

International Financing for Climate Change Adaptation in Small Island Developing States



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Presentation Outline

1. Research context
2. Aims of paper
3. Research methods
4. Limitations of study
5. Main findings
6. Key issues
7. Conclusions
8. Acknowledgements

Research context

- SIDS are particularly vulnerable to the impacts of climate change
- Some amount of climate change is inevitable—adaptation is important
- Adaptation is costly and SIDS have financial and other constraints
- SIDS pursue international adaptation financing to help offset the costs

Aims of paper

- Our paper explores the experience of SIDS with international adaptation financing
- It has three aims:
 - To identify trends in this financing to 50 SIDS
 - To identify the determinants of this financing
 - To elicit the perspectives of SIDS policy-makers on their experience with adaptation financing

Research methods

- We use a mixed methods approach:
 - Review of the OECD data on official development assistance (ODA) ‘marked’ as supporting adaptation in SIDS
 - Quantitative analysis of the OECD data
 - Semi-structured interviews with 65 senior national and regional officials from Caribbean and Pacific SIDS (August 2014-August 2015)

Research methods (cont'd)

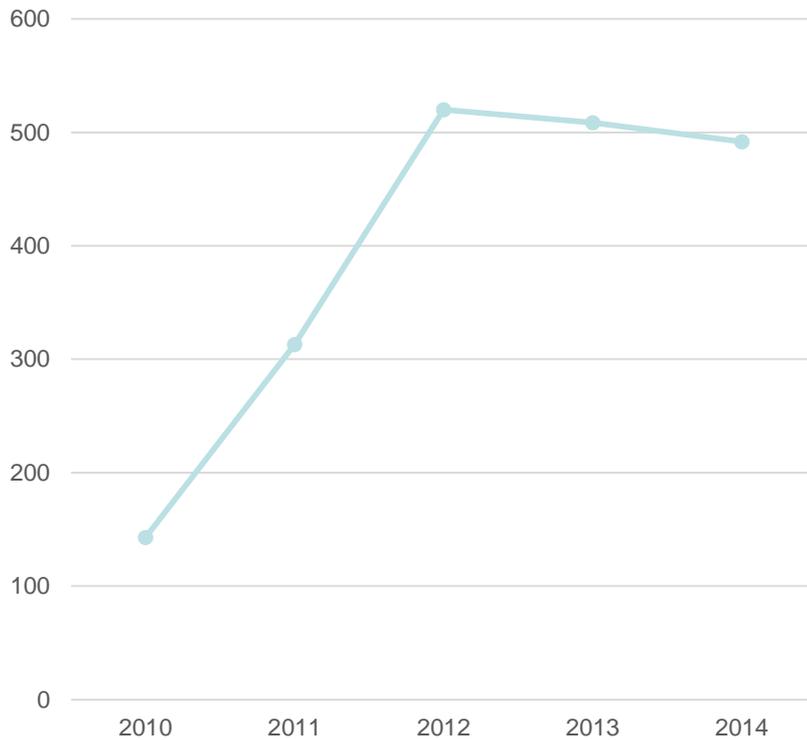
- Quantitative analysis = multivariate regression modelling
- Dependent variable: Total financing (principal + significant) (2010-2014)
- Independent variables:
 - Population
 - Per capita income
 - Vulnerability
 - Governance
 - Aid dependence
 - Colonial status
 - African country
 - LDC status

Limitations of study

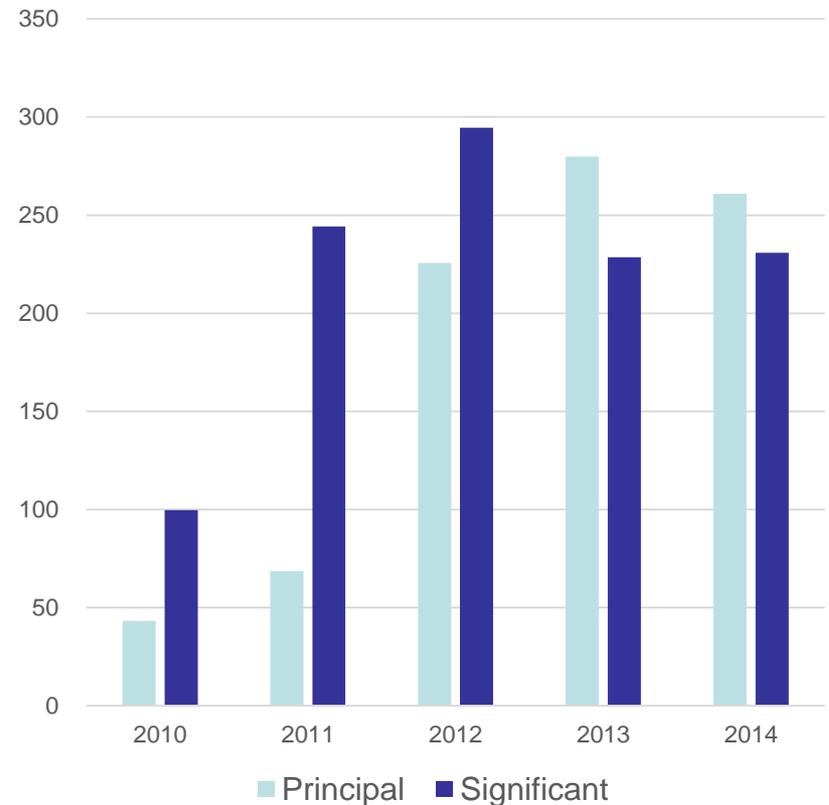
- We use 2010-2014 OECD ODA data:
 - Captures commitments not disbursements
 - Excludes important multilateral donors such as the World Bank
 - Double counting, under-reporting and over-reporting are possible

Main findings – trends (totals)

International Adaptation Financing to SIDS, from 2010-2014

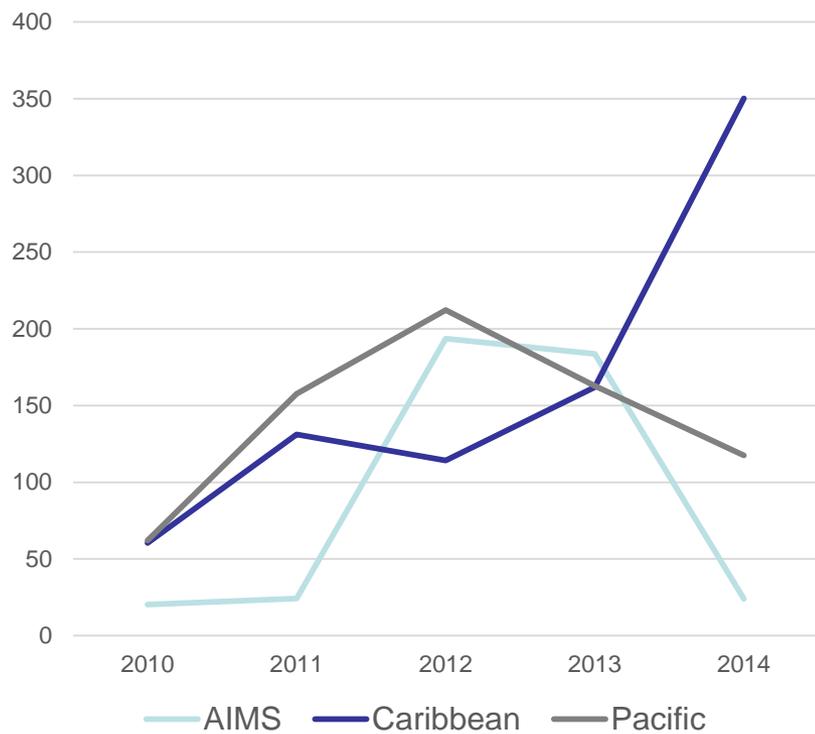


International Adaptation Financing to SIDS by Marker, 2010-2014

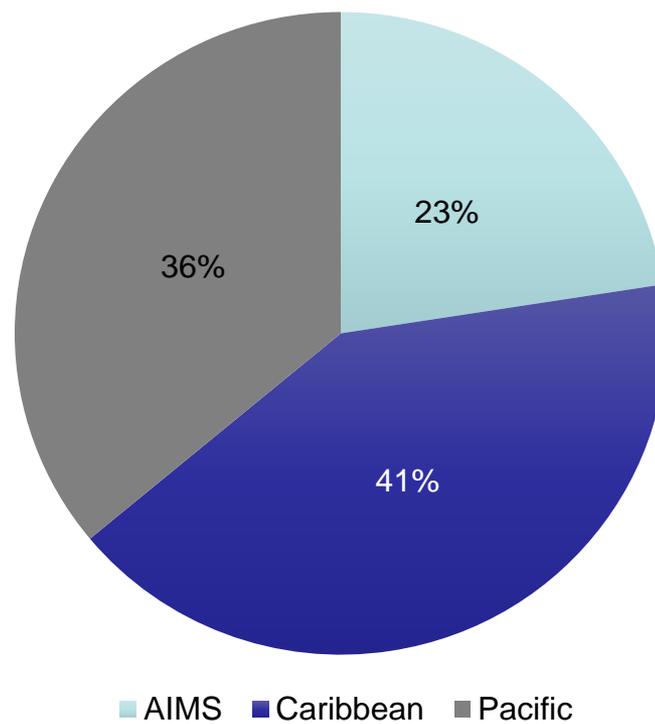


Main findings – trends (by region)

International Adaptation Financing by Region, 2010-2014



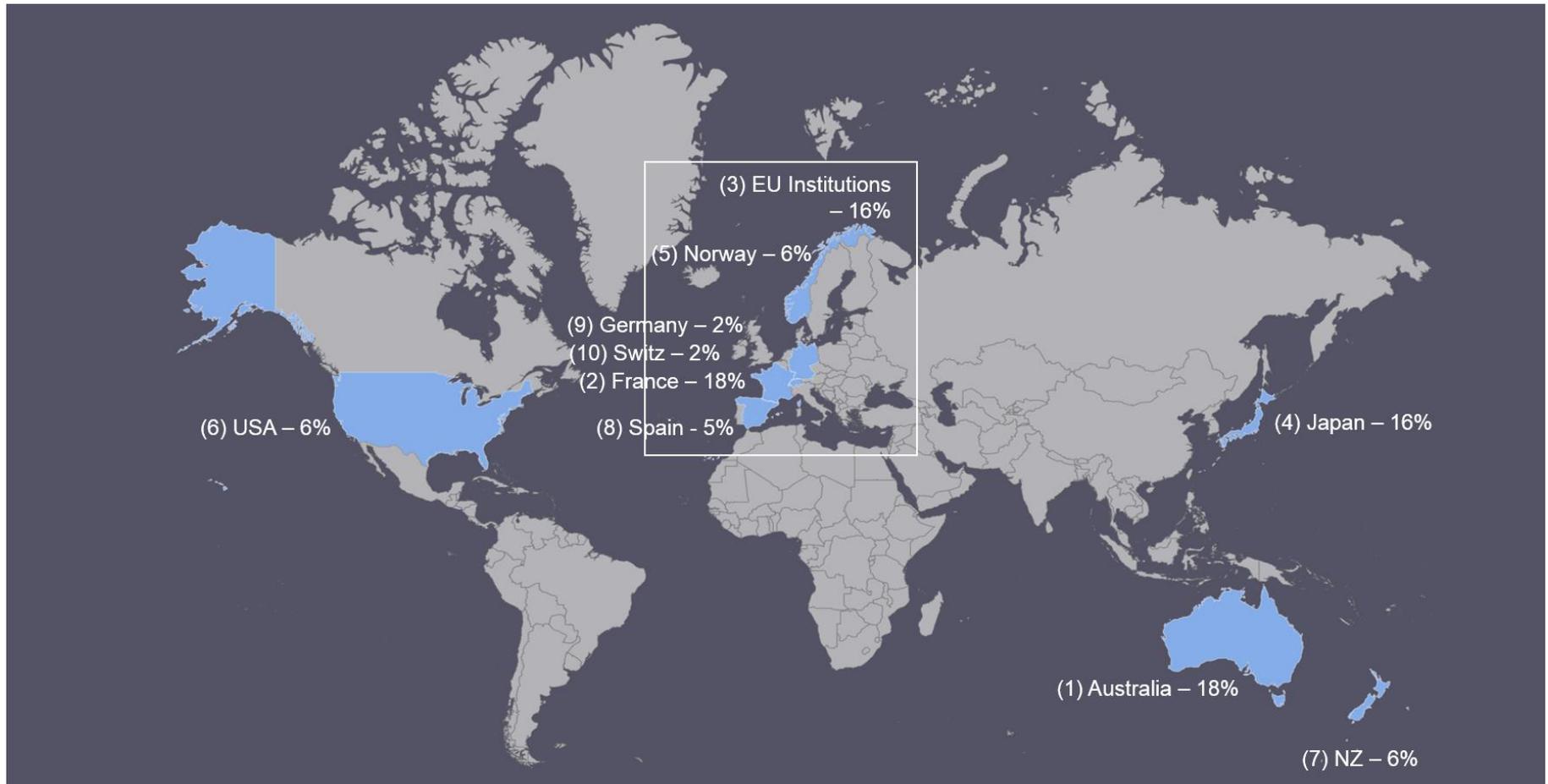
International Adaptation Financing by Region (%), 2010-2014



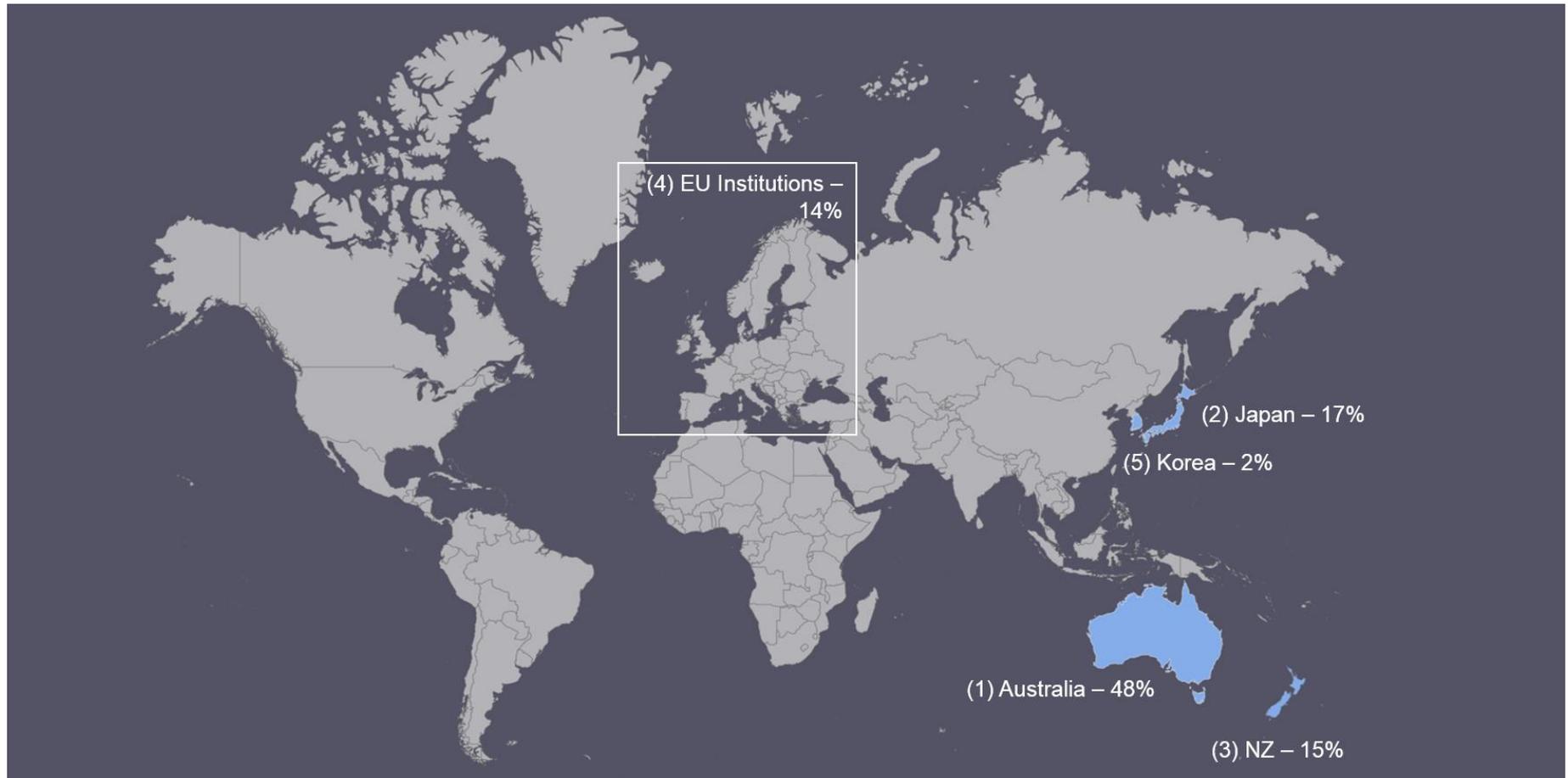
Main findings – trends (Pacific)

	Country	Year				
		2010	2011	2012	2013	2014
	Cook Islands	15	3	2	5	9
	Fiji	0	9	10	3	4
	Kiribati	2	24	9	12	2
	Marshall Islands	0	1	4	3	1
	Micronesia	0	0	3	1	1
	Nauru	0	1	1	2	0
	Niue	1	10	5	4	1
	Palau	0	0	1	1	1
(5)	Papua New Guinea	0	18	15	18	11
(4)	Samoa	13	10	28	10	5
(3)	Solomon Islands	4	39	16	40	10
(1)	Timor-Leste	13	17	35	50	23
	Tonga	0	8	13	1	5
	Tuvalu	0	2	3	4	19
(2)	Vanuatu	13	15	68	10	26

Main findings – trends (by donor) (all SIDS)



Main findings – trends (by donor) (Pacific)



Main findings – determinants

WEAK

- In all models, the following factors were weak determinants of financing levels:
 - African country status
 - LDC status
 - Aid dependence (ODA/GNI) – depending on how vulnerability is measured; donors don't allocate funding on the basis of past aid or substitute adaptation funding for 'regular' aid

Main findings – determinants

MEDIUM

- In some models, the following factors were determinants of financing levels:
 - Colonial status (when looking at specific donors only)
 - Vulnerability – depending on how it is measured

Main findings – determinants

STRONG

- In all models, the following factors were strong determinants of financing levels:
 - SIDS status (with population controlled)
 - Population – more people, more funding but only in log form (smaller countries got more funding on a per capita basis)
 - Per capita income – poorer, more financing

Main findings – determinants

STRONG

- In all models, the strongest determinant of financing levels was:
 - Governance – but not in every single case (e.g. Timor-Leste):
 - Paradox?
 - Logical in terms of aid effectiveness but less so when considering that better governed countries are likely to have higher adaptive capacities

Main findings – perspectives

Pacific

- Climate change is a developed country responsibility, where developed countries should be supporting the developing countries
- Pacific island countries have a hard time getting funds compared to other groups – not so much the LDCs, but especially African countries and the other SIDS, the Caribbean SIDS
- “The GCF (Green Climate Fund) paperwork is higher than the sea level rise in Tuvalu”
- The 8% admin fee charged by regional organisations/multilaterals is big money



Caribbean

- Adaptation costs should be shared between developed and developing countries—we should be trying to apportion responsibility based on %
- Caribbean SIDS have a small voice on the international stage—we need to learn from the Pacific SIDS. They are able to attract far more financial resources than we can
- Interviewees were not generally *au fait* with the structure of international financing to comment
- Climate change is a “cash cow”—what was previously a disaster risk reduction project is now a climate change project

Key issues

- Allocation continues to be skewed:
 - SIDS do not get less financing than other developing countries
 - Donors provide more funding to former colonies
- Improving access and readiness
- Whether the most vulnerable countries are being prioritised

Conclusions

- Allocation of adaptation funds is highly skewed
- SIDS are not disadvantaged in their access to adaptation financing (mostly bilateral)
- African countries and LDCs are not allocated more adaptation financing than other countries (not when other variables are taken into account)

Conclusions

- Governance quality has a considerable (positive) impact on adaptation funds received by SIDS
- Our results contradict some commonly-held views of policy-makers in SIDS e.g. which region is able to attract more funding but more research is needed – these views, however, largely relate to multilateral funds

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Interviewees:

Representatives of national SIDS governments and regional organisations in the Caribbean and Pacific

Colleagues:

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Disclaimer: *The views expressed in our paper and presentation do not necessarily reflect the views of the project's funders or the colleagues consulted*

Table 1: Results of the Multivariate Regression Modelling

a: Total climate change adaptation finance (millions) allocated, 2010-14

Model	1	2	3	4	5	6	7	8	9	10	11	12
Population (natural log.)	113.309*** (21.448)	128.804*** (25.269)	136.192*** (28.621)	147.172*** (30.454)	138.075*** (28.397)	147.163*** (31.709)	138.940*** (28.400)	140.806*** (28.042)	148.805*** (32.036)	152.235*** (32.020)	154,459*** (35.758)	158.255*** (35.597)
GDP per capita	-0.017*** (0.005)	-0.012*** (0.004)	-0.020*** (0.005)	-0.016*** (0.005)	-0.018*** (0.006)	-0.015*** (0.005)	-0.018*** (0.005)	-0.018*** (0.005)	-0.020*** (0.005)	-0.019*** (0.005)	-0.021*** (0.006)	-0.020*** (0.006)
Climate Change Risk index	-1.116 (0.742)	-1.602* (0.926)	-0.954 (0.714)	-1.372 (0.899)	-1.193* (0.679)	-1.372* (0.800)	-	-	-	-	-	-
ND-Gain Exposure	-	-	-	-	-	-	1103.979*** (410.370)	1064.641** (430.340)	977.442** (389.387)	916.745** (403.647)	1152.262** (470.586)	1119.747** (502.016)
ND-Gain Sensitivity	-	-	-	-	-	-	368.595* (187.206)	189.850 (224.149)	322.167* (181.111)	137.891 (231.374)	515.857* (301.666)	276.640 (254.165)
Governance (WGI composite)	162.177*** (50.115)	164.84*** (48.727)	159.280*** (50.310)	163.634*** (49.431)	166.402*** (48.984)	165.599*** (48.007)	217.048*** (57.842)	213.597*** (55.640)	207.927*** (55.990)	204.237*** (54.061)	204.829*** (54.641)	198.290*** (51.493)
Aid dependence (ODA/GNI)	-	3.107** (1.500)	-	2.263 (1.638)	-	1.835 (2.505)	-	1.246 (1.863)	-	1.303 (1.937)	-	2.264 (2.111)
Colony in 1945	-	151.216 (92.953)	-	138.202 (90.860)	-	135.450 (107.484)	-	71.349 (82.699)	-	71.498 (83.008)	-	99.261 (100.126)
SIDS	-	-	170.125** (79.750)	147.359** (73.556)	171.144** (79.398)	146.763** (72.168)	-	-	109.131 (68.375)	120.488* (68.734)	72.798 (60.981)	77.103 (61.018)
Africa	-	-	-	-	24.690 (52.422)	-4.171 (65.299)	-	-	-	-	-62.259 (61.561)	-80.000 (76.070)
LDC	-	-	-	-	49.370 (52.737)	17.870 (70.803)	-	-	-	-	-59.354 (76.972)	-60.954 (80.095)
N Obs.	132	131	132	131	132	131	140	138	140	138	140	138
R-Squared	0.39	0.41	0.41	0.43	0.41	0.43	0.40	0.41	0.41	0.42	0.42	0.43

OLS estimation where the dependent variable is climate change adaptation finance allocated to developing countries over the period 2010-14. Stars denote statistical significance at the 10, 5, and 1 per cent levels. Standard errors in parentheses are calculated with White's correction for heteroskedacity. Bilateral climate change adaptation finance is sourced from the OECD.

b: Principal climate change adaptation finance (millions) allocated, 2010-14

Model	1	2	3	4	5	6	7	8	9	10	11	12
Population (natural log.)	36.305*** (7.410)	41.347*** (9.478)	44.499*** (9.967)	48.387*** (11.322)	44.594*** (9.937)	48.202*** (11.864)	39.516*** (9.989)	40.159*** (9.970)	44.453*** (11.665)	45.888*** (11.806)	46.025*** (13.274)	47.701*** (13.564)
GDP per capita	-0.005*** (0.002)	-0.004** (0.002)	-0.006*** (0.002)	-0.005*** (0.002)	-0.006** (0.002)	-0.005** (0.002)	-0.006*** (0.002)	-0.006*** (0.002)	-0.007*** (0.002)	-0.007*** (0.002)	-0.008*** (0.002)	-0.007*** (0.002)
Climate Change Risk index	-0.517 (0.362)	-0.664 (0.437)	-0.459 (0.348)	-0.576 (0.426)	-0.561* (0.327)	-0.605 (0.372)	-	-	-	-	-	-
ND-Gain Exposure	-	-	-	-	-	-	284.180* (149.254)	290.170* (159.459)	220.854 (146.963)	216.041 (155.758)	267.472 (169.924)	274.338 (186.229)
ND-Gain Sensitivity	-	-	-	-	-	-	28.600 (79.478)	-74.481 (112.392)	5.365 (78.802)	-100.524 (116.680)	57.423 (116.942)	-57.736 (116.816)
Governance (WGI composite)	60.882*** (20.537)	62.562*** (30.364)	59.845*** (20.231)	62.100*** (20.134)	60.335*** (19.187)	61.483*** (19.198)	77.507*** (21.522)	75.424*** (20.413)	72.943*** (20.937)	70.733*** (20.021)	72.067*** (21.073)	69.007*** (19.922)
Aid dependence (ODA/GNI)	-	-0.032 (0.701)	-	-0.356 (0.810)	-	-0.289 (1.204)	-	0.207 (0.746)	-	0.235 (0.772)	-	0.542 (0.894)
Colony in 1945	-	63.336 (38.321)	-	58.348 (37.967)	-	57.620 (44.190)	-	50.781 (36.289)	-	50.856 (36.044)	-	57.662 (43.843)
SIDS	-	-	60.918** (28.208)	56.484** (27.121)	64.834** (27.269)	58.306** (26.500)	-	-	54.615** (26.646)	60.391** (27.042)	48.103** (22.865)	49.433** (23.701)
Africa	-	-	-	-	20.798 (24.500)	8.547 (29.251)	-	-	-	-	-5.763 (29.025)	-17.335 (35.159)
LDC	-	-	-	-	-1.420 (29.514)	-6.535 (35.743)	-	-	-	-	-23.609 (32.637)	-22.347 (34.631)
N Obs.	132	131	132	131	132	131	140	138	140	138	140	138
R-Squared	0.27	0.30	0.29	0.31	0.29	0.31	0.26	0.28	0.27	0.29	0.27	0.29

OLS estimation where the dependent variable is climate change adaptation finance allocated to developing countries over the period 2010-14. Stars denote statistical significance at the 10, 5, and 1 per cent levels. Standard errors in parentheses are calculated with White's correction for heteroskedacity. Bilateral climate change adaptation finance is sourced from the OECD.

c: Climate change adaptation finance (millions) allocated to Small Island Developing States, 2010-14

Model	Total climate change adaptation financing				Principal climate change adaptation financing			
	1	2	3	4	5	6	7	8
Population (natural log.)	34.287*** (9.345)	26.523*** (6.900)	30.576*** (8.355)	26.642*** (7.414)	26.484*** (9.373)	18.360*** (6.521)	20.634*** (7.583)	17.659** (7.222)
GDP per capita	-0.008*** (0.002)	-0.007*** (0.002)	-0.007*** (0.002)	-0.007*** (0.002)	-0.006*** (0.002)	-0.006*** (0.002)	-0.005*** (0.002)	-0.005*** (0.002)
Climate Change Risk index	0.127 (0.218)	0.256 (0.208)	–	–	0.132 (0.178)	0.295* (0.164)	–	–
ND-Gain Exposure	–	–	70.278 (161.658)	-5.890 (149.502)	–	–	229.942* (129.727)	191.536* (99.011)
ND-Gain Sensitivity	–	–	52.785 (83.741)	30.455 (90.084)	–	–	-51.819 (71.234)	-42.006 (70.459)
Governance (WGI composite)	70.113*** (24.185)	74.849** (19.672)	63.264** (26.749)	68.892** (25.756)	70.175*** (23.891)	72.124*** (24.224)	60.688** (25.045)	65.774** (26.177)
Aid dependence (ODA/GNI)	–	1.786** (0.761)	–	0.989 (0.877)	–	-0.051 (0.653)	–	0.247 (0.691)
Colony in 1945	–	-84.493 (62.546)	–	-70.561 (61.545)	–	-75.222 (60.687)	–	-57.604 (58.168)
N Obs.	33	33	38	37	33	33	38	37
R-Squared	0.53	0.63	0.50	0.58	0.49	0.57	0.45	0.52

OLS estimation where the dependent variable is climate change adaptation finance allocated to Small Island Developing States over the period 2010-14. The number of SIDS incorporated in each model differs given that data for variables is missing for some SIDS. Stars denote statistical significance at the 10, 5, and 1 per cent levels. Standard errors in parentheses are calculated with White's correction for heteroskedacity. Bilateral climate change adaptation finance is sourced from the OECD.

d: Total climate change adaptation finance (millions) allocated to Small Island Developing States by donor, 2010-14

Funding source	Population (natural log.)	GDP per capita	ND-Gain Exposure	ND-Gain Sensitivity	Governance (WGI comp.)	Aid dependence (ODA/GNI)	Own colony	N obs.	Total climate change adaptation financing allocated to SIDS
Column	1	2	3	4	5	6	7		
Australia	1.860 (2.736)	-0.003** (0.001)	1.888 (55.290)	75.189** (36.132)	3.898 (6.212)	-0.242 (0.340)	25.908 (17.777)	37	353.57
France	53.152** (24.003)	-0.008* (0.004)	641.357 (456.544)	-218.368 (253.563)	77.141* (39.326)	-4.777 (3.433)	150.966** (63.012)	37	346.47
European Union	-4.620 (4.866)	-0.002 (0.001)	-8.045 (93.101)	4.795 (59.312)	-10.663 (12.380)	-0.694 (0.598)	–	37	394.65
Japan	12.104*** (3.175)	-0.004*** (0.001)	66.240 (76.004)	34.638 (44.954)	44.968*** (8.389)	0.286 (0.413)	–	37	309.66
New Zealand	-3.863 (3.465)	-0.005* (0.003)	-13.603 (78.684)	44.535 (47.969)	3.465 (7.141)	-0.301 (0.370)	6.380 (13.543)	37	109.29
Norway	-4.791 (22.707)	-0.022 (0.030)	78.121 (326.055)	-443.169 (445.215)	-57.881 (98.326)	-3.649 (5.452)	–	37	117.96
Portugal	0.417* (0.238)	-0.000 (0.000)	-10.441 (9.162)	-0.688 (3.688)	0.908** (0.359)	0.050** (0.023)	2.807*** (0.649)	37	4.51
Spain	1.662 (1.389)	-0.004*** (0.001)	24.278 (21.270)	-81.287*** (19.270)	3.487 (2.470)	0.266* (0.153)	14.117** (5.818)	37	93.24
United Kingdom	0.024* (0.012)	-0.000 (0.000)	0.167 (0.263)	-0.152 (0.170)	-0.009 (0.033)	0.000 (0.002)	0.063* (0.033)	37	1.14
United States	6.147*** (1.704)	-0.001*** (0.000)	54.061 (36.429)	-69.710** (25.668)	13.470*** (4.225)	0.664*** (0.234)	1.837 (9.109)	37	111.61

Tobit estimation where the dependent variable is climate change adaptation finance allocated to Small Island Developing States from each bilateral funding source over the period 2010-14. Stars denote statistical significance at the 10, 5, and 1 per cent levels. Standard errors in parentheses. Bilateral climate change adaptation finance is sourced from the OECD. The eight countries with the highest climate change adaptation allocations to SIDS are included in the table, along with Portugal and the UK (given their former colonies that are now SIDS). Null results were produced for Netherlands, owing to limited number of SIDS to which it provides climate change adaptation finance. The table shows results using ND-Gain only, as results using CRI were very similar but incorporated a lower number of observations.