



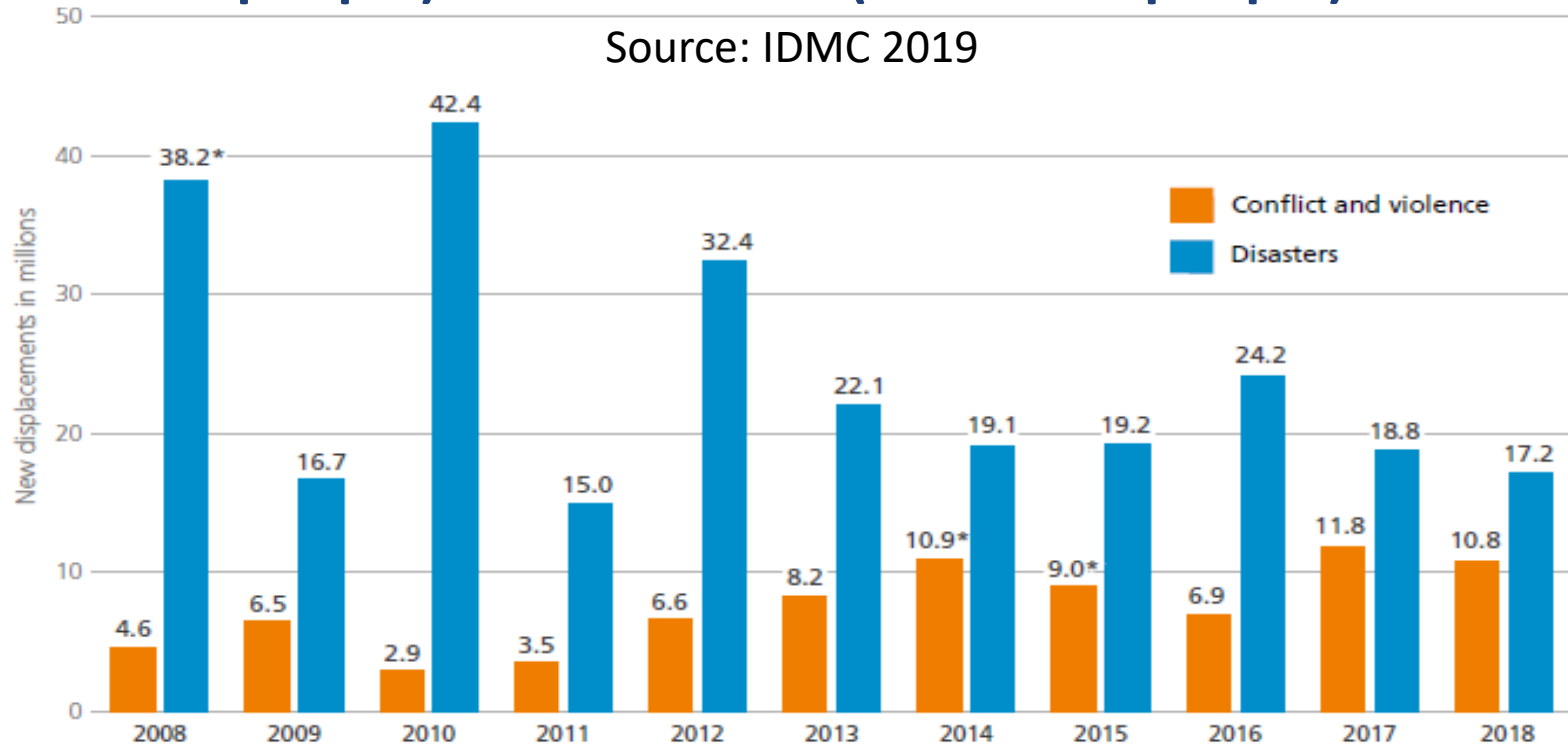
Environmental change and migration aspirations: Evidence from Bangladesh

Vally Koubi (with Jan Freihardt and Lukas Rudolph)

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Motivation

New displacements associated with disasters (265 million people) versus conflict (81 million people)



- No shortage of academic, political and media interest in the climate change-migration nexus

Motivation and puzzle

GROUNDWELL



- No consensus on the effects of the environment on migration
- Shortage of analysis on how exactly environmental (including climatic) changes lead to migration

Objective and Contributions

- Examine the impact of self-reported (perceptions of) environmental stress on people's *migration aspirations*
 - *Migration aspirations*: the “conviction that migration is preferable to non-migration” (Carling & Schewel, 2018)
 - *Environmental changes*: “as urgencies to escape danger”
- Limited research on environmental aspirations
- Stricter measures for migration aspirations
- Duration and destination of migration aspirations
- Individual perceptions of environmental/climatic events rather than actual meteorological data
- Different types of environmental/climate events

Main findings

- Long-term environmental events, i.e., riverbank erosion, increase aspirations for internal, permanent migration
- Short-term environmental events, i.e., floods, do not affect migration aspirations

Climate events and migration aspirations

- Climate change manifests itself in different forms

sudden-onset/short-term



gradual onset/long-term



- Exposure to such climate events affect whether individuals aspire to migrate or not

Theoretical Argument



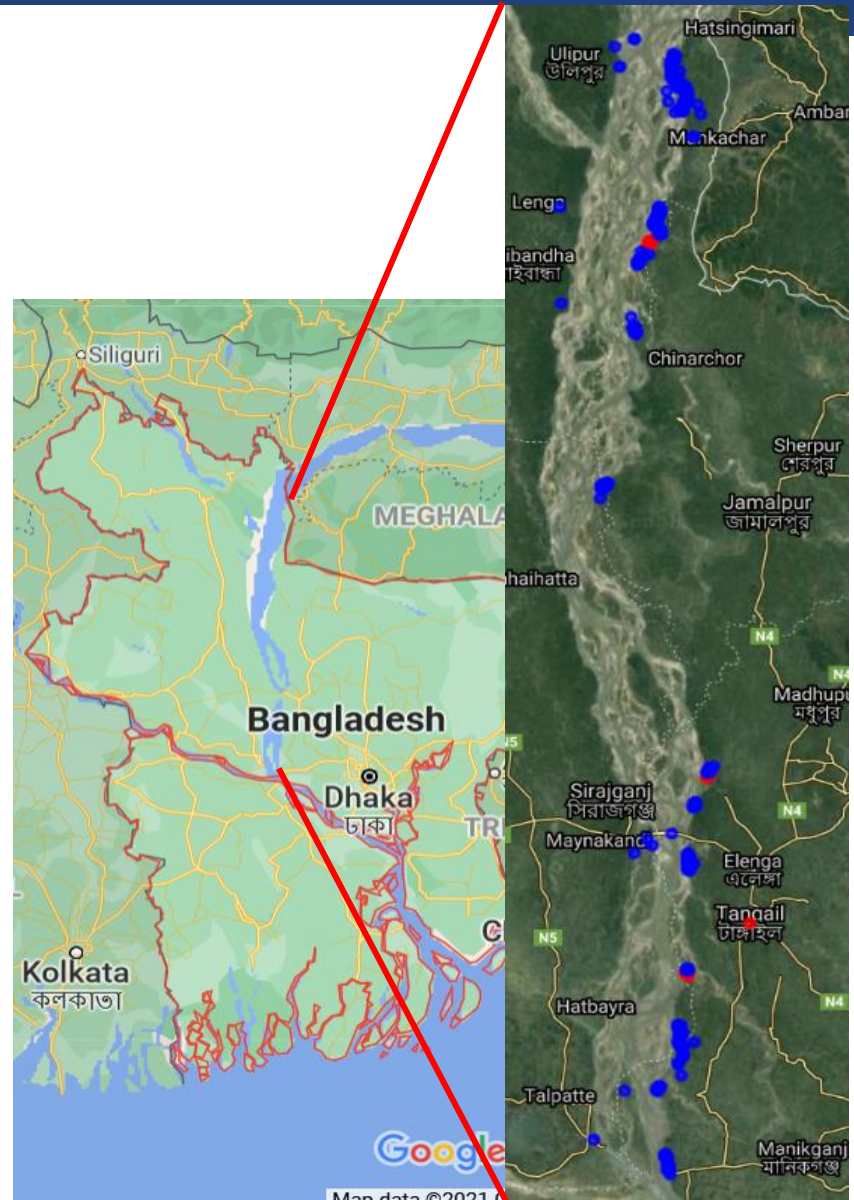
*Temporary moves
due to reversible
nature of the impact*



*Permanent
moves
due to
irreversible
nature of the
impact*

Research Design

- Data: new individual level survey of household heads (N=1,594) in 36 villages along the 250 kilometers of the Jamuna River in Bangladesh
- Environmental events: floods and riverbank erosion
- Post-monsoon survey: January-February 2022
- Pre-survey: pre-monsoon, May-June 2021



Research Design

- Dependent variables:
 - *Current/Past Aspiration to move* (Yes, No)
 - *Duration* (permanent vs temporary)
 - *Destination* (rural vs urban)

- Independent variables (Treatment):
 - *Flood/Erosion affectedness* (Yes, No)
 - *Severity of affectedness* (scale of 4: strong to none)

- Controls:
 - Age, sex, education, number of dependent children, occupation, place attachment, past migration aspirations and past migration history

- Linear probability (logistic regressions) and multinomial models

Estimation strategy and causal identification

- Causal inference is empirically challenging:
 1. Sampling bias: migration aspirations for *in-situ* respondents in post-monsoon survey (January 2022) neglects ‘realized exposure-induced migration aspirations leading to a downward bias
 - = impute migration aspirations for migrating respondents
 2. Post-treatment indicators: any control for mediators (e.g., wealth) and/or colliders (e.g., place attachment) introduces bias
 - = use pre-treatment measures of the control variables from the pre-monsoon survey, i.e., June 2022.
 3. Endogeneity: risk exposure to environmental stress and migration aspirations are likely endogenous
 - = employ the quasi-random exposure to erosion and flood within a sample of households at risk of these events in combination with entropy balancing weights

Past Migration aspirations and erosion/flood affectedness (OLS models)

	(1)	(2)	(3)	(4)	(5)	(6)
	Aspiration (past month)	Aspiration (past month)	Aspiration (past month)	Aspiration (past month)	Aspiration (past month)	Aspiration (past month)
Erosion affected	0.22*** (0.04)	0.16*** (0.05)		0.18*** (0.04)	0.16*** (0.04)	
Flood affected	-0.01 (0.02)		-0.01 (0.03)	-0.02 (0.02)		-0.01 (0.02)
Controls	No	No	No	Yes	Yes	Yes
N	1585	1271	1271	1271	1271	1271
Adj. R2	0.06	0.03	0.05	0.18	0.22	0.22
Mean erosion control group	0.13	0.19	0.26	0.13	0.19	0.26
SD erosion control group	0.34	0.39	0.44	0.34	0.39	0.44
Weights	No	Erosion	Flood	No	Erosion	Flood

Sample: HH that did and did not move within 6 months, i.e., recoding temporary and permanent migrants as having (realized) past/present aspirations. Entropy balancing weights and control variables used as indicated Standard errors clustered by village. ** (***, *) indicates $p < 0.05$ (0.01, 0.10).

Current migration aspirations and erosion/flood affectedness (OLS models)

	(1)	(2)	(3)	(4)	(5)	(6)
	Aspiration (now)	Aspiration (now)	Aspiration (now)	Aspiration (now)	Aspiration (now)	Aspiration (now)
Erosion affected	0.18*** (0.04)	0.12** (0.05)		0.12*** (0.04)	0.12*** (0.04)	
Flood affected	0.00 (0.02)		0.00 (0.03)	-0.00 (0.02)		0.00 (0.02)
Controls	No	No	No	Yes	Yes	Yes
N	1584	1270	1270	1270	1270	1270
Adj. R2	0.05	0.02	0.04	0.22	0.25	0.29
Mean erosion control group	0.11	0.18	0.22	0.11	0.18	0.22
SD erosion control group	0.32	0.38	0.41	0.32	0.38	0.41
Weights	No	Erosion	Flood	No	Erosion	Flood

Sample: HH that did and did not move within 6 months, i.e., recoding temporary and permanent migrants as having (realized) past/present aspirations. Entropy balancing weights and control variables used as indicated. Standard errors clustered by village. ** (***, *) indicates $p < 0.05$ (0.01, 0.001).

Last month's migration aspirations and erosion/flood affectedness by impact category (OLS models)

	(1)	(2)	(3)	(4)	(5)	(6)
	Aspiration (past)	Aspiration (past)	Aspiration (past)	Aspiration (past)	Aspiration (past)	Aspiration (past)
Erosion: strong	0.25*** (0.06)	0.21*** (0.08)		0.21*** (0.06)	0.18** (0.07)	
Erosion: some	0.19*** (0.04)	0.13*** (0.04)		0.17*** (0.04)	0.17*** (0.04)	
Erosion: other	0.15** (0.07)	0.11 (0.08)		0.05 (0.07)	0.04 (0.07)	
Erosion: none	(ref) (.)	(ref) (.)		(ref) (.)	(ref) (.)	
Flood: strong	0.02 (0.05)		0.04 (0.06)	-0.05 (0.04)		-0.05 (0.04)
Flood: some	0.01 (0.02)		-0.00 (0.04)	0.00 (0.02)		0.01 (0.03)
Flood: other	-0.08** (0.03)		-0.09** (0.04)	-0.06* (0.03)		-0.05 (0.04)
Flood: none	(ref) (.)		(ref) (.)	(ref) (.)		(ref) (.)
Flood affect		0.02 (0.03)			-0.00 (0.03)	
Erosion aff			0.20*** (0.05)			0.15*** (0.04)
Controls	No	No	No	Yes	Yes	Yes
N	1585	1271	1271	1271	1271	1271
Adj. R2	0.06	0.03	0.06	0.18	0.22	0.22
Mean erosion control group	0.13	0.19	0.26	0.13	0.19	0.26
SD erosion control group	0.34	0.39	0.44	0.34	0.39	0.44
Weights	No	Erosion	Flood	No	Erosion	Flood

Current migration aspirations and erosion/flood affectedness by impact category (OLS models)

	(1)	(2)	(3)	(4)	(5)	(6)
	Aspiration (now)	Aspiration (now)	Aspiration (now)	Aspiration (now)	Aspiration (now)	Aspiration (now)
Erosion: strong	0.24*** (0.06)	0.20** (0.08)		0.19*** (0.06)	0.16** (0.08)	
Erosion: some	0.12*** (0.03)	0.07 (0.04)		0.10*** (0.03)	0.11*** (0.03)	
Erosion: other	0.15* (0.07)	0.06 (0.08)		0.00 (0.07)	-0.00 (0.07)	
Erosion: none	(ref) (.)	(ref) (.)		(ref) (.)	(ref) (.)	
Flood: strong	0.06 (0.06)		0.09 (0.06)	-0.01 (0.05)		-0.01 (0.05)
Flood: some	0.01 (0.02)		-0.00 (0.04)	0.01 (0.02)		0.00 (0.03)
Flood: other	-0.05** (0.02)		-0.07** (0.03)	-0.03 (0.02)		-0.03 (0.03)
Flood: none	(ref) (.)		(ref) (.)	(ref) (.)		(ref) (.)
Flood affec		0.02 (0.03)			-0.01 (0.02)	
Erosion aff			0.15*** (0.05)			0.10*** (0.03)
Controls	No	No	No	Yes	Yes	Yes
N	1584	1270	1270	1270	1270	1270
Adj. R2	0.05	0.02	0.04	0.22	0.26	0.29
Mean erosion control group	0.11	0.18	0.22	0.11	0.18	0.22
SD erosion control group	0.32	0.38	0.41	0.32	0.38	0.41
Weights	No	Erosion	Flood	No	Erosion	Flood

Destination of migration aspirations among those reporting these aspirations (multinomial logit models)

	(1)	(2)	(3)	(4)	(5)	(6)
	asp_destin.	asp_destin.	asp_destin.	asp_destin.	asp_destin.	asp_destin.
stay						
Erosion affected	(ref)	(ref)		(ref)	(ref)	
	(.)	(.)		(.)	(.)	
Flood affected	(ref)		(ref)	(ref)		(ref)
	(.)		(.)	(.)		(.)
rural						
Erosion affected	1.21***	0.95***		1.05***	1.12***	
	(0.17)	(0.24)		(0.20)	(0.21)	
Flood affected	0.00		0.08	-0.04		0.09
	(0.14)		(0.17)	(0.14)		(0.15)
urban						
Erosion affected	0.86***	0.15		0.45	0.35	
	(0.29)	(0.38)		(0.36)	(0.40)	
Flood affected	-0.07		-0.25	0.06		-0.06
	(0.21)		(0.44)	(0.29)		(0.35)
Controls	No	No	No	Yes	Yes	Yes
N	1566	1256	1256	1256	1256	1256
Pseudo R2	0.04	0.02	0.03	0.18	0.22	0.23
Mean erosion control	0.20	0.30	0.36	0.20	0.30	0.36
SD erosion control	0.49	0.60	0.61	0.49	0.60	0.61
Weights	No	Erosion	Flood	No	Erosion	Flood

Sample: HH that did and did not move within 6 months, i.e., recoding temporary and permanent migrants as having (realized) past/present aspirations. Entropy balancing weights and control variables used as indicated. Standard errors clustered by village. ** (***, *) indicates $p < 0.05$ (0.01, 0.10).

Duration of migration aspirations among those reporting these aspirations (multinomial logit models)

	(1)	(2)	(3)	(4)	(5)	(6)
	asp_durat.	asp_durat.	asp_durat.	asp_durat.	asp_durat.	asp_durat.
stay						
Erosion affected	(ref)	(ref)		(ref)	(ref)	
	(.)	(.)		(.)	(.)	
Flood affected	(ref)		(ref)	(ref)		(ref)
	(.)		(.)	(.)		(.)
temporary						
Erosion affected	1.25***	0.87***		1.00***	1.12***	
	(0.26)	(0.30)		(0.34)	(0.34)	
Flood affected	0.00		0.05	-0.15		0.05
	(0.21)		(0.40)	(0.24)		(0.26)
permanent						
Erosion affected	1.08***	0.72**		0.88***	0.90***	
	(0.19)	(0.31)		(0.25)	(0.30)	
Flood affected	-0.05		-0.01	-0.01		0.03
	(0.16)		(0.17)	(0.17)		(0.16)
Controls	No	No	No	Yes	Yes	Yes
N	1566	1257	1257	1257	1257	1257
Pseudo R2	0.04	0.02	0.03	0.22	0.26	0.27
Mean erosion control group	0.28	0.38	0.48	0.28	0.38	0.48
SD erosion control group	0.66	0.74	0.80	0.66	0.74	0.80
Weights	No	Erosion	Flood	No	Erosion	Flood

Sample: HH that did and did not move within 6 months, i.e., recoding temporary and permanent migrants as having (realized) past/present aspirations. Entropy balancing weights and control variables used as indicated.

Standard errors clustered by village. ** (***, *) indicates $p < 0.05$ (0.01, 0.10).

Robustness checks

- Results robust to
 - use of logit models
 - exclusion of households that moved – i.e., all households which migrated permanently, temporarily, and even those that shifted their household location within the village since their aspirations have already materialized
 - exclusion of shifting-house aspirations
 - control for village level affectedness

Results and future research

- Slow-onset events, i.e., riverbank erosion affect aspirations (around 16 to 22 percentage points increase compared to the control group without experience and the effects are substantively similar for strong as compared to rather light affectedness of households).
- Sudden-onset events, i.e., floods show no strong effect on migration aspirations *on average*
- No aspirations for international migration
- Erosion affectedness increases aspirations to move both temporarily and permanently, and predominantly to rural rather than to urban areas
- Where do we go from here: Link migration aspirations to intentions to move (preparations) and actual migration behavior

Thank you for your attention!

koubi@ir.gess.ethz.ch

koubi@vwi.unibe.ch

Table A.1: Logit models for past migration aspirations, full sample

	(1)	(2)	(3)	(4)	(5)	(6)
	Aspiration (past month)	Aspiration (past month)	Aspiration (past month)	Aspiration (past month)	Aspiration (past month)	Aspiration (past month)
Erosion affected	1.28***	0.84***	1.13***	1.12***	1.08***	1.03***
	(0.17)	(0.25)	(0.22)	(0.21)	(0.24)	(0.24)
Flood affected	-0.06	0.11	-0.05	-0.08	-0.02	-0.02
	(0.13)	(0.16)	(0.18)	(0.13)	(0.17)	(0.16)
Controls	No	No	No	Yes	Yes	Yes
N	1585	1271	1271	1271	1271	1271
r2_p	0.06	0.03	0.05	0.19	0.22	0.22
control_mean	0.13	0.19	0.26	0.13	0.19	0.26
control_sd	0.34	0.39	0.44	0.34	0.39	0.44
Weights_erosion	No	Yes	No	No	Yes	No
Weights_flood	No	No	Yes	No	No	Yes

Sample: HH that did and did not move within 6 months, i.e., recoding temporary and permanent migrants as having (realized) past/present aspirations. Entropy balancing weights and control variables used as indicated.

Standard errors clustered by village. ***, **, * indicate $p < 0.01$, 0.05 , 0.10 .

Table A.2: Logit models for present migration aspirations, full sample

	(1)	(2)	(3)	(4)	(5)	(6)
	Aspiration (now)	Aspiration (now)	Aspiration (now)	Aspiration (now)	Aspiration (now)	Aspiration (now)
Erosion affected	1.17***	0.66**	1.00***	0.86***	0.84***	0.74***
	(0.19)	(0.28)	(0.24)	(0.25)	(0.29)	(0.26)
Flood affected	0.02	0.12	0.00	0.02	-0.04	0.06
	(0.14)	(0.19)	(0.21)	(0.16)	(0.19)	(0.19)
Controls	No	No	No	Yes	Yes	Yes
N	1584	1270	1270	1270	1270	1270
r2_p	0.05	0.02	0.04	0.24	0.26	0.30
control_mean	0.11	0.18	0.22	0.11	0.18	0.22
control_sd	0.32	0.38	0.41	0.32	0.38	0.41
Weights_erosion	No	Yes	No	No	Yes	No
Weights_flood	No	No	Yes	No	No	Yes

Sample: HH that did and did not move within 6 months, i.e., recoding temporary and permanent migrants as having (realized) past/present aspirations. Entropy balancing weights and control variables used as indicated. Standard errors clustered by village. ***, **, * indicate $p < 0.01, 0.05, 0.10$.

A.3: Logit models for past migration aspirations, full sample, by impact extent

	(1)	(2)	(3)	(4)	(5)	(6)
	Aspiration (past month)	Aspiration (past month)	Aspiration (past month)	Aspiration (past month)	Aspiration (past month)	Aspiration (past month)
Aspiration (past month)						
strong impact	1.40*** (0.28)	1.03*** (0.36)		1.27*** (0.32)	1.13*** (0.41)	
some impact	1.14*** (0.18)	0.71*** (0.23)		1.12*** (0.24)	1.15*** (0.23)	
other impact	0.94*** (0.33)	0.58 (0.37)		0.38 (0.37)	0.37 (0.39)	
missing	0.00 (.)	0.00 (.)		0.00 (.)	0.00 (.)	
strong impact	0.08 (0.27)		0.20 (0.28)	-0.30 (0.23)		-0.33 (0.22)
some impact	0.05 (0.15)		-0.00 (0.20)	0.05 (0.14)		0.08 (0.17)
other impact	-0.63* (0.33)		-0.67* (0.35)	-0.48 (0.31)		-0.41 (0.34)
missing	0.00 (.)		0.00 (.)	0.00 (.)		0.00 (.)
Flood affected		0.11 (0.16)			0.01 (0.17)	
Erosion affected			1.09*** (0.23)			1.02*** (0.24)
Controls	No	No	No	Yes	Yes	Yes
N	1585	1271	1271	1271	1271	1271
r2_a						
control_mean	0.13	0.19	0.26	0.13	0.19	0.26
control_sd	0.34	0.39	0.44	0.34	0.39	0.44
Weights_erosion	No	Yes	No	No	Yes	No
Weights_flood	No	No	Yes	No	No	Yes

Table A.4: Logit models for present migration aspirations, full sample, by impact extent

	(1) Aspiration (now)	(2) Aspiration (now)	(3) Aspiration (now)	(4) Aspiration (now)	(5) Aspiration (now)	(6) Aspiration (now)
Aspiration (now)						
strong impact	1.42*** (0.31)	1.01** (0.39)		1.25*** (0.39)	1.08** (0.47)	
some impact	0.88*** (0.19)	0.39 (0.24)		0.74*** (0.25)	0.78*** (0.25)	
other impact	0.99*** (0.38)	0.38 (0.47)		0.05 (0.49)	0.06 (0.53)	
missing	0.00 (.)	0.00 (.)		0.00 (.)	0.00 (.)	
strong impact	0.31 (0.30)		0.47 (0.30)	-0.11 (0.35)		-0.12 (0.32)
some impact	0.08 (0.17)		-0.01 (0.24)	0.10 (0.18)		0.10 (0.22)
other impact	-0.42* (0.21)		-0.59** (0.26)	-0.21 (0.24)		-0.22 (0.27)
missing	0.00 (.)		0.00 (.)	0.00 (.)		0.00 (.)
Flood affected		0.13 (0.19)			0.01 (0.17)	
Erosion affected			0.95*** (0.24)			0.74*** (0.25)
Controls	No	No	No	Yes	Yes	Yes
N	1584	1270	1270	1270	1270	1270
r2_a						
control_mean	0.11	0.18	0.22	0.11	0.18	0.22
control_sd	0.32	0.38	0.41	0.32	0.38	0.41
Weights_erosion	No	Yes	No	No	Yes	No
Weights_flood	No	No	Yes	No	No	Yes

Table A.5: OLS models for present migration aspirations, reduced sample- excluding migrants

	(1)	(2)	(3)	(4)	(5)	(6)
	Aspiration (now)	Aspiration (now)	Aspiration (now)	Aspiration (now)	Aspiration (now)	Aspiration (now)
Erosion affected	0.04*	0.02	0.02	0.02	0.02	0.02
	(0.02)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Flood affected	0.02	0.04	0.03	0.02	0.02	0.03
	(0.02)	(0.03)	(0.03)	(0.02)	(0.03)	(0.03)
Controls	No	No	No	Yes	Yes	Yes
N	1309	1040	1040	1040	1040	1040
r2_a	0.01	0.00	0.00	0.02	0.05	0.03
control_mean	0.08	0.10	0.08	0.08	0.10	0.08
control_sd	0.27	0.30	0.27	0.27	0.30	0.27
Weights_erosion	No	Yes	No	No	Yes	No
Weights_flood	No	No	Yes	No	No	Yes

Sample: HH that did not move within 6 months, i.e., excluding temporary and permanent migrants, as well as households that 'shifted' within village. Entropy balancing weights and control variables used as indicated. Standard errors clustered by village. ***, **, * indicate $p < 0.01, 0.05, 0.10$.

Table A.6: OLS models for past migration aspirations, reduced sample – excluding migrants

	(1)	(2)	(3)	(4)	(5)	(6)
	Aspiration (past month)	Aspiration (past month)	Aspiration (past month)	Aspiration (past month)	Aspiration (past month)	Aspiration (past month)
Erosion affected	0.12***	0.11***	0.09**	0.11***	0.11***	0.09**
	(0.03)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Flood affected	0.01	0.05	0.04	0.01	0.03	0.04
	(0.02)	(0.03)	(0.03)	(0.02)	(0.03)	(0.03)
Controls	No	No	No	Yes	Yes	Yes
N	1308	1039	1039	1039	1039	1039
r2_a	0.03	0.02	0.02	0.04	0.07	0.04
control_mean	0.10	0.11	0.12	0.10	0.11	0.12
control_sd	0.30	0.31	0.32	0.30	0.31	0.32
Weights_erosion	No	Yes	No	No	Yes	No
Weights_flood	No	No	Yes	No	No	Yes

Sample: HH that did not move within 6 months, i.e., excluding temporary and permanent migrants, as well as households that 'shifted' within village. Entropy balancing weights and control variables used as indicated. Standard errors clustered by village. ***, **, * indicate $p < 0.01, 0.05, 0.10$.

Table A.7: OLS models for present migration aspirations, reduced sample - excluding migrants, by impact extent

	(1)	(2)	(3)	(4)	(5)	(6)
	Aspiration (now)	Aspiration (now)	Aspiration (now)	Aspiration (now)	Aspiration (now)	Aspiration (now)
strong impact	0.06 (0.05)	0.04 (0.06)		0.03 (0.06)	0.03 (0.05)	
some impact	0.02 (0.02)	0.01 (0.03)		0.01 (0.03)	0.01 (0.03)	
other impact	0.10 (0.06)	0.04 (0.08)		0.01 (0.07)	0.02 (0.07)	
missing	0.00 (.)	0.00 (.)		0.00 (.)	0.00 (.)	
strong impact	0.04 (0.05)		0.07 (0.07)	0.04 (0.06)		0.04 (0.06)
some impact	0.03 (0.02)		0.03 (0.03)	0.03 (0.02)		0.03 (0.03)
other impact	-0.01 (0.02)		-0.02 (0.03)	-0.01 (0.02)		-0.01 (0.03)
missing	0.00 (.)		0.00 (.)	0.00 (.)		0.00 (.)
Flood affected		0.04 (0.03)			0.02 (0.03)	
Erosion affected			0.01 (0.03)			0.01 (0.03)
Controls	No	No	No	Yes	Yes	Yes
N	1309	1040	1040	1040	1040	1040
r2_a	0.01	0.00	0.00	0.02	0.05	0.03
control_mean	0.08	0.10	0.08	0.08	0.10	0.08
control_sd	0.27	0.30	0.27	0.27	0.30	0.27
Weights_flood	No	No	Yes	No	No	Yes
Weights_erosion	No	Yes	No	No	Yes	No

Table A.8: OLS models for past migration aspirations, reduced sample - excluding migrants, by impact extent

	(1)	(2)	(3)	(4)	(5)	(6)
	Aspiration (past month)	Aspiration (past month)	Aspiration (past month)	Aspiration (past month)	Aspiration (past month)	Aspiration (past month)
strong impact	0.17*** (0.06)	0.16*** (0.06)		0.15*** (0.05)	0.15** (0.06)	
some impact	0.11*** (0.03)	0.10** (0.04)		0.10** (0.04)	0.11** (0.04)	
other impact	0.11* (0.06)	0.11 (0.08)		0.07 (0.06)	0.09 (0.06)	
missing	0.00 (.)	0.00 (.)		0.00 (.)	0.00 (.)	
strong impact	0.00 (0.04)		0.05 (0.04)	0.00 (0.05)		0.04 (0.06)
some impact	0.03 (0.02)		0.06* (0.03)	0.03 (0.02)		0.06** (0.03)
other impact	-0.04 (0.04)		-0.02 (0.04)	-0.04 (0.03)		-0.01 (0.04)
missing	0.00 (.)		0.00 (.)	0.00 (.)		0.00 (.)
Flood affected		0.05 (0.03)			0.03 (0.03)	
Erosion affected			0.08** (0.04)			0.08** (0.04)
Controls	No	No	No	Yes	Yes	Yes
N	1308	1039	1039	1039	1039	1039
r2_a	0.03	0.02	0.02	0.04	0.07	0.04
control_mean	0.10	0.11	0.12	0.10	0.11	0.12
control_sd	0.30	0.31	0.32	0.30	0.31	0.32
Weights_flood	No	No	Yes	No	No	Yes
Weights_erosion	No	Yes	No	No	Yes	No

Table A.9: Multinomial logit for destination, reduced sample - excluding migrants

	(1)	(2)	(3)	(4)	(5)	(6)
	asp_destination	asp_destination	asp_destination	asp_destination	asp_destination	asp_destination
stay						
Erosion affected	0.00	0.00	0.00	0.00	0.00	0.00
	(.)	(.)	(.)	(.)	(.)	(.)
Flood affected	0.00	0.00	0.00	0.00	0.00	0.00
	(.)	(.)	(.)	(.)	(.)	(.)
rural						
Erosion affected	0.78***	0.67**	0.61**	0.75***	0.81***	0.67**
	(0.19)	(0.27)	(0.25)	(0.27)	(0.27)	(0.27)
Flood affected	0.15	0.35	0.26	0.14	0.18	0.28
	(0.17)	(0.26)	(0.22)	(0.16)	(0.22)	(0.21)
urban						
Erosion affected	0.43	0.36	-0.04	0.23	0.40	-0.03
	(0.30)	(0.36)	(0.37)	(0.41)	(0.49)	(0.46)
Flood affected	-0.06	0.46	0.20	0.11	0.59	0.32
	(0.36)	(0.54)	(0.43)	(0.50)	(0.65)	(0.46)
Controls	No	No	No	Yes	Yes	Yes
N	1293	1027	1027	1027	1027	1027
r2_p	0.02	0.02	0.01	0.11	0.14	0.11
control_mean	0.15	0.16	0.17	0.15	0.16	0.17
control_sd	0.42	0.43	0.43	0.42	0.43	0.43
Weights_erosion	No	Yes	No	No	Yes	No
Weights_flood	No	No	Yes	No	No	Yes

Table A.10: Multinomial logit for duration, reduced sample –excluding migrants

	(1)	(2)	(3)	(4)	(5)	(6)
	asp_duration	asp_duration	asp_duration	asp_duration	asp_duration	asp_duration
stay						
Erosion affected	0.00	0.00	0.00	0.00	0.00	0.00
	(.)	(.)	(.)	(.)	(.)	(.)
Flood affected	0.00	0.00	0.00	0.00	0.00	0.00
	(.)	(.)	(.)	(.)	(.)	(.)
temporary						
Erosion affected	1.21***	1.59**	0.89	1.39**	1.91***	0.92
	(0.47)	(0.66)	(0.56)	(0.56)	(0.72)	(.)
Flood affected	0.22	1.03***	0.81**	0.33	1.17*	0.84
	(0.34)	(0.39)	(0.32)	(0.36)	(0.63)	(.)
permanent						
Erosion affected	0.63***	0.50*	0.44*	0.57**	0.59**	0.52
	(0.18)	(0.26)	(0.27)	(0.28)	(0.26)	(.)
Flood affected	0.09	0.30	0.18	0.11	0.10	0.20
	(0.19)	(0.30)	(0.26)	(0.19)	(0.23)	(.)
Controls	No	No	No	Yes	Yes	Yes
N	1294	1029	1029	1029	1029	1029
r2_p	0.02	0.03	0.01	0.12	0.19	0.13
control_mean	0.24	0.26	0.28	0.24	0.26	0.28
control_sd	0.64	0.66	0.69	0.64	0.66	0.69
Weights_erosion	No	Yes	No	No	Yes	No
Weights_flood	No	No	Yes	No	No	Yes

Table A.11: OLS models for present migration aspirations, full sample, controlling for village level affectedness

	(1) Aspiration (now)	(2) Aspiration (now)	(3) Aspiration (now)	(4) Aspiration (now)
Erosion affected	0.11*** (0.03)	0.05 (0.03)	0.11*** (0.03)	0.05* (0.03)
Flood affected	-0.00 (0.02)	-0.00 (0.02)	-0.00 (0.02)	-0.00 (0.02)
Erosion: HH affected in %	0.26** (0.09)	0.34*** (0.09)		
Flood: HH affected in %	-0.04 (0.09)	-0.17 (0.11)		
affected: below 25%			0.00 (.)	0.00 (.)
affected: 25 to 50%			0.02 (0.03)	-0.01 (0.05)
affected: above 50%			0.14** (0.06)	0.20*** (0.06)
affected: below 25%			0.00 (.)	0.00 (.)
affected: 25 to 50%			-0.04 (0.03)	-0.07** (0.03)
affected: above 50%			-0.00 (0.04)	-0.06 (0.05)
Controls	No	Yes	No	Yes
N	1584	1270	1584	1270
r2_a	0.07	0.24	0.07	0.24
control_mean	0.10	0.10	0.10	0.10
control_sd	0.31	0.31	0.31	0.31
Weights	No	No	No	No

Table A.12: OLS models for past migration aspirations, full sample, controlling for village level affectedness

	(1) Aspiration (past month)	(2) Aspiration (past month)	(3) Aspiration (past month)	(4) Aspiration (past month)
Erosion affected	0.13*** (0.03)	0.08** (0.03)	0.14*** (0.03)	0.09** (0.04)
Flood affected	-0.01 (0.02)	-0.01 (0.02)	-0.02 (0.02)	-0.01 (0.02)
Erosion: HH affected in %	0.32*** (0.10)	0.45*** (0.12)		
Flood: HH affected in %	-0.05 (0.10)	-0.25* (0.13)		
affected: below 25%			0.00 (.)	0.00 (.)
affected: 25 to 50%			0.07 (0.05)	0.05 (0.08)
affected: above 50%			0.19*** (0.07)	0.26** (0.10)
affected: below 25%			0.00 (.)	0.00 (.)
affected: 25 to 50%			0.01 (0.03)	-0.01 (0.05)
affected: above 50%			0.00 (0.05)	-0.08 (0.06)
Controls	No	Yes	No	Yes
N	1585	1271	1585	1271
r2_a	0.09	0.21	0.08	0.21
control_mean	0.12	0.12	0.12	0.12
control_sd	0.32	0.32	0.32	0.32
Weights	No	No	No	No

Table A.13: OLS models for present migration aspirations, full sample, recoding respondents with aspirations to zero if shifting house, i.e., move inside the same village

	(1)	(2)	(3)	(4)	(5)	(6)
	Aspiration (now)	Aspiration (now)	Aspiration (now)	Aspiration (now)	Aspiration (now)	Aspiration (now)
Erosion affected	0.16***	0.11***	0.15***	0.11***	0.11***	0.09***
	(0.03)	(0.04)	(0.04)	(0.03)	(0.03)	(0.03)
Flood affected	-0.01	0.00	-0.01	-0.02	-0.02	-0.01
	(0.02)	(0.03)	(0.03)	(0.02)	(0.02)	(0.02)
Controls	No	No	No	Yes	Yes	Yes
N	1584	1270	1270	1270	1270	1270
r2_a	0.04	0.02	0.04	0.25	0.29	0.33
control_mean	0.09	0.13	0.18	0.09	0.13	0.18
control_sd	0.28	0.34	0.39	0.28	0.34	0.39
Weights_erosion	No	Yes	No	No	Yes	No
Weights_flood	No	No	Yes	No	No	Yes

Table A.13: OLS models for past migration aspirations, full sample, recoding respondents with aspirations to zero if shifting house, i.e., move inside the same village

	(1)	(2)	(3)	(4)	(5)	(6)
	Aspiration (past month)	Aspiration (past month)	Aspiration (past month)	Aspiration (past month)	Aspiration (past month)	Aspiration (past month)
Erosion affected	0.18***	0.14***	0.17***	0.14***	0.14***	0.13***
	(0.03)	(0.04)	(0.04)	(0.03)	(0.03)	(0.04)
Flood affected	-0.01	0.02	-0.00	-0.01	-0.00	-0.00
	(0.02)	(0.03)	(0.04)	(0.02)	(0.02)	(0.02)
Controls	No	No	No	Yes	Yes	Yes
N	1585	1271	1271	1271	1271	1271
r2_a	0.05	0.03	0.04	0.20	0.23	0.26
control_mean	0.10	0.15	0.21	0.10	0.15	0.21
control_sd	0.30	0.35	0.41	0.30	0.35	0.41
Weights_erosion	No	Yes	No	No	Yes	No
Weights_flood	No	No	Yes	No	No	Yes