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APPENDIX

Quantifying the Economic Costs of Climate Change Inaction for Asia and the Pacific

Lorenza Campagnolo, Gabriele A. Mansi, Francesco Bosello,
and David A. Raitzer

ADB Economics Working Paper No. 771

March 2025

APPENDIX 1: ICES MODEL REGIONAL AND SECTORAL AGGREGATION

Regional Breakdown Reflected in the ICES Model

	Code	Region in the Model	Economies Included
1	AUNZ	Australia/New Zealand	Australia, New Zealand
2	ROCE	Rest of Oceania	
3	CHN	People's Republic of China	
4	HIEA	High Income East Asia	Hong Kong, China; Japan; Republic of Korea; Taipei, China
5	REA	Rest of East Asia	Democratic People's Republic of Korea; Macau, China
6	HISEA	High Income Southeast Asia	Brunei Darussalam, Malaysia, Singapore, Thailand
7	IDN	Indonesia	
8	PHL	Philippines	
9	VN	Viet Nam	
10	RSEA	Rest of Southeast Asia	Cambodia, Lao PDR, Myanmar, Timor-Leste
11	BGD	Bangladesh	
12	IND	India	
13	PAK	Pakistan	
14	RSA	Rest of South Asia	Nepal, Sri Lanka, Bhutan, Maldives, Afghanistan
15	USA	United States	
16	NA	North America	
17	LACA	Latin America and Caribbeans	
18	EU27	EU27	
19	RE	Rest of Europe	
20	Russia	Russian Federation	
21	CA	Central Asia	Kazakhstan, Kyrgyz Republic, Tajikistan, Uzbekistan, Turkmenistan, Armenia, Azerbaijan, Georgia, Mongolia
22	MENA	Middle East and North Africa	
23	SSA	Sub-Saharan Africa	
24	ZAF	South Africa	

Lao PDR = Lao People's Democratic Republic.

Note: Effective 1 February 2021, ADB placed a temporary hold on sovereign project disbursements and new contracts in Myanmar. ADB placed on hold its regular assistance in Afghanistan effective 15 August 2021.

Source: Authors.

Sectoral Breakdown in the ICES Model

GTAP 11	GTAP 11 Sector	GSC2 Sector	Description	Sectoral Mapping
1	pdr	113	Rice, not husked	Rice
		114	Husked rice	Rice
2	wht	111	Wheat and meslin	Wheat
3	gro	112	Maize (corn)	Oth_grains
		115	Barley	Oth_grains
		116	Rye, oats	Oth_grains
		119	Other cereals	Oth_grains
4	v_f	12	Vegetables	Veg_fruits
		13	Fruit and nuts	Veg_fruits
5	osd	14	Oil seeds and oleaginous fruit	Other_agri
6	c_b	18	Plants used for sugar manufacturing	Other_agri
7	pfb	192	Raw vegetable materials used in textiles	Other_agri
8	ocr	15	Live plants; cut flowers and flower buds; flower seeds and fruit seeds; vegetable seeds	Other_agri
		16	Beverage and spice crops	Other_agri
		17	Unmanufactured tobacco	Other_agri
		191	Cereal straw and husks, unprepared, whether or not chopped, ground, pressed or in the form of pellets; swedes, mangolds, fodder roots, hay, lucerne (alfalfa), clover, sainfoin, forage kale, lupines, vetches and similar forage products, whether or not in the form of pellets	Other_agri
		193	Plants and parts of plants used primarily in perfumery, in pharmacy, or for insecticidal, fungicidal or similar purposes	Other_agri
		194	Sugar beet seed and seeds of forage plants	Other_agri
		199	Other raw vegetable materials	Other_agri
9	ctl	211	Bovine cattle, sheep and goats, horses, asses, mules, and hinnies, live	Other_agri
		299	Bovine semen	Other_agri
10	oap	212	Swine, poultry and other animals, live	Other_agri
		292	Eggs, in shell, fresh, preserved or cooked	Other_agri
		293	Natural honey	Other_agri
		294	Snails, live, fresh, chilled, frozen, dried, salted or in brine, except sea snails; frogs' legs, fresh, chilled or frozen	Other_agri
		295	Edible products of animal origin n.e.c.	Other_agri

Continued on the next page

GTAP 11	GTAP 11 Sector	GSC2 Sector	Description	Sectoral Mapping
		297	Hides, skins and fur skins, raw	Other_agri
		298	Insect waxes and spermaceti, whether or not refined or colored	Other_agri
11	rmk	291	Raw milk	Other_agri
12	wol	296	Raw animal materials used in textile	Other_agri
13	frs		Forestry: forestry, logging and related service activities	Forestry
14	fsk		Fishing: hunting, trapping and game propagation including related service activities, fishing, fish farms; service activities incidental to fishing	Fishing
15	coa		Coal: mining and agglomeration of hard coal, lignite and peat	Coal
16	oil		Oil: extraction of crude petroleum, service activities incidental to oil and gas extraction excluding surveying (part)	Oil
17	gas		Gas: extraction of natural gas, service activities incidental to oil and gas extraction excluding surveying (part)	Gas
18	oxm		Other Mining Extraction (formerly omn): mining of metal ores; other mining and quarrying	Heavy_Ind
19	cmt		Cattle Meat: fresh or chilled; meat of buffalo, fresh or chilled; meat of sheep, fresh or chilled; meat of goat, fresh or chilled; meat of camels and camelids, fresh or chilled; meat of horses and other equines, fresh or chilled; other meat of mammals, fresh or chilled; meat of mammals, frozen; edible offal of mammals, fresh, chilled or frozen	Food_process
20	omt		Other Meat: meat of pigs, fresh or chilled; meat of rabbits and hares, fresh or chilled; meat of poultry, fresh or chilled; meat of poultry, frozen; edible offal of poultry, fresh, chilled or frozen; other meat and edible offal, fresh, chilled or frozen; preserves and preparations of meat, meat offal or blood; flours, meals and pellets of meat or meat offal, inedible; greaves	Food_process
21	vol		Vegetable Oils: margarine and similar preparations; cotton linters; oil-cake and other residues resulting from the extraction of vegetable fats or oils; flours and meals of oil seeds or oleaginous fruits, except	Food process

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GTAP 11	GTAP 11 Sector	GSC2 Sector	Description	Sectoral Mapping
			those of mustard; vegetable waxes, except triglycerides; degreas; residues resulting from the treatment of fatty substances or animal or vegetable waxes; animal fats	
22	mil		Milk: dairy products	Food process
23	pcr		Processed Rice: semi- or wholly milled, or husked	Food process
24	sgr		Sugar and molasses	Food process
25	ofd		Food products n.e.c.	Food process
			Other Food: prepared and preserved fish, crustaceans, mollusks and other aquatic invertebrates; prepared and preserved vegetables, pulses and potatoes; prepared and preserved fruits and nuts; wheat and meslin flour; other cereal flours; groats, meal and pellets of wheat and other cereals; other cereal grain products (including corn flakes); other vegetable flours and meals; mixes and doughs for the preparation of bakers' wares; starches and starch products; sugars and sugar syrups n.e.c.; preparations used in animal feeding; lucerne (alfalfa) meal and pellets; bakery products; cocoa, chocolate and sugar confectionery; macaroni, noodles, couscous and similar farinaceous products	Food process
26	b_t		Beverages and Tobacco products	Food process
27	tex		Manufacture of textiles	Light_Ind
28	wap		Manufacture of wearing apparel	Light_Ind
29	lea		Manufacture of leather and related products	Light_Ind
30	lum		Lumber: manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	Light_Ind
31	ppp		Paper & Paper Products: includes printing and reproduction of recorded media	Light_Ind
32	p_c		Petroleum & Coke: manufacture of coke and refined petroleum products	P_C
33	chm		Manufacture of chemicals and chemical products	Heavy_Ind
34	bph		Manufacture of pharmaceuticals, medicinal chemical and botanical products	Heavy_Ind
35	rpp		Manufacture of rubber and plastics products	Heavy_Ind
36	nmm		Manufacture of other non-metallic mineral products	Heavy_Ind

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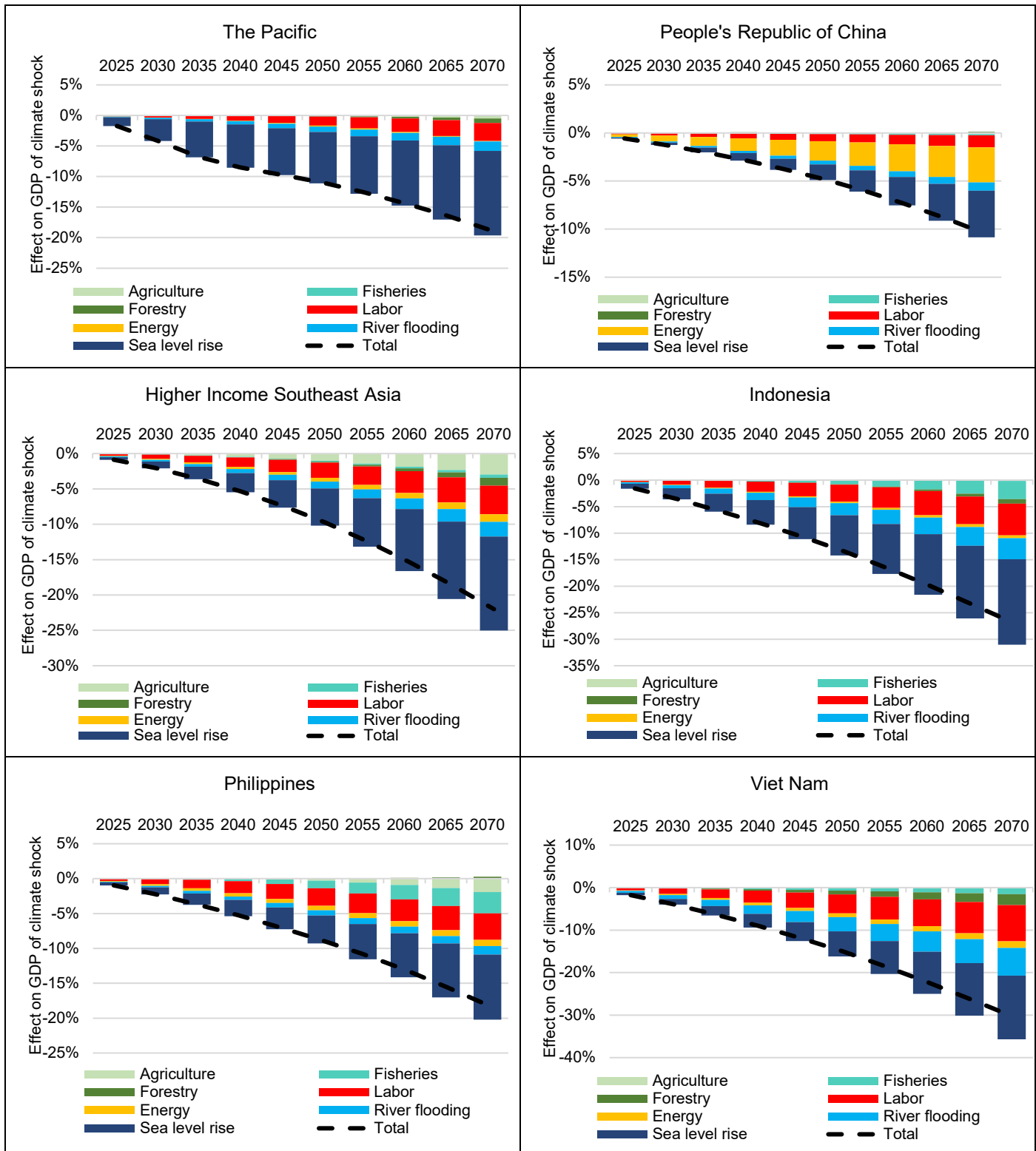
GTAP 11	GTAP 11 Sector	GSC2 Sector	Description	Sectoral Mapping
37	i_s		Iron & Steel: basic production and casting	Heavy_Ind
38	nfm		Non-Ferrous Metals: production and casting of copper, aluminum, zinc, lead, gold, and silver	Heavy_Ind
39	fmp		Manufacture of fabricated metal products, except machinery and equipment	Heavy_Ind
40	ele		Manufacture of computer, electronic and optical products	Light_Ind
41	eeq		Manufacture of electrical equipment	Light_Ind
42	ome		Manufacture of machinery and equipment n.e.c.	Light_Ind
43	mvh		Manufacture of motor vehicles, trailers and semi-trailers	Light_Ind
44	otn		Manufacture of other transport equipment	Light_Ind
45	omf		Other Manufacturing: includes furniture	Light_Ind
46	ely		Electricity; steam and air conditioning supply	Electricity
47	gdt		Gas manufacture, distribution	Gas
48	wtr		Water supply; sewerage, waste management and remediation activities	Market_Serv
49	cns		Construction: building houses factories offices and roads	Heavy_Ind
50	trd		Wholesale and retail trade; repair of motor vehicles and motorcycles	Market_Serv
51	afs		Accommodation, Food and service activities	Market_Serv
52	otp		Land transport and transport via pipelines	Market_Serv
53	wtp		Water transport	Market_Serv
54	atp		Air transport	Market_Serv
55	whs		Warehousing and support activities	Market_Serv
56	cmn		Information and communication	Market_Serv
57	ofi		Other Financial Intermediation: includes auxiliary activities but not insurance and pension funding	Market_Serv
58	ins		Insurance (formerly isr): includes pension funding, except compulsory social security	Market_Serv
59	rsa		Real estate activities	Market_Serv
60	obs		Other Business Services nec	Market_Serv
61	ros		Recreation & Other Services: recreational, cultural and sporting activities, other service activities; private households with employed persons (servants)	Market_Serv

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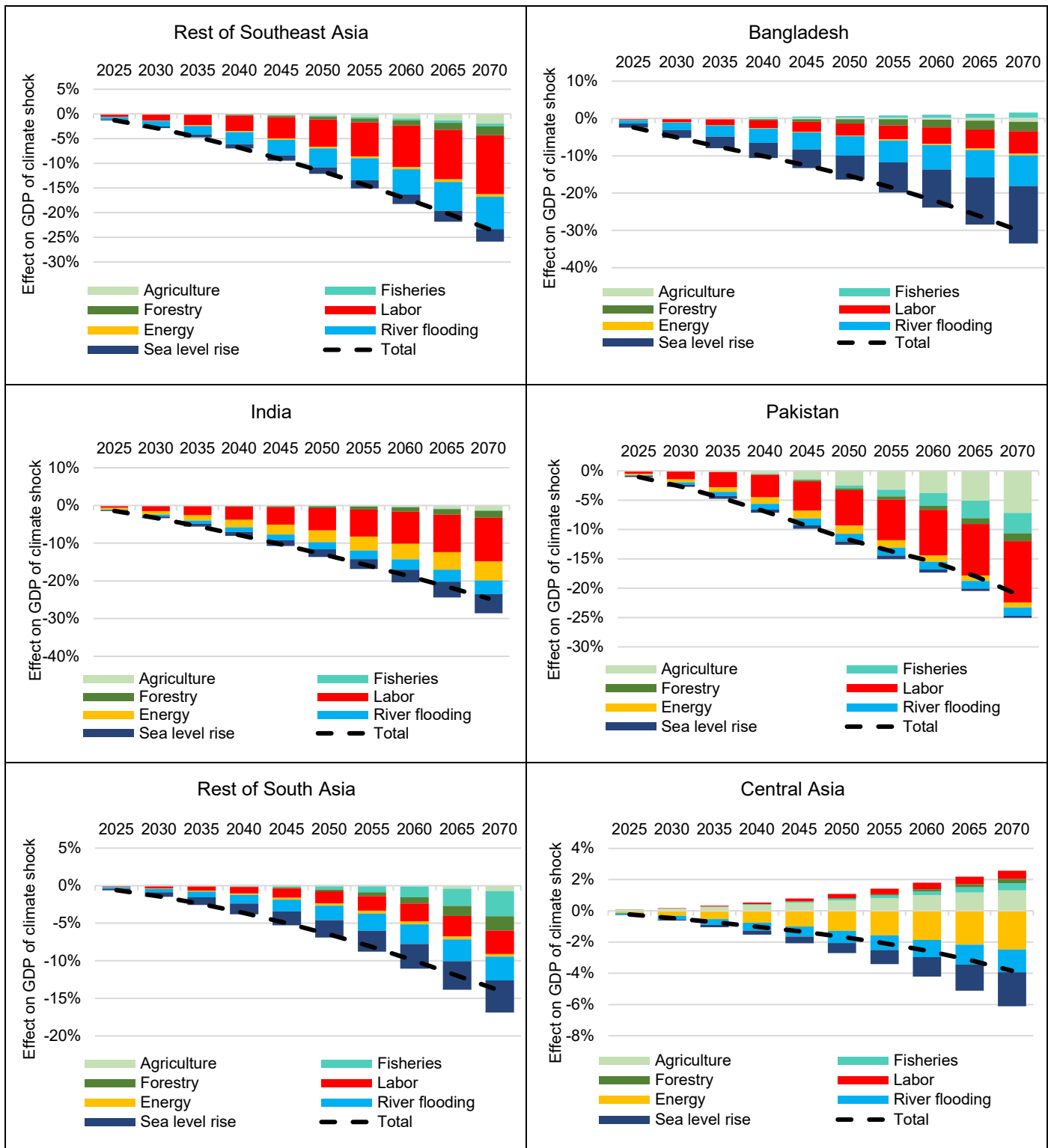
GTAP 11	GTAP 11 Sector	GSC2 Sector	Description	Sectoral Mapping
62	osg		Other Services (Government): public administration and defense; compulsory social security, activities of membership organizations n.e.c., extra-territorial organizations and bodies	Public_Serv
63	edu		Education	Public_Serv
64	hht		Human health and social work	Public_Serv
65	dwe		Dwellings: ownership of dwellings (imputed rents of houses occupied by owners)	Market_Serv

Source: Authors.

APPENDIX 2: DETAILS OF MODELED LOSSES OF GROSS DOMESTIC PRODUCT UNDER A HIGH-END EMISSIONS SCENARIO



Continued on the next page



GDP = gross domestic product.

Notes: Scenario is SSP5-8.5. Central Asia comprises Armenia, Azerbaijan, Georgia, Kazakhstan, the Kyrgyz Republic, Mongolia, Tajikistan, Turkmenistan, and Uzbekistan. Higher Income Southeast Asia comprises Brunei Darussalam, Malaysia, Singapore, and Thailand. The Pacific comprises the Cook Islands, Fiji, Kiribati, the Marshall Islands, the Federated States of Micronesia, Nauru, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu, and Vanuatu. Rest of South Asia comprises Afghanistan, Bhutan, Maldives, Nepal, and Sri Lanka. Rest of Southeast Asia comprises Cambodia, the Lao People's Democratic Republic, Myanmar, and Timor-Leste.

Source: Authors' calculations.

APPENDIX 3: VALUE ADDED LOSSES IN 2070 BY CHANNEL, SECTOR, AND ECONOMY

Table A3.1: Sector Value Added Loss due to Reduced Crop Yields in 2070 Under a High-End Emissions Scenario
(% change with respect to a no climate change scenario)

	Coal	Oil	Gas	Electricity	Heavy Industry	Light Industry	Market Services	Petroleum products	Public Services	Forestry	Fisheries	Food Processing	Other Agriculture	Vegetables and Fruit	Other Grains	Rice	Wheat
Bangladesh	-0.15	0.08	-0.39	-0.41	-1.08	2.05	-0.84	-0.39	-0.93	-0.56	-0.12	-1.69	-13.13	-3.04	-13.87	-1.96	-44.09
India	-0.13	0.25	0.31	-1.31	-0.46	-2.50	-0.91	-1.49	-0.51	-0.71	-0.40	-4.29	-2.69	-1.90	-5.19	-1.57	-11.42
Pakistan	0.31	0.20	-0.88	-7.43	-4.69	-10.10	-6.07	-8.16	-5.39	-0.10	-2.90	-9.35	-8.86	-4.51	-9.18	-10.36	-10.44
Rest of South Asia	-2.05	-0.07	-0.23	-0.66	-0.79	2.66	-0.55	-0.65	-0.26	-0.08	-0.10	-0.24	-0.70	-1.14	-2.88	-0.43	-12.55
Higher Income Southeast Asia	-0.29	0.29	0.37	-3.33	-4.59	4.36	-1.04	-1.76	-0.72	0.94	-2.54	-24.73	-34.74	-7.32	-25.39	-24.31	
Indonesia	-0.80	-0.17	-0.10	0.13	0.13	0.15	-0.21	0.37	-0.04	-0.80	-0.01	1.56	0.49	-0.05	-1.25	1.57	
Philippines	-0.96	-0.36	-0.55	-1.63	-2.26	0.29	-1.98	-1.05	-1.79	-0.28	-0.26	-2.58	-4.93	-3.21	-4.38	7.36	
Viet Nam	-0.98	-0.30	-0.62	-0.72	-2.09	-0.69	-0.82	-0.83	0.75	-2.66	-0.30	-0.91	1.74	-0.57	-2.38	16.62	
Rest of Southeast Asia	-0.60	-0.48	-1.32	-2.72	-2.14	-0.55	-3.04	-3.18	-1.48	-0.47	-1.23	1.21	-2.62	-1.38	-0.69	0.18	
The Pacific	0.08	-0.02	0.17	-0.09	0.62	1.57	-0.48	-0.12	-0.26	-0.17	-0.28	-2.16	-3.38	-2.54	-0.10	-0.73	
People's Republic of China	-0.22	-0.10	0.08	-0.06	0.08	-0.34	-0.02	0.25	0.21	-0.65	-0.37	-1.05	-0.17	-0.76	-1.78	-2.31	-0.40
Central Asia	-0.52	-0.15	-0.16	0.68	-0.25	0.63	0.77	1.11	0.86	0.18	0.17	6.49	10.73	2.43	1.32	0.67	46.65

Notes: Scenario is SSP5-8.5. Red colors are negative, white colors are near 0, positive values are green, and darker colors indicate larger changes. Central Asia comprises Armenia, Azerbaijan, Georgia, Kazakhstan, the Kyrgyz Republic, Mongolia, Tajikistan, Turkmenistan, and Uzbekistan. Higher Income Southeast Asia comprises Brunei Darussalam, Malaysia, Singapore, and Thailand. The Pacific comprises the Cook Islands, Fiji, Kiribati, the Marshall Islands, the Federated States of Micronesia, Nauru, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu, and Vanuatu. Rest of South Asia comprises Afghanistan, Bhutan, Maldives, Nepal, and Sri Lanka. Rest of Southeast Asia comprises Cambodia, the Lao People's Democratic Republic, Myanmar, and Timor-Leste.

Source: Authors' calculations.

Table A3.2: Sector Value Added Loss due to Reduced Fisheries Productivity in 2070 Under a High-End Emissions Scenario
 (% change with respect to a no climate change scenario)

	Coal	Oil	Gas	Electricity	Heavy Industry	Light Industry	Market Services	Petroleum products	Public Services	Forestry	Fisheries	Food Processing	Other Agriculture	Vegetables and Fruit	Other Grains	Rice	Wheat
Bangladesh	-0.09	-0.15	0.42	0.66	1.46	-0.68	1.02	0.66	0.53	0.50	5.23	1.03	-0.32	-0.85	-0.44	0.81	-3.43
India	-0.13	-0.11	0.02	0.14	0.17	0.12	0.17	0.03	0.29	-0.04	-5.52	1.05	0.05	-0.08	-0.04	-0.01	-0.15
Pakistan	-1.77	-0.51	-1.37	-3.10	-5.61	-2.88	-4.97	-2.34	0.78	-0.06	-6.17	0.81	-0.38	-0.90	-1.60	-0.91	-0.13
Rest of South Asia	0.84	0.33	-0.46	-1.66	-2.44	1.91	-3.74	-3.12	1.20	0.06	-11.45	-6.86	-0.59	0.40	-1.06	-2.62	1.24
Higher Income Southeast Asia	0.03	0.01	0.14	-0.21	0.74	1.06	-0.56	-0.82	0.67	0.26	-10.98	-4.75	-0.38	1.69	1.12	-4.62	
Indonesia	1.74	0.56	0.19	-2.59	-1.71	4.19	-3.29	-3.41	1.81	0.36	-19.07	-6.44	0.48	0.21	-3.64	-6.01	
Philippines	0.31	0.37	-1.02	-3.80	-4.82	-7.01	-1.46	-3.84	-1.15	-0.41	-7.10	-1.18	-1.35	0.86	-1.00	2.97	
Viet Nam	-0.11	0.00	0.12	-0.66	0.77	1.99	-0.93	-0.69	-0.24	1.16	-12.59	-16.61	-1.11	-1.44	-9.19	-6.05	
Rest of Southeast Asia	-0.27	-0.15	-0.28	-0.56	-0.22	0.41	-1.23	-0.85	0.14	-0.02	0.29	0.73	-0.33	-0.69	-0.19	0.03	
The Pacific	-0.03	-0.02	0.07	0.52	0.48	0.67	0.21	0.34	0.25	-0.10	-19.44	0.86	-0.39	0.14	0.17	-3.66	
People's Republic of China	-0.11	-0.06	0.18	0.11	0.37	0.25	-0.04	-0.10	0.35	-0.02	-5.03	-1.41	-0.48	-0.98	-0.71	-1.30	-0.87
Central Asia	-0.18	-0.06	0.00	0.30	0.49	0.31	0.52	0.44	0.27	0.08	10.31	2.66	0.32	-0.18	-0.16	0.35	-1.93

Notes: Scenario is SSP5-8.5. Red colors are negative, white colors are near 0, positive values are green, and darker colors indicate larger changes. Central Asia comprises Armenia, Azerbaijan, Georgia, Kazakhstan, the Kyrgyz Republic, Mongolia, Tajikistan, Turkmenistan, and Uzbekistan. Higher Income Southeast Asia comprises Brunei Darussalam, Malaysia, Singapore, and Thailand. The Pacific comprises the Cook Islands, Fiji, Kiribati, the Marshall Islands, the Federated States of Micronesia, Nauru, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu, and Vanuatu. Rest of South Asia comprises Afghanistan, Bhutan, Maldives, Nepal, and Sri Lanka. Rest of Southeast Asia comprises Cambodia, the Lao People's Democratic Republic, Myanmar, and Timor-Leste.
 Source: Authors' calculations.

Table A3.3: Sector Value Added Loss due to Reduced Forestry Productivity in 2070 Under a High-End Emissions Scenario
(% change with respect to a no climate change scenario)

	Coal	Oil	Gas	Electricity	Heavy Industry	Light Industry	Market Services	Petroleum products	Public Services	Forestry	Fisheries	Food Processing	Other Agriculture	Vegetables and Fruit	Other Grains	Rice	Wheat
Bangladesh	-2.16	-0.77	-1.39	-2.87	-6.93	-1.75	-2.56	-1.29	-1.76	-8.39	-0.13	-0.58	-0.86	0.35	-0.61	-0.51	2.08
India	-1.11	0.09	-0.42	-2.19	-5.83	-0.70	-1.04	-2.26	-0.09	-12.69	-0.27	0.03	-0.50	0.21	-0.19	-0.06	0.83
Pakistan	-9.21	-0.34	-0.35	-1.17	-2.53	1.02	-0.98	-0.25	-1.00	-8.14	-0.41	-0.62	-0.17	-0.27	-0.26	-0.09	-0.52
Rest of South Asia	0.16	0.21	-0.74	-2.03	-0.13	-18.60	-1.18	-2.44	-1.05	-2.76	-0.14	0.20	-0.30	0.45	-0.92	-0.17	2.58
Higher Income Southeast Asia	0.39	0.24	0.37	-1.75	1.82	-8.95	0.14	-0.63	0.55	-12.98	0.04	0.39	0.18	0.28	0.20	0.37	
Indonesia	0.21	0.18	-0.16	-1.29	-2.86	-2.88	-0.50	-0.87	0.02	-3.81	-0.01	0.56	-0.07	-0.12	0.33	0.44	
Philippines	-1.03	-0.29	0.04	0.88	0.10	1.82	0.16	1.37	0.44	-5.81	0.07	-0.11	0.23	-0.12	-0.21	-1.44	
Viet Nam	-0.78	0.68	-0.04	-4.23	0.97	-13.27	-0.35	-0.39	1.73	-9.31	0.29	1.79	0.66	1.71	1.57	0.85	
Rest of Southeast Asia	-0.04	0.17	0.37	-2.85	-6.08	-12.89	-1.28	-2.53	-0.42	-15.15	-0.12	1.09	0.13	-0.29	0.08	0.39	
The Pacific	-0.80	-0.36	-0.55	0.06	-1.06	-10.28	0.01	0.56	1.06	-6.53	-0.13	-0.20	-0.45	0.15	0.01	-0.57	
People's Republic of China	-0.46	-0.17	0.15	0.12	-0.04	-0.10	0.23	0.77	0.32	3.57	0.02	-0.18	-0.46	-0.31	0.00	-0.51	-0.07
Central Asia	-0.48	-0.14	-0.12	0.24	1.52	2.07	0.03	0.58	0.10	-1.65	-0.02	-1.03	-0.18	-0.12	-0.11	-0.10	-0.48

Notes: Scenario is SSP5-8.5. Red colors are negative, white colors are near 0, positive values are green, and darker colors indicate larger changes. Central Asia comprises Armenia, Azerbaijan, Georgia, Kazakhstan, the Kyrgyz Republic, Mongolia, Tajikistan, Turkmenistan, and Uzbekistan. Higher Income Southeast Asia comprises Brunei Darussalam, Malaysia, Singapore, and Thailand. The Pacific comprises the Cook Islands, Fiji, Kiribati, the Marshall Islands, the Federated States of Micronesia, Nauru, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu, and Vanuatu. Rest of South Asia comprises Afghanistan, Bhutan, Maldives, Nepal, and Sri Lanka. Rest of Southeast Asia comprises Cambodia, the Lao People's Democratic Republic, Myanmar, and Timor-Leste. Source: Authors' calculations.

Table A3.4: Sector Value Added Loss due to Reduced Labor Productivity in 2070 Under a High-End Emissions Scenario
 (% change with respect to a no climate change scenario)

	Coal	Oil	Gas	Electricity	Heavy Industry	Light Industry	Market Services	Petroleum products	Public Services	Forestry	Fisheries	Food Processing	Other Agriculture	Vegetables and Fruit	Other Grains	Rice	Wheat
Bangladesh	-7.61	-1.46	-3.67	-4.24	-6.74	-8.23	-6.26	-4.44	-5.88	-5.04	-1.63	-4.61	-6.64	-6.48	-6.81	-4.76	-18.78
India	-7.93	-2.74	-2.70	-11.93	-14.08	-12.87	-10.21	-7.14	-8.64	-13.75	-7.01	-11.13	-10.92	-10.12	-9.31	10.09	-11.55
Pakistan	-2.78	-0.87	-2.78	-9.73	-9.48	-10.52	-9.64	-8.85	-10.88	-1.28	-5.41	-9.74	-11.41	-11.99	-8.97	11.40	-9.13
Rest of South Asia	-6.20	-0.81	-1.63	-2.69	-2.02	0.64	-3.20	-2.63	-3.29	-0.33	-0.71	-2.02	-4.05	-3.58	-2.38	-1.95	-7.38
Higher Income Southeast Asia	-3.79	-1.80	-2.09	-3.94	-6.30	-3.98	-3.47	-2.73	-2.87	-3.20	-1.86	-3.63	-4.49	-4.89	-3.81	-3.63	
Indonesia	-3.66	-1.47	-1.68	-5.78	-6.64	-4.97	-6.00	-4.06	-5.20	-4.24	-2.01	-5.09	-6.16	-5.17	-4.64	-5.13	
Philippines	-2.50	-1.45	-2.55	-3.16	-4.39	-1.73	-4.16	-1.39	-3.91	-1.17	-0.80	-3.01	-3.50	-4.55	-3.14	-4.71	
Viet Nam	-5.14	-1.99	-5.53	-6.50	-9.14	-9.95	-7.71	-10.06	-7.05	-14.40	-2.19	-2.38	-5.91	-6.33	-4.95	-6.32	
Rest of Southeast Asia	13.02	-2.85	-4.65	-10.81	-15.16	-10.60	-12.65	-12.96	-10.07	-5.76	-10.51	-17.10	-12.93	-12.86	-13.33	11.84	
The Pacific	-2.04	-0.72	-0.30	-1.11	-2.77	-3.23	-3.02	-1.33	-2.18	-0.39	-0.85	-2.13	-1.61	-1.20	-1.91	-1.00	
People's Republic of China	-2.00	-0.83	-0.08	-0.43	-1.03	-1.37	-1.21	1.54	-0.98	-1.58	-1.59	-1.66	-1.81	-1.16	-1.57	-0.75	-1.67
Central Asia	-0.62	-0.40	-0.32	0.38	2.33	3.02	-0.37	1.03	-0.10	0.07	-0.07	-0.26	-0.03	0.43	-0.19	0.18	0.10

Notes: Scenario is SSP5-8.5. Red colors are negative, white colors are near 0, positive values are green, and darker colors indicate larger changes. Central Asia comprises Armenia, Azerbaijan, Georgia, Kazakhstan, the Kyrgyz Republic, Mongolia, Tajikistan, Turkmenistan, and Uzbekistan. Higher Income Southeast Asia comprises Brunei Darussalam, Malaysia, Singapore, and Thailand. The Pacific comprises the Cook Islands, Fiji, Kiribati, the Marshall Islands, the Federated States of Micronesia, Nauru, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu, and Vanuatu. Rest of South Asia comprises Afghanistan, Bhutan, Maldives, Nepal, and Sri Lanka. Rest of Southeast Asia comprises Cambodia, the Lao People's Democratic Republic, Myanmar, and Timor-Leste. Source: Authors' calculations.

Table A3.5: Sector Value Added Loss due to Increased Energy Demand in 2070 Under a High-End Emissions Scenario
(% change with respect to a no climate change scenario)

	Coal	Oil	Gas	Electricity	Heavy Industry	Light Industry	Market Services	Petroleum products	Public Services	Forestry	Fisheries	Food Processing	Other Agriculture	Vegetables and Fruit	Other Grains	Rice	Wheat
Bangladesh	2.16	-0.49	1.33	1.37	-0.68	-0.99	-0.92	-1.30	-1.05	-0.57	-0.09	-0.37	-0.66	-0.61	-0.55	-0.38	-1.54
India	3.63	-0.15	0.01	8.21	-6.60	-5.64	-6.29	-2.26	-5.10	-4.42	-1.84	-0.43	-3.40	-1.99	-2.46	-3.52	-2.69
Pakistan	8.80	-0.15	2.30	17.48	-1.68	0.91	-1.85	7.26	-3.12	-0.23	-0.99	-1.18	-0.72	-1.23	-1.31	-1.51	-1.30
Rest of South Asia	3.41	-0.30	0.84	6.15	-0.29	1.55	-0.98	4.83	-0.84	-0.28	-0.12	-0.35	-0.80	-0.96	-0.87	0.56	-0.61
Higher Income Southeast Asia	3.69	-0.26	-0.90	-2.68	-0.59	-1.12	-1.30	0.80	-1.27	-0.85	-0.26	-0.29	-0.42	-1.59	-0.03	-0.30	
Indonesia	2.25	-0.37	-0.18	13.54	-0.34	-1.01	-1.03	2.02	-0.87	-1.04	-0.26	-0.36	-0.54	-0.81	-0.39	-0.40	
Philippines	1.78	-0.21	1.99	6.82	-0.43	-0.90	-1.71	2.78	-1.57	-0.25	-0.15	-0.38	-0.36	-0.71	-0.27	-0.24	
Viet Nam	1.34	-0.38	1.30	1.76	-2.13	-1.18	-1.96	-0.07	-2.69	-2.96	-0.25	0.56	-1.88	-1.39	0.03	0.42	
Rest of Southeast Asia	3.82	-0.15	2.08	4.97	0.04	1.20	-0.74	1.21	-1.44	-1.27	-0.42	-0.44	-0.48	-1.06	-0.66	-0.26	
The Pacific	1.19	-0.37	1.94	1.79	-0.05	0.76	-0.47	1.65	-0.29	-0.63	-0.28	-0.55	-0.45	-0.63	-0.34	-0.66	
People's Republic of China	-1.70	-1.27	-59.0	7.15	-5.15	-3.40	-3.92	-2.79	-3.56	-2.17	-1.86	-1.98	-1.45	-2.01	-2.23	-1.79	-2.04
Central Asia	0.64	-0.41	-0.37	0.93	-3.40	-2.46	-3.13	-1.52	-3.14	-0.52	-0.47	-1.21	-0.84	-0.68	-0.65	-2.01	0.48

Notes: Scenario is SSP5-8.5. Red colors are negative, white colors are near 0, positive values are green, and darker colors indicate larger changes. Central Asia comprises Armenia, Azerbaijan, Georgia, Kazakhstan, the Kyrgyz Republic, Mongolia, Tajikistan, Turkmenistan, and Uzbekistan. Higher Income Southeast Asia comprises Brunei Darussalam, Malaysia, Singapore, and Thailand. The Pacific comprises the Cook Islands, Fiji, Kiribati, the Marshall Islands, the Federated States of Micronesia, Nauru, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu, and Vanuatu. Rest of South Asia comprises Afghanistan, Bhutan, Maldives, Nepal, and Sri Lanka. Rest of Southeast Asia comprises Cambodia, the Lao People's Democratic Republic, Myanmar, and Timor-Leste.
Source: Authors' calculations.

Table A3.6: Sector Value Added Loss due to Riverine Flooding in 2070 Under a High-End Emissions Scenario
 (% change with respect to a no climate change scenario)

	Coal	Oil	Gas	Electricity	Heavy Industry	Light Industry	Market Services	Petroleum products	Public Services	Forestry	Fisheries	Food Processing	Other Agriculture	Vegetables and Fruit	Other Grains	Rice	Wheat
Bangladesh	-8.11	-1.24	-5.57	-7.53	-10.09	-13.84	-12.01	-5.12	-14.96	-6.80	-1.55	-4.96	-4.33	-2.24	-3.68	-4.63	-0.28
India	-3.63	-1.35	-1.61	-5.71	-7.15	-6.02	-6.53	-2.89	-8.33	-5.87	-2.37	-2.14	-4.68	-3.13	-3.07	-4.00	-4.62
Pakistan	-0.41	-0.47	-0.91	-2.14	-2.34	-2.24	-2.44	-1.14	-5.28	-0.51	-1.18	-3.05	-3.44	-4.11	-2.32	-3.61	-2.56
Rest of South Asia	-4.00	-0.82	-1.80	-3.09	-4.28	-1.71	-3.96	-2.32	-6.70	-0.60	-0.59	-1.80	-3.08	-2.97	-2.63	-2.93	-4.38
Higher Income Southeast Asia	-2.06	-0.85	-1.02	-2.53	-4.49	-3.71	-4.04	-1.99	-5.58	-2.16	-0.92	-0.69	-1.43	-1.11	-0.44	-0.74	
Indonesia	-3.32	-1.24	-1.95	-6.63	-8.49	-8.48	-8.28	-4.81	-10.65	-4.02	-1.72	-2.07	-2.91	-4.47	-2.48	-2.44	
Philippines	-1.27	-0.58	-0.79	-0.98	-1.54	-1.24	-2.29	0.18	-2.91	-0.36	-0.23	-0.66	-0.86	-0.74	-0.62	-0.81	
Viet Nam	-4.83	-1.66	-4.90	-7.69	-11.41	-10.21	-10.19	-7.71	-11.52	-12.13	-1.53	-0.28	-4.50	-4.83	-3.03	-4.07	
Rest of Southeast Asia	-9.21	-1.73	-2.74	-7.28	-10.27	-9.85	-8.60	-6.13	-10.78	-4.14	-5.84	-8.91	-7.25	-7.68	-8.06	-6.42	
The Pacific	-1.29	-0.60	-0.74	-1.11	-2.90	-2.77	-2.81	-0.59	-3.44	-0.45	-0.54	-1.80	-0.90	-1.03	-0.99	-2.55	
People's Republic of China	-1.02	-0.37	-0.30	-0.99	-1.55	-1.01	-1.63	0.02	-2.05	-1.40	-1.06	-1.23	-1.38	-1.37	-1.22	-1.35	-1.27
Central Asia	-1.22	-0.46	-0.72	-1.61	-2.00	-1.12	-2.01	-0.59	-2.61	-0.40	-0.33	-1.04	-0.73	-0.44	-0.70	-1.49	-0.51

Notes: Scenario is SSP5-8.5. Red colors are negative, white colors are near 0, positive values are green, and darker colors indicate larger changes. Central Asia comprises Armenia, Azerbaijan, Georgia, Kazakhstan, the Kyrgyz Republic, Mongolia, Tajikistan, Turkmenistan, and Uzbekistan. Higher Income Southeast Asia comprises Brunei Darussalam, Malaysia, Singapore, and Thailand. The Pacific comprises the Cook Islands, Fiji, Kiribati, the Marshall Islands, the Federated States of Micronesia, Nauru, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu, and Vanuatu. Rest of South Asia comprises Afghanistan, Bhutan, Maldives, Nepal, and Sri Lanka. Rest of Southeast Asia comprises Cambodia, the Lao People's Democratic Republic, Myanmar, and Timor-Leste.
 Source: Authors' calculations.

Table A3.7: Sector Value Added Loss due to Sea Level Rise in 2070 Under a High-End Emissions Scenario
(% change with respect to a no climate change scenario)

	Coal	Oil	Gas	Electricity	Heavy Industry	Light Industry	Market Services	Petroleum products	Public Services	Forestry	Fisheries	Food Processing	Other Agriculture	Vegetables and Fruit	Other Grains	Rice	Wheat
Bangladesh	-5.53	-4.97	-10.13	-17.90	-5.59	-36.13	-18.69	-9.10	-18.26	-8.15	-1.83	-7.73	-7.25	-4.50	-6.55	-7.46	-6.43
India	-3.35	-1.80	-2.73	-2.93	-4.88	-5.99	-6.38	-0.49	-3.95	-4.80	-1.26	-0.94	-3.76	-1.60	-1.55	-2.74	-2.46
Pakistan	-1.32	-1.79	-1.22	1.03	0.89	0.52	-0.38	5.54	-2.06	-0.51	-0.17	-1.51	-1.45	-2.69	0.08	-2.10	-0.44
Rest of South Asia	-1.13	-1.93	-1.45	-4.77	-7.49	-4.34	-5.34	-0.37	-4.23	-0.75	-0.56	-1.42	-2.06	-1.54	-1.85	-1.45	-1.62
Higher Income Southeast Asia	-8.43	-2.64	-3.91	-12.28	-14.71	-18.41	-13.91	-3.47	-9.67	-7.87	-2.66	-1.99	-3.64	-1.18	1.18	-2.14	
Indonesia	13.80	-4.96	-6.66	-15.45	-16.46	-35.03	-18.27	-5.44	-13.76	-11.48	-3.87	-3.57	-2.53	-6.66	-3.85	-4.51	
Philippines	-6.89	-2.77	-3.49	-9.13	-8.27	-11.99	-11.10	-2.26	-9.58	-1.15	-1.49	-4.02	-4.57	-5.19	-4.09	-5.59	
Viet Nam	-4.89	-3.82	-3.06	-17.35	-17.41	-17.99	-15.11	-7.25	-16.69	-18.18	-2.00	0.06	-7.68	-6.71	-3.71	-5.13	
Rest of Southeast Asia	-0.57	-0.56	-0.58	-4.12	-1.75	-1.16	-3.40	1.33	-4.70	-3.10	-1.80	-0.77	-1.82	-2.31	-2.07	-0.99	
The Pacific	-7.89	-5.92	-11.68	-5.68	-16.21	-25.14	-16.03	-1.99	-10.59	-2.71	-3.11	-19.38	-14.02	-13.09	-13.07	-14.51	
People's Republic of China	-2.34	-0.90	-0.50	-4.52	-6.33	-3.28	-4.99	-1.27	-4.15	-3.73	-2.57	-3.11	-3.48	-3.63	-3.24	-3.21	-3.20
Central Asia	-1.87	-0.56	-1.09	-2.10	-2.69	1.01	-2.70	0.31	-2.21	-0.55	-0.51	-1.56	-1.06	-1.02	-2.04	-1.96	-2.03

Notes: Scenario is SSP5-8.5. Red colors are negative, white colors are near 0, positive values are green, and darker colors indicate larger changes. Central Asia comprises Armenia, Azerbaijan, Georgia, Kazakhstan, the Kyrgyz Republic, Mongolia, Tajikistan, Turkmenistan, and Uzbekistan. Higher Income Southeast Asia comprises Brunei Darussalam, Malaysia, Singapore, and Thailand. The Pacific comprises the Cook Islands, Fiji, Kiribati, the Marshall Islands, the Federated States of Micronesia, Nauru, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu, and Vanuatu. Rest of South Asia comprises Afghanistan, Bhutan, Maldives, Nepal, and Sri Lanka. Rest of Southeast Asia comprises Cambodia, the Lao People's Democratic Republic, Myanmar, and Timor-Leste.
Source: Authors' calculations.