SUPPLEMENTAL MATERIAL FOR:

Country-Specific Effects of Climate Variability on Human Migration

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Supplement Table 1. Interactions between climate variability and control variables (incident rate ratios and significance tests).

Specification	Predictor	Effect on migration				
		Kenya	Uganda	Nigeria	Burkina Faso	Senegal
N. Climate X primary sector occupation	Precipitation	1.13	1.39 **	1.38 *	1.23	0.96
	Temperature	0.64 *	2.46 *	0.71	0.29 ***	0.93
	Precip X primary	1.08	0.70 *	0.76	0.62	1.06
	Temp X primary	0.60	0.80	0.43	1.02	1.83
	Primary sector	1.43	1.19	2.20	1.88 *	0.93
O. Climate X years of education	Precipitation	1.10	1.48 **	1.23	0.78	0.93
	Temperature	0.70	4.94 ***	0.23 +	0.30 ***	1.07
	Precip X education	1.01	0.97 *	1.01	1.01	1.00
	Temp X education	0.98	0.90 **	1.12 *	0.97	1.03
	Years of education	1.04	1.16 **	0.93	1.16 *	0.99
	Years of education^2	1.00	1.00 +	1.00	0.99 *	1.00
P. Climate X migrants prior to 2004	Precipitation	1.18	1.12	1.27 +	0.83	0.98
	Temperature	0.48 ***	1.87 +	0.53	0.28 ***	1.03
	Precip X prior	0.95	1.00	1.10 *	0.95	0.93
	Temp X prior	1.91 ***	1.77 ***	1.30 +	1.11	1.21
	Prior migrants	0.63 ***	0.54 ***	0.80 +	1.01	0.91
Q. Climate X rural location	Precipitation	1.23 *	1.14	1.25 +	0.44 ***	1.02
	Temperature	0.59 *	3.02 *	0.73	0.34 *	0.99
	Precip X rural	0.89	0.99	1.13	1.87 *	0.87
	Temp X rural	0.98	0.71	0.68	0.86	1.21
	Rural location	0.99	1.51	1.18	1.16	0.97
R. Climate X historical precip less than country median	Precipitation	1.18	1.07	1.81 ***	0.83	1.21
	Temperature	0.67	2.21 *	1.91	0.31 **	2.09
	Precip X dry area	0.90	1.23	0.69 *	0.90	0.73
	Temp X dry area	0.75	1.29	0.15 +	0.86	0.31 *

Results from negative binomial regressions at the household-year level of the number of departed migrants. Additional
+ p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Supplement Table 2. Full results for Kenya by specification (incident rate ratios and significance tests).

Predictor	A	B	C	D	E	F	G	H	I	J	K	L	M
Climate variables													
CRU anomalies, years 0-1, precipitation	1.15					1.14	1.58 *	1.22 +	0.88	1.09	1.25	1.13	1.15
CRU anomalies, years 0-1, temperature	0.58 **					0.58 **	0.02 ***	0.55 **	0.76	0.53 *	0.63	0.50 **	0.72
CRU raw values, years 0-1, precipitation		1.06	1.16 **										
CRU raw values, years 0-1, temperature		0.93 *	0.91 *										
CRU raw values, years 0-1, precip. timing			1.37 **										
MERRA anomalies, years 0-1, precipitation				0.98									
MERRA anomalies, years 0-1, temperature				0.77 **									
CRU anomalies, years 0-3, precipitation					0.87								
CRU anomalies, years 0-3, temperature					0.21 ***								
CRU anomalies, years 0-1, precip. squared							1.00						
CRU anomalies, years 0-1, temp. squared							11.59 ***						
CRU anomalies, years 0-1, precip. X temp.							0.68						
Controls													
Female	1.24 *	1.24 *	1.24 *	1.24 +	1.24 +	1.24 *	1.24 +	1.28 +	1.07	1.43 *	0.94	1.20	1.25
Age	1.07 ***	1.07 ***	1.07 ***	1.07 ***	1.07 ***	1.07 ***	1.07 ***	1.10 ***	1.01	1.05 *	1.09 **	1.07 **	1.07 +
Age squared	1.00 **	1.00 **	1.00 **	1.00 **	1.00 **	1.00 **	1.00 **	1.00 ***	1.00	1.00	1.00 *	1.00 *	1.00 +
Born in rural area	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.12	0.82	1.05	0.97	0.92	1.12
Years of education	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.04	1.00	1.02	1.02	1.03	1.01
Years of education squared	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Primary sector occupation	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.99	0.81	0.89	0.99	0.83	1.15
Number of children (<15 years old)	1.08 *	1.07 *	1.08 *	1.08 *	1.08 *	1.07 *	1.08 *	1.12 **	0.95	1.08 **	1.10	1.07 **	1.08
Number of adult men	1.56 ***	1.56 ***	1.56 ***	1.56 ***	1.56 ***	1.56 ***	1.56 ***	1.59 ***	1.53 ***	1.91 ***	1.12 +	1.58 ***	1.51 ***
Number of adult women	1.54 ***	1.54 ***	1.54 ***	1.54 ***	1.55 ***	1.55 ***	1.54 ***	1.56 ***	1.56 ***	1.05	2.24 ***	1.43 ***	1.72 ***
Migrants prior to 2004	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.12	0.97	1.01	1.13 *	1.13 *	1.03
Rural location	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.95	0.99	1.00	1.04	1.34 *	0.58 ***
Year	1.37 **	1.42 ***	1.43 ***	1.54 ***	1.52 ***		1.73 ***	1.32 **	1.66 **	1.35 +	1.43 *	1.31 *	1.48 **
Year squared	0.95 *	0.94 **	0.94 **	0.93 ***	0.96 *		0.90 ***	0.96 +	0.92 *	0.96	0.95	0.96	0.94 *

Results from negative binomial regressions at the household-year level of the number of departed migrants. Missing indicators and fixed effects are included but not shown.

+ p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Supplement Table 3. Full results for Uganda by specification (incident rate ratios and significance tests).

Predictor	A	B	C	D	E	F	G	H	I	J	K	L	M
Climate variables													
CRU anomalies, years 0-1, precipitation	1.13					1.28 **	1.12	1.14	1.02	1.04	1.26	0.94	1.38 *
CRU anomalies, years 0-1, temperature	2.23 **					1.15	0.09	2.11 *	2.24	1.69	2.97 *	1.07	4.88 ***
CRU raw values, years 0-1, precipitation		1.07	1.08										
CRU raw values, years 0-1, temperature		1.13 **	1.14 **										
CRU raw values, years 0-1, precip. timing			1.08										
MERRA anomalies, years 0-1, precipitation				1.12									
MERRA anomalies, years 0-1, temperature				1.22 +									
CRU anomalies, years 0-3, precipitation					0.95								
CRU anomalies, years 0-3, temperature					0.90								
CRU anomalies, years 0-1, precip. squared							1.09						
CRU anomalies, years 0-1, temp. squared							5.66						
CRU anomalies, years 0-1, precip. X temp.							0.95						
Controls													
Female	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.10	0.89	1.30 *	0.81 +	1.42 **	0.71 *
Age	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.01	0.94	0.99	1.01	0.99	1.02
Age squared	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Born in rural area	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.96	0.83	1.03	0.69 *	1.12	0.69 +
Years of education	1.04 +	1.04 +	1.04 +	1.04 +	1.04 +	1.04 +	1.04 +	1.07 *	0.98	1.02	1.06	1.04	1.04
Years of education squared	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00 **	1.00 *	1.00	1.00	1.00	1.00
Primary sector occupation	0.95	0.95	0.96	0.95	0.95	0.95	0.95	0.87	1.64	1.04	0.79 +	1.10	0.82
Number of children (<15 years old)	1.11 ***	1.11 ***	1.11 ***	1.11 ***	1.11 ***	1.11 ***	1.11 ***	1.13 ***	0.95	1.09 ***	1.15 ***	1.03	1.19 ***
Number of adult men	1.41 ***	1.41 ***	1.41 ***	1.41 ***	1.41 ***	1.41 ***	1.41 ***	1.40 ***	1.45 ***	1.84 ***	0.95	1.74 ***	1.05
Number of adult women	1.51 ***	1.50 ***	1.51 ***	1.50 ***	1.50 ***	1.51 ***	1.50 ***	1.52 ***	1.39 ***	0.99	2.22 ***	1.33 ***	1.74 ***
Migrants prior to 2004	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.93	0.93	0.98	0.91 +	1.04
Rural location	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.19 +	0.54	1.16	1.29	0.89	1.50 *
Year	1.16	1.17	1.17	1.05	1.03		1.23	1.15	1.18	1.07	1.25	1.08	1.27
Year squared	0.94 *	0.94 *	0.93 *	0.97 +	0.97		0.92 **	0.94 +	0.92 +	0.95 +	0.93	0.97	0.91 **

Results from negative binomial regressions at the household-year level of the number of departed migrants. Missing indicators and fixed effects are included but not shown.
+ p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Supplement Table 4. Full results for Nigeria by specification (incident rate ratios and significance tests).

Predictor	A	B	C	D	E	F	G	H	I	J	K	L	M
Climate variables													
CRU anomalies, years 0-1, precipitation	1.30 +					0.70 ***	0.66	1.29 +	1.53 ***	1.34	1.29	1.37 +	1.29 +
CRU anomalies, years 0-1, temperature	0.58					0.44 *	0.00 *	0.54	1.17	0.64	0.56	0.82	0.46
CRU raw values, years 0-1, precipitation		1.14 *	1.11										
CRU raw values, years 0-1, temperature		0.83	0.79										
CRU raw values, years 0-1, precip. timing			0.63										
MERRA anomalies, years 0-1, precipitation				1.21 *									
MERRA anomalies, years 0-1, temperature				0.40 ***									
CRU anomalies, years 0-3, precipitation					0.25 ***								
CRU anomalies, years 0-3, temperature					0.06 ***								
CRU anomalies, years 0-1, precip. squared							1.10						
CRU anomalies, years 0-1, temp. squared							53.90 *						
CRU anomalies, years 0-1, precip. X temp.							3.61 ***						
Controls													
Female	1.22 **	1.22 **	1.22 **	1.22 **	1.21 **	1.23 **	1.22 **	1.20 *	1.22	1.63 ***	0.71 +	1.57 **	0.99
Age	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.00	1.05 *	1.02	1.06 +	1.03
Age squared	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00 *	1.00	1.00	1.00
Born in rural area	1.13	1.13	1.13	1.13	1.12	1.14	1.13	1.16	1.11	1.13	1.04	1.05	1.18
Years of education	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.98	1.17 ***	1.02	0.99	1.07	0.96
Years of education squared	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.99 **	1.00	1.00	1.00	1.00
Primary sector occupation	1.18	1.18	1.18	1.17	1.18	1.19	1.18	1.15	1.39	1.16	1.32	1.24	1.17
Number of children (<15 years old)	1.08 **	1.08 **	1.08 **	1.08 **	1.08 **	1.08 **	1.08 **	1.09 **	0.98	1.05 *	1.14 **	0.99	1.15 ***
Number of adult men	1.33 ***	1.33 ***	1.32 ***	1.33 ***	1.32 ***	1.33 ***	1.33 ***	1.35 ***	1.22 ***	1.59 ***	0.91 +	1.55 ***	1.16 ***
Number of adult women	1.27 ***	1.27 ***	1.27 ***	1.27 ***	1.27 ***	1.28 ***	1.27 ***	1.27 ***	1.27 ***	0.96	1.86 ***	1.13	1.39 ***
Migrants prior to 2004	0.99	0.99	0.99	0.99	0.99	1.00	0.99	1.01	0.86	0.92	1.10	0.87 *	1.10 +
Rural location	0.95	0.95	0.95	0.96	0.95	0.95	0.95	0.93	0.94	0.95	1.08	1.25	0.82
Year	4.61 ***	4.71 ***	4.92 ***	6.34 ***	3.92 ***		6.10 ***	4.50 ***	7.18 ***	5.55 ***	3.86 ***	5.84 ***	4.54 ***
Year squared	0.77 ***	0.77 ***	0.76 ***	0.75 ***	0.75 ***		0.74 ***	0.77 ***	0.73 ***	0.75 ***	0.78 ***	0.76 ***	0.75 ***

Results from negative binomial regressions at the household-year level of the number of departed migrants. Missing indicators and fixed effects are included but not shown.

+ p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Supplement Table 5. Full results for Burkina Faso by specification (incident rate ratios and significance tests).

Predictor	A	B	C	D	E	F	G	H	I	J	K	L	M
Climate variables													
CRU anomalies, years 0-1, precipitation	0.79					0.60 +	0.79	1.20	0.55 **	0.76	0.96	0.79	0.78
CRU anomalies, years 0-1, temperature	0.29 ***					0.69	0.20	0.49 *	0.19 ***	0.30 ***	0.20 ***	0.31 ***	0.24 **
CRU raw values, years 0-1, precipitation		0.81	0.81										
CRU raw values, years 0-1, temperature		0.74 ***	0.74 ***										
CRU raw values, years 0-1, precip. timing			0.92										
MERRA anomalies, years 0-1, precipitation				0.64 **									
MERRA anomalies, years 0-1, temperature				0.51 ***									
CRU anomalies, years 0-3, precipitation					0.50 +								
CRU anomalies, years 0-3, temperature					0.14 ***								
CRU anomalies, years 0-1, precip. squared							1.24						
CRU anomalies, years 0-1, temp. squared							1.47						
CRU anomalies, years 0-1, precip. X temp.							0.79						
Controls													
Female	1.30	1.30	1.30	1.30	1.31	1.31	1.31	1.38	1.17	1.24	0.69	1.29	0.98
Age	1.06 **	1.06 **	1.06 **	1.06 **	1.06 **	1.06 **	1.06 **	1.05 **	1.08 *	1.05 *	1.25 ***	1.03	1.21 ***
Age squared	1.00 *	1.00 *	1.00 *	1.00 *	1.00 *	1.00 *	1.00 *	1.00 *	1.00 *	1.00 +	1.00 ***	1.00	1.00 ***
Born in rural area	0.62 *	0.62 *	0.62 *	0.62 *	0.62 *	0.63 *	0.62 *	0.44 ***	0.88	0.61 *	0.76	0.61 *	0.66
Years of education	1.14 **	1.14 **	1.14 ***	1.14 **	1.14 ***	1.14 **	1.14 **	1.15 ***	1.15 *	1.17 ***	1.02	1.17 **	1.10 *
Years of education squared	0.99 *	0.99 *	0.99 *	0.99 *	0.99 *	0.99 *	0.99 *	0.99 *	0.98 +	0.98 **	1.01	0.98 *	1.00
Primary sector occupation	1.50	1.50	1.50	1.50	1.50	1.48	1.49	1.25	1.63	1.39	2.30	1.47	1.53
Number of children (<15 years old)	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.00	1.06 +	1.05	1.01	1.03	1.07 *
Number of adult men	1.54 ***	1.54 ***	1.54 ***	1.54 ***	1.54 ***	1.54 ***	1.54 ***	1.38 ***	1.68 ***	1.60 ***	0.95	1.61 ***	1.21 *
Number of adult women	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.04	0.99	0.94	1.54 ***	0.98	1.12
Migrants prior to 2004	1.07 *	1.07 *	1.07 *	1.08 *	1.07 *	1.07 *	1.07 *	0.96	1.13 ***	1.06 *	1.19	1.08 **	1.05
Rural location	1.28	1.28	1.28	1.29	1.29	1.29	1.29	0.91	1.95 **	1.29	1.69	1.22	1.97
Year	3.34 ***	3.23 ***	3.22 ***	4.19 ***	4.34 ***		3.53 ***	3.20 ***	3.32 ***	3.27 ***	3.99 **	3.47 ***	2.86 ***
Year squared	0.84 ***	0.84 ***	0.84 ***	0.82 ***	0.78 ***		0.83 ***	0.84 ***	0.85 ***	0.84 ***	0.83 *	0.83 ***	0.86 **

Results from negative binomial regressions at the household-year level of the number of departed migrants. Missing indicators and fixed effects are included but not shown.
+ p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Supplement Table 6. Full results for Senegal by specification (incident rate ratios and significance tests).

Predictor	A	B	C	D	E	F	G	H	I	J	K	L	M
Climate variables													
CRU anomalies, years 0-1, precipitation	0.95					1.10	1.14	0.84	1.05	1.02	0.74 +	0.94	0.97
CRU anomalies, years 0-1, temperature	1.14					1.46	5.74	0.86	1.81	1.14	1.20	1.12	1.18
CRU raw values, years 0-1, precipitation		0.99	1.03										
CRU raw values, years 0-1, temperature		1.01	1.01										
CRU raw values, years 0-1, precip. timing			0.57 +										
MERRA anomalies, years 0-1, precipitation				0.91									
MERRA anomalies, years 0-1, temperature				1.00									
CRU anomalies, years 0-3, precipitation					1.35								
CRU anomalies, years 0-3, temperature					1.75								
CRU anomalies, years 0-1, precip. squared							0.93						
CRU anomalies, years 0-1, temp. squared							0.33 +						
CRU anomalies, years 0-1, precip. X temp.							0.93						
Controls													
Female	1.34 +	1.34 +	1.34 +	1.34 +	1.34 +	1.34 +	1.34 +	1.52 +	1.11	1.24	0.89	1.20	1.28
Age	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.06	0.97	0.99	1.12	0.98	1.08
Age squared	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Born in rural area	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.63 +	0.86	1.13	1.00	1.09	1.22
Years of education	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.00	0.95	1.04	0.98
Years of education squared	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.01	1.00	1.01
Primary sector occupation	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.76	1.00	1.24	2.26	1.39	1.39
Number of children (<15 years old)	0.96 *	0.96 *	0.96 *	0.96 *	0.96 *	0.96 *	0.96 *	0.94 ***	1.00	0.98	0.91 +	0.96 +	1.00
Number of adult men	1.30 ***	1.30 ***	1.30 ***	1.30 ***	1.30 ***	1.30 ***	1.30 ***	1.35 ***	1.23 ***	1.46 ***	0.76 +	1.42 ***	0.97
Number of adult women	1.17 ***	1.17 ***	1.17 ***	1.17 ***	1.17 ***	1.17 ***	1.17 ***	1.18 ***	1.15 **	1.02	1.87 ***	1.11 **	1.38 ***
Migrants prior to 2004	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.03	0.99	0.92	1.25 **	0.91	1.23 **
Rural location	1.02	1.02	1.02	1.03	1.03	1.02	1.02	0.92	1.19	1.12	0.95	1.22	0.58
Year	1.45 +	1.48 +	1.46 +	1.48 *	1.31		1.36	1.78 *	1.05	1.45	1.43	1.50	1.32
Year squared	0.92 *	0.92 *	0.92 *	0.92 **	0.95		0.93 +	0.88 **	0.99	0.92 *	0.91	0.91 *	0.93

Results from negative binomial regressions at the household-year level of the number of departed migrants. Missing indicators and fixed effects are included but not shown.
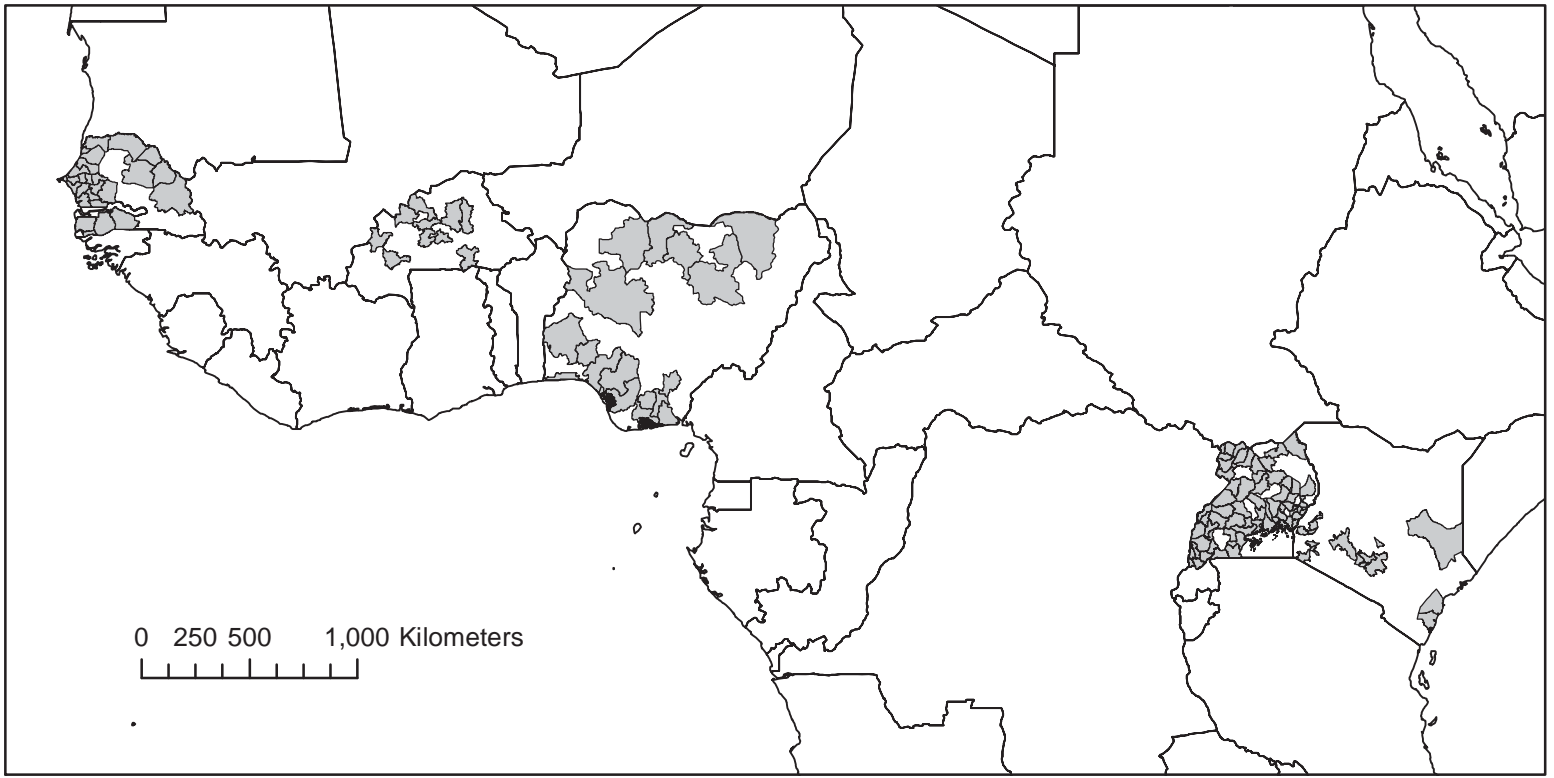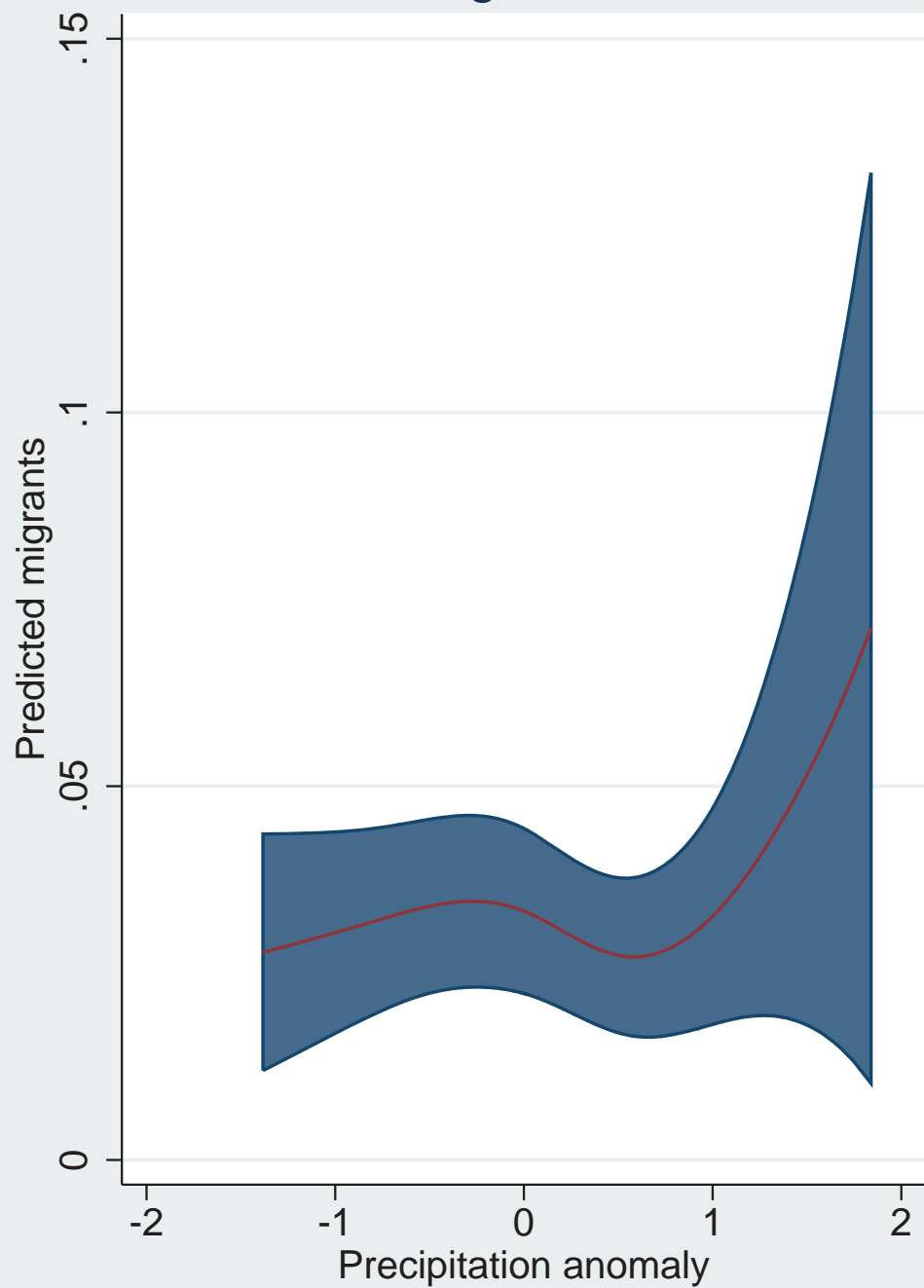+ p<0.10, * p<0.05, ** p<0.01, *** p<0.001

FIGURE LEGENDS

Supplement Figure 1. Map of the sample areas.

Supplement Figure 2. Nonlinear effects of precipitation on migration.