

# **Climate exposure, vulnerability and environmental reliance: a cross-section analysis of structural and stochastic poverty**

Arild Angelsen<sup>1,2\*</sup> and Therese Dokken<sup>1</sup>

<sup>1</sup> School of Economics and Business, Norwegian University of Life Sciences (NMBU), Ås, Norway, and <sup>2</sup> Center for International Forestry Research (CIFOR), Bogor, Indonesia

\*Corresponding author. Email: [arild.angelsen@nmbu.no](mailto:arild.angelsen@nmbu.no)

## **ONLINE APPENDIX**

**Table A1.** Summary statistics regression variables (global sample, N=7,329)

	Mean	Std. dev	Min	Max
<i>Income</i>				
Total household income (USD PPP)	5,872	14,195	0	852,982
<i>Human capital</i>				
# of male adults (15-65 years)	1.68	1.18	0	10
# of female adults (15-65 years)	1.67	1.18	0	21
# of male elders ((>65 years)	0.26	0.48	0	2
# of female elders ((>65 years)	0.13	0.35	0	3
# of male children (<15 years)	1.32	1.38	0	10
# of female children (<15 years)	1.26	1.35	0	10
Age of hh head (years)	45.67	14.45	14	111
Female headed hh (0-1)	0.12	0.32	0	1
Education hh head (years)	4.10	4.03	0	18
Wage income (0-1)	0.61	0.49	0	1
<i>Physical capital</i>				
Ag. land owned (ha)	4.91	12.85	0	612
Livestock owned (TLU)	4.23	10.96	0	298
Hh business (0-1)	0.36	0.48	0	1
<i>Financial capital</i>				
Financial assets (PPP USD)	1,685	5,673	0	166,666
<i>Social capital</i>				
Hh head born in village (0-1)	0.55	0.50	0	1
Largest ethnic group (0-1)	0.74	0.44	0	1
Distance village center (hours walk)	0.39	0.55	0	5
<i>Natural capital</i>				
Distance forest (hours walk)	0.57	0.72	0	5
Precipitation (mm, 1981-2010)	1,547	628	658	3,667
Temperature (C, 1981-2010)	23.47	4.50	9	29
<i>Infrastructure</i>				
Electrification (share of pop.)	0.23	0.37	0	1
Market integration (cash share)	0.18	0.08	0.03	0.69

**Table A2.** Summary statistics for variables included in the regression models. Latin America sample (N=848)

	Mean	Std. dev	Min	Max
<i>Income</i>				
Total household income (USD PPP)	15,099	16,076	646	125,587
<i>Human capital</i>				
Hh size (AEU)	3.75	1.77	1	11
# of male adults (15-65 years)	1.70	1.24	0	10
# of female adults (15-65 years)	1.50	1.16	0	8
# of male elders ((>65 years)	0.31	0.52	0	2
# of female elders ((>65 years)	0.16	0.39	0	2
# of male children (<15 years)	1.15	1.24	0	6
# of female children (<15 years)	1.10	1.29	0	8
Age of hh head (years)	44.56	14.28	18	92
Female headed hh (0-1)	0.07	0.26	0	1
Education hh head (years)	5.57	3.92	0	18
Wage income (0-1)	0.78	0.41	0	1
<i>Physical capital</i>				
Ag. land owned (ha)	10.49	18.00	0	301
Livestock owned (TLU)	8.49	21.05	0	254
hh business (0-1)	0.23	0.42	0	1
<i>Financial capital</i>				
Financial assets (PPP USD)	4,105	9,898	0	129,253
<i>Social capital</i>				
hh head born in village (0-1)	0.33	0.47	0	1
Largest ethnic group (0-1)	0.83	0.37	0	1
Distance village center (hours walk)	0.49	0.69	0	5
<i>Natural capital</i>				
Distance forest (hours walk)	0.65	0.96	0	5
Precipitation (mm, 1981-2010)	2,272	537	1,729	3,667
Temperature (C, 1981-2010)	23.41	3.15	15	27
<i>Infrastructure</i>				
Electrification (share of pop.)	0.47	0.44	0	1
Market integration (cash share)	0.26	0.08	0.06	0.69
<i>Country level variable</i>				
GDP per capita (2010 USD)	3,887	2,248	1,935	10,978

**Table A3.** Summary statistics for variables included in the regression models. South Asia sample (N=1,094)

	Mean	Std. dev	Min	Max
<i>Income</i>				
Total household income (USD PPP)	5,221	5,228	206	112,471
<i>Human capital</i>				
Hh size (AEU)	3.74	1.45	1	11.90
# of male adults (15-65 years)	1.77	1.10	0	7
# of female adults (15-65 years)	1.70	0.98	0	8
# of male elders ((>65 years)	0.31	0.52	0	2
# of female elders ((>65 years)	0.14	0.36	0	2
# of male children (<15 years)	0.89	0.98	0	6
# of female children (<15 years)	0.79	0.95	0	5
Age of hh head (years)	49.38	14.81	14	97
Female headed hh (0-1)	0.11	0.32	0	1
Education hh head (years)	2.49	3.69	0	15
Wage income (0-1)	0.78	0.41	0	1
<i>Physical capital</i>				
Ag. land owned (ha)	3.78	7.40	0	79
Livestock owned (TLU)	4.14	8.33	0	182
hh business (0-1)	0.24	0.42	0	1
<i>Financial capital</i>				
Financial assets (USD PPP)	3,010	7,770	0	118,992
<i>Social capital</i>				
hh head born in village (0-1)	0.78	0.42	0	1
Largest ethnic group (0-1)	0.82	0.38	0	1
Distance village center (hours walk)	0.40	0.54	0	4
<i>Natural capital</i>				
Distance forest (hours walking)	0.58	0.42	0	3
Precipitation (mm, 1981-2010)	1,882	673	1,177	3,197
Temperature (C, 1981-2010)	21.63	6.83	9.05	27.55
<i>Infrastructure</i>				
Electrification (share of pop.)	0.42	0.41	0	1
Market integration (cash share)	0.19	0.05	0.11	0.34
<i>Country level variable</i>				
GDP per capita (2010 USD)	833	320	596	1 417

**Table A4.** Summary statistics for variables included in the regression models. East Asia sample (N=1,297)

	Mean	Std. dev	Min	Max
<i>Income</i>				
Total household income (USD PPP)	5,348	5,561	0	87,162
<i>Human capital</i>				
Household size (AEU)	3.41	1.16	1	10
# of male adults (15-65 years)	1.59	0.95	0	7
# of female adults (15-65 years)	1.53	0.86	0	7
# of male elders ((>65 years)	0.27	0.47	0	2
# of female elders ((>65 years)	0.12	0.34	0	2
# of male children (<15 years)	0.85	0.98	0	7
# of female children (<15 years)	0.78	0.92	0	4
Age of hh head (years)	43.88	12.93	18	90
Female headed hh (0-1)	0.10	0.30	0	1
Education hh head (years)	4.96	3.51	0	17
Wage income (0-1)	0.61	0.49	0	1
<i>Physical capital</i>				
Ag. land owned (ha)	2.03	3.13	0	52
Livestock owned (TLU)	2.24	2.60	0	33
hh business (0-1)	0.26	0.44	0	1
<i>Financial capital</i>				
Financial assets (PPP USD)	1,846	3,883	0	49,272
<i>Social capital</i>				
hh head born in village (0-1)	0.51	0.50	0	1
Largest ethnic group (0-1)	0.89	0.32	0	1
Distance village center (hours walk)	0.25	0.32	0	2
<i>Natural capital</i>				
Distance forest (hours walk)	0.43	0.39	0	4
Precipitation (mm, 1981-2010)	1,981	607	1,144	3,238
Temperature (C, 1981-2010)	25.29	2.93	19	28
<i>Infrastructure</i>				
Electrification (share of pop.)	0.47	0.42	0	1
Market integration (cash share)	0.23	0.08	0.11	0.41
<i>Country level variable</i>				
GDP per capita (2010 USD)	2,114	1,404	783	4,433

**Table A5.** Summary statistics for variables included in the regression models. Africa sample (N=4,090)

	Mean	Std. dev	Min	Max
<i>Income</i>				
Total household income (USD PPP)	4,298	16,436	31	852,982
<i>Human capital</i>				
Household size (AEU)	4.41	2.17	1	20
# of male adults (15-65 years)	1.68	1.24	0	9
# of female adults (15-65 years)	1.74	1.31	0	21
# of male elders ((>65 years)	0.24	0.46	0	2
# of female elders ((>65 years)	0.12	0.35	0	3
# of male children (<15 years)	1.62	1.52	0	10
# of female children (<15 years)	1.58	1.47	0	10
Age of hh head (years)	45.48	14.67	14	111
Female headed hh (0-1)	0.13	0.34	0	1
Education hh head (years)	3.96	4.13	0	18
Wage income (0-1)	0.53	0.50	0	1
<i>Physical capital</i>				
Ag. land owned (ha)	4.97	14.21	0	612
Livestock owned (TLU)	4.01	9.88	0	298
hh business (0-1)	0.46	0.50	0	1
<i>Financial capital</i>				
Financial assets (USD PPP)	778	3,734	0	166,666
<i>Social capital</i>				
hh head born in village (0-1)	0.55	0.50	0	1
Largest ethnic group (0-1)	0.66	0.48	0	1
Distance village center (hours walk)	0.41	0.57	0	4
<i>Natural capital</i>				
Distance forest (hours walk)	0.59	0.79	0	5
Precipitation (mm, 1981-2010)	1,170	260	658	2,140
Temperature (C, 1981-2010)	23.39	4.13	13	29
<i>Infrastructure</i>				
Electrification (share of pop.)	0.05	0.17	0	1
Village market integration (cash share)	0.15	0.06	0.03	0.36
<i>Country level variable</i>				
GDP per capita (2010 USD)	739	532	344	2,311

**Table A6.** Summary statistics of incomes: absolute and relative values

	Latin America	South Asia	East Asia	Africa	Global
<i>Absolute income (AEU PPP USD)</i>					
Total	4,850	1,459	1,675	1,015	1,642
Crop	831	373	422	379	438
Livestock	407	230	308	106	195
Environmental income	1,460	218	400	294	436
From forested areas	1,347	179	332	172	337
From non-forested areas	114	39	68	122	99
Plantation	1	34	14	17	17
Household	368	123	200	110	158
Wage	1,394	208	246	68	274
Other	390	273	85	41	124
<i>Income shares<sup>a</sup></i>					
Crop	0.21	0.27	0.28	0.35	0.31
Livestock	0.10	0.13	0.16	0.12	0.13
Environmental income	0.31	0.18	0.26	0.29	0.27
From forested areas	0.28	0.15	0.21	0.19	0.20
From non-forested areas	0.03	0.03	0.05	0.10	0.07
Plantation	0.00	0.02	0.01	0.01	0.01
Household business	0.05	0.05	0.07	0.08	0.07
Wage	0.26	0.20	0.15	0.09	0.14
Other	0.08	0.14	0.06	0.05	0.07
N	848	1,094	1,297	4,090	7,329

<sup>a</sup> Mean shares are calculated by taking the mean of household shares.