	(0.2621)
			[0.7294]	[0.6911]
$Damage_{t-13}$			0.0736	0.0931
			(0.1716)	(0.1895)
			[0.6685]	[0.6239]
$Damage_{t-14}$			-0.2511	-0.2361
			(0.2044)	(0.1998)
			[0.2206]	[0.2388]
$Damage_{t-15}$			-0.0480	-0.0384
			(0.1275)	(0.1208)
			[0.7066]	[0.7510]
$Damage_{t-16}$				-0.1259
				(0.1884)
				[0.5050]
$Damage_{t-17}$				-0.0509
				(0.1613)
				[0.7526]
$Damage_{t-18}$				0.1624
				(0.1738)
				[0.3512]
$Damage_{t-19}$				0.2999***
				(0.1126)
				[0.0084]
$Damage_{t-20}$				0.3898
				(0.4822)
				[0.4199]
N	8,500	8,500	8,500	8,500
Clusters	205	205	205	205
P-value	0.3635	0.0001	0.0000	0.0000
Mean DV	2.5519	2.5519	2.5519	2.5519

Notes: $*p < 0.1, **p < 0.05, ***p < 0.01$. Panel OLS regression results with clustered standard errors by countries in parentheses (), and p-values in brackets []. The coefficients show the effect of a one standard deviation increase in tropical cyclone damage on the per capita growth rate in a given sectoral aggregate. The standard deviations are 2,236,738 for the agricultural and 2,269,395 for the remaining sectors, calculated for the whole sample of positive wind speed observations. $Damage_t$ is the weighted damage measure for tropical cyclone intensity in year t. For the sector aggregate agriculture, hunting, forestry and fishing it is weighted by exposed agricultural land in t-1, whereas for the remaining sector aggregates it is weighted by exposed population in t-1. All regressions include country and year fixed effects as well as country-specific linear trends.

Table 12: Lagged cumulative influence of tropical cyclone damage on sectoral GDP growth (0–9 years)

Dependent Variables: *Per capita growth rate (%) in sector aggregates*

Accumulated damage effects after:	0 years	1 years	2 years	3 years	4 years	5 years	6 years	7 years	8 years	9 years
Agriculture, hunting,	-2.5847***	-2.9894***	-1.5733***	-1.3581**	-0.2207	-0.2475	-0.5364	-0.7421	-1.5777	-1.8236
forestry, fishing	(0.4556)	(0.6064)	(0.5989)	(0.6257)	(0.9810)	(1.1938)	(1.2518)	(1.1060)	(1.5156)	(1.6854)
	[0.0000]	[0.0000]	[0.0093]	[0.0311]	[0.8222]	[0.8360]	[0.6687]	[0.5030]	[0.2991]	[0.2805]
Mining, utilities	-0.4347	-1.3281**	-0.5021	-1.4693	-1.8489*	-2.2481**	-3.4300***	-3.9211***	-3.5943***	-5.4415***
	(0.9616)	(0.6495)	(0.9336)	(1.0208)	(0.9635)	(0.8910)	(0.8866)	(1.0249)	(1.0404)	(1.5957)
	[0.6517]	[0.0422]	[0.5913]	[0.1516]	[0.0564]	[0.0124]	[0.0001]	[0.0002]	[0.0007]	[0.0008]
Manufacturing	-0.6580	-0.9857	-1.8298*	-1.6024	-1.2667	-1.3997	-0.9818	0.6667	0.2908	-1.2242
	(0.4413)	(0.6982)	(1.0553)	(1.1886)	(1.0598)	(1.1366)	(1.2176)	(1.1558)	(1.2954)	(1.8766)
	[0.1375]	[0.1595]	[0.0844]	[0.1791]	[0.2334]	[0.2196]	[0.4210]	[0.5647]	[0.8226]	[0.5149]
Construction	0.4199	3.1734**	1.5671	-0.0886	-0.2935	-0.2822	-1.3998	-1.3034	0.3507	1.7688
	(0.6430)	(1.5599)	(1.4459)	(1.6583)	(1.3940)	(1.8048)	(1.9385)	(1.7578)	(1.4824)	(1.6819)
	[0.5144]	[0.0432]	[0.2797]	[0.9575]	[0.8334]	[0.8759]	[0.4710]	[0.4592]	[0.8132]	[0.2942]
Wholesale, retail	-1.1895**	-1.2831**	-1.5680***	-1.8448***	-1.6101**	-1.7285**	-1.8006**	-2.1082**	-2.7285**	-3.0767**
trade, restaurants,	(0.5317)	(0.5111)	(0.5520)	(0.5966)	(0.6731)	(0.7312)	(0.7562)	(0.8723)	(1.1894)	(1.3632)
hotels	[0.0263]	[0.0128]	[0.0050]	[0.0023]	[0.0177]	[0.0190]	[0.0182]	[0.0165]	[0.0228]	[0.0251]
Transport, storage,	-0.5464	-0.4574	-1.1745*	-1.1729	-1.2342	-0.9808	-1.4577	-1.8455	-1.7342	-1.9333
communication	(0.3582)	(0.5481)	(0.6388)	(0.7866)	(0.8444)	(1.0020)	(1.0969)	(1.1639)	(1.2830)	(1.3875)
	[0.1287]	[0.4049]	[0.0674]	[0.1375]	[0.1454]	[0.3288]	[0.1854]	[0.1144]	[0.1780]	[0.1650]
Other activities	-0.1986	0.1221	0.1337	0.0599	0.0744	0.2179	0.0183	-0.4877	-0.6251	-0.7056
	(0.2726)	(0.2826)	(0.3602)	(0.3968)	(0.4851)	(0.5311)	(0.5864)	(0.6128)	(0.6558)	(0.6657)
	[0.4672]	[0.6661]	[0.7110]	[0.8801]	[0.8783]	[0.6820]	[0.9751]	[0.4270]	[0.3416]	[0.2904]
N	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500

Notes: $*p < 0.1, **p < 0.05, ***p < 0.01$. F-tests of panel OLS regression results with clustered standard errors by countries in parentheses (), and p-values in brackets []. The coefficients show the effect of a one standard deviation increase in tropical cyclone damage accumulated over different years on the per capita growth rate in a given sectoral aggregate. The standard deviations are 2,236,738 for the agricultural and 2,269,395 for the remaining sectors, calculated for the whole sample of positive wind speed observations. The independent variable is Damage_t, which is the weighted damage measure for tropical cyclone intensity in year t. For the sector aggregate agriculture, hunting, forestry and fishing it is weighted by exposed agricultural land in t-1, whereas for the remaining sector aggregates it is weighted by exposed population in t-1. All regressions include country and year fixed effects as well as country-specific linear trends.

Table 13: Lagged cumulative influence of tropical cyclone damage on sectoral GDP growth (10–20 years)

Dependent Variables: *Per capita growth rate (%) in sector aggregates*

Accumulated damage effects after:	10 years	11 years	12 years	13 years	14 years	15 years	16 years	17 years	18 years	19 years	20 years
Agriculture, hunting,	-1.5257	-0.8392	-0.2497	0.3636	-0.3343	-0.5532	-0.4901	-0.6243	-0.3430	-0.5089	-0.4845
forestry, fishing	(1.5593)	(1.4932)	(1.6496)	(1.6716)	(1.8635)	(1.9798)	(2.0824)	(2.0996)	(2.2881)	(2.3054)	(2.2923)
	[0.3290]	[0.5747]	[0.8799]	[0.8280]	[0.8578]	[0.7802]	[0.8142]	[0.7665]	[0.8810]	[0.8255]	[0.8328]
Mining, utilities	-4.3407***	-4.9555***	-4.3205**	-3.9076*	-3.9602*	-3.3087	-3.3328	-3.7008	-3.4709	-4.1708	-3.4655
	(1.3957)	(1.8049)	(2.0143)	(1.9848)	(2.2766)	(2.2232)	(2.2751)	(2.4650)	(2.6024)	(2.9363)	(2.9092)
	[0.0021]	[0.0066]	[0.0331]	[0.0503]	[0.0834]	[0.1382]	[0.1445]	[0.1348]	[0.1838]	[0.1570]	[0.2350]
Manufacturing	-0.6539	-0.3314	-0.1846	-0.3903	-0.1272	-0.8938	-0.6595	-0.4360	-0.3100	0.4204	-0.5016
	(1.7681)	(1.8058)	(2.0077)	(2.2014)	(2.1249)	(2.2555)	(2.4040)	(2.4435)	(2.4294)	(2.5437)	(2.8126)
	[0.7119]	[0.8546]	[0.9268]	[0.8595]	[0.9523]	[0.6923]	[0.7841]	[0.8586]	[0.8986]	[0.8689]	[0.8586]
Construction	1.1221	0.5950	0.0569	1.2705	1.5579	1.5050	0.9188	0.5016	0.3094	0.7269	0.5220
	(1.7752)	(1.9211)	(2.2023)	(2.4460)	(2.9568)	(2.9755)	(3.1644)	(3.2770)	(3.2086)	(3.0947)	(3.1083)
	[0.5280]	[0.7571]	[0.9794]	[0.6040]	[0.5988]	[0.6136]	[0.7718]	[0.8785]	[0.9233]	[0.8145]	[0.8668]
Wholesale, retail	-2.9741**	-3.3202**	-3.2236**	-3.1963**	-3.7937**	-4.0041**	-3.9233**	-3.8580**	-3.9968**	-3.5772*	-3.3970*
trade, restaurants,	(1.2533)	(1.3953)	(1.4542)	(1.5393)	(1.6894)	(1.7692)	(1.8532)	(1.8745)	(1.9393)	(1.9157)	(1.9666)
hotels	[0.0186]	[0.0183]	[0.0277]	[0.0391]	[0.0258]	[0.0247]	[0.0355]	[0.0408]	[0.0406]	[0.0633]	[0.0856]
Transport, storage,	-2.4327	-2.1724	-2.3697	-2.6174	-2.9269	-3.4532*	-3.7129*	-3.6571	-4.1130*	-3.7310	-4.1570
communication	(1.4760)	(1.5800)	(1.7156)	(1.8306)	(1.9560)	(2.0391)	(2.1587)	(2.2660)	(2.3168)	(2.4371)	(2.5539)
	[0.1009]	[0.1707]	[0.1687]	[0.1543]	[0.1361]	[0.0919]	[0.0870]	[0.1081]	[0.0773]	[0.1273]	[0.1051]
Other activities	-1.0382	-0.9182	-0.8139	-0.7209	-0.9570	-0.9954	-1.1212	-1.1721	-1.0097	-0.7098	-0.3201
	(0.6989)	(0.7375)	(0.8542)	(0.8682)	(0.9444)	(0.9810)	(1.0815)	(1.1432)	(1.1841)	(1.1733)	(1.2970)
	[0.1389]	[0.2145]	[0.3418]	[0.4074]	[0.3121]	[0.3115]	[0.3011]	[0.3064]	[0.3948]	[0.5459]	[0.8053]
N	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500

Notes: $*p < 0.1, **p < 0.05, ***p < 0.01$. F-tests of panel OLS regression results with clustered standard errors by countries in parentheses (), and p-values in brackets []. The coefficients show the effect of a one standard deviation increase in tropical cyclone damage accumulated over different years on the per capita growth rate in a given sectoral aggregate. The standard deviations are 2,236,738 for the agricultural and 2,269,395 for the remaining sectors, calculated for the whole sample of positive wind speed observations. The independent variable is Damage_t, which is the weighted damage measure for tropical cyclone intensity in year t. For the sector aggregate agriculture, hunting, forestry and fishing it is weighted by exposed agricultural land in t-1, whereas for the remaining sector aggregates it is weighted by exposed population in t-1. All regressions include country and year fixed effects as well as country-specific linear trends.

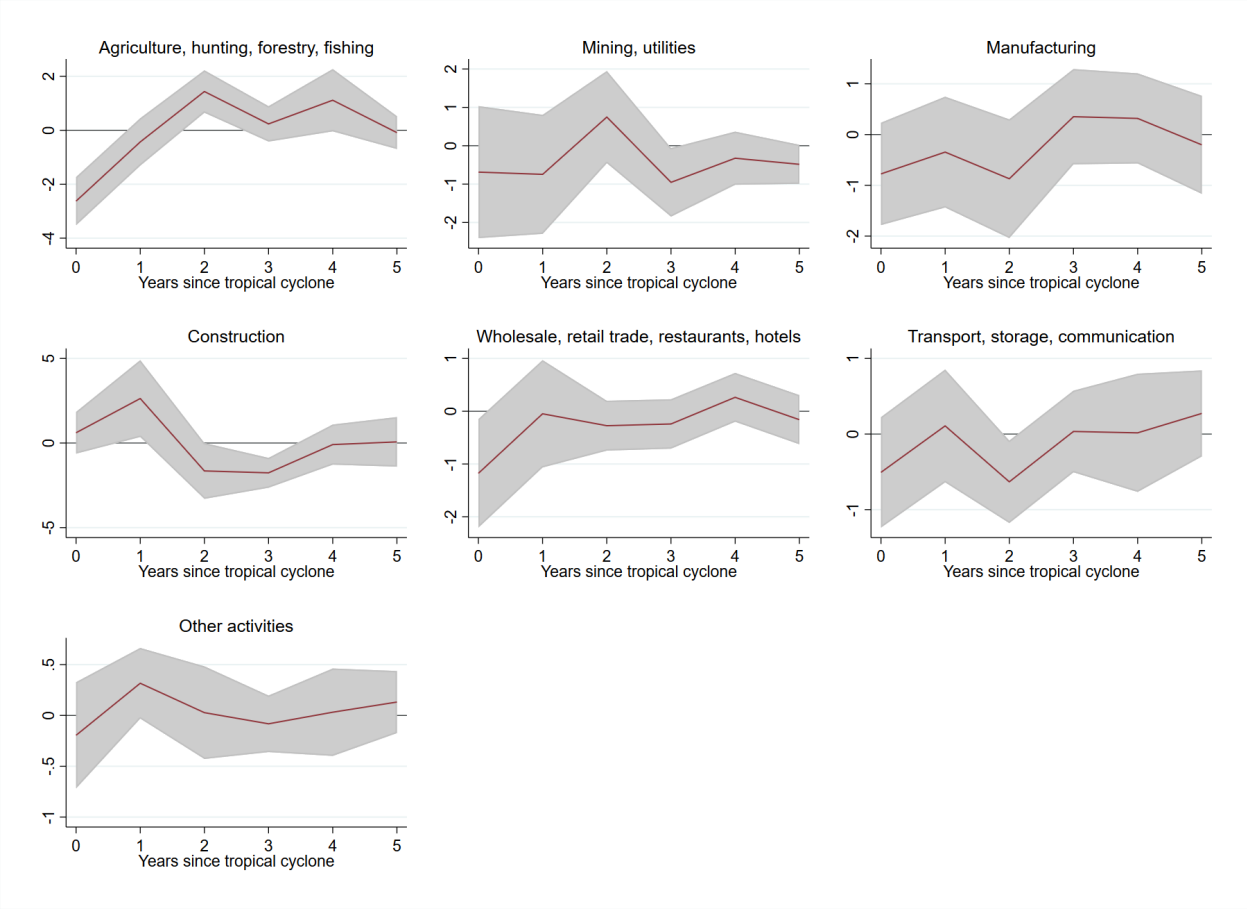

Figure 9: Lagged influence of tropical cyclone damage on sectoral GDP growth (5 years)

Notes: The y-axis displays the coefficient of tropical cyclone damage on the respective per capita growth rates and the x-axis shows the years since the tropical cyclone passed. The gray areas represent the respective 95% confidence interval and the red line the respective (connected) point estimates. The underlying estimations can be found in Tables 5-11 in Appendix A.5.

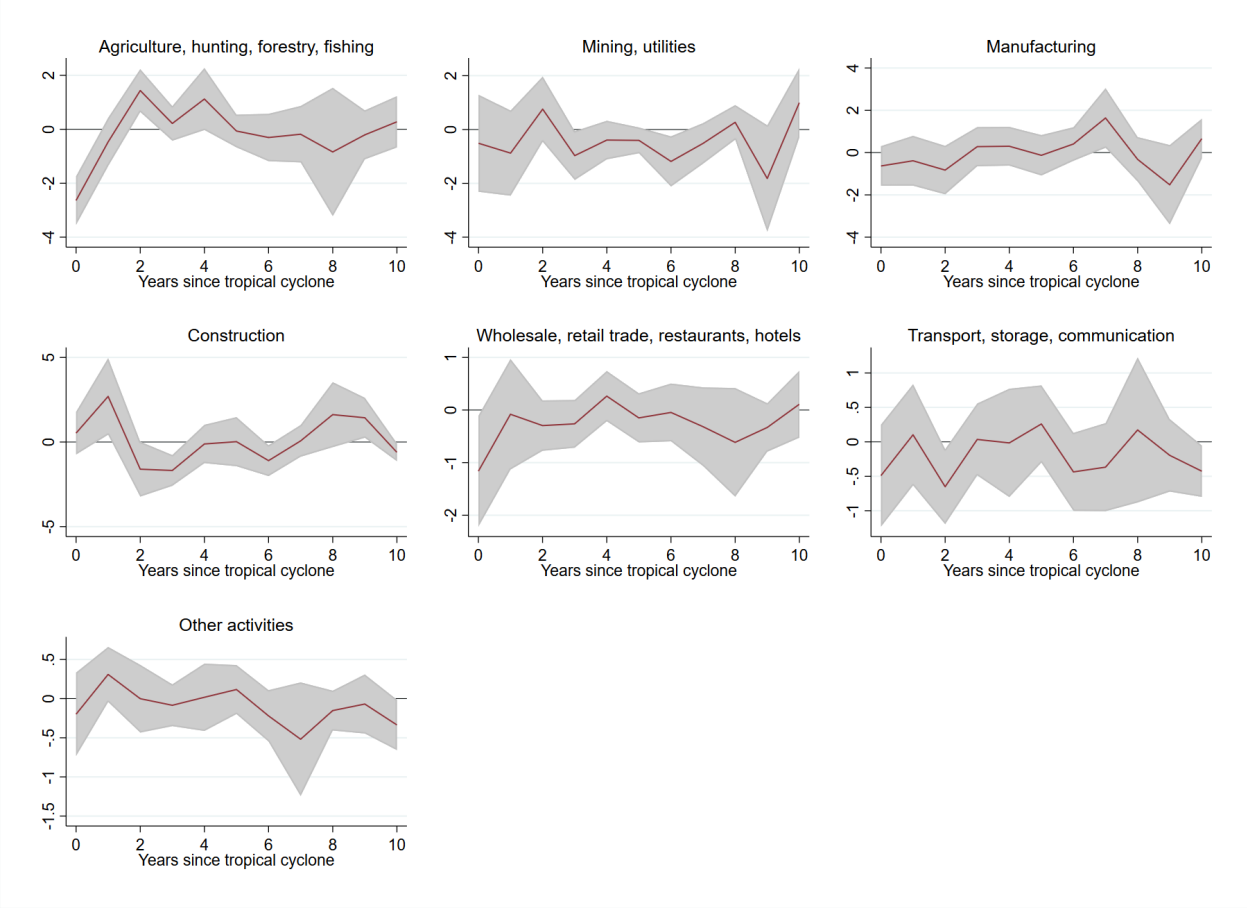

Figure 10: Lagged influence of tropical cyclone damage on sectoral GDP growth (10 years)

Notes: The y-axis displays the coefficient of tropical cyclone damage on the respective per capita growth rates and the x-axis shows the years since the tropical cyclone passed. The gray areas represent the respective 95% confidence interval and the red line the respective (connected) point estimates. The underlying estimations can be found in Tables 5-11 in Appendix A.5.

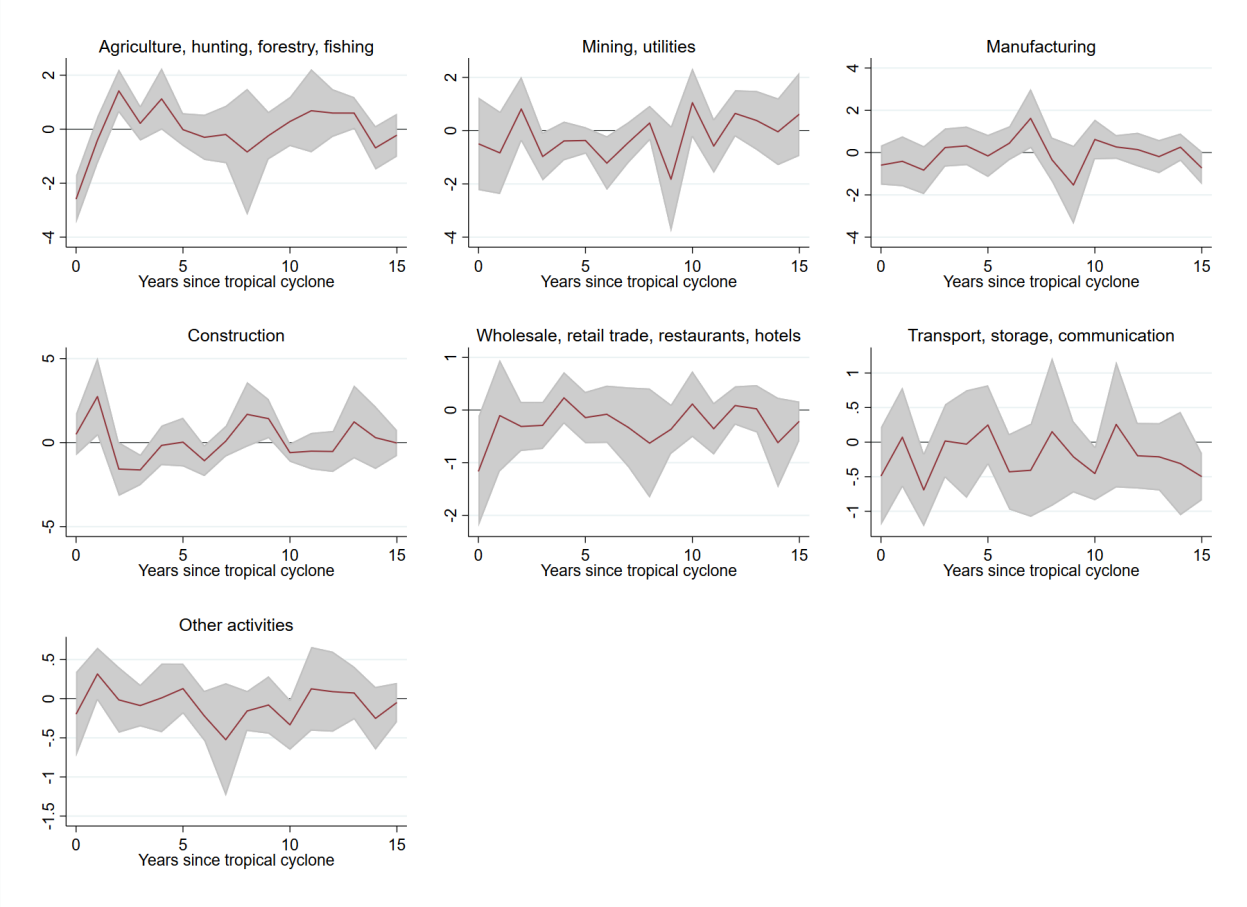

Figure 11: Lagged influence of tropical cyclone damage on sectoral GDP growth (15 years)

Notes: The y-axis displays the coefficient of tropical cyclone damage on the respective per capita growth rates and the x-axis shows the years since the tropical cyclone passed. The gray areas represent the respective 95% confidence interval and the red line the respective (connected) point estimates. The underlying estimations can be found in Tables 5-11 in Appendix A.5.

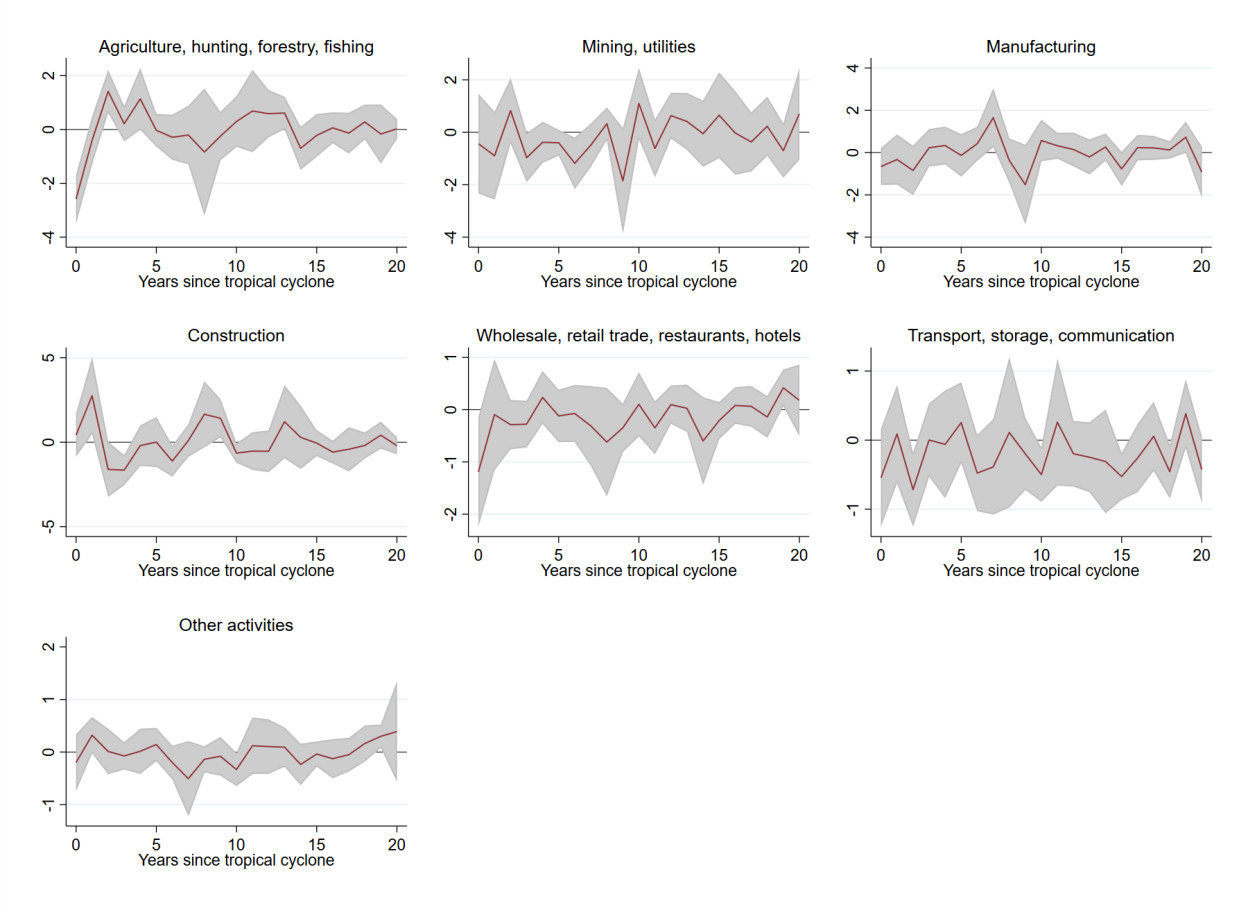

Figure 12: Lagged influence of tropical cyclone damage on sectoral GDP growth (20 years)

Notes: The y-axis displays the coefficient of tropical cyclone damage on the respective per capita growth rates and the x-axis shows the years since the tropical cyclone passed. The gray areas represent the respective 95% confidence interval and the red line the respective (connected) point estimates. The underlying estimations can be found in Tables 5-11 in Appendix A.5.

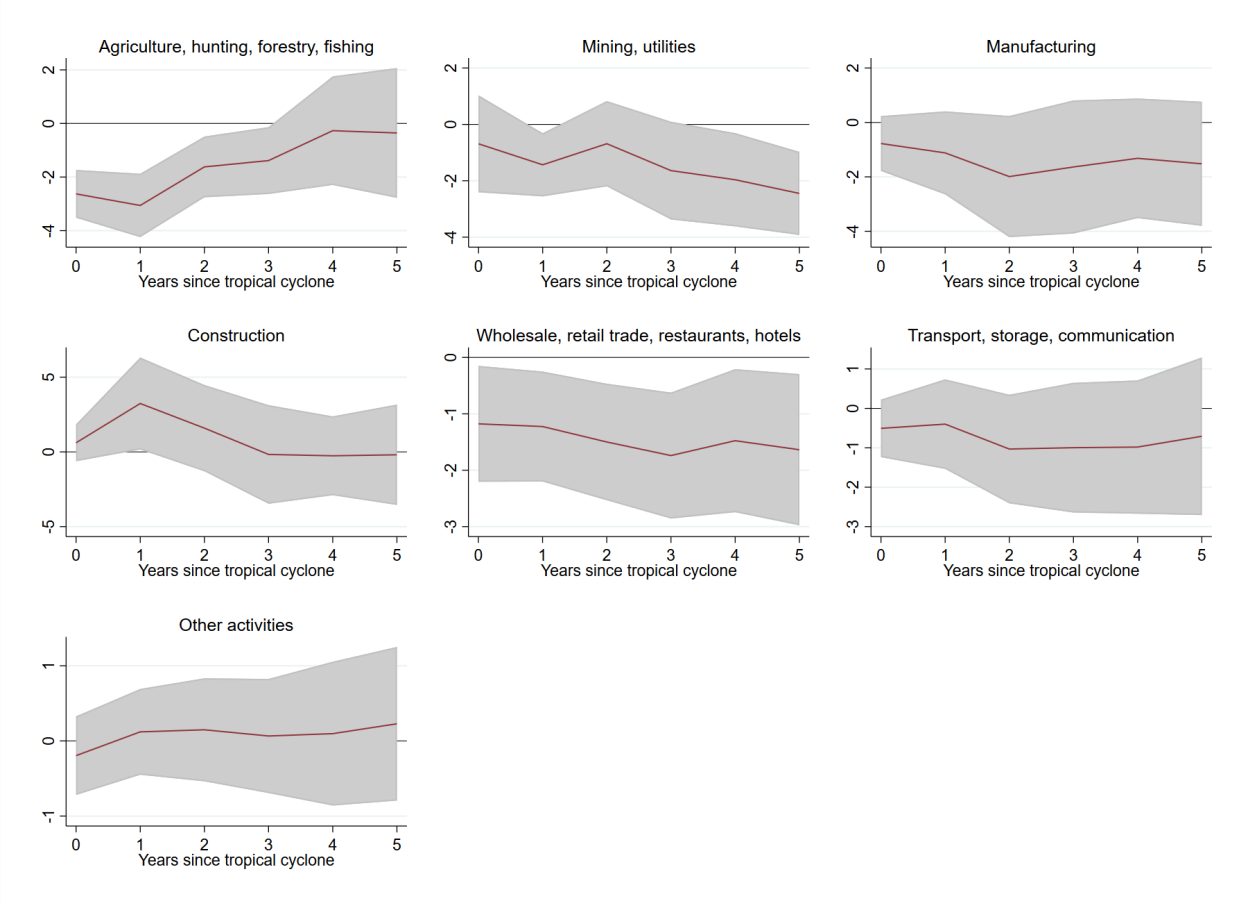

Figure 13: Cumulative lagged influence of tropical cyclone damage on sectoral GDP growth (5 years)

Notes: The y-axis displays the cumulative coefficient of tropical cyclone damage on the respective per capita growth rates and the x-axis shows the years since the tropical cyclone passed. The gray areas represent the respective 95% confidence interval and the red line the respective cumulative (connected) point estimates. The underlying estimations can be found in Tables 12-13 in Appendix A.5.

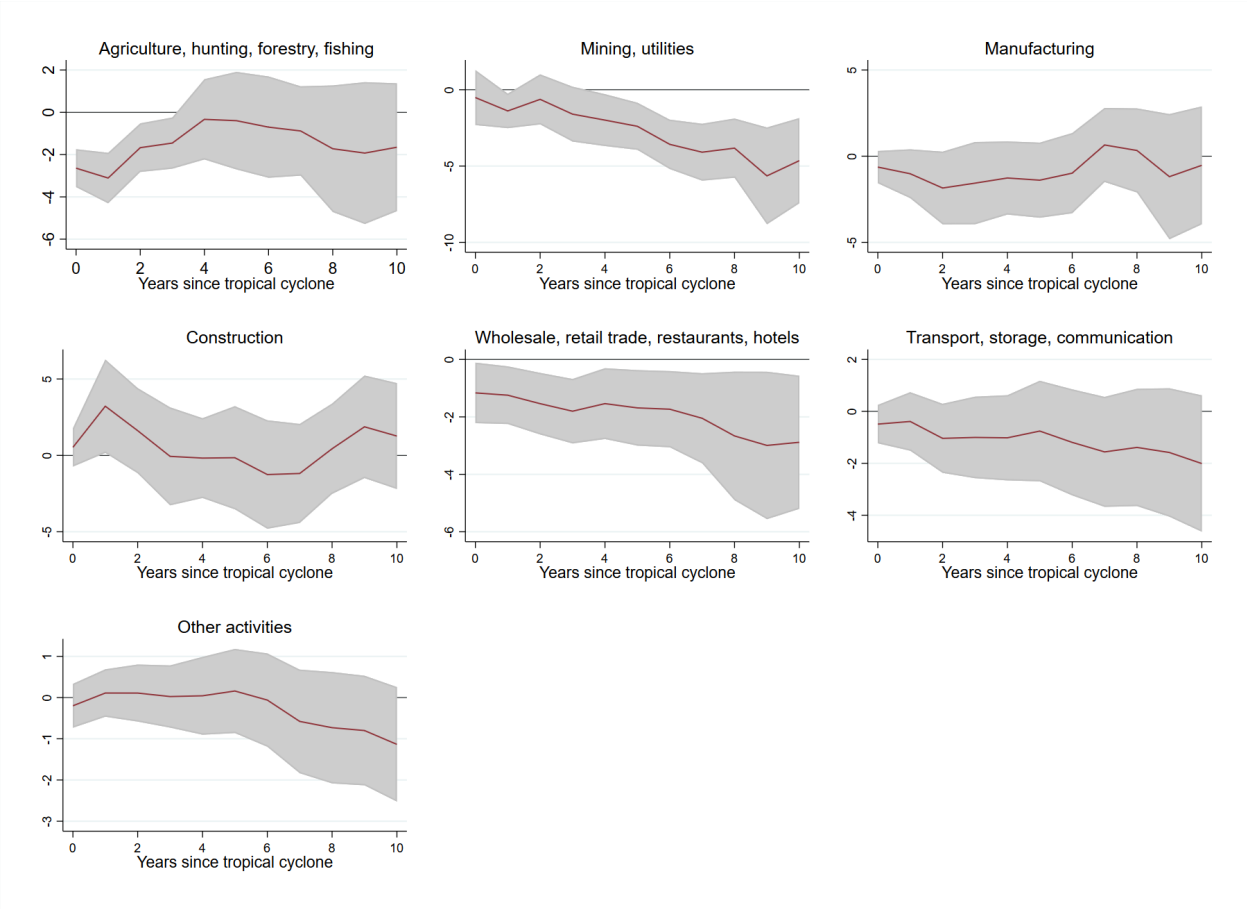

Figure 14: Cumulative lagged influence of tropical cyclone damage on sectoral GDP growth (10 years)

Notes: The y-axis displays the cumulative coefficient of tropical cyclone damage on the respective per capita growth rates and the x-axis shows the years since the tropical cyclone passed. The gray areas represent the respective 95% confidence interval and the red line the respective cumulative (connected) point estimates. The underlying estimations can be found in Tables 12-13 in Appendix A.5.

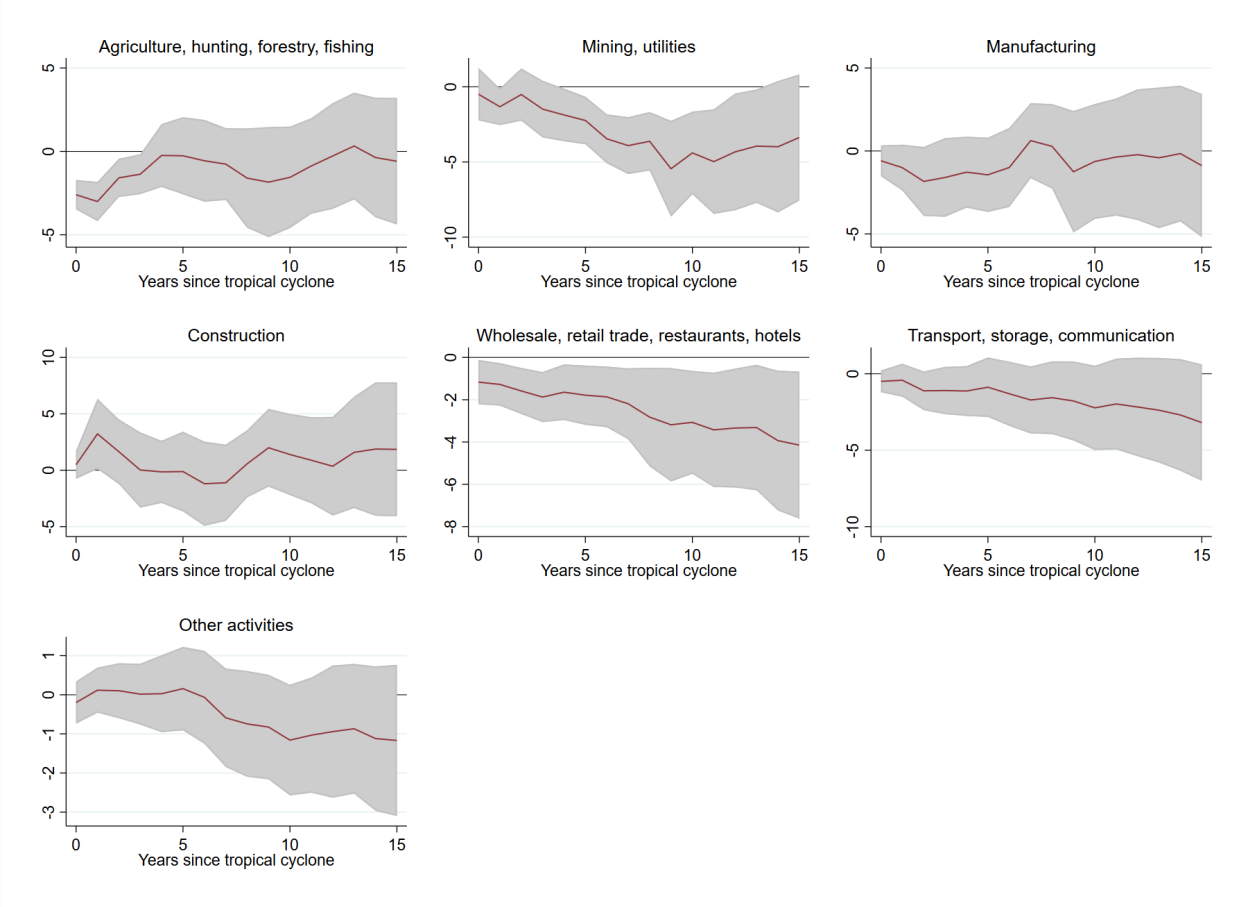

Figure 15: Cumulative lagged influence of tropical cyclone damage on sectoral GDP growth (15 years)

Notes: The y-axis displays the cumulative coefficient of tropical cyclone damage on the respective per capita growth rates and the x-axis shows the years since the tropical cyclone passed. The gray areas represent the respective 95% confidence interval and the red line the respective cumulative (connected) point estimates. The underlying estimations can be found in Tables 12-13 in Appendix A.5.

Table 14: Effects of tropical cyclone damage on Input-Output coefficients in the agriculture, hunting, forestry and fishing sector aggregate (A&B)

Dependent Variables: *Input-Output coefficient (IO)*

	$IO^{A\&B,A\&B}$	$IO^{A\&B,C\&E}$	$IO^{A\&B,D}$	$IO^{A\&B,F}$	$IO^{A\&B,G\text{-}H}$	$IO^{A\&B,I}$	$IO^{A\&B,J\text{-}P}$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$Damage_t$	-0.00004	-0.00008*	-0.00034	-0.00004	-0.00027**	-0.00016	-0.00038
	(0.00075)	(0.00005)	(0.00041)	(0.00003)	(0.00012)	(0.00014)	(0.00027)
	[0.95825]	[0.08510]	[0.40568]	[0.19239]	[0.01954]	[0.24485]	[0.15445]
$IO^{A\&B,A\&B}_{t-1}$	0.81383***						
	(0.04690)						
	[0.00000]						
$IO^{A\&B,C\&E}_{t-1}$		0.93027***					
		(0.05625)					
		[0.00000]					
$IO^{A\&B,D}_{t-1}$			0.85587***				
			(0.01276)				
			[0.00000]				
$IO^{A\&B,F}_{t-1}$				1.24487***			
				(0.15348)			
				[0.00000]			
$IO^{A\&B,G\text{-}H}_{t-1}$					0.84204***		
					(0.02799)		
					[0.00000]		
$IO^{A\&B,I}_{t-1}$						0.85337***	
						(0.02055)	
						[0.00000]	
$IO^{A\&B,J\text{-}P}_{t-1}$							0.90448***
							(0.01996)
							[0.00000]
N	4,490	4,490	4,490	4,490	4,490	4,490	4,490
Clusters	182	182	182	182	182	182	182
P-value	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Mean DV	0.16618	0.01220	0.08494	0.00377	0.03579	0.02204	0.07102

Notes: $*p < 0.1, **p < 0.05, ***p < 0.01$. Panel OLS regression results with clustered standard errors by countries in parentheses (), and p-values in brackets []. The coefficients show the effect of a one standard deviation increase in tropical cyclone damage on the respective Input-Output coefficients. The standard deviations are 2,236,738 for the agricultural and 2,269,395 for the remaining sectors, calculated for the whole sample of positive wind speed observations. $Damage_t$ is the weighted damage measure for tropical cyclone intensity in year t. For the sector aggregate agriculture, hunting, forestry and fishing it is weighted by exposed agricultural land in t-1, whereas for the remaining sector aggregates it is weighted by exposed population in t-1. The dependent variables are Input-Output coefficients (IO) and can range between 0-1. For example the coefficient $IO^{A\&B,D}_t$ displays how much input the sector aggregate A&B needs from sector aggregate D to produce one unit of output. The sector abbreviations represent the following sector aggregates: agriculture, hunting, forestry, and fishing (A&B), mining, and utilities (C&E), manufacturing (D), construction (F), wholesale, retail trade, restaurants, and hotels (G-H), transport, storage, and communication (I), other activities (J-P). All regressions include country and year fixed effects as well as country-specific linear trends.

Table 15: Effects of tropical cyclone damage on Input-Output coefficients in the mining and utilities sector aggregate (C&E)

Dependent Variables: *Input-Output coefficient (IO)*

	$IO^{C\&E,A\&B}$	$IO^{C\&E,C\&E}$	$IO^{C\&E,D}$	$IO^{C\&E,F}$	$IO^{C\&E,G\text{-}H}$	$IO^{C\&E,I}$	$IO^{C\&E,J\text{-}P}$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$Damage_t$	0.00002*	0.00106	-0.00025	-0.00014	-0.00015	-0.00020	-0.00010
	(0.00001)	(0.00154)	(0.00025)	(0.00012)	(0.00017)	(0.00021)	(0.00045)
	[0.09364]	[0.49122]	[0.31567]	[0.25528]	[0.36630]	[0.34866]	[0.82336]
$IO^{C\&E,A\&B}_{t-1}$	0.74893***						
	(0.06455)						
	[0.00000]						
$IO^{C\&E,C\&E}_{t-1}$		0.84491***					
		(0.05335)					
		[0.00000]					
$IO^{C\&E,D}_{t-1}$			0.89889***				
			(0.01903)				
			[0.00000]				
$IO^{C\&E,F}_{t-1}$				0.89490***			
				(0.02000)			
				[0.00000]			
$IO^{C\&E,G\text{-}H}_{t-1}$					0.81616***		
					(0.05525)		
					[0.00000]		
$IO^{C\&E,I}_{t-1}$						0.81922***	
						(0.05698)	
						[0.00000]	
$IO^{C\&E,J\text{-}P}_{t-1}$							0.89500***
							(0.02070)
							[0.00000]
N	4,490	4,490	4,490	4,490	4,490	4,490	4,490
Clusters	182	182	182	182	182	182	182
P-value	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Mean DV	0.00084	0.15156	0.05376	0.02778	0.01925	0.04862	0.08812

Notes: $*p < 0.1, **p < 0.05, ***p < 0.01$. Panel OLS regression results with clustered standard errors by countries in parentheses (), and p-values in brackets []. The coefficients show the effect of a one standard deviation increase in tropical cyclone damage on the respective Input-Output coefficients. The standard deviations are 2,236,738 for the agricultural and 2,269,395 for the remaining sectors, calculated for the whole sample of positive wind speed observations. $Damage_t$ is the weighted damage measure for tropical cyclone intensity in year t. For the sector aggregate agriculture, hunting, forestry and fishing it is weighted by exposed agricultural land in t-1, whereas for the remaining sector aggregates it is weighted by exposed population in t-1. The dependent variables are Input-Output coefficients (IO) and can range between 0-1. For example the coefficient $IO^{C\&E,D}_t$ displays how much input the sector aggregate C&E needs from sector aggregate D to produce one unit of output. The sector abbreviations represent the following sector aggregates: agriculture, hunting, forestry, and fishing (A&B), mining, and utilities (C&E), manufacturing (D), construction (F), wholesale, retail trade, restaurants, and hotels (G-H), transport, storage, and communication (I), other activities (J-P). All regressions include country and year fixed effects as well as country-specific linear trends.

Table 16: Effects of tropical cyclone damage on Input-Output coefficients in the manufacturing sector aggregate (D)

Dependent Variables: *Input-Output coefficient (IO)*

	$IO^{D,A\&B}$	$IO^{D,C\&E}$	$IO^{D,D}$	$IO^{D,F}$	$IO^{D,G\text{-}H}$	$IO^{D,I}$	$IO^{D,J\text{-}P}$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$Damage_t$	0.00052*	-0.00031	-0.00152*	-0.00003*	-0.00033	-0.00029	-0.00036
	(0.00029)	(0.00028)	(0.00085)	(0.00002)	(0.00022)	(0.00022)	(0.00022)
	[0.0770]	[0.2632]	[0.0768]	[0.0811]	[0.1348]	[0.1899]	[0.1064]
$IO^{D,A\&B}_{t-1}$	0.85952***						
	(0.03335)						
	[0.0000]						
$IO^{D,C\&E}_{t-1}$		0.77462***					
		(0.04997)					
		[0.0000]					
$IO^{D,D}_{t-1}$			0.80588***				
			(0.04449)				
			[0.0000]				
$IO^{D,F}_{t-1}$				0.96723***			
				(0.06204)			
				[0.0000]			
$IO^{D,G\text{-}H}_{t-1}$					0.84009***		
					(0.03605)		
					[0.0000]		
$IO^{D,I}_{t-1}$						0.90409***	
						(0.06205)	
						[0.0000]	
$IO^{D,J\text{-}P}_{t-1}$							0.87878***
							(0.01853)
							[0.0000]
N	4,490	4,490	4,490	4,490	4,490	4,490	4,490
Clusters	182	182	182	182	182	182	182
P-value	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Mean DV	0.05578	0.03927	0.23938	0.00452	0.05355	0.03589	0.08555

Notes: $*p < 0.1, **p < 0.05, ***p < 0.01$. Panel OLS regression results with clustered standard errors by countries in parentheses (), and p-values in brackets []. The coefficients show the effect of a one standard deviation increase in tropical cyclone damage on the respective Input-Output coefficients. The standard deviations are 2,236,738 for the agricultural and 2,269,395 for the remaining sectors, calculated for the whole sample of positive wind speed observations. $Damage_t$ is the weighted damage measure for tropical cyclone intensity in year t. For the sector aggregate agriculture, hunting, forestry and fishing it is weighted by exposed agricultural land in t-1, whereas for the remaining sector aggregates it is weighted by exposed population in t-1. The dependent variables are Input-Output coefficients (IO) and can range between 0-1. For example the coefficient $IO^{D,F}_t$ displays how much input the sector aggregate D needs from sector aggregate F to produce one unit of output. The sector abbreviations represent the following sector aggregates: agriculture, hunting, forestry, and fishing (A&B), mining, and utilities (C&E), manufacturing (D), construction (F), wholesale, retail trade, restaurants, and hotels (G-H), transport, storage, and communication (I), other activities (J-P). All regressions include country and year fixed effects as well as country-specific linear trends.

Table 17: Regression results of the Input-Output factors for the construction sector aggregate (F)

Dependent Variables: *Input-Output coefficient (IO)*

	$IO^{F,A\&B}$	$IO^{F,C\&E}$	$IO^{F,D}$	$IO^{F,F}$	$IO^{F,G\text{-}H}$	$IO^{F,I}$	$IO^{F,J\text{-}P}$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$Damage_t$	0.00006***	-0.00006	0.00142*	-0.00073	0.00019	-0.00009	0.00053**
	(0.00002)	(0.00011)	(0.00078)	(0.00082)	(0.00023)	(0.00021)	(0.00023)
	[0.00111]	[0.57363]	[0.07080]	[0.37456]	[0.40417]	[0.67856]	[0.02526]
$IO^{F,A\&B}_{t-1}$	0.85276***						
	(0.02954)						
	[0.00000]						
$IO^{F,C\&E}_{t-1}$		0.81229***					
		(0.03102)					
		[0.00000]					
$IO^{F,D}_{t-1}$			0.77678***				
			(0.08966)				
			[0.00000]				
$IO^{F,F}_{t-1}$				0.85699***			
				(0.07010)			
				[0.00000]			
$IO^{F,G\text{-}H}_{t-1}$					0.83059***		
					(0.01923)		
					[0.00000]		
$IO^{F,I}_{t-1}$						0.79211***	
						(0.05507)	
						[0.00000]	
$IO^{F,J\text{-}P}_{t-1}$							0.86569***
							(0.01474)
							[0.00000]
N	4,490	4,490	4,490	4,490	4,490	4,490	4,490
Clusters	182	182	182	182	182	182	182
P-value	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Mean DV	0.00326	0.01606	0.20939	0.03962	0.06433	0.03951	0.09867

Notes: $*p < 0.1, **p < 0.05, ***p < 0.01$. Panel OLS regression results with clustered standard errors by countries in parentheses (), and p-values in brackets []. The coefficients show the effect of a one standard deviation increase in tropical cyclone damage on the respective Input-Output coefficients. The standard deviations are 2,236,738 for the agricultural and 2,269,395 for the remaining sectors, calculated for the whole sample of positive wind speed observations. $Damage_t$ is the weighted damage measure for tropical cyclone intensity in year t. For the sector aggregate agriculture, hunting, forestry and fishing it is weighted by exposed agricultural land in t-1, whereas for the remaining sector aggregates it is weighted by exposed population in t-1. The dependent variables are Input-Output coefficients (IO) and can range between 0-1. For example the coefficient $IO^{F,G\text{-}H}_t$ displays how much input the sector aggregate F needs from sector aggregate G-H to produce one unit of output. The sector abbreviations represent the following sector aggregates: agriculture, hunting, forestry, and fishing (A&B), mining, and utilities (C&E), manufacturing (D), construction (F), wholesale, retail trade, restaurants, and hotels (G-H), transport, storage, and communication (I), other activities (J-P). All regressions include country and year fixed effects as well as country-specific linear trends.

Table 18: Effects of tropical cyclone damage on Input-Output coefficients in the wholesale, retail trade, restaurants and hotels sector aggregate (G-H)

Dependent Variables: *Input-Output coefficient (IO)*

	$IO^{G\text{-}H,A\&B}$	$IO^{G\text{-}H,C\&E}$	$IO^{G\text{-}H,D}$	$IO^{G\text{-}H,F}$	$IO^{G\text{-}H,G\text{-}H}$	$IO^{G\text{-}H,I}$	$IO^{G\text{-}H,J\text{-}P}$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$Damage_t$	0.00011**	0.00010**	0.00058	0.00002	0.00158	-0.00001	0.00049
	(0.00005)	(0.00004)	(0.00045)	(0.00002)	(0.00119)	(0.00019)	(0.00063)
	[0.04378]	[0.01794]	[0.20337]	[0.32710]	[0.18587]	[0.96554]	[0.44368]
$IO^{G\&H,A\&B}_{t-1}$	0.86464***						
	(0.03825)						
	[0.00000]						
$IO^{G\&H,C\&E}_{t-1}$		0.82509***					
		(0.02879)					
		[0.00000]					
$IO^{G\&H,D}_{t-1}$			0.86836***				
			(0.03732)				
			[0.00000]				
$IO^{G\&H,F}_{t-1}$				0.79217***			
				(0.02664)			
				[0.00000]			
$IO^{G\&H,G\text{-}H}_{t-1}$					0.84379***		
					(0.07443)		
					[0.00000]		
$IO^{G\&H,I}_{t-1}$						0.87736***	
						(0.02081)	
						[0.00000]	
$IO^{G\&H,J\text{-}P}_{t-1}$							0.91386***
							(0.02899)
							[0.00000]
N	4,490	4,490	4,490	4,490	4,490	4,490	4,490
Clusters	182	182	182	182	182	182	182
P-value	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mean DV	0.00831	0.01580	0.07093	0.00617	0.05380	0.06116	0.13920

Notes: $*p < 0.1, **p < 0.05, ***p < 0.01$. Panel OLS regression results with clustered standard errors by countries in parentheses (), and p-values in brackets []. The coefficients show the effect of a one standard deviation increase in tropical cyclone damage on the respective Input-Output coefficients. The standard deviations are 2,236,738 for the agricultural and 2,269,395 for the remaining sectors, calculated for the whole sample of positive wind speed observations. $Damage_t$ is the weighted damage measure for tropical cyclone intensity in year t. For the sector aggregate agriculture, hunting, forestry and fishing it is weighted by exposed agricultural land in t-1, whereas for the remaining sector aggregates it is weighted by exposed population in t-1. The dependent variables are Input-Output coefficients (IO) and can range between 0-1. For example the coefficient $IO^{GH,F}_t$ displays how much input the sector aggregate G-H needs from sector aggregate F to produce one unit of output. The sector abbreviations represent the following sector aggregates: agriculture, hunting, forestry, and fishing (A&B), mining, and utilities (C&E), manufacturing (D), construction (F), wholesale, retail trade, restaurants, and hotels (G-H), transport, storage, and communication (I), other activities (J-P). All regressions include country and year fixed effects as well as country-specific linear trends.

Table 19: Effects of tropical cyclone damage on Input-Output coefficients in the transport, communication and infrastructure sector aggregate (I)

Dependent Variables: *Input-Output coefficient (IO)*

	$IO^{I,A\&B}$	$IO^{I,C\&E}$	$IO^{I,D}$	$IO^{I,F}$	$IO^{I,G\text{-}H}$	$IO^{I,I}$	$IO^{I,J\text{-}P}$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$Damage_t$	0.00001	-0.00002	0.00039	0.00002	0.00001	0.00061	0.00014
	(0.00001)	(0.00004)	(0.00042)	(0.00003)	(0.00016)	(0.00055)	(0.00072)
	[0.37763]	[0.59378]	[0.35267]	[0.48078]	[0.96794]	[0.27302]	[0.84708]
$IO^{I,A\&B}_{t-1}$	0.75844***						
	(0.06742)						
	[0.00000]						
$IO^{I,C\&E}_{t-1}$		0.83975***					
		(0.03543)					
		[0.00000]					
$IO^{I,D}_{t-1}$			0.79606***				
			(0.03055)				
			[0.00000]				
$IO^{I,F}_{t-1}$				0.84223***			
				(0.02507)			
				[0.00000]			
$IO^{I,G\text{-}H}_{t-1}$					0.81081***		
					(0.07214)		
					[0.00000]		
$IO^{I,I}_{t-1}$						0.75830***	
						(0.09322)	
						[0.00000]	
$IO^{I,J\text{-}P}_{t-1}$							0.85232***
							(0.02148)
							[0.00000]
N	4,490	4,490	4,490	4,490	4,490	4,490	4,490
Clusters	182	182	182	182	182	182	182
P-value	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Mean DV	0.00041	0.00996	0.06178	0.00877	0.02755	0.10965	0.12995

Notes: $*p < 0.1, **p < 0.05, ***p < 0.01$. Panel OLS regression results with clustered standard errors by countries in parentheses (), and p-values in brackets []. The coefficients show the effect of a one standard deviation increase in tropical cyclone damage on the respective Input-Output coefficients. The standard deviations are 2,236,738 for the agricultural and 2,269,395 for the remaining sectors, calculated for the whole sample of positive wind speed observations. $Damage_t$ is the weighted damage measure for tropical cyclone intensity in year t. For the sector aggregate agriculture, hunting, forestry and fishing it is weighted by exposed agricultural land in t-1, whereas for the remaining sector aggregates it is weighted by exposed population in t-1. The dependent variables are Input-Output coefficients (IO) and can range between 0-1. For example the coefficient $IO^{I,F}_t$ displays how much input the sector aggregate I needs from sector aggregate F to produce one unit of output. The sector abbreviations represent the following sector aggregates: agriculture, hunting, forestry, and fishing (A&B), mining, and utilities (C&E), manufacturing (D), construction (F), wholesale, retail trade, restaurants, and hotels (G-H), transport, storage, and communication (I), other activities (J-P). All regressions include country and year fixed effects as well as country-specific linear trends.

Table 20: Effects of tropical cyclone damage on Input-Output coefficients in the other activities sector aggregate (J-P)

Dependent Variables: *Input-Output coefficient (IO)*

	$IO^{J\text{-}P,A\&B}$	$IO^{J\text{-}P,C\&E}$	$IO^{J\text{-}P,D}$	$IO^{J\text{-}P,F}$	$IO^{J\text{-}P,G\text{-}H}$	$IO^{J\text{-}P,I}$	$IO^{J\text{-}P,J\text{-}P}$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$Damage_t$	0.00004	0.00000	0.00043*	0.00003	0.00004	-0.00003	-0.00012
	(0.00003)	(0.00005)	(0.00023)	(0.00008)	(0.00009)	(0.00016)	(0.00039)
	[0.24367]	[0.93791]	[0.05994]	[0.73487]	[0.70197]	[0.85695]	[0.75992]
$IO^{J\text{-}P,A\&B}_{t-1}$	0.71852***						
	(0.27363)						
	[0.00938]						
$IO^{J\text{-}P,C\&E}_{t-1}$		0.87298***					
		(0.03855)					
		[0.00000]					
$IO^{J\text{-}P,D}_{t-1}$			0.77269***				
			(0.08736)				
			[0.00000]				
$IO^{J\text{-}P,F}_{t-1}$				0.80920***			
				(0.03406)			
				[0.00000]			
$IO^{J\text{-}P,G\text{-}H}_{t-1}$					0.79393***		
					(0.05463)		
					[0.00000]		
$IO^{J\text{-}P,I}_{t-1}$						0.88210***	
						(0.04426)	
						[0.00000]	
$IO^{J\text{-}P,J\text{-}P}_{t-1}$							0.76232***
							(0.07446)
							[0.00000]
N	4,490	4,490	4,490	4,490	4,490	4,490	4,490
Clusters	182	182	182	182	182	182	182
P-value	0.00001	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Mean DV	0.00266	0.01221	0.05630	0.01723	0.02307	0.03172	0.14495

Notes: $*p < 0.1, **p < 0.05, ***p < 0.01$. Panel OLS regression results with clustered standard errors by countries in parentheses (), and p-values in brackets []. The coefficients show the effect of a one standard deviation increase in tropical cyclone damage on the respective Input-Output coefficients. The standard deviations are 2,236,738 for the agricultural and 2,269,395 for the remaining sectors, calculated for the whole sample of positive wind speed observations. $Damage_t$ is the weighted damage measure for tropical cyclone intensity in year t. For the sector aggregate agriculture, hunting, forestry and fishing it is weighted by exposed agricultural land in t-1, whereas for the remaining sector aggregates it is weighted by exposed population in t-1. The dependent variables are Input-Output coefficients (IO) and can range between 0-1. For example the coefficient $IO^{J\text{-}P,F}_t$ displays how much input the sector aggregate JP needs from sector aggregate F to produce one unit of output. The sector abbreviations represent the following sector aggregates: agriculture, hunting, forestry, and fishing (A&B), mining, and utilities (C&E), manufacturing (D), construction (F), wholesale, retail trade, restaurants, and hotels (G-H), transport, storage, and communication (I), other activities (J-P). All regressions include country and year fixed effects as well as country-specific linear trends.

Table 21: Robustness – Input-Output sample

Dependent Variables: *Per capita growth rate (%) in sector aggregate*

	Agriculture, hunting, forestry, fishing	Mining, utilities	Manu-facturing	Construc-tion	Wholesale, retail trade, restau-rants, hotels	Transport, storage, communi-cation	Other activities
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Damage_t	-2.6738***	-0.7476	0.0793	-1.2425	-1.1227***	-0.0780	-0.0272
	(0.6167)	(0.5568)	(0.6927)	(1.2898)	(0.3678)	(0.4348)	(0.3057)
	[0.0000]	[0.1810]	[0.9090]	[0.3367]	[0.0026]	[0.8578]	[0.9293]
N	4,490	4,490	4,490	4,490	4,490	4,490	4,490
Clusters	182	182	182	182	182	182	182
P-value	0.0000	0.1810	0.9090	0.3367	0.0026	0.8578	0.9293
Mean DV	0.8402	3.3496	2.5646	3.8989	2.7094	4.1525	2.4175

Notes: $*p < 0.1, **p < 0.05, ***p < 0.01$. Panel OLS regression results with clustered standard errors by countries in parentheses (), and p-values in brackets []. The coefficients show the effect of a one standard deviation increase in tropical cyclone damage on the per capita growth rate in a given sectoral aggregate. The standard deviations are 2,236,738 for the agricultural and 2,269,395 for the remaining sectors, calculated for the whole sample of positive wind speed observations. The sample covers the period 1990 through 2015. Damage_t is the weighted damage measure for tropical cyclone intensity in year t. For the sector aggregate agriculture, hunting, forestry and fishing it is weighted by exposed agricultural land in t-1, whereas for the remaining sector aggregates it is weighted by exposed population in t-1. All regressions include country and year fixed effects as well as country-specific linear trends.

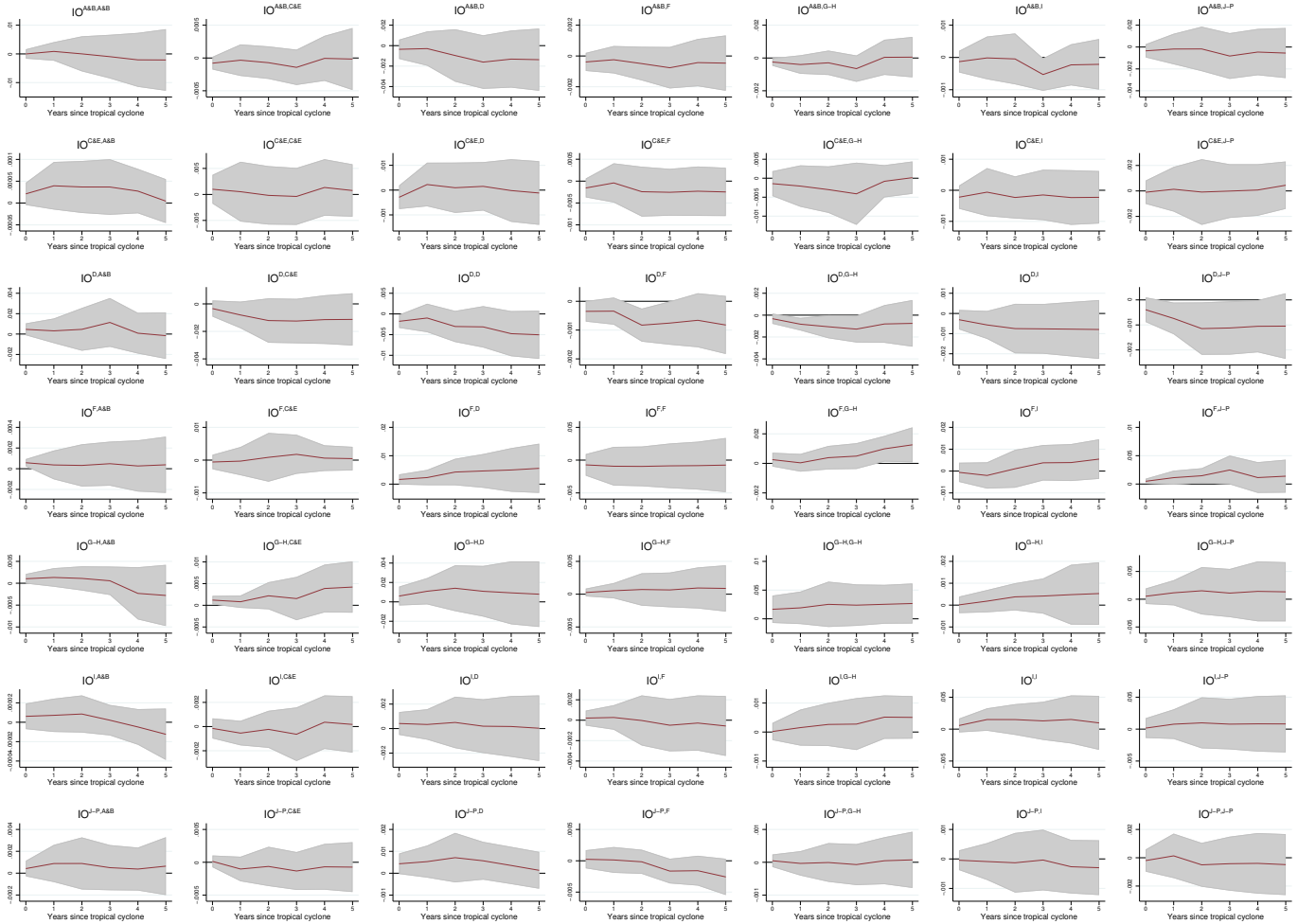

Figure 16: Cumulative lagged influence of tropical cyclone damage on Input-Output coefficients (5 years)

Notes: The y-axis displays the cumulative coefficient of tropical cyclone damage on the respective Input-Output coefficient and the x-axis shows the years since the tropical cyclone passed. The gray areas represent the respective 95% confidence interval and the red line the respective cumulative (connected) point estimates.

A.6 Robustness Statistics

A.6.1 Direct Effects

Table 22: Robustness – Placebo test

Dependent Variables: *Per capita growth rate (%) in sector aggregate*

	Agriculture, hunting, forestry, fishing	Mining, utilities	Manu-facturing	Construc-tion	Wholesale, retail trade, restau-rants, hotels	Transport, storage, communi-cation	Other activities
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Damage_{t+2}	0.2800	0.1413	-0.1306	0.3074	-0.0170	0.2501	-0.0656
	(0.2114)	(0.3928)	(0.3284)	(0.5417)	(0.2709)	(0.2010)	(0.1130)
	[0.1868]	[0.7195]	[0.6912]	[0.5710]	[0.9499]	[0.2147]	[0.5623]
N	8,092	8,092	8,092	8,092	8,092	8,092	8,092
Clusters	205	205	205	205	205	205	205
P-value	0.1868	0.7195	0.6912	0.5710	0.9499	0.2147	0.5623
Mean DV	0.8735	3.9027	2.6874	3.2847	2.5517	3.7559	2.5872

Notes: $*p < 0.1, **p < 0.05, ***p < 0.01$. Panel OLS regression results with clustered standard errors by countries in parentheses (), and p-values in brackets []. The coefficients show the effect of a one standard deviation increase in tropical cyclone damage on the per capita growth rate in a given sectoral aggregate. The standard deviations are 2,236,738 for the agricultural and 2,269,395 for the remaining sectors, calculated for the whole sample of positive wind speed observations. The sample covers the period 1971 through 2015. Damage_{t+2} is the weighted damage measure for tropical cyclone intensity in year t+2. For the sector aggregate agriculture, hunting, forestry and fishing it is weighted by exposed agricultural land in t+1, whereas for the remaining sector aggregates it is weighted by exposed population in t+1. All regressions include country and year fixed effects as well as country-specific linear trends.

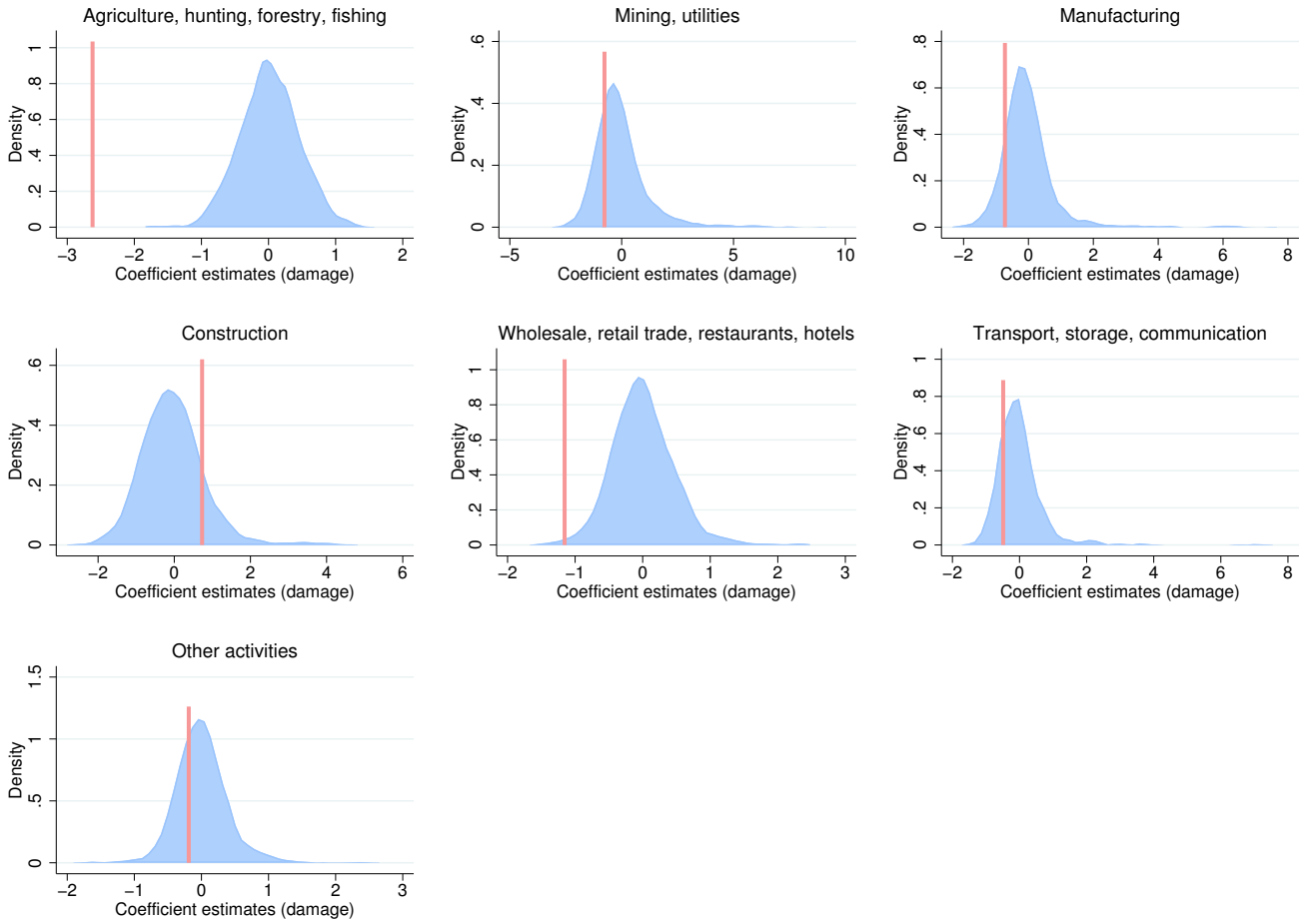

Figure 17: Randomization tests – Sectoral GDP growth

Notes: This figure shows the Fisher randomization test results for the $damage_t$ variable where the years are permuted for 2,000 repetitions. It displays the kernel density plots (blue) of the randomization coefficient estimates together the results of model **??** (red bar).

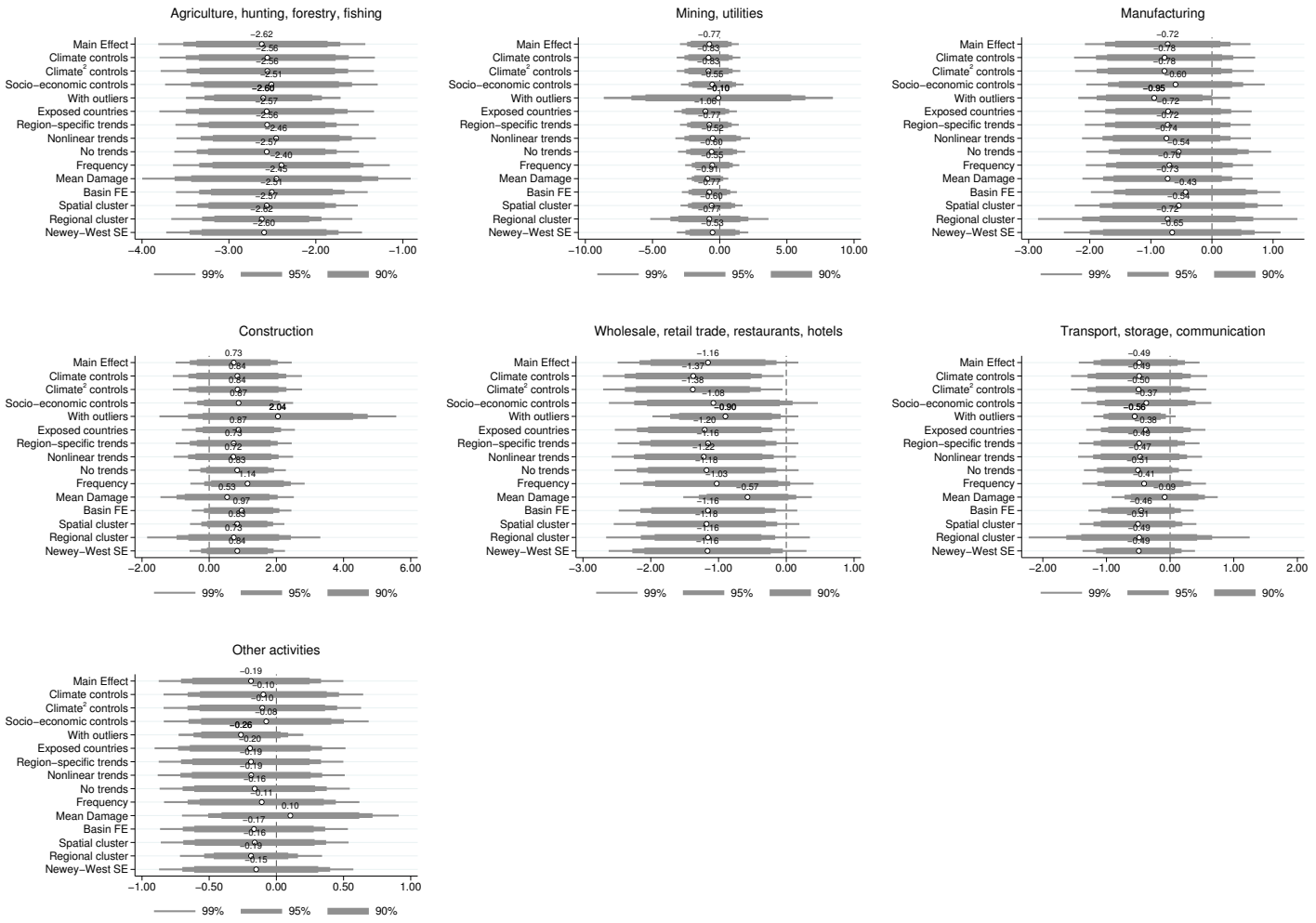

Figure 18: Overview robustness tests – Sectoral GDP growth

Notes: Coefficient plots for different robustness tests for direct effects of tropical cyclone damage of model **??**. The underlying regressions are shown in Tables 23-46.

Table 23: Robustness – Temperature control variables

Dependent Variables: *Per capita growth rate (%) in sector aggregate*

	Agriculture, hunting, forestry, fishing	Mining, utilities	Manu-facturing	Construc-tion	Wholesale, retail trade, restau-rants, hotels	Transport, storage, communi-cation	Other activities
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Damage_t	-2.5247***	-0.8171	-0.6918	0.8478	-1.3570***	-0.4830	-0.1038
	(0.4758)	(0.9290)	(0.5825)	(0.7365)	(0.5137)	(0.4061)	(0.2855)
	[0.0000]	[0.3802]	[0.2364]	[0.2511]	[0.0089]	[0.2358]	[0.7167]
Temperature_t	-0.4693	-0.2674	-0.0911	-0.2456	-0.2755	0.5192	0.2818
	(0.3236)	(0.9645)	(0.6324)	(0.5503)	(0.3549)	(0.4588)	(0.3586)
	[0.1486]	[0.7819]	[0.8856]	[0.6559]	[0.4385]	[0.2592]	[0.4330]
N	7,992	7,992	7,992	7,992	7,992	7,992	7,992
Clusters	193	193	193	193	193	193	193
P-value	0.0000	0.6779	0.4863	0.4668	0.0201	0.3020	0.6974
Mean DV	0.8441	3.7568	2.6349	3.2407	2.4850	3.7287	2.5230

Notes: $*p < 0.1, **p < 0.05, ***p < 0.01$. Panel OLS regression results with clustered standard errors by countries in parentheses (), and p-values in brackets []. The coefficients show the effect of a one standard deviation increase in tropical cyclone damage on the per capita growth rate in a given sectoral aggregate. The standard deviations are 2,236,738 for the agricultural and 2,269,395 for the remaining sectors, calculated for the whole sample of positive wind speed observations. The sample covers the period 1971 through 2015. Damage_t is the weighted damage measure for tropical cyclone intensity in year t. For the sector aggregate agriculture, hunting, forestry and fishing it is weighted by exposed agricultural land in t-1, whereas for the remaining sector aggregates it is weighted by exposed population in t-1. Temperature is measured in degree Celsius. All regressions include country and year fixed effects as well as country-specific linear trends.

Table 24: Robustness – Precipitation control variables

Dependent Variables: *Per capita growth rate (%) in sector aggregate*

	Agriculture, hunting, forestry, fishing	Mining, utilities	Manu-facturing	Construc-tion	Wholesale, retail trade, restau-rants, hotels	Transport, storage, communi-cation	Other activities
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Damage_t	-2.5641***	-0.8320	-0.7753	0.8379	-1.3739***	-0.4842	-0.0960
	(0.4760)	(0.9105)	(0.5694)	(0.7375)	(0.5127)	(0.4124)	(0.2849)
	[0.0000]	[0.3619]	[0.1749]	[0.2573]	[0.0080]	[0.2418]	[0.7366]
Precipitation_t	0.0008	0.0003	0.0019	0.0002	0.0004	0.0000	-0.0002
	(0.0005)	(0.0013)	(0.0016)	(0.0015)	(0.0004)	(0.0007)	(0.0003)
	[0.1204]	[0.7892]	[0.2435]	[0.8765]	[0.3310]	[0.9829]	[0.5946]
N	7,992	7,992	7,992	7,992	7,992	7,992	7,992
Clusters	193	193	193	193	193	193	193
P-value	0.0000	0.5776	0.2191	0.5078	0.0221	0.4908	0.8182
Mean DV	0.8441	3.7568	2.6349	3.2407	2.4850	3.7287	2.5230

Notes: $*p < 0.1, **p < 0.05, ***p < 0.01$. Panel OLS regression results with clustered standard errors by countries in parentheses (), and p-values in brackets []. The coefficients show the effect of a one standard deviation increase in tropical cyclone damage on the per capita growth rate in a given sectoral aggregate. The standard deviations are 2,236,738 for the agricultural and 2,269,395 for the remaining sectors, calculated for the whole sample of positive wind speed observations. The sample covers the period 1971 through 2015. Damage_t is the weighted damage measure for tropical cyclone intensity in year t. For the sector aggregate agriculture, hunting, forestry and fishing it is weighted by exposed agricultural land in t-1, whereas for the remaining sector aggregates it is weighted by exposed population in t-1. Precipitation is measured in milimeters. All regressions include country and year fixed effects as well as country-specific linear trends.

Table 25: Robustness – Precipitation and temperature control variables

Dependent Variables: *Per capita growth rate (%) in sector aggregate*

	Agriculture, hunting, forestry, fishing	Mining, utilities	Manu-facturing	Construc-tion	Wholesale, retail trade, restau-rants, hotels	Transport, storage, communi-cation	Other activities
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Damage_t	-2.5590***	-0.8312	-0.7752	0.8387	-1.3730***	-0.4860	-0.0969
	(0.4760)	(0.9102)	(0.5694)	(0.7388)	(0.5129)	(0.4113)	(0.2856)
	[0.0000]	[0.3623]	[0.1750]	[0.2577]	[0.0081]	[0.2388]	[0.7348]
Precipitation_t	0.0007	0.0003	0.0019	0.0002	0.0004	0.0001	-0.0002
	(0.0005)	(0.0013)	(0.0016)	(0.0015)	(0.0004)	(0.0007)	(0.0003)
	[0.1390]	[0.8013]	[0.2334]	[0.8887]	[0.3650]	[0.9198]	[0.6437]
Temperature_t	-0.4423	-0.2554	-0.0202	-0.2378	-0.2619	0.5217	0.2760
	(0.3204)	(0.9533)	(0.5958)	(0.5401)	(0.3556)	(0.4599)	(0.3556)
	[0.1690]	[0.7891]	[0.9730]	[0.6602]	[0.4623]	[0.2580]	[0.4386]
N	7,992	7,992	7,992	7,992	7,992	7,992	7,992
Clusters	193	193	193	193	193	193	193
P-value	0.0000	0.7682	0.2853	0.6748	0.0369	0.4925	0.8517
Mean DV	0.8441	3.7568	2.6349	3.2407	2.4850	3.7287	2.5230

Notes: $*p < 0.1, **p < 0.05, ***p < 0.01$. Panel OLS regression results with clustered standard errors by countries in parentheses (), and p-values in brackets []. The coefficients show the effect of a one standard deviation increase in tropical cyclone damage on the per capita growth rate in a given sectoral aggregate. The standard deviations are 2,236,738 for the agricultural and 2,269,395 for the remaining sectors, calculated for the whole sample of positive wind speed observations. The sample covers the period 1971 through 2015. Damage_t is the weighted damage measure for tropical cyclone intensity in year t. For the sector aggregate agriculture, hunting, forestry and fishing it is weighted by exposed agricultural land in t-1, whereas for the remaining sector aggregates it is weighted by exposed population in t-1. Precipitation is measured in milimeters and temperature in degree Celsius. All regressions include country and year fixed effects as well as country-specific linear trends.

Table 26: Robustness – Precipitation and temperature squared control variables

Dependent Variables: *Per capita growth rate (%) in sector aggregate*

	Agriculture, hunting, forestry, fishing	Mining, utilities	Manu-facturing	Construc-tion	Wholesale, retail trade, restau-rants, hotels	Transport, storage, communi-cation	Other activities
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Damage_t	-2.5586***	-0.8335	-0.7780	0.8432	-1.3795***	-0.4952	-0.1046
	(0.4716)	(0.9085)	(0.5621)	(0.7390)	(0.5088)	(0.4082)	(0.2825)
	[0.0000]	[0.3601]	[0.1679]	[0.2553]	[0.0073]	[0.2265]	[0.7117]
Precipitation_t	0.0074***	0.0000	0.0058***	-0.0008	0.0033***	0.0043***	0.0028***
	(0.0018)	(0.0045)	(0.0021)	(0.0026)	(0.0011)	(0.0015)	(0.0010)
	[0.0000]	[0.9949]	[0.0055]	[0.7661]	[0.0024]	[0.0040]	[0.0034]
Precipitation_t^2	-0.0000***	0.0000	-0.0000**	0.0000	-0.0000***	-0.0000***	-0.0000***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
	[0.0001]	[0.9333]	[0.0320]	[0.6513]	[0.0012]	[0.0003]	[0.0009]
Temperature_t	0.5378	-0.6870	0.8767	0.0846	-0.2075	0.6124	0.1631
	(0.3452)	(0.7100)	(0.7258)	(0.6794)	(0.5370)	(0.5837)	(0.5643)
	[0.1209]	[0.3345]	[0.2286]	[0.9010]	[0.6996]	[0.2955]	[0.7729]
Precipitation_t^2	-0.0343***	0.0168	-0.0328*	-0.0133	-0.0003	-0.0009	0.0063
	(0.0117)	(0.0409)	(0.0196)	(0.0210)	(0.0137)	(0.0165)	(0.0130)
	[0.0037]	[0.6821]	[0.0961]	[0.5284]	[0.9829]	[0.9554]	[0.6292]
N	7,992	7,992	7,992	7,992	7,992	7,992	7,992
Clusters	193	193	193	193	193	193	193
P-value	0.0000	0.8272	0.0047	0.8527	0.0062	0.0046	0.0175
Mean DV	0.8441	3.7568	2.6349	3.2407	2.4850	3.7287	2.5230

Notes: $*p < 0.1, **p < 0.05, ***p < 0.01$. Panel OLS regression results with clustered standard errors by countries in parentheses (), and p-values in brackets []. The coefficients show the effect of a one standard deviation increase in tropical cyclone damage on the per capita growth rate in a given sectoral aggregate. The standard deviations are 2,236,738 for the agricultural and 2,269,395 for the remaining sectors, calculated for the whole sample of positive wind speed observations. The sample covers the period 1971 through 2015. Damage_t is the weighted damage measure for tropical cyclone intensity in year t. For the sector aggregate agriculture, hunting, forestry and fishing it is weighted by exposed agricultural land in t-1, whereas for the remaining sector aggregates it is weighted by exposed population in t-1. Precipitation is measured in milimeters and temperature in degree Celsius. All regressions include country and year fixed effects as well as country-specific linear trends.

Table 27: Robustness – Socioeconomic control variables

Dependent Variables: *Per capita growth rate (%) in sector aggregate*

	Agriculture, hunting, forestry, fishing	Mining, utilities	Manu-facturing	Construc-tion	Wholesale, retail trade, restau-rants, hotels	Transport, storage, communi-cation	Other activities
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Damage_{t}	-2.5111***	-0.5517	-0.5968	0.8748	-1.0761*	-0.3748	-0.0754
	(0.4702)	(0.8971)	(0.5615)	(0.6245)	(0.5929)	(0.3934)	(0.2932)
	[0.0000]	[0.5392]	[0.2891]	[0.1628]	[0.0710]	[0.3419]	[0.7973]
Log pc value added_{t-1}	-8.6382***	-10.3300***	-14.7435*	-12.7315***	-7.6492***	-8.5118***	-7.2226***
	(1.0997)	(3.6141)	(7.9749)	(3.6421)	(1.1502)	(1.9726)	(1.2506)
	[0.0000]	[0.0047]	[0.0660]	[0.0006]	[0.0000]	[0.0000]	[0.0000]
Population growth_{t-1}	-0.2484	0.5531	0.7243	0.5887	0.0752	-0.1808	-0.0675
	(0.1671)	(0.6103)	(0.8187)	(0.5371)	(0.1833)	(0.4064)	(0.1861)
	[0.1388]	[0.3659]	[0.3774]	[0.2743]	[0.6822]	[0.6568]	[0.7173]
Capital growth_{t-1}	0.0009	0.0272	0.0040	0.0412*	0.0535**	0.0358*	0.0060
	(0.0058)	(0.0165)	(0.0270)	(0.0240)	(0.0254)	(0.0187)	(0.0088)
	[0.8712]	[0.1018]	[0.8828]	[0.0873]	[0.0365]	[0.0561]	[0.4967]
Trade openness_{t-1}	0.0008***	0.0026**	0.0027*	0.0019**	0.0008**	0.0006	0.0009**
	(0.0002)	(0.0013)	(0.0014)	(0.0008)	(0.0004)	(0.0003)	(0.0004)
	[0.0014]	[0.0434]	[0.0648]	[0.0216]	[0.0442]	[0.1119]	[0.0156]
N	8,249	8,249	8,249	8,249	8,249	8,249	8,249
Clusters	203	203	203	203	203	203	203
P-value	0.0000	0.0275	0.0000	0.0000	0.0000	0.0004	0.0000
Mean DV	0.8576	3.7800	2.6098	3.2809	2.5274	3.7516	2.5350

Notes: $*p < 0.1, **p < 0.05, ***p < 0.01$. Panel OLS regression results with clustered standard errors by countries in parentheses (), and p-values in brackets []. The coefficients show the effect of a one standard deviation increase in tropical cyclone damage on the per capita growth rate in a given sectoral aggregate. The standard deviations are 2,236,738 for the agricultural and 2,269,395 for the remaining sectors, calculated for the whole sample of positive wind speed observations. The sample covers the period 1971 through 2015. Damage_{t} is the weighted damage measure for tropical cyclone intensity in year t. For the sector aggregate agriculture, hunting, forestry and fishing it is weighted by exposed agricultural land in t-1, whereas for the remaining sector aggregates it is weighted by exposed population in t-1. All regressions include country and year fixed effects, country-specific linear trends, and the respective socioeconomic control variables, which are all measured in t-1: log per capita value added of the re-spective sector, population growth rate, openness, investment rate.

Table 28: Robustness – Socioeconomic control variables for sector aggregate A&B

Dependent Variables: *Per capita growth rate (%) in sector aggregate*

	Agriculture, hunting, forestry, fishing	Agriculture, hunting, forestry, fishing	Agriculture, hunting, forestry, fishing	Agriculture, hunting, forestry, fishing
	(1)	(2)	(3)	(4)
Damage_{t}	-2.5365***	-2.6476***	-2.6670***	-2.6664***
	(0.4652)	(0.4647)	(0.4607)	(0.4607)
	[0.0000]	[0.0000]	[0.0000]	[0.0000]
Log pc value added_{t-1}	-8.5243***			
	(1.0985)			
	[0.0000]			
Population growth_{t-1}		-0.2480		
		(0.1627)		
		[0.1291]		
Capital growth_{t-1}			-0.0005	
			(0.0059)	
			[0.9267]	
Trade openness_{t-1}				0.0002
				(0.0002)
				[0.3385]
N	8,249	8,249	8,249	8,249
Clusters	203	203	203	203
P-value	0.0000	0.0000	0.0000	0.0000
Mean DV	0.8576	0.8576	0.8576	0.8576

Notes: $*p < 0.1, **p < 0.05, ***p < 0.01$. Panel OLS regression results with clustered standard errors by countries in parentheses (), and p-values in brackets []. The coefficients show the effect of a one standard deviation increase in tropical cyclone damage on the per capita growth rate in a given sectoral aggregate. The standard deviations are 2,236,738 for the agricultural and 2,269,395 for the remaining sectors, calculated for the whole sample of positive wind speed observations. The sample covers the period 1971 through 2015. Damage_{t} is the weighted damage measure for tropical cyclone intensity in year t. For the sector aggregate agriculture, hunting, forestry and fishing it is weighted by exposed agricultural land in t-1, whereas for the remaining sector aggregates it is weighted by exposed population in t-1. All regressions include country and year fixed effects, country-specific linear trends, and the respective socioeconomic control variables, which are all measured in t-1: log per capita value added of the re-spective sector, population growth rate, openness, investment rate.

Table 29: Robustness – Socioeconomic control variables for sector aggregate C&E

Dependent Variables: *Per capita growth rate (%) in sector aggregate*

	Mining, utilities	Mining, utilities	Mining, utilities	Mining, utilities
	(1)	(2)	(3)	(4)
Damage_{t}	-0.5328	-0.8364	-0.8396	-0.8080
	(0.8298)	(0.7722)	(0.7741)	(0.7727)
	[0.5215]	[0.2800]	[0.2794]	[0.2969]
Log pc value $\text{added}_{t\text{-}1}$	-10.1346***			
	(3.5445)			
	[0.0047]			
$\text{Population growth}_{t\text{-}1}$		0.2839		
		(0.6254)		
		[0.6503]		
$\text{Capital growth}_{t\text{-}1}$			0.0327*	
			(0.0169)	
			[0.0550]	
$\text{Trade openness}_{t\text{-}1}$				0.0010
				(0.0010)
				[0.3256]
N	8,249	8,249	8,249	8,249
Clusters	203	203	203	203
P-value	0.0093	0.5181	0.1043	0.3530
Mean DV	3.7800	3.7800	3.7800	3.7800

Notes: $*p < 0.1, **p < 0.05, ***p < 0.01$. Panel OLS regression results with clustered standard errors by countries in parentheses (), and p-values in brackets []. The coefficients show the effect of a one standard deviation increase in tropical cyclone damage on the per capita growth rate in a given sectoral aggregate. The standard deviations are 2,236,738 for the agricultural and 2,269,395 for the remaining sectors, calculated for the whole sample of positive wind speed observations. The sample covers the period 1971 through 2015. Damage_{t} is the weighted damage measure for tropical cyclone intensity in year t. For the sector aggregate agriculture, hunting, forestry and fishing it is weighted by exposed agricultural land in t-1, whereas for the remaining sector aggregates it is weighted by exposed population in t-1. All regressions include country and year fixed effects, country-specific linear trends, and the respective socioeconomic control variables, which are all measured in t-1: log per capita value added of the re-spective sector, population growth rate, openness, investment rate.

Table 30: Robustness – Socioeconomic control variables for sector aggregate D

Dependent Variables: *Per capita growth rate (%) in sector aggregate*

	Manu-facturing	Manu-facturing	Manu-facturing	Manu-facturing
	(1)	(2)	(3)	(4)
Damage_{t}	-0.5286	-0.7829*	-0.7348	-0.7210
	(0.5327)	(0.4602)	(0.4668)	(0.4655)
	[0.3222]	[0.0904]	[0.1170]	[0.1230]
Log pc value added_{t-1}	-14.4572*			
	(7.8463)			
	[0.0669]			
Population growth_{t-1}		0.7290		
		(0.8938)		
		[0.4157]		
Capital growth_{t-1}			0.0128	
			(0.0213)	
			[0.5470]	
Trade openness_{t-1}				0.0006**
				(0.0003)
				[0.0436]
N	8,249	8,249	8,249	8,249
Clusters	203	203	203	203
P-value	0.0447	0.1760	0.2657	0.0469
Mean DV	2.6098	2.6098	2.6098	2.6098

Notes: $*p < 0.1, **p < 0.05, ***p < 0.01$. Panel OLS regression results with clustered standard errors by countries in parentheses (), and p-values in brackets []. The coefficients show the effect of a one standard deviation increase in tropical cyclone damage on the per capita growth rate in a given sectoral aggregate. The standard deviations are 2,236,738 for the agricultural and 2,269,395 for the remaining sectors, calculated for the whole sample of positive wind speed observations. The sample covers the period 1971 through 2015. Damage_{t} is the weighted damage measure for tropical cyclone intensity in year t. For the sector aggregate agriculture, hunting, forestry and fishing it is weighted by exposed agricultural land in t-1, whereas for the remaining sector aggregates it is weighted by exposed population in t-1. All regressions include country and year fixed effects, country-specific linear trends, and the respective socioeconomic control variables, which are all measured in t-1: log per capita value added of the re-spective sector, population growth rate, openness, investment rate.

Table 31: Robustness – Socioeconomic control variables for sector aggregate F

Dependent Variables: *Per capita growth rate (%) in sector aggregate*

	Construc-tion	Construc-tion	Construc-tion	Construc-tion
	(1)	(2)	(3)	(4)
Damage_{t}	0.8510	0.6745	0.6548	0.6910
	(0.5943)	(0.6648)	(0.6539)	(0.6606)
	[0.1537]	[0.3116]	[0.3179]	[0.2968]
Log pc value $\text{added}_{t\text{-}1}$	-12.4440***			
	(3.5391)			
	[0.0005]			
Population $\text{growth}_{t\text{-}1}$		0.1896		
		(0.4891)		
		[0.6987]		
Capital $\text{growth}_{t\text{-}1}$			0.0440**	
			(0.0216)	
			[0.0430]	
Trade $\text{openness}_{t\text{-}1}$				0.0002
				(0.0003)
				[0.4814]
N	8,249	8,249	8,249	8,249
Clusters	203	203	203	203
P-value	0.0012	0.5386	0.0705	0.4603
Mean DV	3.2809	3.2809	3.2809	3.2809

Notes: $*p < 0.1, **p < 0.05, ***p < 0.01$. Panel OLS regression results with clustered standard errors by countries in parentheses (), and p-values in brackets []. The coefficients show the effect of a one standard deviation increase in tropical cyclone damage on the per capita growth rate in a given sectoral aggregate. The standard deviations are 2,236,738 for the agricultural and 2,269,395 for the remaining sectors, calculated for the whole sample of positive wind speed observations. The sample covers the period 1971 through 2015. Damage_{t} is the weighted damage measure for tropical cyclone intensity in year t. For the sector aggregate agriculture, hunting, forestry and fishing it is weighted by exposed agricultural land in t-1, whereas for the remaining sector aggregates it is weighted by exposed population in t-1. All regressions include country and year fixed effects, country-specific linear trends, and the respective socioeconomic control variables, which are all measured in t-1: log per capita value added of the re-spective sector, population growth rate, openness, investment rate.

Table 32: Robustness – Socioeconomic control variables for sector aggregate G–H

Dependent Variables: *Per capita growth rate (%) in sector aggregate*

	Wholesale, retail trade, restau-rants, hotels	Wholesale, retail trade, restau-rants, hotels	Wholesale, retail trade, restau-rants, hotels	Wholesale, retail trade, restau-rants, hotels
	(1)	(2)	(3)	(4)
Damage_{t}	-0.9141	-1.0459*	-1.0937**	-1.0486*
	(0.6028)	(0.5453)	(0.5456)	(0.5460)
	[0.1310]	[0.0565]	[0.0464]	[0.0562]
$\text{Log pc value added}_{t-1}$	-7.6211***			
	(1.1515)			
	[0.0000]			
$\text{Population growth}_{t-1}$		-0.0566		
		(0.2039)		
		[0.7815]		
$\text{Capital growth}_{t-1}$			0.0548**	
			(0.0263)	
			[0.0385]	
$\text{Trade openness}_{t-1}$				0.0003
				(0.0002)
				[0.1595]
N	8,249	8,249	8,249	8,249
Clusters	203	203	203	203
P-value	0.0000	0.1531	0.0202	0.0610
Mean DV	2.5274	2.5274	2.5274	2.5274

Notes: $*p < 0.1, **p < 0.05, ***p < 0.01$. Panel OLS regression results with clustered standard errors by countries in parentheses (), and p-values in brackets []. The coefficients show the effect of a one standard deviation increase in tropical cyclone damage on the per capita growth rate in a given sectoral aggregate. The standard deviations are 2,236,738 for the agricultural and 2,269,395 for the remaining sectors, calculated for the whole sample of positive wind speed observations. The sample covers the period 1971 through 2015. Damage_{t} is the weighted damage measure for tropical cyclone intensity in year t. For the sector aggregate agriculture, hunting, forestry and fishing it is weighted by exposed agricultural land in t-1, whereas for the remaining sector aggregates it is weighted by exposed population in t-1. All regressions include country and year fixed effects, country-specific linear trends, and the respective socioeconomic control variables, which are all measured in t-1: log per capita value added of the re-spective sector, population growth rate, openness, investment rate.

Table 33: Robustness – Socioeconomic control variables for sector aggregate I

Dependent Variables: *Per capita growth rate (%) in sector aggregate*

	Transport, storage, communi-cation	Transport, storage, communi-cation	Transport, storage, communi-cation	Transport, storage, communi-cation
	(1)	(2)	(3)	(4)
Damage_{t}	-0.3690	-0.4633	-0.5150	-0.4829
	(0.4063)	(0.3740)	(0.3775)	(0.3823)
	[0.3648]	[0.2169]	[0.1740]	[0.2080]
Log pc value added_{t-1}	-8.5883***			
	(1.9869)			
	[0.0000]			
$\text{Population growth}_{t-1}$		-0.2716		
		(0.4565)		
		[0.5525]		
$\text{Capital growth}_{t-1}$			0.0380*	
			(0.0206)	
			[0.0663]	
$\text{Trade openness}_{t-1}$				0.0004
				(0.0002)
				[0.1348]
N	8,249	8,249	8,249	8,249
Clusters	203	203	203	203
P-value	0.0001	0.4088	0.0604	0.1841
Mean DV	3.7516	3.7516	3.7516	3.7516

Notes: $*p < 0.1, **p < 0.05, ***p < 0.01$. Panel OLS regression results with clustered standard errors by countries in parentheses (), and p-values in brackets []. The coefficients show the effect of a one standard deviation increase in tropical cyclone damage on the per capita growth rate in a given sectoral aggregate. The standard deviations are 2,236,738 for the agricultural and 2,269,395 for the remaining sectors, calculated for the whole sample of positive wind speed observations. The sample covers the period 1971 through 2015. Damage_{t} is the weighted damage measure for tropical cyclone intensity in year t. For the sector aggregate agriculture, hunting, forestry and fishing it is weighted by exposed agricultural land in t-1, whereas for the remaining sector aggregates it is weighted by exposed population in t-1. All regressions include country and year fixed effects, country-specific linear trends, and the respective socioeconomic control variables, which are all measured in t-1: log per capita value added of the re-spective sector, population growth rate, openness, investment rate.

Table 34: Robustness – Socioeconomic control variables for sector aggregate J–P

Dependent Variables: *Per capita growth rate (%) in sector aggregate*

	Other activities	Other activities	Other activities	Other activities
	(1)	(2)	(3)	(4)
Damage_{t}	-0.1455	-0.2366	-0.2530	-0.2431
	(0.2663)	(0.2463)	(0.2478)	(0.2477)
	[0.5855]	[0.3380]	[0.3085]	[0.3276]
Log pc value added_{t-1}	-7.1717***			
	(1.2283)			
	[0.0000]			
$\text{Population growth}_{t-1}$		-0.1124		
		(0.2103)		
		[0.5935]		
$\text{Capital growth}_{t-1}$			0.0094	
			(0.0086)	
			[0.2775]	
$\text{Trade openness}_{t-1}$				0.0004
				(0.0003)
				[0.1080]
N	8,249	8,249	8,249	8,249
Clusters	203	203	203	203
P-value	0.0000	0.5462	0.3059	0.1739
Mean DV	2.5350	2.5350	2.5350	2.5350

Notes: $*p < 0.1, **p < 0.05, ***p < 0.01$. Panel OLS regression results with clustered standard errors by countries in parentheses (), and p-values in brackets []. The coefficients show the effect of a one standard deviation increase in tropical cyclone damage on the per capita growth rate in a given sectoral aggregate. The standard deviations are 2,236,738 for the agricultural and 2,269,395 for the remaining sectors, calculated for the whole sample of positive wind speed observations. The sample covers the period 1971 through 2015. Damage_{t} is the weighted damage measure for tropical cyclone intensity in year t. For the sector aggregate agriculture, hunting, forestry and fishing it is weighted by exposed agricultural land in t-1, whereas for the remaining sector aggregates it is weighted by exposed population in t-1. All regressions include country and year fixed effects, country-specific linear trends, and the respective socioeconomic control variables, which are all measured in t-1: log per capita value added of the re-spective sector, population growth rate, openness, investment rate.

Table 35: Robustness – With outliers

Dependent Variables: *Per capita growth rate (%) in sector aggregate*

	Agriculture, hunting, forestry, fishing	Mining, utilities	Manu-facturing	Construc-tion	Wholesale, retail trade, restau-rants, hotels	Transport, storage, communi-cation	Other activities
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$Damage_t$	-2.6049***	-0.0986	-0.9457**	2.0446	-0.8982**	-0.5571**	-0.2636
	(0.3414)	(3.2776)	(0.4771)	(1.3543)	(0.4137)	(0.2477)	(0.1782)
	[0.0000]	[0.9760]	[0.0488]	[0.1326]	[0.0311]	[0.0256]	[0.1406]
N	8,611	8,611	8,611	8,611	8,611	8,611	8,611
Clusters	210	210	210	210	210	210	210
P-value	0.0000	0.9760	0.0488	0.1326	0.0311	0.0256	0.1406
Mean DV	0.8767	24.2969	2.6107	3.2691	2.5209	3.6908	2.5528

Notes: $*p < 0.1, **p < 0.05, ***p < 0.01$. Panel OLS regression results with clustered standard errors by countries in parentheses (), and p-values in brackets []. The coefficients show the effect of a one standard deviation increase in tropical cyclone damage on the per capita growth rate in a given sectoral aggregate. The standard deviations are 2,236,738 for the agricultural and 2,269,395 for the remaining sectors, calculated for the whole sample of positive wind speed observations. The sample covers the period 1971 through 2015. $Damage_t$ is the weighted damage measure for tropical cyclone intensity in year t. For the sector aggregate agriculture, hunting, forestry and fishing it is weighted by exposed agricultural land in t-1, whereas for the remaining sector aggregates it is weighted by exposed population in t-1. All regressions include country and year fixed effects as well as country-specific linear trends. These regressions explictly include the following identified outliers: Dominican Republic 1979, Grenada 2004, Montserrat 1989, Myanmar 1977, Saint Lucia 1980.

Table 36: Robustness – Only exposed countries

Dependent Variables: *Per capita growth rate (%) in sector aggregate*

	Agriculture, hunting, forestry, fishing	Mining, utilities	Manu-facturing	Construc-tion	Wholesale, retail trade, restau-rants, hotels	Transport, storage, communi-cation	Other activities
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$Damage_t$	-2.5656***	-1.0617	-0.7166	0.8698	-1.2040**	-0.3823	-0.1959
	(0.4683)	(0.8886)	(0.5185)	(0.6384)	(0.5029)	(0.3552)	(0.2694)
	[0.0000]	[0.2356]	[0.1706]	[0.1767]	[0.0189]	[0.2850]	[0.4693]
N	3,622	3,622	3,622	3,622	3,622	3,622	3,622
Clusters	84	84	84	84	84	84	84
P-value	0.0000	0.2356	0.1706	0.1767	0.0189	0.2850	0.4693
Mean DV	1.0412	4.0654	2.2929	2.6719	2.3282	3.5110	2.5494

Notes: $*p < 0.1, **p < 0.05, ***p < 0.01$. Panel OLS regression results with clustered standard errors by countries in parentheses (), and p-values in brackets []. The coefficients show the effect of a one standard deviation increase in tropical cyclone damage on the per capita growth rate in a given sectoral aggregate. The standard deviations are 2,236,738 for the agricultural and 2,269,395 for the remaining sectors, calculated for the whole sample of positive wind speed observations. The sample covers the period 1971 through 2015. $Damage_t$ is the weighted damage measure for tropical cyclone intensity in year t. For the sector aggregate agriculture, hunting, forestry and fishing it is weighted by exposed agricultural land in t-1, whereas for the remaining sector aggregates it is weighted by exposed population in t-1. All regressions include country and year fixed effects as well as country-specific linear trends.

Table 37: Robustness – Region-specific linear trends

Dependent Variables: *Per capita growth rate (%) in sector aggregate*

	Agriculture, hunting, forestry, fishing	Mining, utilities	Manu-facturing	Construc-tion	Wholesale, retail trade, restau-rants, hotels	Transport, storage, communi-cation	Other activities
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Damage_t	-2.5604***	-0.5822	-0.5362	0.8452	-1.1757**	-0.5040	-0.1541
	(0.4057)	(0.9474)	(0.5813)	(0.5620)	(0.5189)	(0.3246)	(0.2740)
	[0.0000]	[0.5396]	[0.3574]	[0.1342]	[0.0245]	[0.1220]	[0.5744]
N	8,500	8,500	8,500	8,500	8,500	8,500	8,500
Clusters	205	205	205	205	205	205	205
P-value	0.0000	0.5396	0.3574	0.1342	0.0245	0.1220	0.5744
Mean DV	0.8800	3.7458	2.6095	3.2388	2.5256	3.7030	2.5519

Notes: $*p < 0.1, **p < 0.05, ***p < 0.01$. Panel OLS regression results with clustered standard errors by countries in parentheses (), and p-values in brackets []. The coefficients show the effect of a one standard deviation increase in tropical cyclone damage on the per capita growth rate in a given sectoral aggregate. The standard deviations are 2,236,738 for the agricultural and 2,269,395 for the remaining sectors, calculated for the whole sample of positive wind speed observations. The sample covers the period 1971 through 2015. Damage_t is the weighted damage measure for tropical cyclone intensity in year t. For the sector aggregate agriculture, hunting, forestry and fishing it is weighted by exposed agricultural land in t-1, whereas for the remaining sector aggregates it is weighted by exposed population in t-1. All regressions include country and year fixed effects as well as regional-specific linear trends. The regions are East Asian and Pacific, Europe and Central Asia, Latin America and the Caribbean, Middle East and North Africa, North America, South Asia, Sub-Saharan Africa.

Table 38: Robustness – Country-specific nonlinear trends

Dependent Variables: *Per capita growth rate (%) in sector aggregate*

	Agriculture, hunting, forestry, fishing	Mining, utilities	Manu-facturing	Construc-tion	Wholesale, retail trade, restau-rants, hotels	Transport, storage, communi-cation	Other activities
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Damage_t	-2.4560***	-0.5203	-0.7438	0.7197	-1.2175**	-0.4722	-0.1869
	(0.4411)	(1.0678)	(0.5316)	(0.6839)	(0.5234)	(0.3745)	(0.2677)
	[0.0000]	[0.6266]	[0.1633]	[0.2939]	[0.0210]	[0.2088]	[0.4859]
N	8,500	8,500	8,500	8,500	8,500	8,500	8,500
Clusters	205	205	205	205	205	205	205
P-value	0.0000	0.6266	0.1633	0.2939	0.0210	0.2088	0.4859
Mean DV	0.8800	3.7458	2.6095	3.2388	2.5256	3.7030	2.5519

Notes: $*p < 0.1, **p < 0.05, ***p < 0.01$. Panel OLS regression results with clustered standard errors by countries in parentheses (), and p-values in brackets []. The coefficients show the effect of a one standard deviation increase in tropical cyclone damage on the per capita growth rate in a given sectoral aggregate. The standard deviations are 2,236,738 for the agricultural and 2,269,395 for the remaining sectors, calculated for the whole sample of positive wind speed observations. The sample covers the period 1971 through 2015. Damage_t is the weighted damage measure for tropical cyclone intensity in year t. For the sector aggregate agriculture, hunting, forestry and fishing it is weighted by exposed agricultural land in t-1, whereas for the remaining sector aggregates it is weighted by exposed population in t-1. All regressions include country and year fixed effects as well as country-specific nonlinear trends.

Table 39: Robustness – Without country-specific linear trends

Dependent Variables: *Per capita growth rate (%) in sector aggregate*

	Agriculture, hunting, forestry, fishing	Mining, utilities	Manu-facturing	Construc-tion	Wholesale, retail trade, restau-rants, hotels	Transport, storage, communi-cation	Other activities
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Damage_t	-2.5655***	-0.6040	-0.5440	0.8345	-1.1767**	-0.5056	-0.1614
	(0.4086)	(0.9613)	(0.5817)	(0.5570)	(0.5225)	(0.3264)	(0.2721)
	[0.0000]	[0.5305]	[0.3507]	[0.1356]	[0.0254]	[0.1229]	[0.5537]
N	8,500	8,500	8,500	8,500	8,500	8,500	8,500
Clusters	205	205	205	205	205	205	205
P-value	0.0000	0.5305	0.3507	0.1356	0.0254	0.1229	0.5537
Mean DV	0.8800	3.7458	2.6095	3.2388	2.5256	3.7030	2.5519

Notes: $*p < 0.1, **p < 0.05, ***p < 0.01$. Panel OLS regression results with clustered standard errors by countries in parentheses (), and p-values in brackets []. The coefficients show the effect of a one standard deviation increase in tropical cyclone damage on the per capita growth rate in a given sectoral aggregate. The standard deviations are 2,236,738 for the agricultural and 2,269,395 for the remaining sectors, calculated for the whole sample of positive wind speed observations. The sample covers the period 1971 through 2015. Damage_t is the weighted damage measure for tropical cyclone intensity in year t. For the sector aggregate agriculture, hunting, forestry and fishing it is weighted by exposed agricultural land in t-1, whereas for the remaining sector aggregates it is weighted by exposed population in t-1. All regressions include country and year fixed effects.

Table 40: Robustness – Frequency (country)

Dependent Variables: *Per capita growth rate (%) in sector aggregate*

	Agriculture, hunting, forestry, fishing	Mining, utilities	Manu-facturing	Construc-tion	Wholesale, retail trade, restau-rants, hotels	Transport, storage, communi-cation	Other activities
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Damage_t	-2.3963***	-0.5540	-0.6960	1.1408*	-1.0266*	-0.4081	-0.1089
	(0.4796)	(0.7744)	(0.5261)	(0.6542)	(0.5495)	(0.3736)	(0.2796)
	[0.0000]	[0.4752]	[0.1874]	[0.0827]	[0.0631]	[0.2759]	[0.6973]
$\text{Frequency}_{\text{country}}$	-0.4371***	-0.4442	-0.0586	-0.8507***	-0.2667*	-0.1617	-0.1652**
	(0.1425)	(0.4659)	(0.1941)	(0.2871)	(0.1367)	(0.1122)	(0.0678)
	[0.0025]	[0.3415]	[0.7632]	[0.0034]	[0.0524]	[0.1512]	[0.0156]
N	8,500	8,500	8,500	8,500	8,500	8,500	8,500
Clusters	205	205	205	205	205	205	205
P-value	0.0000	0.5650	0.3772	0.0061	0.0053	0.1669	0.0278
Mean DV	0.8800	3.7458	2.6095	3.2388	2.5256	3.7030	2.5519

Notes: $*p < 0.1, **p < 0.05, ***p < 0.01$. Panel OLS regression results with clustered standard errors by countries in parentheses (), and p-values in brackets []. The coefficients show the effect of a one standard deviation increase in tropical cyclone damage on the per capita growth rate in a given sectoral aggregate. The standard deviations are 2,236,738 for the agricultural and 2,269,395 for the remaining sectors, calculated for the whole sample of positive wind speed observations. The sample covers the period 1971 through 2015. Damage_t is the weighted damage measure for tropical cyclone intensity in year t. For the sector aggregate agriculture, hunting, forestry and fishing it is weighted by exposed agricultural land in t-1, whereas for the remaining sector aggregates it is weighted by exposed population in t-1. $Frequency_{country}$ counts the number of tropical cyclones above 92 km/h per year and country. All regressions include country and year fixed effects as well as country-specific linear trends.

Table 41: Robustness – Mean Wind Speed

Dependent Variables: *Per capita growth rate (%) in sector aggregate*

	Agriculture, hunting, forestry, fishing	Mining, utilities	Manu-facturing	Construc-tion	Wholesale, retail trade, restau-rants, hotels	Transport, storage, communi-cation	Other activities
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Mean Damage$_t$	-2.4532***	-0.9061	-0.7252	0.5341	-0.5721	-0.0855	0.1042
	(0.5941)	(0.5948)	(0.5363)	(0.7637)	(0.3649)	(0.3207)	(0.3102)
	[0.0001]	[0.1292]	[0.1778]	[0.4851]	[0.1185]	[0.7901]	[0.7374]
N	8,500	8,500	8,500	8,500	8,500	8,500	8,500
Clusters	205	205	205	205	205	205	205
P-value	0.0001	0.1292	0.1778	0.4851	0.1185	0.7901	0.7374
Mean DV	0.8800	3.7458	2.6095	3.2388	2.5256	3.7030	2.5519

Notes: $*p < 0.1, **p < 0.05, ***p < 0.01$. Panel OLS regression results with clustered standard errors by countries in parentheses (), and p-values in brackets []. The coefficients show the effect of a one standard deviation increase in tropical cyclone damage on the per capita growth rate in a given sectoral aggregate. The standard deviations are 1,930,581 for the agricultural and 1,910,947 for the remaining sectors, calculated for the whole sample of positive wind speed observations. The sample covers the period 1971 through 2015. Mean Damage$_t$ is the weighted damage measure for tropical cyclone intensity in year t. For the sector aggregate agriculture, hunting, forestry and fishing it is weighted by exposed agricultural land in t-1, whereas for the remaining sector aggregates it is weighted by exposed population in t-1. Mean Damage$_t$ is based on the mean wind speed per country and year above 92 km/h. All regressions include country and year fixed effects as well as country-specific linear trends.

Table 42: Robustness – Basin Fixed Effects

Dependent Variables: *Per capita growth rate (%) in sector aggregate*

	Agriculture, hunting, forestry, fishing	Mining, utilities	Manu-facturing	Construc-tion	Wholesale, retail trade, restau-rants, hotels	Transport, storage, communi-cation	Other activities
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Damage$_t$	-2.5060***	-0.7693	-0.4317	0.9662*	-1.1553**	-0.4572	-0.1666
	(0.4241)	(0.7883)	(0.5961)	(0.5703)	(0.5066)	(0.3176)	(0.2688)
	[0.0000]	[0.3303]	[0.4698]	[0.0918]	[0.0236]	[0.1515]	[0.5362]
N	8,500	8,500	8,500	8,500	8,500	8,500	8,500
Clusters	205	205	205	205	205	205	205
P-value	0.0000	0.3303	0.4698	0.0918	0.0236	0.1515	0.5362
Mean DV	0.8800	3.7458	2.6095	3.2388	2.5256	3.7030	2.5519

Notes: $*p < 0.1, **p < 0.05, ***p < 0.01$. Panel OLS regression results with clustered standard errors by countries in parentheses (), and p-values in brackets []. The coefficients show the effect of a one standard deviation increase in tropical cyclone damage on the per capita growth rate in a given sectoral aggregate. The standard deviations are 2,236,738 for the agricultural and 2,269,395 for the remaining sectors, calculated for the whole sample of positive wind speed observations. The sample covers the period 1971 through 2015. Damage$_t$ is the weighted damage measure for tropical cyclone intensity in year t. For the sector aggregate agriculture, hunting, forestry and fishing it is weighted by exposed agricultural land in t-1, whereas for the remaining sector aggregates it is weighted by exposed population in t-1. All regressions include tropical cyclones' basin and year fixed effects as well as country-specific linear trends.

Table 43: Robustness – Population Weight for A&B sector aggregate

Dependent Variables: *Per capita growth rate (%) in sector aggregate*

	Agriculture, hunting, forestry, fishing
	(1)
Damage_t	-2.5242***
	(0.4423)
	[0.0000]
N	8,500
Clusters	205
P-value	0.0000
Mean DV	0.8800

Notes: $*p < 0.1, **p < 0.05, ***p < 0.01$. Panel OLS regression results with clustered standard errors by countries in parentheses (), and p-values in brackets []. The coefficients show the effect of a one standard deviation increase in tropical cyclone damage on the per capita growth rate in a given sectoral aggregate. The standard deviation is 2,269,395, calculated for the whole sample of positive wind speed observations. The sample covers the period 1971 through 2015. Damage_t is the weighted damage measure for tropical cyclone intensity in year t. It is weighted by exposed population in t-1. All regressions include country and year fixed effects as well as country-specific linear trends.

Table 44: Robustness – Conley HAC standard errors

Dependent Variables: *Per capita growth rate (%) in sector aggregate*

	Agriculture, hunting, forestry, fishing	Mining, utilities	Manufacturing	Construction	Wholesale, retail trade, restaurants, hotels	Transport, storage, communication	Other activities
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Damage_t	-2.5655***	-0.6040	-0.5440	0.8345	-1.1767**	-0.5056	-0.1614
	(0.4068)	(0.8961)	(0.6600)	(0.5451)	(0.5318)	(0.3565)	(0.2712)
	[0.0000]	[0.5003]	[0.4098]	[0.1258]	[0.0269]	[0.1561]	[0.5519]
N	8,500	8,500	8,500	8,500	8,500	8,500	8,500

Notes: $*p < 0.1, **p < 0.05, ***p < 0.01$. Panel OLS regression results with clustered standard errors by countries in parentheses (), and p-values in brackets []. The coefficients show the effect of a one standard deviation increase in tropical cyclone damage on the per capita growth rate in a given sectoral aggregate. The standard deviations are 2,236,738 for the agricultural and 2,269,395 for the remaining sectors, calculated for the whole sample of positive wind speed observations. The sample covers the period 1971 through 2015. Damage_t is the weighted damage measure for tropical cyclone intensity in year t. For the sector aggregate agriculture, hunting, forestry and fishing it is weighted by exposed agricultural land in t-1, whereas for the remaining sector aggregates it is weighted by exposed population in t-1. All regressions include country and year fixed effects as well as country-specific linear trends. For all regressions, Conley HAC standards with a maximum lag length of 10 and a spatial cutoff of 1000 km are calculated.

Table 45: Robustness – Regional clusters

Dependent Variables: *Per capita growth rate (%) in sector aggregate*

	Agriculture, hunting, forestry, fishing	Mining, utilities	Manu-facturing	Construc-tion	Wholesale, retail trade, restau-rants, hotels	Transport, storage, communi-cation	Other activities
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$Damage_t$	-2.6219***	-0.7682	-0.7242	0.7306	-1.1552**	-0.4861	-0.1886
	(0.2809)	(1.1861)	(0.5725)	(0.6953)	(0.4053)	(0.4685)	(0.1426)
	[0.0001]	[0.5412]	[0.2527]	[0.3339]	[0.0292]	[0.3395]	[0.2341]
N	8,500	8,500	8,500	8,500	8,500	8,500	8,500
Clusters	7	7	7	7	7	7	7
P-value	0.0001	0.5412	0.2527	0.3339	0.0292	0.3395	0.2341
Mean DV	0.8800	3.7458	2.6095	3.2388	2.5256	3.7030	2.5519

Notes: $*p < 0.1, **p < 0.05, ***p < 0.01$. Panel OLS regression results with clustered standard errors by regions in parentheses (), and p-values in brackets []. The coefficients show the effect of a one standard deviation increase in tropical cyclone damage on the per capita growth rate in a given sectoral aggregate. The standard deviations are 2,236,738 for the agricultural and 2,269,395 for the remaining sectors, calculated for the whole sample of positive wind speed observations. The sample covers the period 1971 through 2015. $Damage_t$ is the weighted damage measure for tropical cyclone intensity in year t. For the sector aggregate agriculture, hunting, forestry and fishing it is weighted by exposed agricultural land in t-1, whereas for the remaining sector aggregates it is weighted by exposed population in t-1. The regions are East Asian and Pacific, Europe and Central Asia, Latin America and the Caribbean, Middle East and North Africa, North America, South Asia, Sub-Saharan Africa. All regressions include country and year fixed effects as well as country-specific linear trends.

Table 46: Robustness – Newey-West standard errors

Dependent Variables: *Per capita growth rate (%) in sector aggregate*

	Agriculture, hunting, forestry, fishing	Mining, utilities	Manu-facturing	Construc-tion	Wholesale, retail trade, restau-rants, hotels	Transport, storage, communi-cation	Other activities
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$Damage_t$	-2.5950***	-0.5325	-0.6506	0.8369	-1.1619**	-0.4921	-0.1500
	(0.4370)	(1.0325)	(0.6882)	(0.5510)	(0.5665)	(0.3429)	(0.2806)
	[0.0000]	[0.6060]	[0.3445]	[0.1288]	[0.0403]	[0.1513]	[0.5929]
N	8,500	8,500	8,500	8,500	8,500	8,500	8,500
P-value	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mean DV	0.8800	3.7458	2.6095	3.2388	2.5256	3.7030	2.5519

Notes: $*p < 0.1, **p < 0.05, ***p < 0.01$. Panel OLS regression results with clustered standard errors by countries in parentheses (), and p-values in brackets []. The coefficients show the effect of a one standard deviation increase in tropical cyclone damage on the per capita growth rate in a given sectoral aggregate. The standard deviations are 2,236,738 for the agricultural and 2,269,395 for the remaining sectors, calculated for the whole sample of positive wind speed observations. The sample covers the period 1971 through 2015. $Damage_t$ is the weighted damage measure for tropical cyclone intensity in year t. For the sector aggregate agriculture, hunting, forestry and fishing it is weighted by exposed agricultural land in t-1, whereas for the remaining sector aggregates it is weighted by exposed population in t-1. All regressions include country and year fixed effects as well as country-specific linear trends. For all regressions Newey-West standard errors with a maximum lag length of 10 years are calculated.

A.6.2 Indirect Effects

Table 47: Robustness – Input-Output coefficients of the sector aggregate (A&B)

Dependent Variables: : *Input-Output coefficients (IO)*

	$IO_t^{A\&B,A\&B}$	$IO_t^{A\&B,C\&E}$	$IO_t^{A\&B,D}$	$IO_t^{A\&B,F}$	$IO_t^{A\&B,G\text{-}H}$	$IO_t^{A\&B,I}$	$IO_t^{A\&B,J\text{-}P}$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$Damage_{t+2}$	-0.00134	-0.00002	-0.00001	-0.00001	-0.00015	0.00003	-0.00011
	(0.00133)	(0.00005)	(0.00037)	(0.00002)	(0.00014)	(0.00010)	(0.00041)
	[0.31705]	[0.70470]	[0.97559]	[0.66644]	[0.30366]	[0.79136]	[0.79816]
$IO_{t-1}^{A\&B,A\&B}$	0.80645***						
	(0.05008)						
	[0.00000]						
$IO_{t-1}^{A\&B,C\&E}$		0.85656***					
		(0.00966)					
		[0.00000]					
$IO_{t-1}^{A\&B,D}$			0.84284***				
			(0.01386)				
			[0.00000]				
$IO_{t-1}^{A\&B,F}$				0.78281***			
				(0.05125)			
				[0.00000]			
$IO_{t-1}^{A\&B,G\text{-}H}$					0.82225***		
					(0.03118)		
					[0.00000]		
$IO_{t-1}^{A\&B,I}$						0.84184***	
						(0.02293)	
						[0.00000]	
$IO_{t-1}^{A\&B,J\text{-}P}$							0.87825***
							(0.01491)
							[0.00000]
N	4,128	4,128	4,128	4,128	4,128	4,128	4,128
Clusters	182	182	182	182	182	182	182
P-value	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Mean DV	0.16742	0.01225	0.08573	0.00379	0.03616	0.02231	0.07167

Notes: $*p < 0.1, **p < 0.05, ***p < 0.01$. Panel OLS regression results with clustered standard errors by countries in parentheses (), and p-values in brackets []. The coefficients show the effect of a one standard deviation increase in tropical cyclone damage on the respective Input-Output coefficients. The standard deviations are 2,236,738 for the agricultural and 2,269,395 for the remaining sectors, calculated for the whole sample of positive wind speed observations. $Damage_{t+2}$ is the weighted damage measure for tropical cyclone intensity in year t+2. For the sector aggregate agriculture, hunting, forestry and fishing it is weighted by exposed agricultural land in t+1, whereas for the remaining sector aggregates it is weighted by exposed population in t+1. The dependent variables are Input-Output coefficients (IO) and can range between 0-1. For example the coefficient $IO_t^{A\&B,D}$ displays how much input the sector aggregate A&B needs from sector aggregate D to produce one unit of output. The sector abbreviations represent the following sector aggregates: agriculture, hunting, forestry, and fishing (A&B), mining, and utilities (C&E), manufacturing (D), construction (F), wholesale, retail trade, restaurants, and hotels (G-H), transport, storage, and communication (I), other activities (J-P). All regressions include country and year fixed effects as well as country-specific linear trends.

Table 48: Robustness – Input-Output coefficients of the sector aggregate sector aggregate (C&E)

Dependent Variables: *Input-Output coefficients (IO)*

	$IO_t^{C\&E,A\&B}$	$IO_t^{C\&E,C\&E}$	$IO_t^{C\&E,D}$	$IO_t^{C\&E,F}$	$IO_t^{C\&E,G\text{-}H}$	$IO_t^{C\&E,I}$	$IO_t^{C\&E,J\text{-}P}$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$Damage_{t+2}$	0.00001	0.00313	-0.00058	-0.00006	-0.00021	-0.00017	-0.00026
	(0.00001)	(0.00258)	(0.00039)	(0.00020)	(0.00018)	(0.00031)	(0.00063)
	[0.36703]	[0.22702]	[0.13804]	[0.74574]	[0.24310]	[0.58776]	[0.67726]
$IO_{t-1}^{C\&E,A\&B}$	0.73657***						
	(0.06345)						
	[0.00000]						
$IO_{t-1}^{C\&E,C\&E}$		0.83415***					
		(0.05844)					
		[0.00000]					
$IO_{t-1}^{C\&E,D}$			0.89133***				
			(0.02168)				
			[0.00000]				
$IO_{t-1}^{C\&E,F}$				0.88360***			
				(0.02112)			
				[0.00000]			
$IO_{t-1}^{C\&E,G\text{-}H}$					0.79680***		
					(0.06043)		
					[0.00000]		
$IO_{t-1}^{C\&E,I}$						0.79961***	
						(0.05834)	
						[0.00000]	
$IO_{t-1}^{C\&E,J\text{-}P}$							0.87720***
							(0.02265)
							[0.00000]
N	4,128	4,128	4,128	4,128	4,128	4,128	4,128
Clusters	182	182	182	182	182	182	182
P-value	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Mean DV	0.00084	0.15083	0.05438	0.02809	0.01938	0.04883	0.08881

Notes: $*p < 0.1, **p < 0.05, ***p < 0.01$. Panel OLS regression results with clustered standard errors by countries in parentheses (), and p-values in brackets []. The coefficients show the effect of a one standard deviation increase in tropical cyclone damage on the respective Input-Output coefficients. The standard deviations are 2,236,738 for the agricultural and 2,269,395 for the remaining sectors, calculated for the whole sample of positive wind speed observations. $Damage_{t+2}$ is the weighted damage measure for tropical cyclone intensity in year t+2. For the sector aggregate agriculture, hunting, forestry and fishing it is weighted by exposed agricultural land in t+1, whereas for the remaining sector aggregates it is weighted by exposed population in t+1. The dependent variables are Input-Output coefficients (IO) and can range between 0-1. For example the coefficient $IO_t^{C\&E,D}$ displays how much input the sector aggregate C&E needs from sector aggregate D to produce one unit of output. The sector abbreviations represent the following sector aggregates: agriculture, hunting, forestry, and fishing (A&B), mining, and utilities (C&E), manufacturing (D), construction (F), wholesale, retail trade, restaurants, and hotels (G-H), transport, storage, and communication (I), other activities (J-P). All regressions include country and year fixed effects as well as country-specific linear trends.

Table 49: Robustness – Input-Output coefficients of the sector aggregate (D)

Dependent Variables: *Input-Output coefficients (IO)*

	$IO_t^{D,A\&B}$	$IO_t^{D,C\&E}$	$IO_t^{D,D}$	$IO_t^{D,F}$	$IO_t^{D,G-H}$	$IO_t^{D,I}$	$IO_t^{D,J-P}$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$Damage_{t+2}$	0.00020	-0.00020	0.00012	-0.00000	-0.00001	-0.00002	0.00017
	(0.00019)	(0.00016)	(0.00140)	(0.00002)	(0.00012)	(0.00009)	(0.00027)
	[0.2990]	[0.1977]	[0.9332]	[0.7865]	[0.9369]	[0.8179]	[0.5261]
$IO_{t-1}^{D,A\&B}$	0.83958***						
	(0.03525)						
	[0.0000]						
$IO_{t-1}^{D,C\&E}$		0.75357***					
		(0.05013)					
		[0.0000]					
$IO_{t-1}^{D,D}$			0.79306***				
			(0.04695)				
			[0.0000]				
$IO_{t-1}^{D,F}$				0.83620***			
				(0.01902)			
				[0.0000]			
$IO_{t-1}^{D,G-H}$					0.78251***		
					(0.03204)		
					[0.0000]		
$IO_{t-1}^{D,I}$						0.82467***	
						(0.02131)	
						[0.0000]	
$IO_{t-1}^{D,J-P}$							0.84057***
							(0.01983)
							[0.0000]
N	4,128	4,128	4,128	4,128	4,128	4,128	4,128
Clusters	182	182	182	182	182	182	182
P-value	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Mean DV	0.05549	0.03909	0.24042	0.00452	0.05353	0.03586	0.08546

Notes: $*p < 0.1, **p < 0.05, ***p < 0.01$. Panel OLS regression results with clustered standard errors by countries in parentheses (), and p-values in brackets []. The coefficients show the effect of a one standard deviation increase in tropical cyclone damage on the respective Input-Output coefficients. The standard deviations are 2,236,738 for the agricultural and 2,269,395 for the remaining sectors, calculated for the whole sample of positive wind speed observations. $Damage_{t+2}$ is the weighted damage measure for tropical cyclone intensity in year t+2. For the sector aggregate agriculture, hunting, forestry and fishing it is weighted by exposed agricultural land in t+1, whereas for the remaining sector aggregates it is weighted by exposed population in t+1. The dependent variables are Input-Output coefficients (IO) and can range between 0-1. For example the coefficient $IO_t^{D,F}$ displays how much input the sector aggregate D needs from sector aggregate F to produce one unit of output. The sector abbreviations represent the following sector aggregates: agriculture, hunting, forestry, and fishing (A&B), mining, and utilities (C&E), manufacturing (D), construction (F), wholesale, retail trade, restaurants, and hotels (G-H), transport, storage, and communication (I), other activities (J-P). All regressions include country and year fixed effects as well as country-specific linear trends.

Table 50: Robustness – Input-Output coefficients of the sector aggregate (F)

Dependent Variables: *Input-Output coefficients (IO)*

	$IO_t^{F,A\&B}$	$IO_t^{F,C\&E}$	$IO_t^{F,D}$	$IO_t^{F,F}$	$IO_t^{F,G\text{-}H}$	$IO_t^{F,I}$	$IO_t^{F,J\text{-}P}$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$Damage_{t+2}$	0.00004**	-0.00008	0.00058	0.00016	0.00021	0.00009	0.00079*
	(0.00002)	(0.00008)	(0.00049)	(0.00116)	(0.00020)	(0.00015)	(0.00041)
	[0.02802]	[0.35420]	[0.23891]	[0.88889]	[0.28878]	[0.55218]	[0.05359]
$IO_{t-1}^{F,A\&B}$	0.82738***						
	(0.02152)						
	[0.00000]						
$IO_{t-1}^{F,C\&E}$		0.80762***					
		(0.03261)					
		[0.00000]					
$IO_{t-1}^{F,D}$			0.75346***				
			(0.09827)				
			[0.00000]				
$IO_{t-1}^{F,F}$				0.85201***			
				(0.07531)			
				[0.00000]			
$IO_{t-1}^{F,G\text{-}H}$					0.80791***		
					(0.02005)		
					[0.00000]		
$IO_{t-1}^{F,I}$						0.77454***	
						(0.05936)	
						[0.00000]	
$IO_{t-1}^{F,J\text{-}P}$							0.85000***
							(0.01407)
							[0.00000]
N	4,128	4,128	4,128	4,128	4,128	4,128	4,128
Clusters	182	182	182	182	182	182	182
P-value	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Mean DV	0.00319	0.01603	0.21046	0.03908	0.06434	0.03950	0.09892

Notes: $*p < 0.1, **p < 0.05, ***p < 0.01$. Panel OLS regression results with clustered standard errors by countries in parentheses (), and p-values in brackets []. The coefficients show the effect of a one standard deviation increase in tropical cyclone damage on the respective Input-Output coefficients. The standard deviations are 2,236,738 for the agricultural and 2,269,395 for the remaining sectors, calculated for the whole sample of positive wind speed observations. $Damage_{t+2}$ is the weighted damage measure for tropical cyclone intensity in year t+2. For the sector aggregate agriculture, hunting, forestry and fishing it is weighted by exposed agricultural land in t+1, whereas for the remaining sector aggregates it is weighted by exposed population in t+1. The dependent variables are Input-Output coefficients (IO) and can range between 0-1. For example the coefficient $IO_t^{F,G\text{-}H}$ displays how much input the sector aggregate F needs from sector aggregate G-H to produce one unit of output. The sector abbreviations represent the following sector aggregates: agriculture, hunting, forestry, and fishing (A&B), mining, and utilities (C&E), manufacturing (D), construction (F), wholesale, retail trade, restaurants, and hotels (G-H), transport, storage, and communication (I), other activities (J-P). All regressions include country and year fixed effects as well as country-specific linear trends.

Table 51: Robustness – Input-Output coefficients of the sector aggregate (G-H)

Dependent Variables: *Input-Output coefficients (IO)*

	$IO_t^{G\text{-}H,A\&B}$	$IO_t^{G\text{-}H,C\&E}$	$IO_t^{G\text{-}H,D}$	$IO_t^{G\text{-}H,F}$	$IO_t^{G\text{-}H,G\text{-}H}$	$IO_t^{G\text{-}H,I}$	$IO_t^{G\text{-}H,J\text{-}P}$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$Damage_{t+2}$	0.00006	0.00001	0.00025	0.00001	0.00282	0.00017	0.00047
	(0.00006)	(0.00004)	(0.00031)	(0.00003)	(0.00192)	(0.00024)	(0.00093)
	[0.25606]	[0.84014]	[0.41821]	[0.83753]	[0.14446]	[0.45985]	[0.60896]
$IO_{t-1}^{G\text{-}H,A\&B}$	0.85308***						
	(0.03951)						
	[0.00000]						
$IO_{t-1}^{G\text{-}H,C\&E}$		0.82517***					
		(0.03417)					
		[0.00000]					
$IO_{t-1}^{G\text{-}H,D}$			0.86195***				
			(0.04354)				
			[0.00000]				
$IO_{t-1}^{G\text{-}H,F}$				0.78960***			
				(0.02916)			
				[0.00000]			
$IO_{t-1}^{G\text{-}H,G\text{-}H}$					0.83892***		
					(0.07918)		
					[0.00000]		
$IO_{t-1}^{G\text{-}H,I}$						0.85301***	
						(0.02086)	
						[0.00000]	
$IO_{t-1}^{G\text{-}H,J\text{-}P}$							0.90666***
							(0.03344)
							[0.00000]
N	4,128	4,128	4,128	4,128	4,128	4,128	4,128
Clusters	182	182	182	182	182	182	182
P-value	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mean DV	0.00826	0.01583	0.07150	0.00622	0.05366	0.06138	0.13970

Notes: $*p < 0.1, **p < 0.05, ***p < 0.01$. Panel OLS regression results with clustered standard errors by countries in parentheses (), and p-values in brackets []. The coefficients show the effect of a one standard deviation increase in tropical cyclone damage on the respective Input-Output coefficients. The standard deviations are 2,236,738 for the agricultural and 2,269,395 for the remaining sectors, calculated for the whole sample of positive wind speed observations. $Damage_{t+2}$ is the weighted damage measure for tropical cyclone intensity in year t+2. For the sector aggregate agriculture, hunting, forestry and fishing it is weighted by exposed agricultural land in t+1, whereas for the remaining sector aggregates it is weighted by exposed population in t+1. The dependent variables are Input-Output coefficients (IO) and can range between 0-1. For example the coefficient $IO_t^{G\text{-}H,F}$ displays how much input the sector aggregate G-H needs from sector aggregate F to produce one unit of output. The sector abbreviations represent the following sector aggregates: agriculture, hunting, forestry, and fishing (A&B), mining, and utilities (C&E), manufacturing (D), construction (F), wholesale, retail trade, restaurants, and hotels (G-H), transport, storage, and communication (I), other activities (J-P). All regressions include country and year fixed effects as well as country-specific linear trends.

Table 52: Robustness – Input-Output coefficients of the sector aggregate (I)

Dependent Variables: *Input-Output coefficients (IO)*

	$IO_t^{I,A\&B}$	$IO_t^{I,C\&E}$	$IO_t^{I,D}$	$IO_t^{I,F}$	$IO_t^{I,G\text{-}H}$	$IO_t^{I,I}$	$IO_t^{I,J\text{-}P}$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$Damage_{t+2}$	0.00000	0.00000	-0.00008	0.00000	0.00003	0.00111	-0.00001
	(0.00000)	(0.00003)	(0.00020)	(0.00003)	(0.00007)	(0.00082)	(0.00056)
	[0.45717]	[0.88410]	[0.69209]	[0.99657]	[0.61316]	[0.17533]	[0.98117]
$IO_{t-1}^{I,A\&B}$	0.73506***						
	(0.06792)						
	[0.00000]						
$IO_{t-1}^{I,C\&E}$		0.81433***					
		(0.03431)					
		[0.00000]					
$IO_{t-1}^{I,D}$			0.78372***				
			(0.03216)				
			[0.00000]				
$IO_{t-1}^{I,F}$				0.84054***			
				(0.03044)			
				[0.00000]			
$IO_{t-1}^{I,G\text{-}H}$					0.78946***		
					(0.07373)		
					[0.00000]		
$IO_{t-1}^{I,I}$						0.74516***	
						(0.09716)	
						[0.00000]	
$IO_{t-1}^{I,J\text{-}P}$							0.83369***
							(0.01953)
							[0.00000]
N	4,128	4,128	4,128	4,128	4,128	4,128	4,128
Clusters	182	182	182	182	182	182	182
P-value	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Mean DV	0.00041	0.00998	0.06225	0.00886	0.02776	0.10992	0.13054

Notes: $*p < 0.1, **p < 0.05, ***p < 0.01$. Panel OLS regression results with clustered standard errors by countries in parentheses (), and p-values in brackets []. The coefficients show the effect of a one standard deviation increase in tropical cyclone damage on the respective Input-Output coefficients. The standard deviations are 2,236,738 for the agricultural and 2,269,395 for the remaining sectors, calculated for the whole sample of positive wind speed observations. $Damage_{t+2}$ is the weighted damage measure for tropical cyclone intensity in year t+2. For the sector aggregate agriculture, hunting, forestry and fishing it is weighted by exposed agricultural land in t+1, whereas for the remaining sector aggregates it is weighted by exposed population in t+1. The dependent variables are Input-Output coefficients (IO) and can range between 0-1. For example the coefficient $IO_t^{I,F}$ displays how much input the sector aggregate I needs from sector aggregate F to produce one unit of output. The sector abbreviations represent the following sector aggregates: agriculture, hunting, forestry, and fishing (A&B), mining, and utilities (C&E), manufacturing (D), construction (F), wholesale, retail trade, restaurants, and hotels (G-H), transport, storage, and communication (I), other activities (J-P). All regressions include country and year fixed effects as well as country-specific linear trends.

Table 53: Robustness – Input-Output coefficients of the sector aggregate (J-P)

Dependent Variables: *Input-Output coefficients (IO)*

	$IO_t^{J\text{-}P,A\&B}$	$IO_t^{J\text{-}P,C\&E}$	$IO_t^{J\text{-}P,D}$	$IO_t^{J\text{-}P,F}$	$IO_t^{J\text{-}P,G\text{-}H}$	$IO_t^{J\text{-}P,I}$	$IO_t^{J\text{-}P,J\text{-}P}$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$Damage_{t+2}$	0.00005	-0.00001	0.00027	0.00010	0.00007	0.00010	0.00077
	(0.00004)	(0.00006)	(0.00020)	(0.00007)	(0.00007)	(0.00015)	(0.00052)
	[0.19941]	[0.82050]	[0.17815]	[0.16892]	[0.34915]	[0.47840]	[0.13686]
$IO_{t-1}^{J\text{-}P,A\&B}$	0.47027***						
	(0.04664)						
	[0.00000]						
$IO_{t-1}^{J\text{-}P,C\&E}$		0.85946***					
		(0.03964)					
		[0.00000]					
$IO_{t-1}^{J\text{-}P,D}$			0.72580***				
			(0.08154)				
			[0.00000]				
$IO_{t-1}^{J\text{-}P,F}$				0.79041***			
				(0.03416)			
				[0.00000]			
$IO_{t-1}^{J\text{-}P,G\text{-}H}$					0.76205***		
					(0.05821)		
					[0.00000]		
$IO_{t-1}^{J\text{-}P,I}$						0.83273***	
						(0.01998)	
						[0.00000]	
$IO_{t-1}^{J\text{-}P,J\text{-}P}$							0.74783***
							(0.07843)
							[0.00000]
N	4,128	4,128	4,128	4,128	4,128	4,128	4,128
Clusters	182	182	182	182	182	182	182
P-value	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Mean DV	0.00256	0.01218	0.05638	0.01734	0.02314	0.03174	0.14534

Notes: $*p < 0.1, **p < 0.05, ***p < 0.01$. Panel OLS regression results with clustered standard errors by countries in parentheses (), and p-values in brackets []. The coefficients show the effect of a one standard deviation increase in tropical cyclone damage on the respective Input-Output coefficients. The standard deviations are 2,236,738 for the agricultural and 2,269,395 for the remaining sectors, calculated for the whole sample of positive wind speed observations. $Damage_{t+2}$ is the weighted damage measure for tropical cyclone intensity in year t+2. For the sector aggregate agriculture, hunting, forestry and fishing it is weighted by exposed agricultural land in t+1, whereas for the remaining sector aggregates it is weighted by exposed population in t+1. The dependent variables are Input-Output coefficients (IO) and can range between 0-1. For example the coefficient $IO_t^{J\text{-}P,F}$ displays how much input the sector aggregate J-P needs from sector aggregate F to produce one unit of output. The sector abbreviations represent the following sector aggregates: agriculture, hunting, forestry, and fishing (A&B), mining, and utilities (C&E), manufacturing (D), construction (F), wholesale, retail trade, restaurants, and hotels (G-H), transport, storage, and communication (I), other activities (J-P). All regressions include country and year fixed effects as well as country-specific linear trends.

Table 54: Robustness – Population Weight for IO coefficients of A&B sector aggregate

Dependent Variables: *Input-Output coefficient (IO)*

	$IO^{A\&B,A\&B}$	$IO^{A\&B,C\&E}$	$IO^{A\&B,D}$	$IO^{A\&B,F}$	$IO^{A\&B,G\text{-}H}$	$IO^{A\&B,I}$	$IO^{A\&B,J\text{-}P}$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$Damage_t$	-0.00025	-0.00013**	-0.00056	-0.00005*	-0.00033**	-0.00022	-0.00047
	(0.00081)	(0.00006)	(0.00051)	(0.00003)	(0.00013)	(0.00017)	(0.00035)
	[0.75815]	[0.02745]	[0.26628]	[0.09233]	[0.01341]	[0.21042]	[0.17662]
$IO^{A\&B,A\&B}_{t-1}$	0.81383***						
	(0.04689)						
	[0.00000]						
$IO^{A\&B,C\&E}_{t-1}$		0.93030***					
		(0.05625)					
		[0.00000]					
$IO^{A\&B,D}_{t-1}$			0.85592***				
			(0.01274)				
			[0.00000]				
$IO^{A\&B,F}_{t-1}$				1.24489***			
				(0.15347)			
				[0.00000]			
$IO^{A\&B,G\text{-}H}_{t-1}$					0.84205***		
					(0.02798)		
					[0.00000]		
$IO^{A\&B,I}_{t-1}$						0.85344***	
						(0.02055)	
						[0.00000]	
$IO^{A\&B,J\text{-}P}_{t-1}$							0.90449***
							(0.01996)
							[0.00000]
N	4,490	4,490	4,490	4,490	4,490	4,490	4,490
Clusters	182	182	182	182	182	182	182
P-value	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Mean DV	0.16618	0.01220	0.08494	0.00377	0.03579	0.02204	0.07102

Notes: $*p < 0.1, **p < 0.05, ***p < 0.01$. Panel OLS regression results with clustered standard errors by countries in parentheses (), and p-values in brackets []. The coefficients show the effect of a one standard deviation increase in tropical cyclone damage on the per capita growth rate in a given sectoral aggregate. The standard deviation is 2,269,395, calculated for the whole sample of positive wind speed observations. $Damage_t$ is the weighted damage measure for tropical cyclone intensity in year t. It is weighted by exposed population in t-1. The dependent variables are Input-Output coefficients (IO) and can range between 0-1. For example the coefficient $IO^{A\&B,D}_t$ displays how much input the sector aggregate A&B needs from sector aggregate D to produce one unit of output. The sector abbreviations represent the following sector aggregates: agriculture, hunting, forestry, and fishing (A&B), mining, and utilities (C&E), manufacturing (D), construction (F), wholesale, retail trade, restaurants, and hotels (G-H), transport, storage, and communication (I), other activities (J-P). All regressions include country and year fixed effects as well as country-specific linear trends.

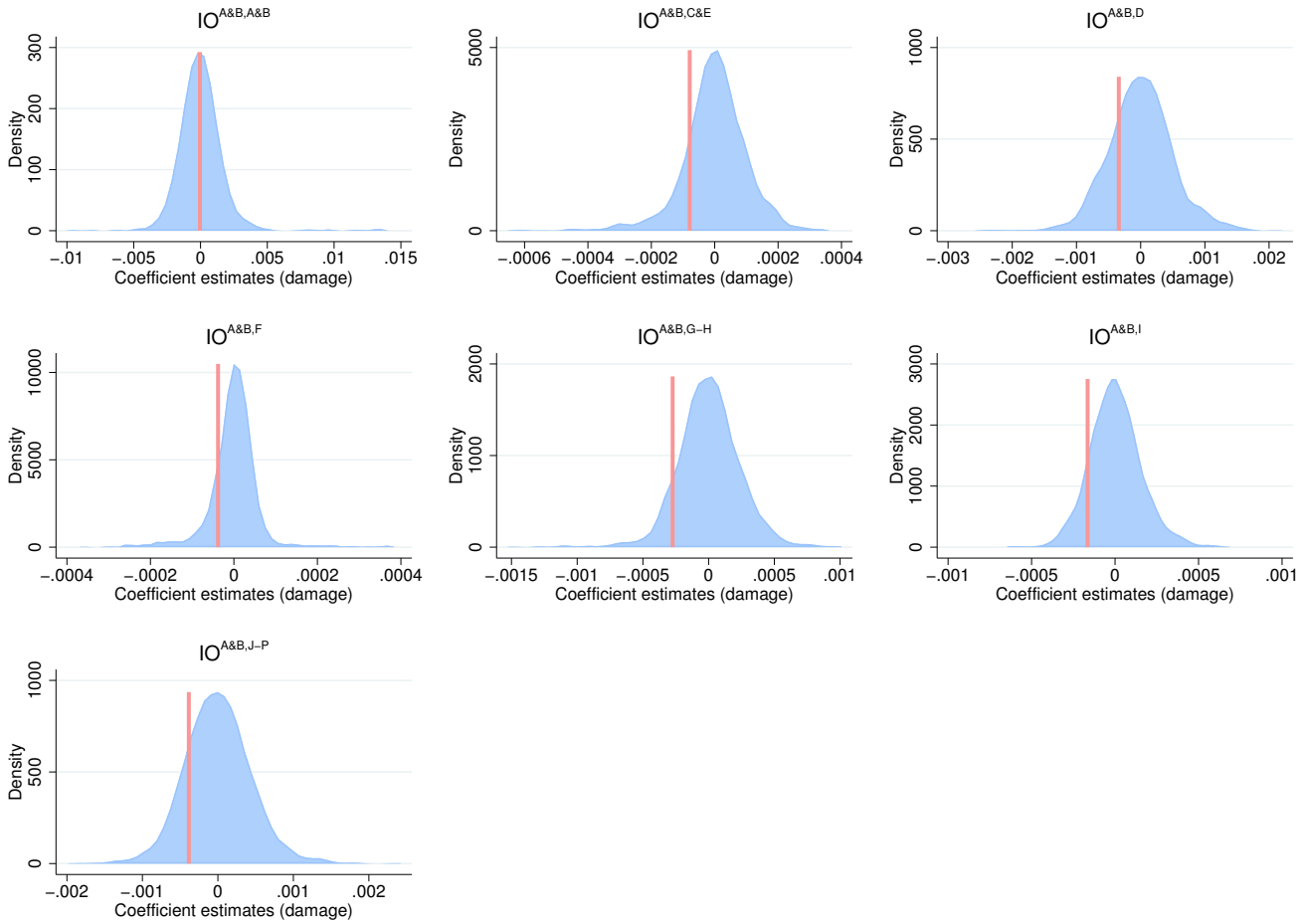

Figure 19: Randomization tests – Input-Output coefficients of sector aggregate A&B

Notes: This figure shows the Fisher randomization test results for the $damage_t$ variable where the years are permuted for 2000 repetitions. It displays the kernel density plots (blue) of the randomization coefficient estimates together the results of model **??** (red bar). The sector abbreviations represent the following sector aggregates: agriculture, hunting, forestry, and fishing (A&B), mining, and utilities (C&E), manufacturing (D), construction (F), wholesale, retail trade, restaurants, and hotels (G–H), transport, storage, and communication (I), other activities (J–P).

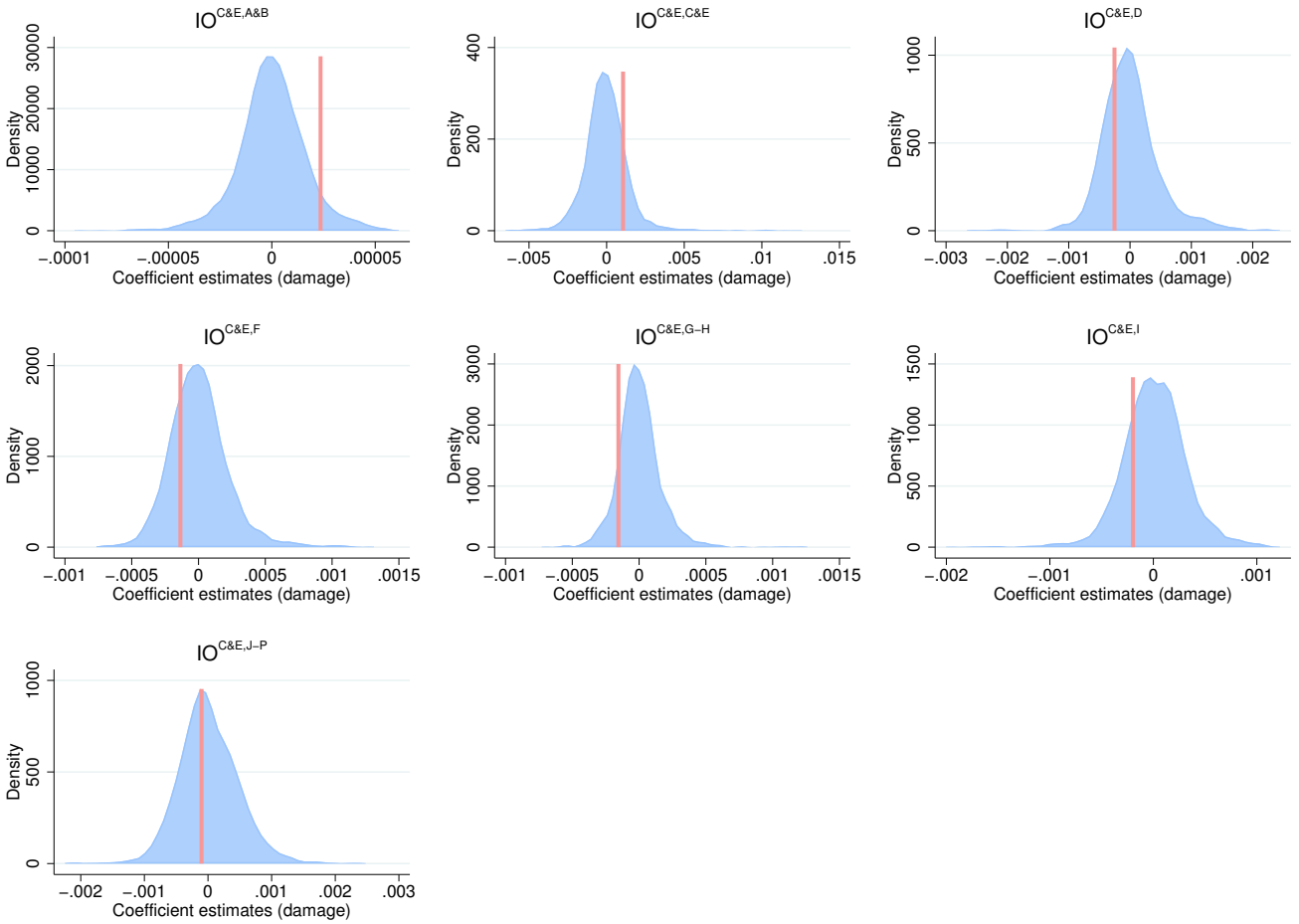

Figure 20: Randomization tests – Input-Output coefficients of sector aggregate C&E

Notes: This figure shows the Fisher randomization test results for the $damage_t$ variable where the years are permuted for 2000 repetitions. It displays the kernel density plots (blue) of the randomization coefficient estimates together the results of model **??** (red bar). The sector abbreviations represent the following sector aggregates: agriculture, hunting, forestry, and fishing (A&B), mining, and utilities (C&E), manufacturing (D), construction (F), wholesale, retail trade, restaurants, and hotels (G–H), transport, storage, and communication (I), other activities (J–P).

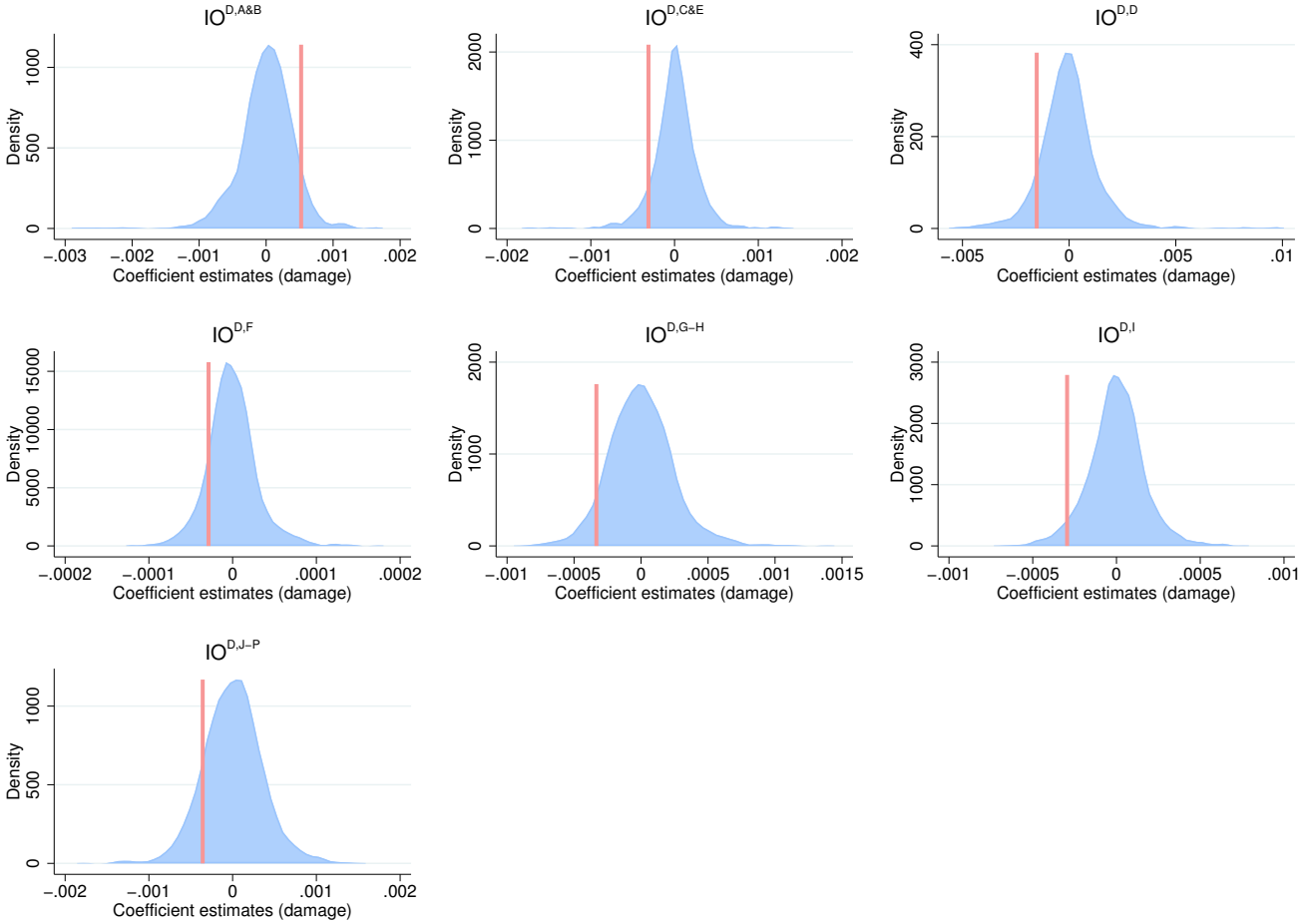

Figure 21: Randomization tests – Input-Output coefficients of sector aggregate D

Notes: This figure shows the Fisher randomization test results for the $damage_t$ variable where the years are permuted for 2000 repetitions. It displays the kernel density plots (blue) of the randomization coefficient estimates together the results of model **??** (red bar). The sector abbreviations represent the following sector aggregates: agriculture, hunting, forestry, and fishing (A&B), mining, and utilities (C&E), manufacturing (D), construction (F), wholesale, retail trade, restaurants, and hotels (G–H), transport, storage, and communication (I), other activities (J–P).

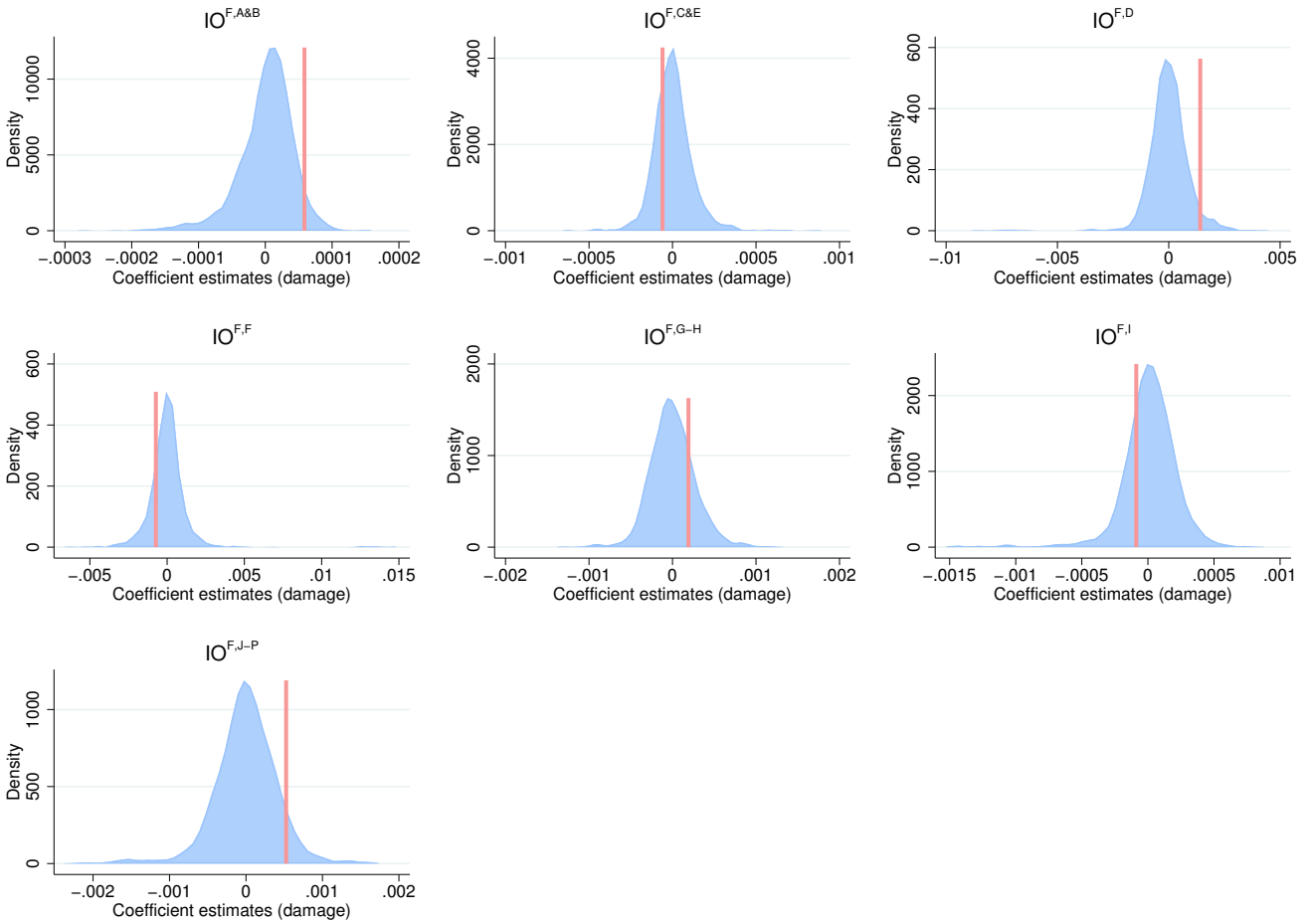

Figure 22: Randomization tests – Input-Output coefficients of sector aggregate F

Notes: This figure shows the Fisher randomization test results for the $damage_t$ variable where the years are permuted for 2000 repetitions. It displays the kernel density plots (blue) of the randomization coefficient estimates together the results of model **??** (red bar). The sector abbreviations represent the following sector aggregates: agriculture, hunting, forestry, and fishing (A&B), mining, and utilities (C&E), manufacturing (D), construction (F), wholesale, retail trade, restaurants, and hotels (G–H), transport, storage, and communication (I), other activities (J–P).

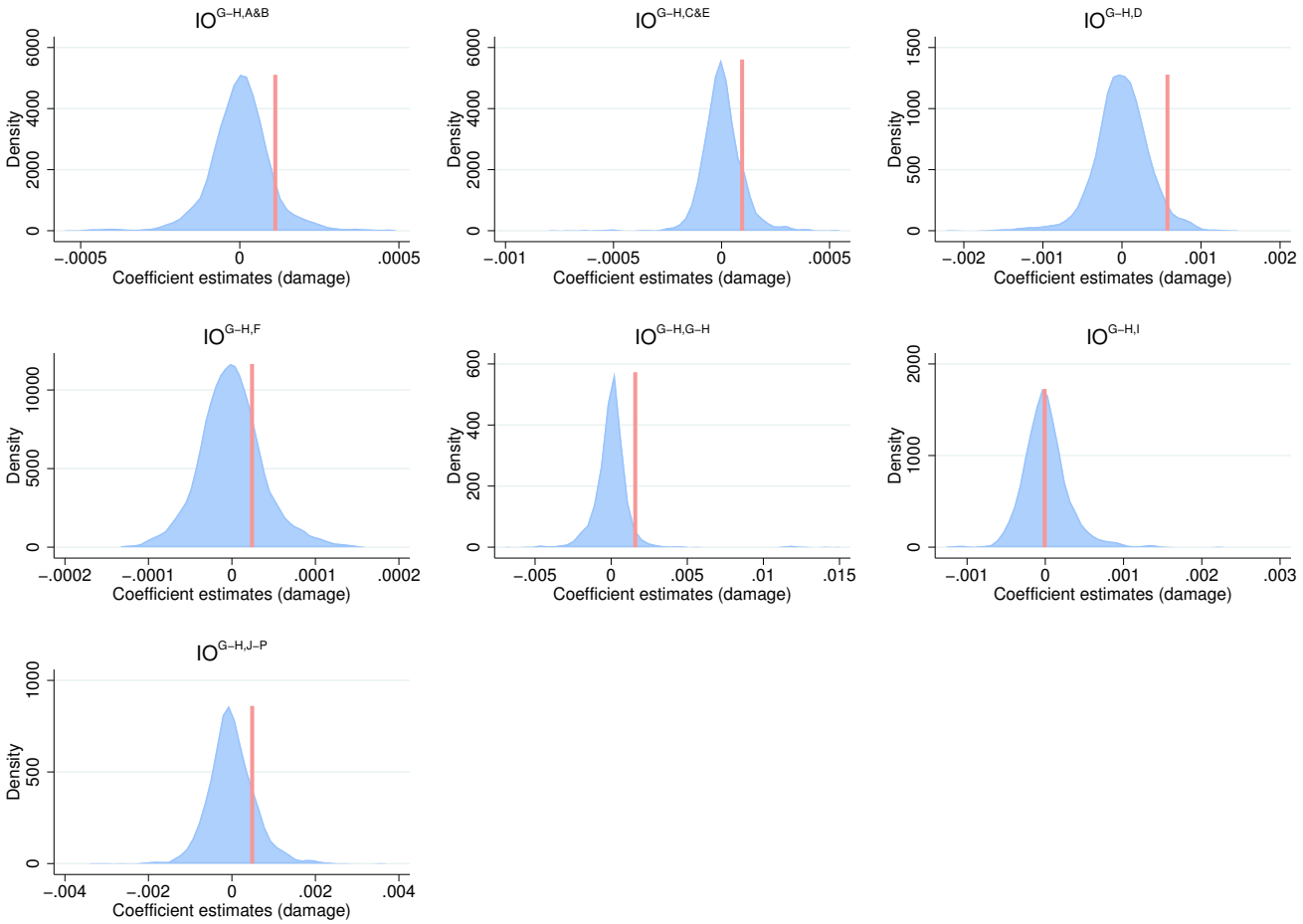

Figure 23: Randomization tests – Input-Output coefficients of sector aggregate G–H

Notes: This figure shows the Fisher randomization test results for the $damage_t$ variable where the years are permuted for 2000 repetitions. It displays the kernel density plots (blue) of the randomization coefficient estimates together the results of model **??** (red bar). The sector abbreviations represent the following sector aggregates: agriculture, hunting, forestry, and fishing (A&B), mining, and utilities (C&E), manufacturing (D), construction (F), wholesale, retail trade, restaurants, and hotels (G–H), transport, storage, and communication (I), other activities (J–P).

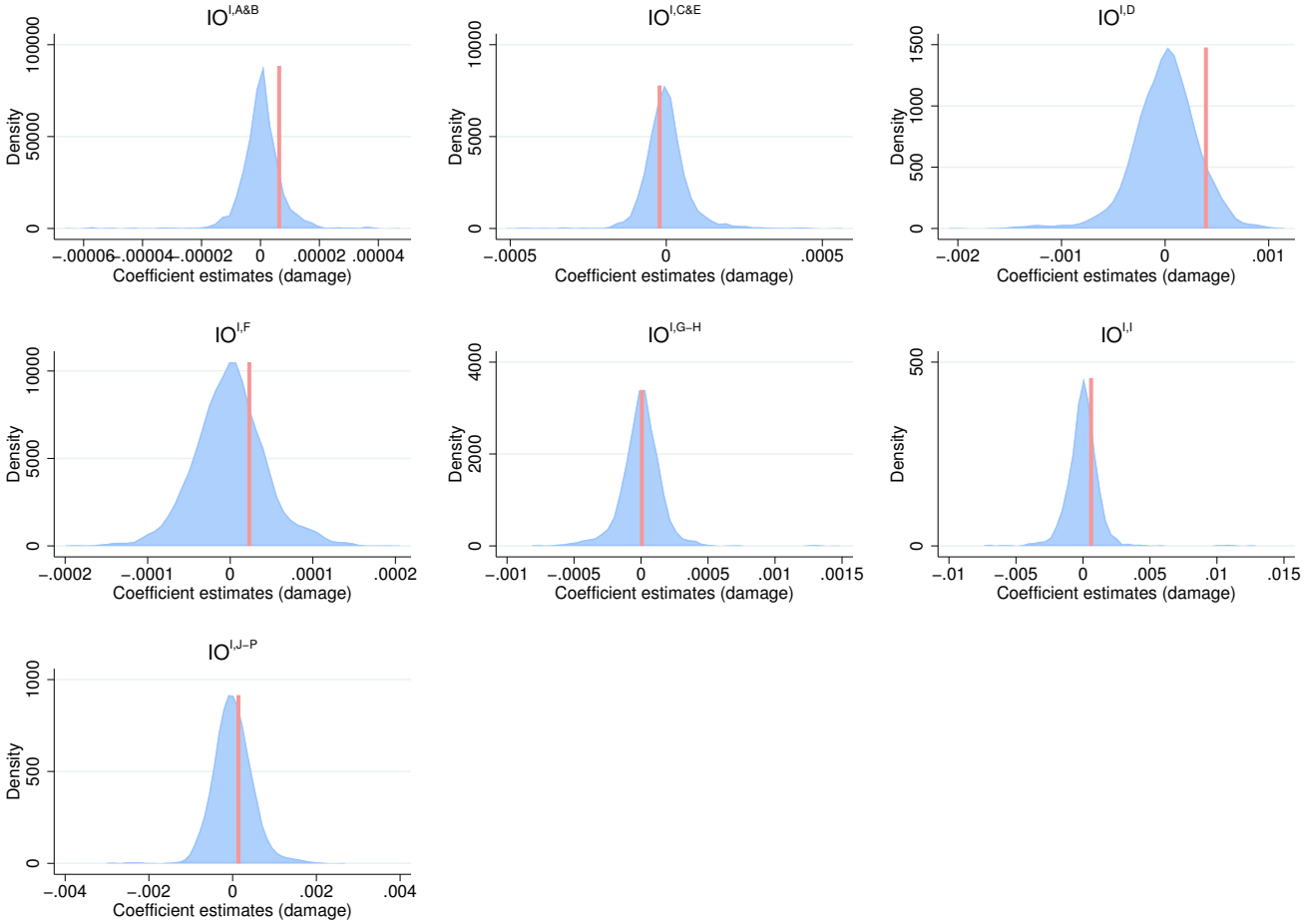

Figure 24: Randomization tests – Input-Output coefficients of sector aggregate I

Notes: This figure shows the Fisher randomization test results for the $damage_t$ variable where the years are permuted for 2000 repetitions. It displays the kernel density plots (blue) of the randomization coefficient estimates together the results of model **??** (red bar). The sector abbreviations represent the following sector aggregates: agriculture, hunting, forestry, and fishing (A&B), mining, and utilities (C&E), manufacturing (D), construction (F), wholesale, retail trade, restaurants, and hotels (G–H), transport, storage, and communication (I), other activities (J–P).

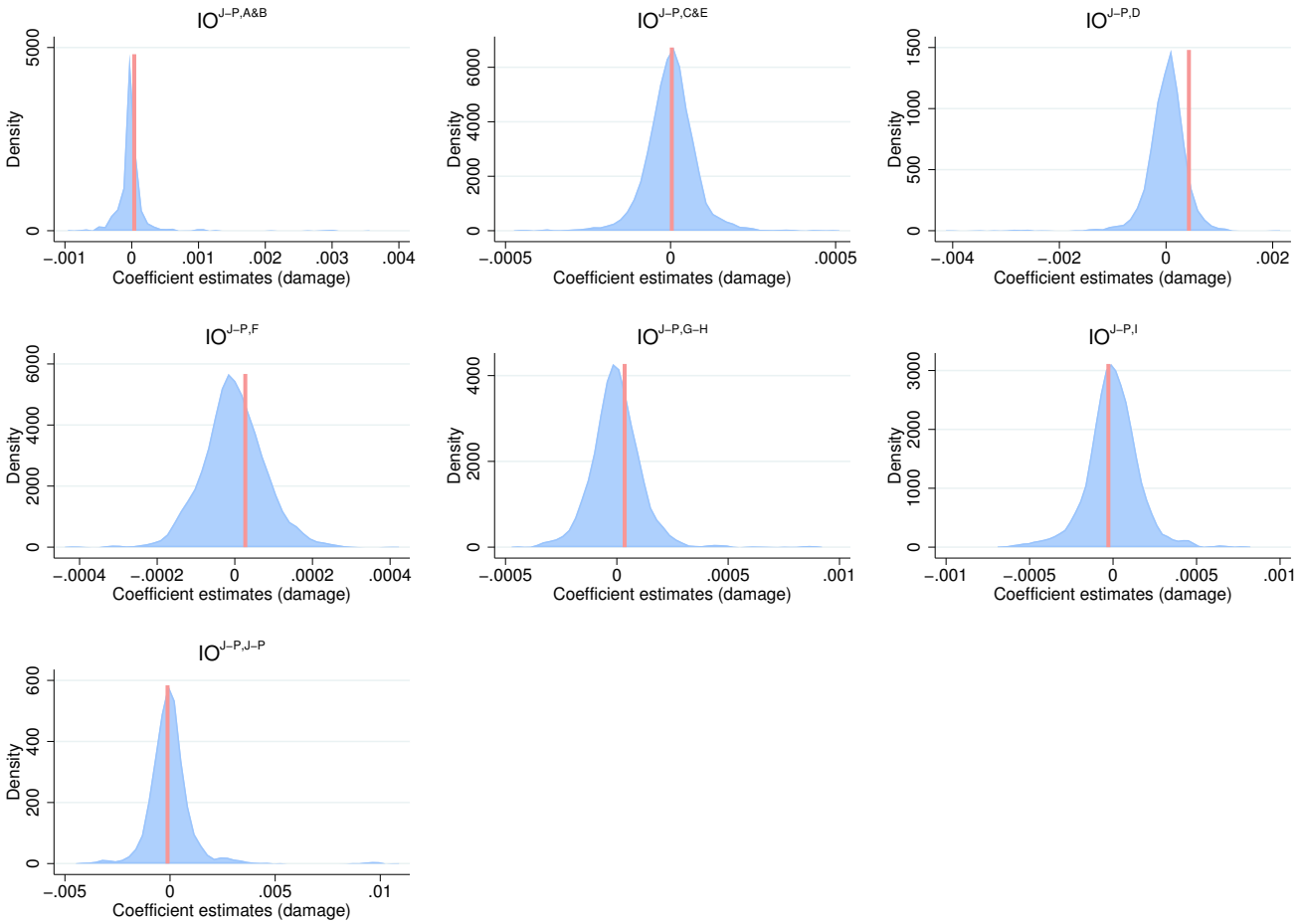

Figure 25: Randomization tests – Input-Output coefficients of sector aggregate J–P

Notes: This figure shows the Fisher randomization test results for the $damage_t$ variable where the years are permuted for 2000 repetitions. It displays the kernel density plots (blue) of the randomization coefficient estimates together the results of model **??** (red bar). The sector abbreviations represent the following sector aggregates: agriculture, hunting, forestry, and fishing (A&B), mining, and utilities (C&E), manufacturing (D), construction (F), wholesale, retail trade, restaurants, and hotels (G–H), transport, storage, and communication (I), other activities (J–P).

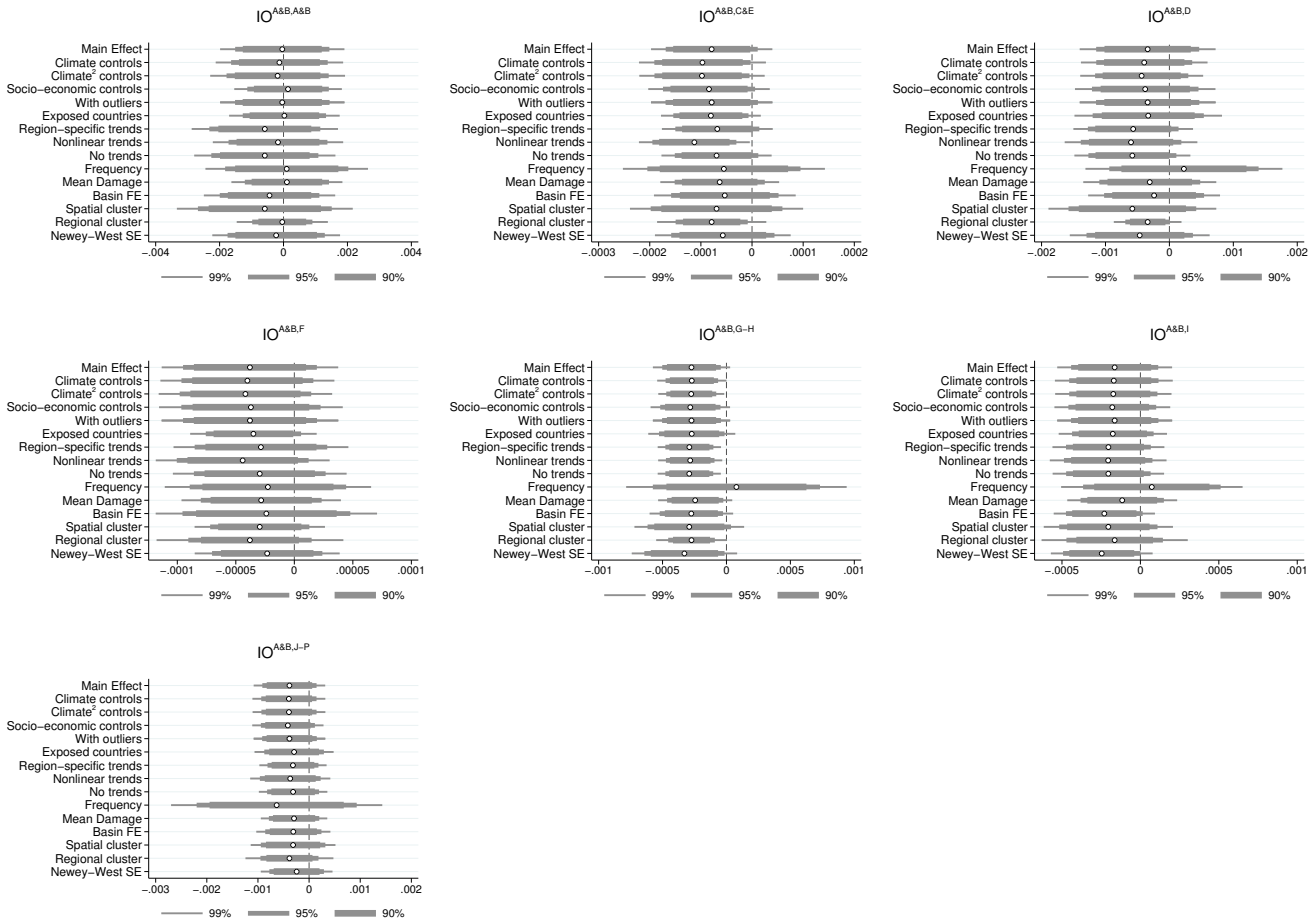

Figure 26: Overview robustness tests – Input-Output coefficients of sector aggregate A&B

Notes: This figure shows coefficient plots for different robustness tests for indirect effects of tropical cyclone damage on Input-Output coefficients of sector aggregate A&B. The sector abbreviations represent the following sector aggregates: agriculture, hunting, forestry, and fishing (A&B), mining, and utilities (C&E), manufacturing (D), construction (F), wholesale, retail trade, restaurants, and hotels (G–H), transport, storage, and communication (I), other activities (J–P).

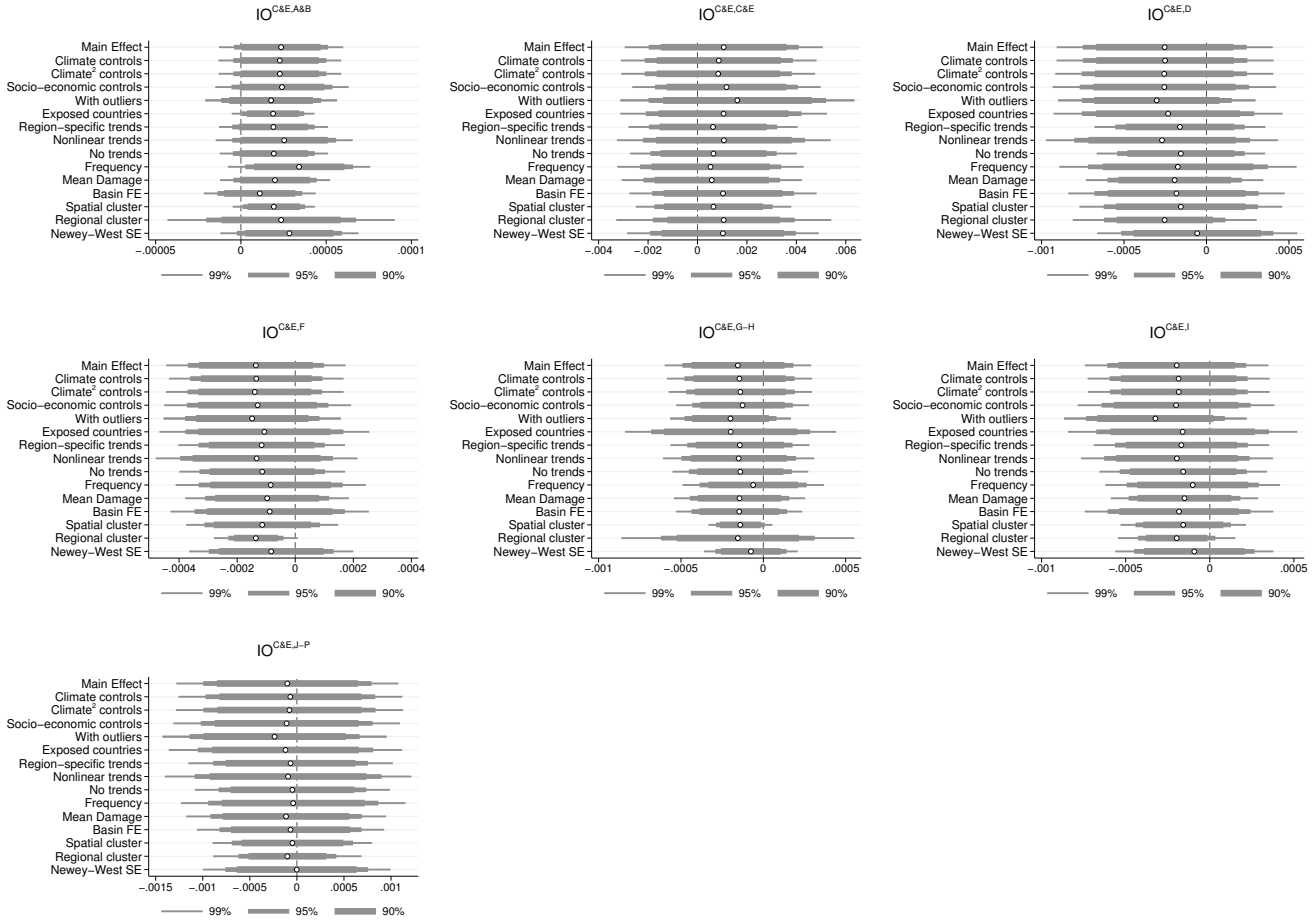

Figure 27: Overview robustness tests – Input-Output coefficients of sector aggregate C&E.

Notes: This figure shows coefficient plots for different robustness tests for indirect effects of tropical cyclone damage on Input-Output coefficients of sector aggregate C&E. The sector abbreviations represent the following sector aggregates: agriculture, hunting, forestry, and fishing (A&B), mining, and utilities (C&E), manufacturing (D), construction (F), wholesale, retail trade, restaurants, and hotels (G–H), transport, storage, and communication (I), other activities (J–P).

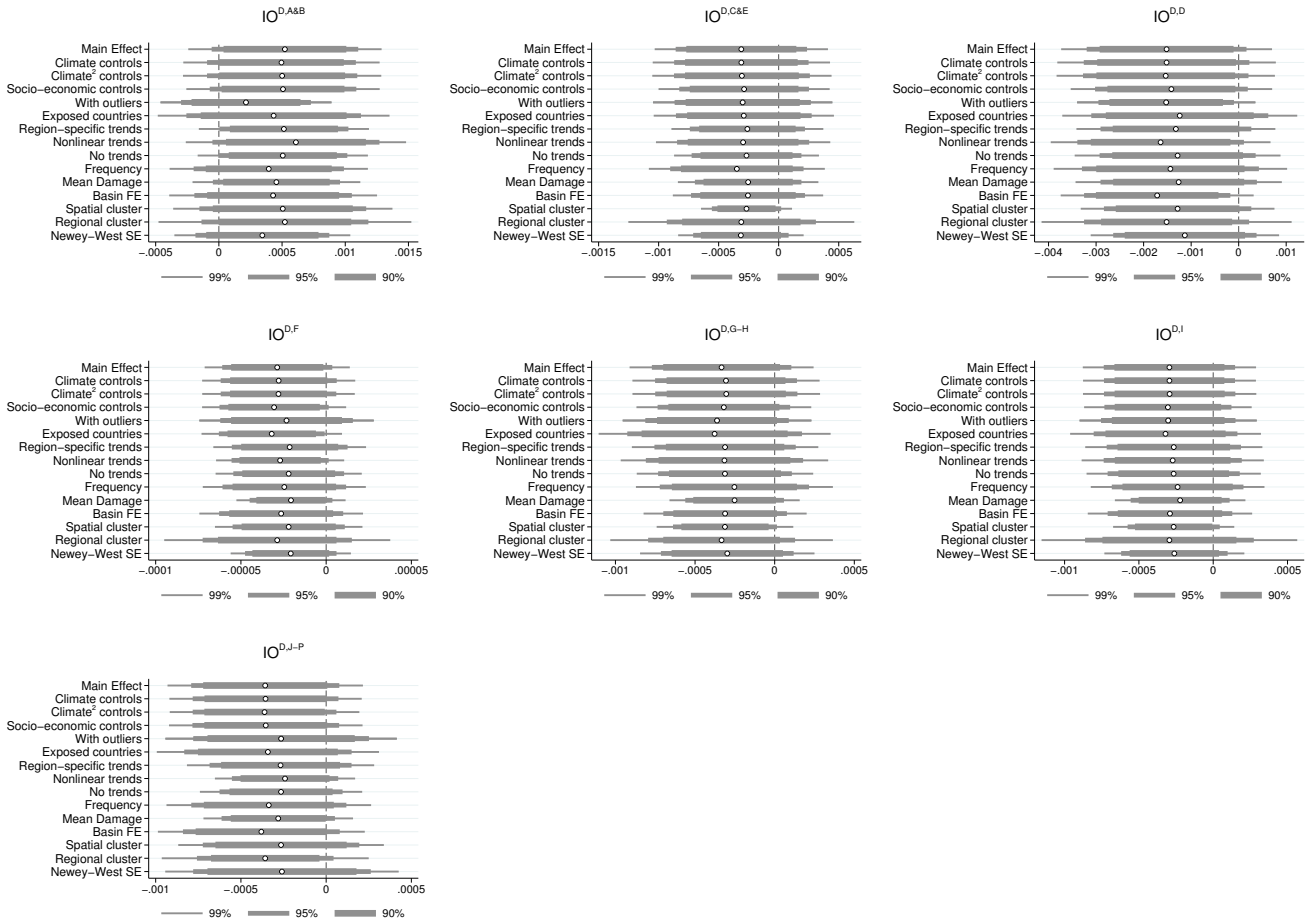

Figure 28: Overview robustness tests – Input-Output coefficients of sector aggregate D

Notes: This figure shows coefficient plots for different robustness tests for indirect effects of tropical cyclone damage on Input-Output coefficients of sector aggregate D. The sector abbreviations represent the following sector aggregates: agriculture, hunting, forestry, and fishing (A&B), mining, and utilities (C&E), manufacturing (D), construction (F), wholesale, retail trade, restaurants, and hotels (G–H), transport, storage, and communication (I), other activities (J–P).

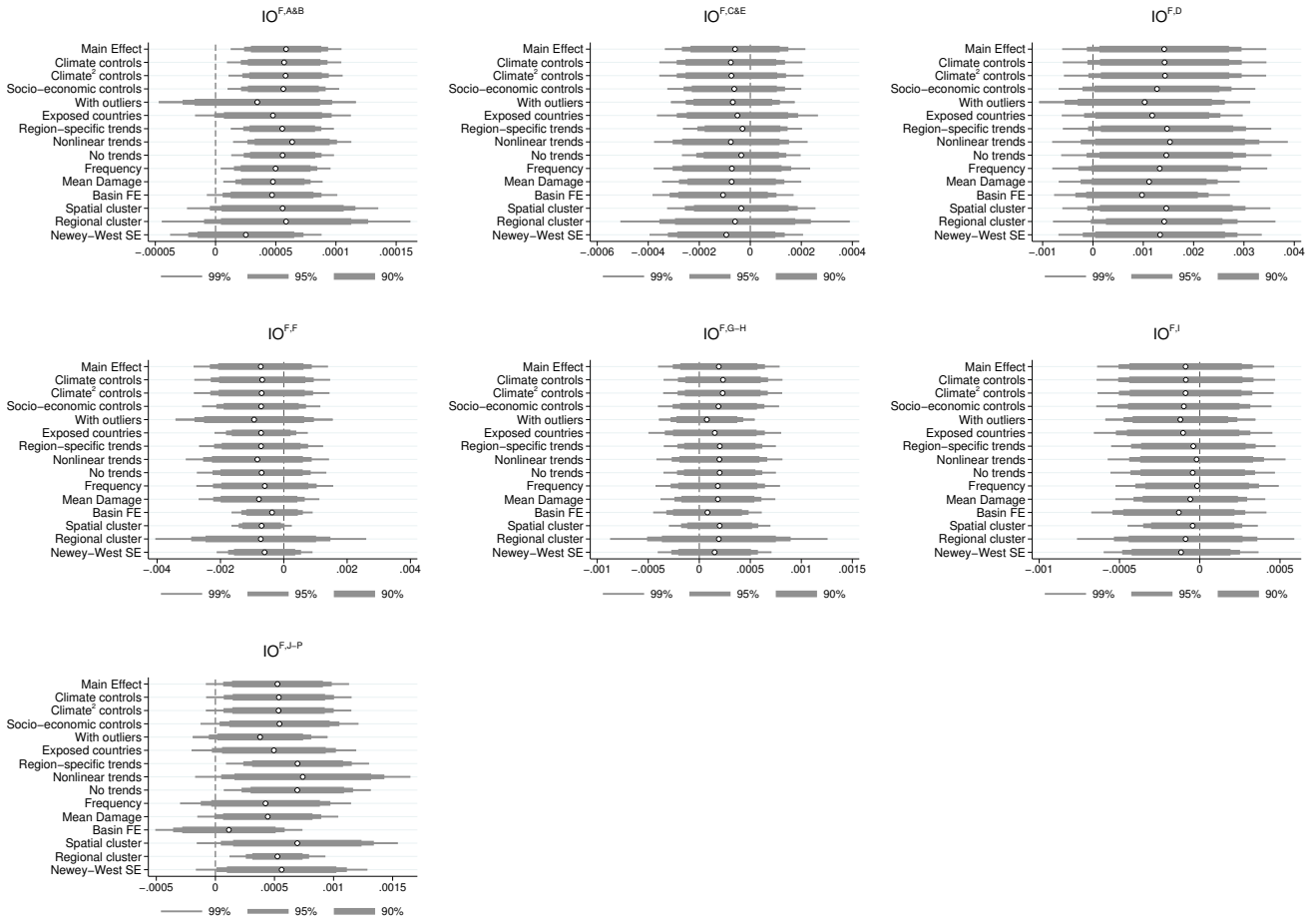

Figure 29: Overview robustness tests – Input-Output coefficients of sector aggregate F

Notes: This figure shows coefficient plots for different robustness tests for indirect effects of tropical cyclone damage on Input-Output coefficients of sector aggregate F. The sector abbreviations represent the following sector aggregates: agriculture, hunting, forestry, and fishing (A&B), mining, and utilities (C&E), manufacturing (D), construction (F), wholesale, retail trade, restaurants, and hotels (G–H), transport, storage, and communication (I), other activities (J–P).

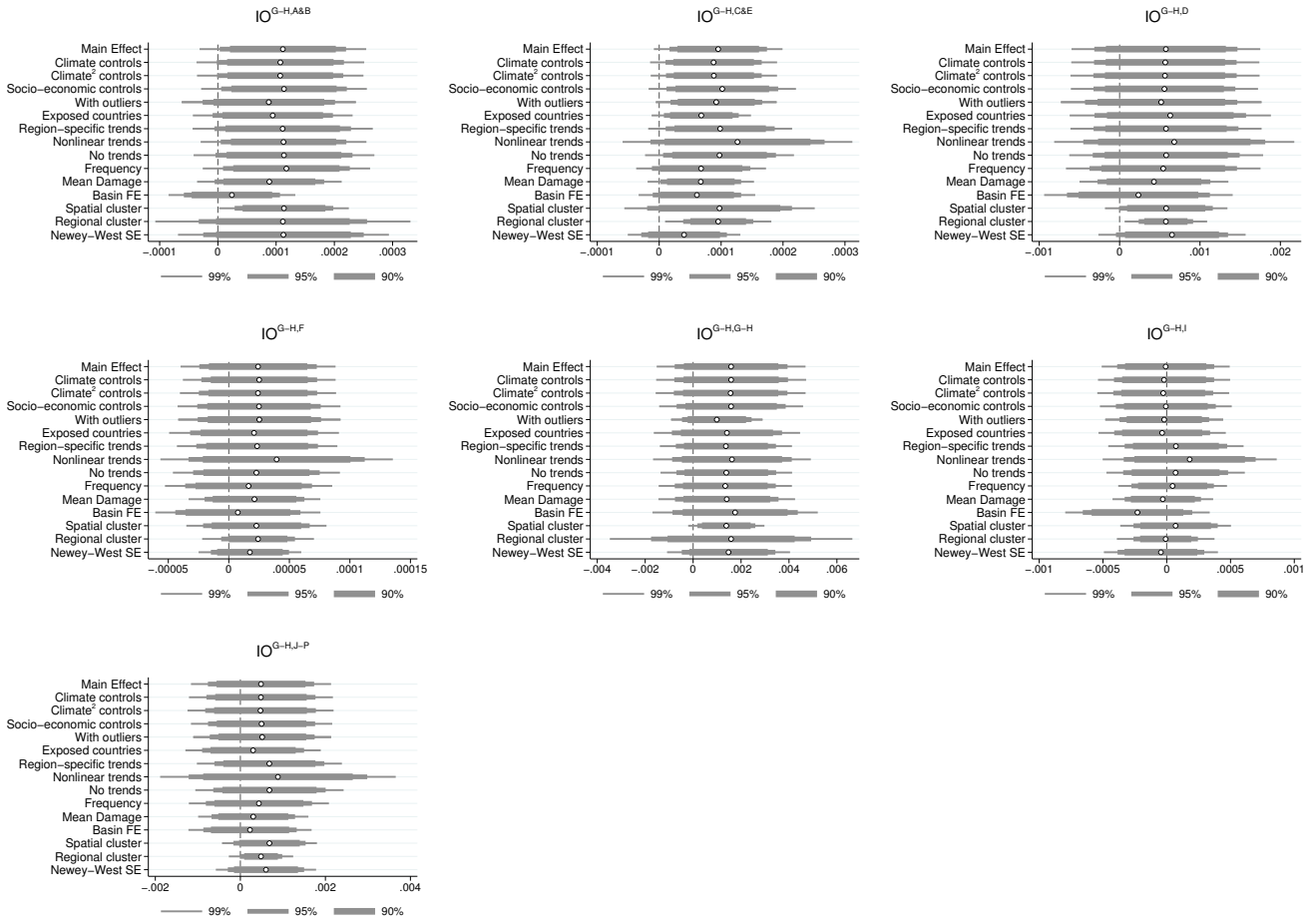

Figure 30: Overview robustness tests – Input-Output coefficients of sector aggregate G–H

Notes: This figure shows coefficient plots for different robustness tests for indirect effects of tropical cyclone damage on Input-Output coefficients of sector aggregate G–H. The sector abbreviations represent the following sector aggregates: agriculture, hunting, forestry, and fishing (A&B), mining, and utilities (C&E), manufacturing (D), construction (F), wholesale, retail trade, restaurants, and hotels (G–H), transport, storage, and communication (I), other activities (J–P).

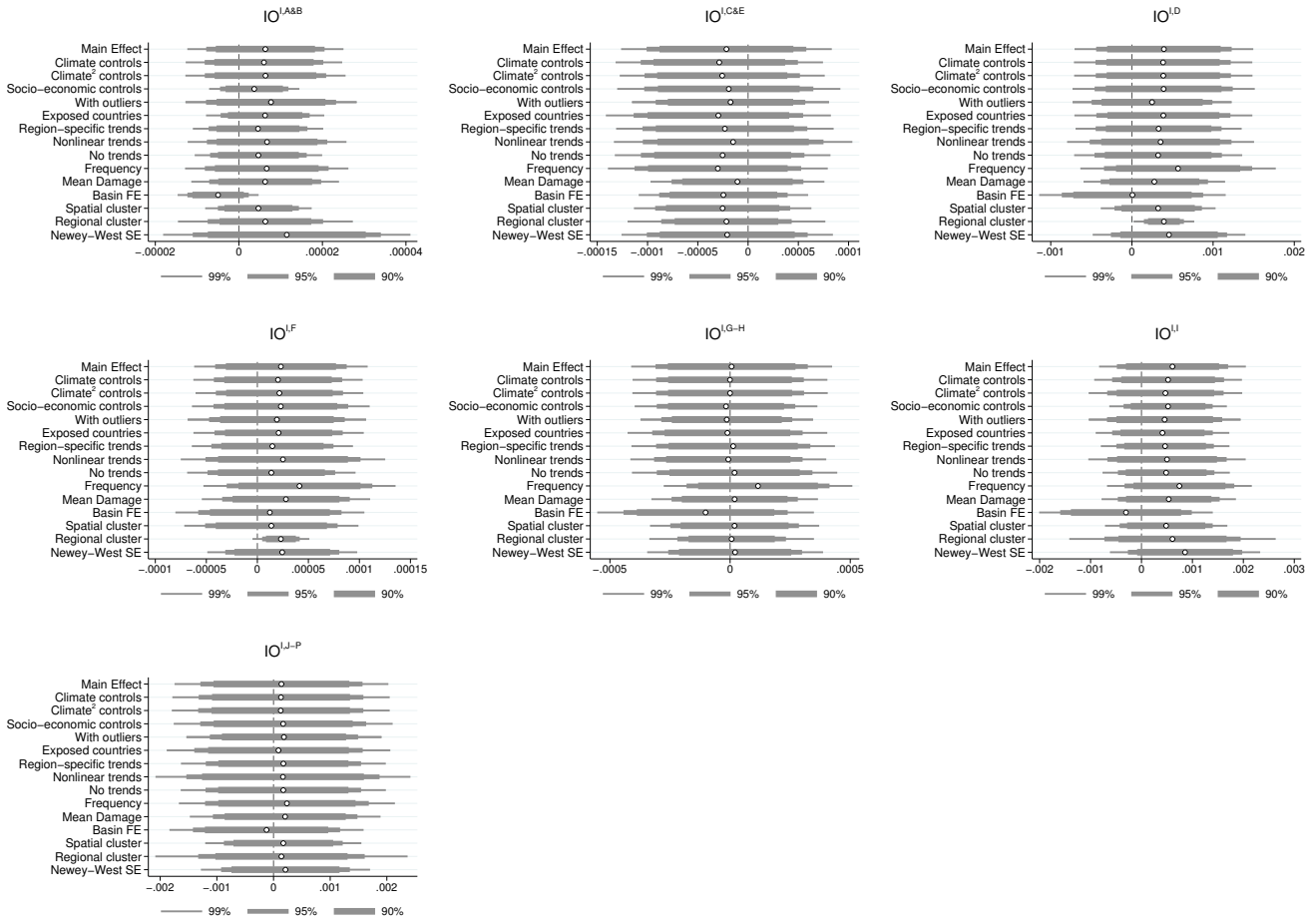

Figure 31: Overview robustness tests – Input-Output coefficients of sector aggregate I

Notes: This figure shows coefficient plots for different robustness tests for indirect effects of tropical cyclone damage on Input-Output coefficients of sector aggregate I. The sector abbreviations represent the following sector aggregates: agriculture, hunting, forestry, and fishing (A&B), mining, and utilities (C&E), manufacturing (D), construction (F), wholesale, retail trade, restaurants, and hotels (G–H), transport, storage, and communication (I), other activities (J–P).

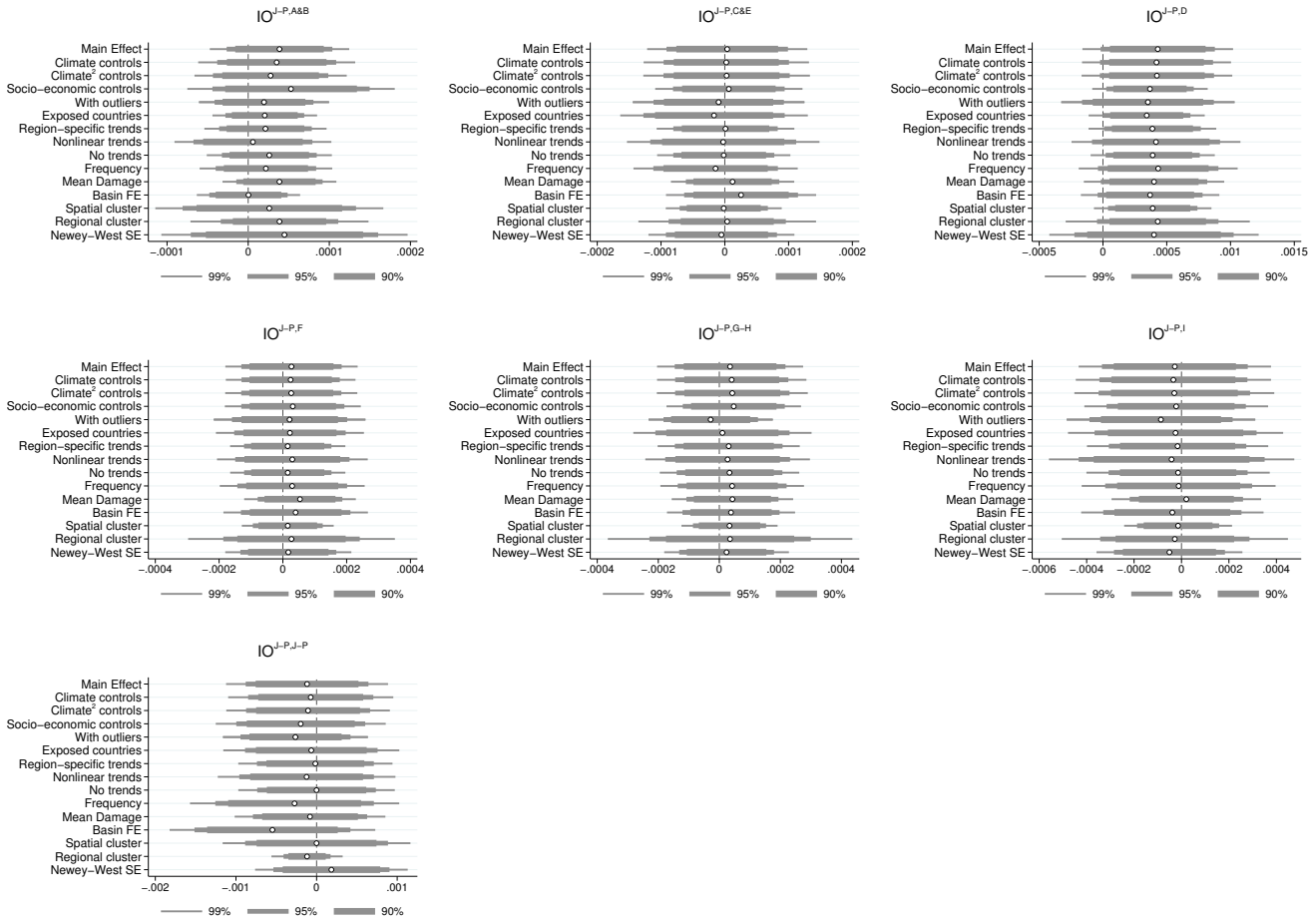

Figure 32: Overview robustness tests – Input-Output coefficients of sector aggregate J–P

Notes: This figure shows coefficient plots for different robustness tests for indirect effects of tropical cyclone damage on Input-Output coefficients of sector aggregate J–P. The sector abbreviations represent the following sector aggregates: agriculture, hunting, forestry, and fishing (A&B), mining, and utilities (C&E), manufacturing (D), construction (F), wholesale, retail trade, restaurants, and hotels (G–H), transport, storage, and communication (I), other activities (J–P).

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