Supplementary Material: Online Appendix

– NOT INTENDED FOR PUBLICATION –

Comparative Advantage, Capital Destruction, and Hurricanes

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A Tables

Table A.1: Dropping extreme values

Dependent variable	log exports$_{ict,US}$						
	All	<5p	<10p	>90p	>95p	<5p, >95p	<10p, >90p
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Hurricane$_{ct}$	−3.59***	−4.08***	−4.03***	−4.86***	−4.66***	−5.66***	−6.44***
	(1.00)	(1.07)	(1.15)	(1.16)	(1.14)	(1.27)	(1.54)
Balassa$_{ic(t-1)}$	0.89***	0.89***	0.89***	0.86***	0.88***	0.88***	0.86***
	(0.016)	(0.018)	(0.020)	(0.021)	(0.019)	(0.021)	(0.028)
Balassa$_{ic(t-1)}$*Hurricane$_{ct}$	0.89***	0.97***	0.93***	1.31***	1.23***	1.43***	1.62***
	(0.22)	(0.24)	(0.25)	(0.30)	(0.27)	(0.31)	(0.38)
Industry, country and year dummies; Industry and country trends	yes	yes	yes	yes			
Observations	68325	64908	61492	61493	64909	61492	54660
R^2	0.78	0.78	0.78	0.77	0.78	0.78	0.77

Notes: Standard errors are clustered at the country level. *** denotes significance at the 1% level, ** at the 5% level, * at the 10% level.

Table A.2: Current comparative advantage

Dependent variable	log exports$_{ict,US}$			
	(1)	(2)	(3)	(4)
Hurricane$_{ct}$	0.062		0.016	-2.55^{**}
	(0.45)		(0.41)	(0.96)
Balassa$_{ic(t-1)}$		0.95^{***}	0.95^{***}	0.95^{***}
		(0.015)	(0.015)	(0.015)
Balassa$_{ic(t-1)}$*Hurricane$_{ct}$				0.67^{***}
				(0.20)
Industry, country and year dummies; Industry and country trends	yes	yes	yes	yes
Observations	68325	68325	68325	68325
R^2	0.54	0.80	0.80	0.80

Notes: Standard errors are clustered at the country level. *** denotes significance at the 1% level, ** at the 5% level, * at the 10% level. .

Table A.3: Using quantiles instead of raw comparative advantages

Dependent variable	log exports$_{ict,US}$			
	(1)	(2)	(3)	(4)
Hurricane$_{ct}$	0.062		-0.23	-3.56^{***}
	(0.45)		(0.39)	(0.96)
Balassa$_{ic(t-1)}$		0.046^{***}	0.046^{***}	0.046^{***}
		(0.00082)	(0.00082)	(0.00082)
Balassa$_{ic(t-1)}$*Hurricane$_{ct}$				0.057^{***}
				(0.015)
Industry, country and year dummies; Industry and country trends	yes	yes	yes	yes
Observations	68325	68325	68325	68325
R^2	0.54	0.77	0.77	0.77

Notes: Standard errors are clustered at the country level. *** denotes significance at the 1% level, ** at the 5% level, * at the 10% level.

Table A.4: Summary statistics of comparative advantage measures, by country over the period 1980-2000.

	Log Balassa				Hanson et al.				
Country	**Mean**	**Std. Dev.**	**Min.**	**Max.**	**Mean**	**Std. Dev.**	**Min.**	**Max.**	**N**
All	3.3	1.7	-5.9	12.1	1.2	1.7	-5.5	15.0	105,183
Bahamas	6.9	2.3	-1.7	10.3	-0.4	1.5	-4.8	2.6	105
Bangladesh	7	2.6	1.6	11.9	1	1.4	-1.5	5.2	210
Barbados	7.8	1.4	5.2	10.5	-0.7	0.9	-2.7	1.4	63
Bermuda	7.3	1.1	4.5	9.4	-1.3	0.8	-2.8	0.4	63
China	3.3	1.7	-4.9	7.7	2.3	1.8	-3.2	8.5	6153
Colombia	4.6	1.5	-3	9.1	0.3	1.2	-3.5	4.8	1911
Comoros	10.9	0.6	9.7	11.6	-0.3	0.6	-1.4	0.7	21
Costa Rica	5.3	1.7	-0.5	10.2	-0.5	1	-3.4	4.1	462
Cuba	7.6	2.5	4.2	12.1	0.3	1.3	-2.5	3.5	84
Dominican Republic	4.9	2.1	-3.2	9.6	-0.5	1.4	-3.7	4.5	672
El Salvador	6.3	1.3	3.6	8.2	-0.9	0.9	-2.7	1.3	147
Fiji	10.1	1	7.2	11.6	0.6	1	-1.2	3.6	42
France	3.2	0.9	-2.6	6.1	2.2	1.4	-1.7	7.3	9702
Guatemala	7	1.4	2.3	9.4	-0.7	1	-2.7	3.3	189
Haiti	5.7	1.5	0.4	9.1	-0.9	1.3	-5.5	1.5	315
Honduras	7.1	1.8	1.6	10.2	0	1.1	-2.6	3.5	252
Hong Kong	3	1.7	-5.1	7.2	1.5	1.6	-2.9	6.3	5544
Iceland	5.7	2.3	-1.3	10.9	-0.5	1.5	-5.4	4.1	252
India	3.2	1.8	-5.1	8.4	1.1	1.5	-2.2	7.2	4872
Indonesia	4	2	-5.1	9	2	1.9	-2.4	7.5	1827
Ireland	3	1.6	-3.5	7.2	-0.5	1.3	-4.9	5.5	5187
Jamaica	6.8	1.8	1.7	10.1	0	1.4	-3.7	4.1	147
Madagascar	8.4	1.4	5.5	11	1.3	1.2	-1.4	3.6	84
Malaysia	2.7	1.7	-4.6	8.5	0.9	1.7	-3.4	8.1	4263
Mauritius	6	1.2	3.5	9.5	0.1	1.1	-2.4	3.4	231
Mexico	3	1.5	-4.2	7.6	0.8	1.2	-3.2	5.8	5775
Myanmar	8.1	1.8	4.5	11.2	-0.5	1.5	-3.1	2.3	63
New Caledonia	7.1	2.9	-0.2	10.7	1.8	1.8	-1.4	5.2	84
New Zealand	3.8	1.4	-1.9	8.2	0.8	1	-2.1	4.7	3108
Nicaragua	10.9	0.4	10.1	11.6	1.2	5	-3.4	15	21
Oman	5.5	1.6	1.1	8.6	0.2	1.3	-3	3.8	84
Pakistan	4.1	2.1	-1.1	8.6	1	1.6	-3.2	6.1	1176
Philippines	3.4	1.9	-4.1	9.3	0.7	1.5	-3.9	6.4	2625
Portugal	3.3	1.5	-5.5	9	0.2	1.2	-4.1	4.8	4158
Republic of Korea	2.9	1.6	-5.9	6.9	1.8	1.6	-2.7	8.8	6930
Russia	2.9	1.8	-4.4	7.9	1.3	2	-3.3	10.9	1947
Saint Kitts and Nevis	6.3	0.9	4	8.8	-1.6	1	-4.9	0.3	105
Saudi Arabia	3.5	2.1	-3.4	8.8	-0.3	1.2	-4	5.1	861
Spain	3.2	1.1	-4.6	7	1.2	1.1	-2.1	6.4	7140
Sri Lanka	5.3	1.7	-0.6	9.2	0.9	1.2	-3.4	4.4	819
Thailand	3.8	1.5	-2.8	8.3	1.5	1.6	-2.8	7.5	3318
Trinidad and Tobago	6.3	2.2	-0.6	9.4	0.2	1.1	-3.3	2.8	189
United Kingdom	3.2	0.9	-5.5	6.3	2.4	1.4	-2.3	7.7	10059
Venezuela	3.6	2.1	-4.7	9.3	0.7	1.7	-3.4	7.3	1281
Vietnam	7.3	1.9	0.7	10	0.9	1.4	-2.4	5.1	147
Zimbabwe	5.9	2.3	-2.8	9.5	-0.4	1.5	-3.8	3.6	168

B Figures

Figure B.1: Total effects for Hong Kong

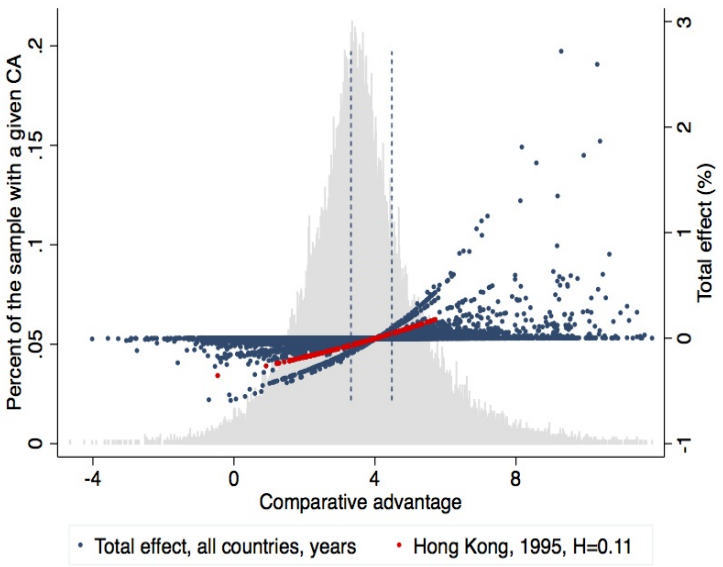
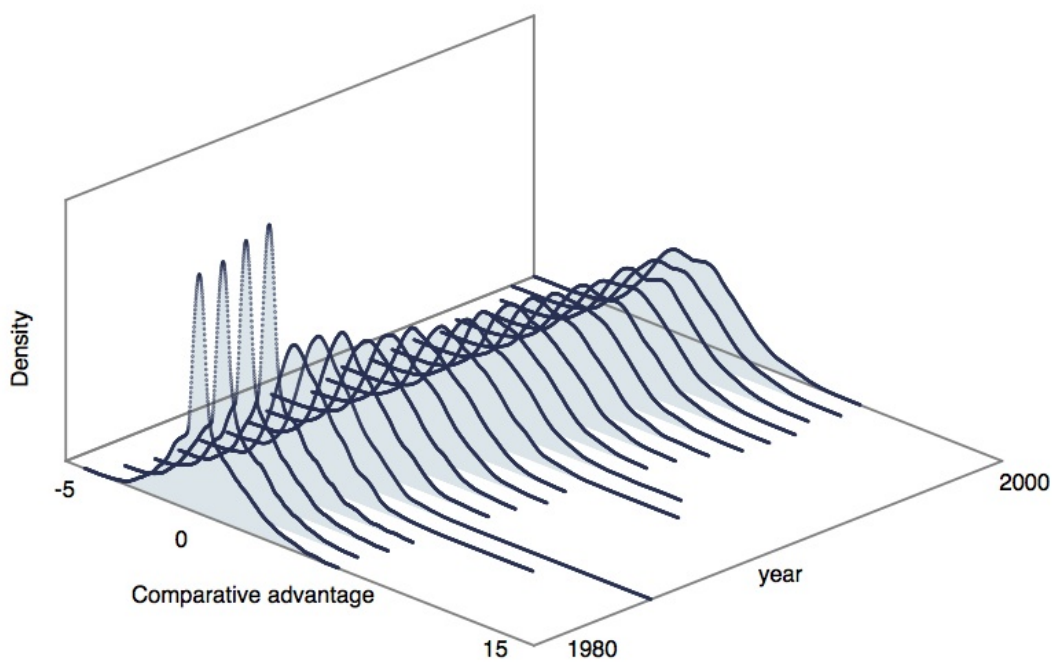


Figure B.2: Distribution of Hanson et al. (2016) measure of comparative advantage



C An alternative measure of comparative advantage: Hanson, Lind and Muendler (2016)

In what follows, the robustness of the baseline results is checked using an alternative measure of comparative advantage, recently proposed by Hanson et al. (2016). The rationale behind this exercise is that, since it is based on raw trade flows, the Balassa index of comparative advantage may be contaminated by distorting trade policies as well as proximity to market demand. Hanson et al. (2016) argue that the confounding factors of geography and foreign demand shocks can be filtered out using a gravity model. For each industry-year pair, their approach consists in running a series of gravity regressions on standard gravity controls, exporter and importer dummies. The coefficients on exporter dummies are then used to compute a comparative advantage measure in the spirit of the Balassa index. One of the advantages of using this measure is that it reflects a country's productive potential in an industry while imposing as little structure as possible on the determinants of trade. This is a very important advantage as it allows us to remain agnostic about the determinants of comparative advantage. That is, the Hanson et al. (2016) approach allows us to purge the Balassa index of demand-side and geographical confounds but not of other sources (e.g. technology, endowments, etc.) of comparative advantage.

Following Hanson et al. (2016), this paper estimates the following gravity model:

$$\ln X_{iAIt} = k_{iAt} + m_{iBt} - \eta_{it} C_{ABt} + u_{iABt}, \tag{C.1}$$

where subscripts A and B represent an exporting and importing country, respectively. u is an error term and C is a matrix containing the standard determinants of trade costs used in gravity models.[1] Since the gravity regressions are run for each industry-year pair, the coefficients η on these variables are allowed to vary across industries and years. The variables k and m denote an entire set of exporter-industry-year and importer-industry-year dummies, respectively. The coefficients on the exporter-industry-year dummies are retrieved and subsequently used to estimate export capability.

Note that, as in Hanson et al. (2016), the omitted category is the importer-industry-year dummy for the US. For this reason, the estimates on the exporter-industry-year dummies are given by:

$$k_{iAt}^{OLS} = k_{iAt} + m_{iUSt}, \tag{C.2}$$

[1] As Hanson et al. (2016), we include the log distance between exporter and importer, the time difference and the square of the time difference between exporter and importer, a contiguity dummy, a regional trade agreement dummy, a dummy for both countries being members of GATT, a common official language dummy, a common prevalent language dummy, a colonial relationship dummy, a common empire dummy, and a common currency dummy. All these variables come from CEPII and are industry-invariant.

and do not exactly identify k_{iAt}, the underlying export capability. Since m_{iUSt} is industry-time-specific, this problem can be solved by first averaging out k_{iAt}^{OLS} over exporters and then, by substracting this average from each of the estimates on the exporter-industry-year dummies. That is, the underlying export capability determined as follows:

$$\hat{k}_{iAt} = k_{iAt}^{OLS} - \frac{1}{N} \sum_{A'=1}^{N} k_{iA't}^{OLS}, \tag{C.3}$$

where N is the total number of exporters. Taking deviations from the mean therefore removes the omitted importer-industry-year category, as well as any global industry-time-specific factors as such as industry-specific total factor productivity growth, demand changes or variations in producer price index. The advantage of Hanson et al. (2016)'s approach is that it enables one to construct a measure of comparative advantage using trade data exclusively, while controlling for standard gravity variables and industry-year-specific factors.[2]

Table C1 presents the estimates obtained using Hanson et al. (2016)'s measure of comparative advantage in place of the Balassa index. Results are similar to those obtained with the baseline specification, with the exception of the coefficient on the hurricanes measure which is still negative, yet smaller in magnitude and imprecisely estimated. Importantly, the coefficient on the interaction term grows from 0.89 to 1.17 and remains statistically significant at the 1% level. In Hanson et al. (2016), the author find that results based on the Balassa index and those based on their measure of export capabilities are quite similar. In our sample, the Spearman rank correlation between both measures is positive at 0.55, which may explain why the results obtained using both measures of comparative advantage are broadly similar. If anything, using this alternative measure of comparative advantage reinforces the baseline findings that exports shift towards comparative advantaged industries in the aftermath of a shock that destroys capital at the firm level.

[2]Columns (5) to (8) of Table A.4 of this Online Appendix show summary statistics of the Hanson et al. (2016) measure of comparative advantage by country across industries and years. The statistics of Table A.4 present substantial differences between the traditional Balassa measure and that proposed by Hanson et al. (2016). Overall, the average of the Hanson et al. (2016)'s measure is lower. For some countries, the average of this measure is negative, which suggests that for those countries, on average, trade occurs in industries with comparative disadvantage. This table indicates that, in general, countries are less well aligned with comparative advantage than originally suggested by the Balassa measure. Figure B.2 of this Online Appendix shows the distribution of this alternative measure by year, pooling all the countries and industries together. The figure displays a drastic change in the distribution between 1983 and 1984, where it becomes more dispersed.

Table C1: Using Hanson et al. (2016) measure of comparative advantage

Dependent variable	log exports$_{ict,US}$			
	(1)	(2)	(3)	(4)
Hurricane$_{ct}$	0.062		0.59***	−1.04
	(0.45)		(0.18)	(0.64)
Hanson$_{ic(t-1)}$		0.77***	0.77***	0.76***
		(0.030)	(0.030)	(0.030)
Hanson$_{ic(t-1)}$*Hurricane$_{ct}$				1.17***
				(0.29)
Industry, country and year dummies; Industry and country trends	yes	yes	yes	yes
Observations	68325	68325	68325	68325
R^2	0.54	0.70	0.70	0.70

Standard errors are clustered at the country level. *** denotes significance at the 1% level, ** at the 5% level, * at the 10% level.

D Testing for the channel of physical capital

If the physical capital channel is operational, one would expect the effect of interest to depend on industry-specific capital intensity and to be the greatest in those industries where the potential for destruction is the largest. To test for the physical capital channel we propose to augment the baseline specification with a term that interacts the measure of hurricanes with the Balassa index of comparative advantage and a measure of industry-specific capital intensity. Specifically, we run the following specification:

$$\begin{aligned}\log X_{ict,US} &= \alpha_1 H_{ct} + \alpha_2 CA_{ic(t-1)} + \alpha_3 K_i + \beta_1 \left(H_{ct} \times CA_{ic(t-1)}\right) + \beta_2 \left(H_{ct} \times K_i\right) \\ &+ \beta_3 \left(CA_{ic(t-1)} \times K_i\right) + \gamma \left(H_{ct} \times CA_{ic(t-1)} \times K_i\right) + d_c + d_i + d_t + \tau_i + \tau_c + \varepsilon_{ict},\end{aligned} \tag{D.1}$$

where K_i denotes physical capital. We perform this exercise using the measure of physical capital intensity provided by Braun (2003) for 27 3-digit ISIC sectors.[3] Since this measure of capital is fixed over time and colinear to industry dummies, the term $\alpha_3 K_i$ will be dropped from the estimation. If capital-intensive industries suffer more from hurricanes, one would expect β_2 to be negative. Moreover, one would expect γ to be statistically significant if effects are heterogeneous across industries depending on both comparative advantage and physical capital.

Results are shown in Table D1. Column 1 shows the baseline estimates obtained when running the baseline specification on a sample that includes physical capital. Column 2 presents the results of a specification that interacts physical capital with hurricanes. The triple interaction term is included in column 3. The estimate on the interaction term $Balassa_{ict} * Hurricane_{ct}$ remains positive and statistically significant across all specifications. The coefficient on the hurricane measure becomes statistically insignificant once accounting for physical capital, presumably because hurricanes exhibit heterogeneous effects across industries depending on the dependence of the industry on physical capital. In column 2, the estimate on the interaction $Physical\ capital_i * Hurricane_{ct}$ is negative and statistically significant at the 5% level, suggesting that hurricanes have larger negative effects in capital-intensive industries. The estimate on the triple interaction term $Balassa_{ict} * Physical\ capital_i * Hurricane_{ct}$ is negative and statistically significant at the 10% level. This result indicates that hurricanes have heterogeneous effects across industries depending on both, comparative advantage and the dependence on physical capital of the industry.

[3]The industry crosswalks used to merge ISIC data with SITC export data can be found at http://econ.ucsd.edu/muendler/resource.

Table D1: Industry-specific dependence on capital

Dependent variable	log exports$_{ict,US}$		
	(1)	(2)	
Hurricane$_{ct}$	−3.68***	0.16	−2.02
	(1.00)	(1.91)	(2.69)
Balassa$_{ic(t-1)}$	0.89***	0.93***	0.93***
	(0.016)	(0.031)	(0.031)
Balassa$_{ic(t-1)}$*Hurricane$_{ct}$	0.92***	0.64***	1.20**
	(0.21)	(0.22)	(0.47)
Physical capital$_i$*Hurricane$_{ct}$		−48.0**	−14.6
		(19.7)	(31.0)
Balassa$_{ic(t-1)}$*Physical capital$_i$		−0.73*	−0.70*
		(0.39)	(0.39)
Balassa$_{ic(t-1)}$*Physical capital$_i$*Hurricane$_{ct}$			−9.27*
			(5.11)
Industry, country and year dummies; Industry and country trends	yes	yes	yes
Observations	67085	67085	67085
R^2	0.78	0.78	0.78

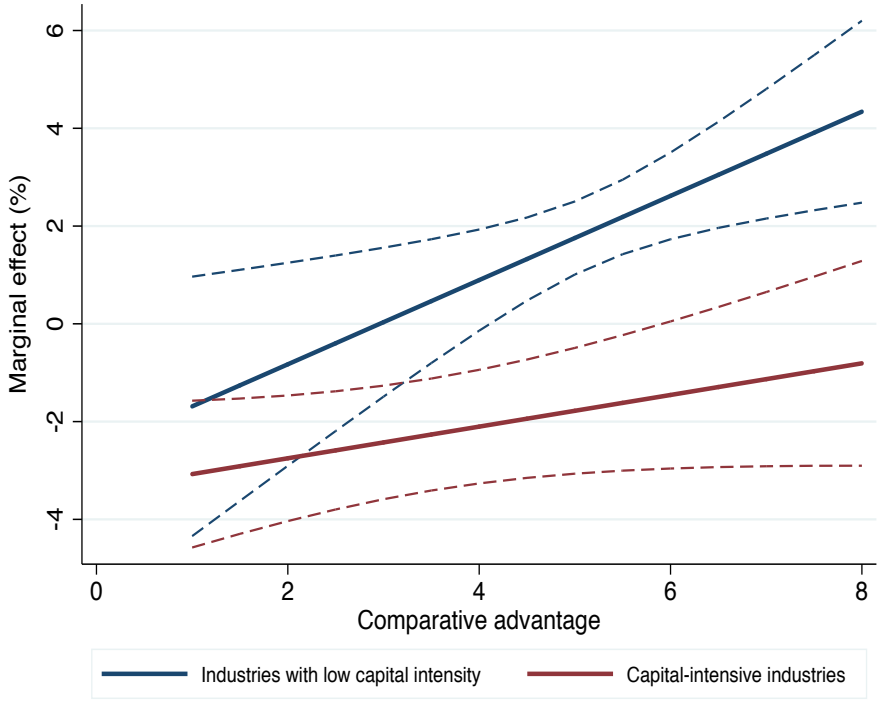
Notes: Standard errors are clustered at the country level. *** denotes significance at the 1% level, ** at the 5% level, * at the 10% level.

In order to determine whether the physical capital channel is operational, we use the estimates in column 3 to compute the marginal effects of hurricanes on exports for each level of comparative advantage and for two values – high and low – of physical capital intensity. The high (low) value is computed as being the mean plus (minus) one standard deviation of physical capital and represents capital-intensive industries (industries with low physical capital intensity).[4] Industries with high values of physical capital are e.g. glass and products (ISIC code 362 with a value of 0.0899), and non-ferrous metals (ISIC code 372 with a value of 0.1012). Industries falling in the definition of low-capital industries are e.g. leather products (ISIC code 323 with a value of 0.0324), and manufacturing products (ISIC code 390 with a value of 0.0393).

Letting $\overline{K}_i$ and $\underline{K}_i$ denote high and low values of physical capital intensity, respectively,

[4]Results are robust to alternative definitions of high and low physical capital intensity.

Figure D1: Industries with low physical capital intensity versus capital-intensive industries



the marginal effects at each level of comparative advatage $CA_{ic(t-1)}$ are computed as follows:

$$\text{High physical capital intensity:} \quad \alpha_1 + \beta_1 CA_{ic(t-1)} + \beta_2 \overline{K}_i + \gamma \left(CA_{ic(t-1)} \times \overline{K}_i \right) \tag{D.2}$$

$$\text{Low physical capital intensity:} \quad \alpha_1 + \beta_1 CA_{ic(t-1)} + \beta_2 \underline{K}_i + \gamma \left(CA_{ic(t-1)} \times \underline{K}_i \right) \tag{D.3}$$

Results are presented in Figure D1. The blue and red solid lines represent the marginal effects for industries with low physical capital intensity and for capital-intensive industries, respectively. The dashed lines around the solid lines delimit the 95% confidence interval.

The figure shows that, as expected, industries intensive in physical capital tend to suffer more from hurricanes. At the bottom of the comparative advantage distribution, industries that rely heavily on physical capital show a statistically significant drop in exports while marginal effects are statistically insignificant for industries with low values of physical capital. As for the baseline estimates, the marginal effects are monotonically increasing in comparative advantage irrespective of the level of physical capital. As one moves towards higher levels of comparative advantage, the marginal effects become statistically insignificant for capital-intensive industries. Thus, it appears that for comparative advantage industries which heavily rely on physical capital, the decrease in exports experienced on impact is mitigated through

the build-back better mechanism described above. For comparative advantage industries with low physical capital intensity, effects are positive and statistically significant. This suggests that these industries, which are initially sheltered from hurricanes, subsequently benefit from a reconstruction effect in which firms in comparative disadvantage industries reinvest in industries with a higher comparative advantage. Therefore, this figure suggests that the drop in exports observed in Figure 4 of the paper is driven by comparative disadvantage industries with high physical capital intensity. It also indicates that comparative advantage industries with low physical capital intensity drive the positive shifts in exports observed at the top of the distribution of comparative advantage. Overall, this finding provides evidence that the physical capital channel is operational.

E Industrial shifts

In order to improve our understanding of the results, we also propose to analyze the industrial shifts observed in the aftermath of a hurricane. The difficulty of such an analysis is that our sample contains a variety of countries and for this reason, the shifts observed are very different from one country to the other. For instance, we cannot expect that industrial exports in Haiti, India and China respond similarly to hurricanes. We propose to perform a detailed analysis in a few countries, each of them representing a group of countries where industries are ranked in a similar way in terms of comparative advantage. Importantly and not surprisingly, the Spearman rank correlations in industries' comparative advantages (averaged over time) are the highest between countries with similar income level (according to the World Bank 1990 income classification) and geographical location.[5] For this reason, we define a group along two dimensions — income and location — and retain China, Colombia, Hong Kong, India, Mexico, Haiti and the Philippines, as being representatives of all the typologies of countries in our sample. Using the largest hurricane over the sample period, we compute for each country and industry pair the short and long term predicted shifts in exports (in %).[6]

Ideally, one would want to identify patterns in industrial shifts by aggregating predicted exports up to 1 or 2 digits. Yet, since most of the variation in comparative advantage comes from within industries (at 1, 2 and 3 digits), the only way to understand what is happening is to perform an analysis at the industry level.[7] Since most of the countries export a large variety of industries (e.g. Hong Kong exports 215 4-digit industries every year over our 20 years interval), we focus on the ten industries at the top and bottom end of the comparative advantage distribution.

Tables E1 through E7 of this online appendix show these results. For each country, the tables report the Balassa revealed comparative advantage index, the short and long term predicted change and the industry share of export. We observe an increasing trend in shares as the comparative advantage increases, which is reassuring. These tables confirm that, due to the large variety of countries included in our sample, it is difficult to identify a clear pattern in industry shifts.

[5] Since our data cover the period 1980 to 2000, we opt for the world bank income classification of 1990.

[6] In our sample, the hurricane index takes the largest values in 1996 in China (which is representative of a low income country in Asia), 1993 in Colombia (which is representative of a low-middle income country in South America), 1999 in Hong Kong (which is representative of a high income country in Asia), 1987 in Haiti (which is representative of a low income country in Central America), 1996 in India (which is representative of a low income country in Asia), 1988 in Mexico (which is representative of an upper-middle income country in Central America) and 1995 in the Philippines (which are representative of a low-middle income country in Asia). Short term effects are computed using the baseline estimates obtained in Table 2 of the paper. Long term effects are computed using the estimates of the cumulative effect three years after the hurricane provided in Table 11 of the paper.

[7] The fraction of the variance explained by between variation at a 1-digit level of disaggregation is 10.25%, at a 2-digit level of disaggregation is 17.59% and at the 3-digit level is of 18.26%.

Table E1: Industrial shifts, Philippines.

SITC 4	Description	Balassa AC	Predicted change (%)		Share (%)
			short term	long term	
10 lowest comparative advantage industries					
8921	Books, pamphlets, maps and globes, printed (not including advertising material)	-0.09	-59.01	-78.52	0.007
8983	Gramophone records and similar sound recordings	0.06	-57.66	-77.18	0.029
6658	Articles made of glass, n.e.s.	0.32	-55.21	-74.67	0.003
6419	Converted paper and paperboard, n.e.s.	0.60	-52.44	-71.66	0.005
7284	Machinery and mechanical appliances specialized for particular industries, n.e.s.	0.78	-50.53	-69.51	0.038
8212	Mattress supports; articles of bedding or similar furnishings (e.g., mattresses, quilts, eiderdowns, cushions, pouffes and pillows) fitted with springs or stuffed or internally fitted with any material or of cellular rubber or plastics, whether or not covered	1.50	-42.19	-59.24	0.015
4242	Palm oil	1.62	-40.64	-57.19	0.006
7283	Machinery for sorting, screening, separating, washing, crushing, grinding, mixing or kneading earth, stone, ores or other mineral substances, in solid (including powder or paste) form; machinery for agglomerating, shaping or moulding solid mineral fuels, ceramic paste, unhardened cements, plastering materials or other mineral products in powder or paste form; machines for forming foundry moulds of sand	1.66	-40.18	-56.57	0.007
5137	Monocarboxylic acids and their anhydrides, halides, peroxides and peroxyacids; their halogenated, sulphonated, nitrated or nitrosated derivatives	1.66	-40.11	-56.47	0.007
5530	Perfumery, cosmetic or toilet preparations (excluding soaps)	1.89	-37.05	-52.24	0.004
10 highest comparative advantage industries					
7764	Electronic integrated circuits	5.60	40.30	112.59	31.017
8972	Imitation jewellery	5.63	41.36	115.58	0.118
4313	Degras; residues resulting from the treatment of fatty substances or animal or vegetable waxes.	5.67	42.53	118.94	0.104
6354	Manufactures of wood for domestic or decorative use (excluding furniture)	5.71	43.69	122.27	0.457
7763	Diodes, transistors and similar semiconductor devices; photosensitive semiconductor devices (including photovoltaic cells, whether or not assembled in modules or made up into panels); light-emitting diodes	5.80	46.57	130.64	3.558
8443	Under garments, women, of textile fabrics	6.05	54.50	154.43	0.610
8465	Corsets, brassieres, suspenders and the like	6.07	55.41	157.20	1.316
8997	Basketware, wickerwork and other articles of plaiting materials, n.e.s.; brooms, brushes, paint rollers, squeegees and mops	6.18	59.04	168.51	1.260
8991	Articles and manufactures of carving or moulding materials, n.e.s.	6.23	60.91	174.44	0.109
4243	Coconut (copra) oil	8.58	167.24	606.10	5.518

Notes: This table contains the industrial shifts observed in the top and bottom ten industries of the distribution of comparative advantage of the Philippines. The Philippines are representatives of low-middle income countries (according to the World Bank classifications of 1990) in Asia. The year considered in this table is 1995, which is the year, within our sample, in which the Philippines experienced the largest storm (the index has a value of 0.243). There are 100 SITC4 industries which display positive export flows from the Philippines for each year between 1980 and 2000. Short term effects are computed using the baseline estimates obtained in Table 2 of the paper, while long term effects are computed using the estimates of the cumulative effect three years after the hurricane provided in Table 11 of the paper.

Table E2: Industrial shifts, Mexico.

SITC 4	Description	Balassa AC	Predicted change (%)		Share (%)
			short term	long term	
10 lowest comparative advantage industries					
6672	Diamonds (other than sorted industrial diamonds), whether or not worked, but not mounted or set	-0.81	-2.91	-5.03	0.006
8982	Musical instruments (other than pianos and other string musical instruments)	-0.69	-2.84	-4.90	0.013
7281	Machine tools specialized for particular industries; parts and accessories thereof	-0.66	-2.83	-4.87	0.003
7841	Chassis fitted with engines, for the motor vehicles of groups 722, 781, 782 and 783	0.01	-2.42	-4.14	0.004
8851	Watches, watch movements and cases	0.07	-2.39	-4.07	0.013
8451	Babies' garments and clothing accessories	0.17	-2.33	-3.97	0.011
6519	Yarn of textile fibres, n.e.s. (including paper yarn and yarn, slivers and rovings of glass fibre)	0.18	-2.33	-3.96	0.004
7369	Parts of metal cutting machines	0.18	-2.32	-3.95	0.005
7638	Other sound recorders and reproducers	0.55	-2.10	-3.55	0.068
8472	Clothing accessories, knitted or crochetem, n.e.s.	0.65	-2.05	-3.44	0.007
10 highest comparative advantage industries					
6428	Art. of paper pulp, paper, paperboard, cellu. wadding	5.44	0.86	1.97	1.538
6851	Lead and lead alloys, unwrought	5.50	0.90	2.04	0.166
7712	Other electric power machinery; parts of the electric power machinery of group 771	5.52	0.91	2.06	2.411
6612	Portland cement, aluminous cement, slag cement, supersulphate cement and similar hydraulic cements, whether or not coloured or in the form of clinkers.	5.66	1.00	2.23	1.10
6647	Safety glass, consisting of toughened (tempered) or laminated glass	5.81	1.09	2.39	0.787
6129	Other articles of leather or of composition leather	5.86	1.12	2.46	0.171
7132	Internal combustion piston engines for propelling vehicles of division 78, group 722 and headings 744.14, 744.15 and 891.11	5.89	1.14	2.49	3.786
1123	Beer made from malt (including ale, stout and porter)	5.94	1.17	2.54	1.307
7731	Insulated (including enamelled or anodized) wire, cable (including co-axial cable) and other insulated electric conductors, whether or not fitted with connectors; optical fibre cables made up of individually sheathed fibres, whether or not assembled with electric conductors or fitted with connectors	6.12	1.28	2.75	8.682
6811	Silver (including base metals clad with silver), unwrought, unworked or semi-manufactured	6.68	1.63	3.42	1.790

Notes: This table contains the industrial shifts observed in the top and bottom ten industries of the distribution of comparative advantage of Mexico. Mexico is representatives of upper-middle income countries (according to the World Bank classifications of 1990) in Central America. The year considered in this table is 1988, which is the year, within our sample, in which Mexico experienced the largest storm (the index has a value of 0.007). There are 270 SITC4 industries which display positive export flows from Mexico for each year between 1980 and 2000. Short term effects are computed using the baseline estimates obtained in Table 2 in the paper, while long term effects are computed using the estimates of the cumulative effect three years after the hurricane provided in Table 11 of the paper.

Table E3: Industrial shifts, India.

SITC 4	Description	Balassa AC	Predicted change (%)		Share (%)
			short term	long term	
10 lowest comparative advantage industries					
7764	Electronic integrated circuits	-0.41	-1.42	-2.45	0.155
6353	Builders' joinery and carpentry of wood, including cellular wood panels, assembled flooring panels, shingles and shakes	0.20	-1.23	-2.09	0.016
1222	Cigarettes containing tobacco	0.39	-1.17	-1.98	0.034
8822	Photographic plates and film in the flat, sensitized, unexposed, of any material other than paper, paperboard or textiles; instant print film in the flat, sensitized, unexposed, whether or not in packs	0.53	-1.12	-1.90	0.006
5335	Colouring preparations of a kind used in the ceramic, enamelling and glass industries; artists' colours, paint driers and mastics	0.58	-1.10	-1.87	0.005
6412	Paper and paperboard, uncoated, of a kind used for writing, printing or other graphic purposes, and non-perforated punch-cards and punch tape paper, in rolls or sheets (other than paper of heading 641.1 or 641.63); handmade paper and paperboard	0.84	-1.02	-1.71	0.012
7731	Insulated (including enamelled or anodized) wire, cable (including co-axial cable) and other insulated electric conductors, whether or not fitted with connectors; optical fibre cables made up of individually sheathed fibres, whether or not assembled with electric conductors or fitted with connectors	0.86	-1.02	-1.71	0.022
6428	Art. of paper pulp, paper, paperboard, cellu. wadding	0.94	-0.99	-1.65	0.035
7742	Apparatus based on the use of X-rays or of alpha, beta or gamma radiations, whether or not for medical, surgical, dental or veterinary uses (including radiography or radiotherapy apparatus), X-ray tubes and other X-ray generators; high tension generators, control panels and desks, screens, examination or treatment tables, chairs and the like; parts, n.e.s., and accessories for the foregoing apparatus and equipment	1.08	-0.95	-1.58	0.008
6421	Cartons, boxes, cases, bags and other packing containers, of paper, paperboard, cellulose wadding or webs of cellulose fibres; box files, letter trays and similar articles, of paper or paperboard of a kind used in offices, shops or the like	1.14	-0.93	-1.54	0.012
10 highest comparative advantage industries					
8481	Articles of apparel and clothing accessories, of leather or of composition leather (not including gloves, mittens and mitts of heading 894.77)	6.32	0.74	1.57	1.709
8433	Dresses, womens, of textile fabrics	6.34	0.75	1.58	2.696
6116	Goat- or kidskin leather, without hair on, whether or not split (other than leather of subgroup 611.8)	6.39	0.76	1.61	0.095
6122	Saddlery and harness for any animal (including traces, leads, knee-pads, muzzles, saddle-cloths, saddle-bags, dog coats and the like), of any material	6.46	0.78	1.65	0.128
6672	Diamonds (other than sorted industrial diamonds), whether or not worked, but not mounted or set	6.47	0.79	1.66	26.801
6513	Cotton yarn, other than sewing thread	6.52	0.080	1.69	0.042
6592	Carpets and other textile floor coverings, knotted, whether or not made up.	6.77	0.88	1.84	1.870
6596	Carpets and other textile floor coverings, n.e.s.	6.86	0.91	1.90	1.401
6545	Fabrics, woven, of jute or of other textile bast fibres of group 264.	7.70	1.19	2.41	0.339
4245	Castor oil	8.36	1.40	2.82	0.600

Notes: This table contains the industrial shifts observed in the top and bottom ten industries of the distribution of comparative advantage of India. India is representatives of low income countries (according to the World Bank classifications of 1990) in Asia. The year considered in this table is 1996, which is the year, within our sample, in which India experienced the largest storm (the index has a value of 0.004). There are 203 SITC4 industries which display positive export flows from India for each year between 1980 and 2000. Short term effects are computed using the baseline estimates obtained in Table 2 of the paper, while long term effects are computed using the estimates of the cumulative effect three years after the hurricane provided in Table 11 of the paper.

Table E4: Industrial shifts, Hong Kong.

SITC 4	Description	Balassa AC	Predicted change (%)		Share (%)
			short term	long term	
10 lowest comparative advantage industries					
7849	Other parts & accessories of motor vehicles	-0.71	-58.39	-78.30	0.061
5416	Glycosides; glands or other organs and their extracts; antisera, vaccines and similar products	-0.13	-53.69	-73.52	0.002
7139	Parts, n.e.s, for the internal combustion piston engines of subgroups 713.2, 713.3 and 713.8	0.45	-48.44	-67.65	0.008
7932	Ships, boats and other vessels (other than pleasure craft, tugs, pusher craft, special-purpose vessels and vessels for breaking up)	0.82	-44.83	-63.31	0.117
5411	Provitamins and vitamins, natural or reproduced by synthesis (including natural concentrates), derivatives thereof used primarily as vitamins, and intermixtures of the foregoing, whether or not in any solvent, not put up as medicaments of group 542	1.01	-42.78	-60.73	0.005
7742	Apparatus based on the use of X-rays or of alpha, beta or gamma radiations, whether or not for medical, surgical, dental or veterinary uses (including radiography or radiotherapy apparatus), X-ray tubes and other X-ray generators; high tension generators, control panels and desks, screens, examination or treatment tables, chairs and the like; parts, n.e.s., and accessories for the foregoing apparatus and equipment	1.10	-41.85	-59.53	0.002
5419	Pharmaceutical goods, other than medicaments	1.11	-41.77	-59.42	0.002
7428	Other pumps for liquids & liquid elevators	1.15	-41.35	-58.87	0.005
6931	Stranded wire, ropes, cables, plaited bands, slings and the like, of iron, steel, copper or aluminium, not electrically insulated	1.16	-41.18	-58.66	0.003
5148	Other nitrogen-function compounds	1.23	-40.49	-57.74	0.005
10 highest comparative advantage industries					
8998	Smallwares and toilet articles, n.e.s.; sieves; tailors' dummies, etc.	5.19	23.93	65.73	0.181
8842	Spectacles and spectacle frames	5.20	23.97	65.83	1.572
8439	Other outer garments of textile fabrics	5.30	26.48	72.14	7.143
8441	Overcoats, car coats, capes, cloaks, anoraks (including ski jackets), windcheaters, wind jackets and similar articles (other than those of heading 844.23)	5.40	28.82	78.12	3.589
8973	Jewellery of gold, silver or platinum group metals (except watches and watch-cases) and goldsmiths' or silversmiths' wares (including set gems)	5.46	30.20	81.69	5.401
6673	Precious stones (other than diamonds) and semiprecious stones, whether or not worked or graded but not strung, mounted or set; ungraded precious stones (other than diamonds) and semiprecious stones, temporarily strung for convenience of transport	5.49	30.99	83.73	0.563
6671	Pearls (natural or cultured), whether or not worked or graded but not strung, mounted or set; ungraded pearls (natural or cultured), temporarily strung for convenience of transport	5.61	33.78	91.09	0.661
8451	Babies' garments and clothing accessories	5.68	35.52	95.76	15.320
8435	Blouses of textile fabrics	5.70	36.10	97.33	3.557
8851	Watches, watch movements and cases	5.80	38.52	103.902	2.083

Notes: This table contains the industrial shifts observed in the top and bottom ten industries of the distribution of comparative advantage of Hong Kong. Hong Kong is representatives of high income countries (according to the World Bank classifications of 1990) in Asia. The year considered in this table is 1999, which is the year, within our sample, in which Hong Kong experienced the largest storm (the index has a value of 0.208). There are 215 SITC4 industries which display positive export flows from Hong Kong for each year between 1980 and 2000. Short term effects are computed using the baseline estimates obtained in Table 2 of the paper, while long term effects are computed using the estimates of the cumulative effect three years after the hurricane provided in Table 11 of the paper.

Table E5: Industrial shifts, Haiti.

SITC 4	Description	Balassa AC	Predicted change (%)		Share (%)
			short term	long term	
All industries classed from lowest to highest comparative advantage					
6114	Tanned or crust hides and skins of bovine (including buffalo) or equine animals whether or not further prepared after tanning or crusting, without hair on, whether or not split	4.03	-0.009	0.81	0.619
6560	Tulles, lace, embroidery, ribbons, trimmings and other smallwares	4.65	0.88	2.49	1.226
8942	Tricycles, scooters, pedal car and similar wheeled toys; dolls' carriages; dolls; other toys; reduced-size ("scale") models and similar recreational models, working or not; puzzles of all kinds	4.89	1.24	3.17	2.983
8484	Headgear and fittings therefor, n.e.s.	5.11	1.56	3.79	0.563
6354	Manufactures of wood for domestic or decorative use (excluding furniture)	5.37	1.94	4.50	0.716
8481	Articles of apparel and clothing accessories, of leather or of composition leather (not including gloves, mittens and mitts of heading 894.77)	5.51	2.15	4.91	4.009
8462	Panty hose, tights, stockings, socks and other hosiery, including graduated compression hosiery (for example, stockings for varicose veins) and footwear without applied soles, knitted or crocheted	5.52	2.16	4.93	10.591
7731	Insulated (including enamelled or anodized) wire, cable (including co-axial cable) and other insulated electric conductors, whether or not fitted with connectors; optical fibre cables made up of individually sheathed fibres, whether or not assembled with electric conductors or fitted with connectors	5.59	2.27	5.13	4.710
8439	Other outer garments of textile fabrics	5.59	2.27	5.14	12.366
7721	Electric appliances such as switches, relays, fuses, pwgs etc.	6.14	3.07	6.68	24.405
8997	Basketware, wickerwork and other articles of plaiting materials, n.e.s.; brooms, brushes, paint rollers, squeegees and mops	6.45	3.55	7.59	2.458
8472	Clothing accessories, knitted or crochetem, n.e.s.	6.52	3.65	7.78	1.771
6575	Twine, cordage, ropes and cables and manufactures thereof (e.g., fishing nets, ropemakers' wares)	6.61	3.78	8.05	2.670
5513	Essential oils (terpeneless or not), including concretes and absolutes; resinoids; concentrates of essential oils in fats, in fixed oils, in waxes or the like, obtained by enfleurage of maceration; terpenic by-products of the deterpenation of essential oils; aqueous distillates and aqueous solutions of essential oils.	7.30	4.82	10.06	2.80
8947	Sports goods	7.52	5.14	10.70	28.11

Notes: This table contains the industrial shifts observed over the whole distribution of comparative advantage of Haiti. Haiti is representatives of low income countries (according to the World Bank classifications of 1990) in Central America. The year considered in this table is 1987, which is the year, within our sample, in which Haiti experienced the largest storm (the index has a value of 0.016). There are 15 SITC4 industries which display positive export flows from Haiti for each year between 1980 and 2000. Short term effects are computed using the baseline estimates obtained in Table 2 of the paper, while long term effects are computed using the estimates of the cumulative effect three years after the hurricane provided in Table 11 of the paper.

Table E6: Industrial shifts, Colombia.

SITC 4	Description	Balassa AC	Predicted change (%)		Share (%)
			short term	long term	
10 lowest comparative advantage industries					
7649	Parts and accessories suitable for use solely or principally with the apparatus of division 76	1.60	-0.03	-0.05	0.138
6672	Diamonds (other than sorted industrial diamonds), whether or not worked, but not mounted or set	1.85	-0.03	-0.05	0.229
7849	Other parts & accessories of motor vehicles	2.18	-0.02	-0.04	0.439
6412	Paper and paperboard, uncoated, of a kind used for writing, printing or other graphic purposes, and non-perforated punch-cards and punch tape paper, in rolls or sheets (other than paper of heading 641.1 or 641.63); handmade paper and paperboard	2.79	-0.02	-0.02	0.132
6997	Articles, n.e.s., of copper, nickel, aluminium, lead, zinc and tin	2.92	-0.01	-0.02	0.029
8942	Tricycles, scooters, pedal car and similar wheeled toys; dolls' carriages; dolls; other toys; reduced-size ("scale") models and similar recreational models, working or not; puzzles of all kinds	3.07	-0.01	-0.01	0.560
7499	Machinery parts, not containing electrical connectors, insulators, coils, contacts or other electrical features, n.e.s.	3.17	-0.01	-0.01	0.190
5121	Acyclic monohydric alcohols	3.23	-0.01	-0.01	0.262
8973	Jewellery of gold, silver or platinum	3.25	-0.01	-0.01	0.491
8996	Orthopaedic appliances, surgical belts and the like	3.27	-0.01	-0.01	0.175
10 highest comparative advantage industries					
6584	Bed linen, table linen, toilet linen and kitchen linen	6.17	0.02	0.06	2.496
8122	Ceramic sinks, wash-basins, wash-basin pedestals, baths, bidets, water-closet pans, flushing cisterns, urinals and similar sanitary fixtures	6.29	0.03	0.06	0.742
8921	Books, pamphlets, maps and globes, printed (not including advertising material)	6.37	0.03	0.06	4.158
6123	Parts of footwear	6.43	0.03	0.07	0.226
6423	Registers, account-books, notebooks, order books, receipt books, letter pads, memorandum pads, diaries and similar articles, exercise books, blotting pads, binders (loose-leaf or other), folders, file covers, manifold business forms, interleaved carbon sets and other articles of stationery, of paper or paperboard; albums for samples or for collections, and book covers, of paper or paperboard	6.51	0.03	0.07	0.431
6951	Hand tools, the following: spades, shovels, mattocks, picks, hoes, forks and rakes; axes, billhooks and similar hewing tools; secateurs and pruners of any kind; scythes, sickles, hay knives, hedge shears, timber wedges and other tools of a kind used in agriculture, horticulture or forestry	6.63	0.03	0.07	0.092
6612	Portland cement, aluminous cement, slag cement, supersulphate cement and similar hydraulic cements, whether or not coloured or in the form of clinkers.	6.95	0.04	0.08	5.164
6643	Drawn glass and blown glass, in sheets, whether or not having an absorbent, reflecting, or non-reflecting layer but not otherwise worked	7.29	0.04	0.09	0.034
6129	Other articles of leather or of composition leather	7.77	0.05	0.10	0.976
6673	Precious stones (other than diamonds) and semiprecious stones, whether or not worked or graded but not strung, mounted or set; ungraded precious stones (other than diamonds) and semiprecious stones, temporarily strung for convenience of transport	8.80	0.06	0.12	28.053

Notes: This table contains the industrial shifts observed in the top and bottom ten industries of the distribution of comparative advantage of Colombia. Colombia is representatives of low-middle income countries (according to the World Bank classifications of 1990) in South America. The year considered in this table is 1993, which is the year, within our sample, in which Colombia experienced the largest storm (the index has a value of 0.00015). There are 69 SITC4 industries which display positive export flows from Colombia for each year between 1980 and 2000. Short term effects are computed using the baseline estimates obtained in Table 2 of the paper, while long term effects are computed using the estimates of the cumulative effect three years after the hurricane provided in Table 11 of the paper.

Table E7: Industrial shifts, China.

SITC 4	Description	Balassa AC	Predicted change (%)		Share (%)
			Short term	Long term	
10 lowest comparative advantage industries					
6672	Diamonds (other than sorted industrial diamonds), whether or not worked, but not mounted or set	0.34	-1.30	-2.22	0.005
7212	Harvesting or threshing machinery (including straw or fodder balers); grass or hay mowers; machines for cleaning, sorting or grading seed or grain or for grading eggs, fruit or other agricultural produce (other than milling machinery of heading 727.11); parts thereof, n.e.s.	0.55	-1.22	-2.08	0.013
6637	Refractory ceramic goods (e.g., retorts, crucibles, muffles, nozzles, plugs, supports, cupels, tubes, pipes, sheaths and rods), n.e.s.	0.58	-1.22	-2.06	0.006
7742	Apparatus based on the use of X-rays or of alpha, beta or gamma radiations, whether or not for medical, surgical, dental or veterinary uses (including radiography or radiotherapy apparatus), X-ray tubes and other X-ray generators; high tension generators, control panels and desks, screens, examination or treatment tables, chairs and the like; parts, n.e.s., and accessories for the foregoing apparatus and equipment	0.63	-1.20	-2.03	0.005
6412	Paper and paperboard, uncoated, of a kind used for writing, printing or other graphic purposes, and non-perforated punch-cards and punch tape paper, in rolls or sheets (other than paper of heading 641.1 or 641.63); handmade paper and paperboard	0.64	-1.19	-2.02	0.004
6812	Platinum and other metals of the platinum group (including metals clad with platinum or other metals of the platinum group), unwrought, unworked or semi-manufactured	0.68	-1.18	-1.99	0.017
8822	Photographic plates and film in the flat, sensitized, unexposed, of any material other than paper, paperboard or textiles; instant print film in the flat, sensitized, unexposed, whether or not in packs	1.04	-1.05	-1.76	0.006
5161	Ethers, alcohol peroxides, ether peroxides, epoxides, acetals and hemiacetals, and their halogenated, sulphonated, nitrated or nitrosated derivatives	1.13	-1.02	-1.70	0.005
6413	Paper and paperboard, of a kind used for writing, printing or other graphic purposes, coated, impregnated, surface-coloured, surface-decorated or printed (not constituting printed matter within group 892), in rolls or sheets	1.31	-0.96	-1.59	0.002
5417	Medicaments (including veterinary medicaments)	1.31	-0.96	-1.58	0.028
10 highest comparative advantage industries					
6549	Fabrics, woven, n.e.s.	5.77	0.62	1.36	0.007
8310	Travel goods, handbags, brief-cases, purses, sheaths	5.88	0.65	1.43	4.463
8942	Tricycles, scooters, pedal car and similar wheeled toys; dolls' carriages; dolls; other toys; reduced-size ("scale") models and similar recreational models, working or not; puzzles of all kinds	5.89	0.66	1.44	19.345
7622	Radio-broadcast receivers capable of operating without an external source of power	5.97	0.69	1.49	2.357
6511	Yarn of wool or animal hair (excluding wool tops)	6.01	0.70	1.52	0.006
6576	Hat shapes, hat forms, hat bodies and hoods	6.11	0.74	1.58	0.032
5723	Pyrotechnic articles: fireworks, railway fog etc.	6.17	0.76	1.62	0.259
8994	Umbrellas, sun umbrellas, walking-sticks, seat-sticks, whips, riding crops and parts thereof	6.17	0.76	1.63	0.356
8999	Manufactured goods, n.e.s.	6.17	0.76	1.63	1.642
6597	Plaits and similar products of plaiting materials	6.27	0.79	1.69	0.019

Notes: This table contains the industrial shifts observed in the top and bottom ten industries of the distribution of comparative advantage of China. China is representatives of low income countries (according to the World Bank classifications of 1990) in Asia. The year considered in this table is 1996, which is the year, within our sample, in which China experienced the largest storm (the index has a value of 0.004). There are 265 SITC4 industries which display positive export flows from China for each year between 1980 and 2000. Short term effects are computed using the baseline estimates obtained in Table 2 of the paper, while long term effects are computed using the estimates of the cumulative effect three years after the hurricane provided in Table 11 of the paper.

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