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**Does changing the narrative
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Experimental evidence from
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Abstract

A number of studies suggest that our narratives about the situation of the poor and vulnerable affect how we view them and treat them. Theoretically, a potentially powerful way to make host communities more welcoming of climate migrants is to shift the blame for their situation away from the migrants themselves and onto other forces or agents. We present results from a randomized field experiment conducted among long term residents of host communities in the Satkhira district of Bangladesh. We exposed three treatment groups to narratives that shift the responsibility for climate migration towards natural forces, Westerns countries, and local authorities, respectively. Despite power to detect reasonably small effects, we find no positive effects of the narratives on attitudes to climate migrants. On the contrary, one treatment has a borderline negative effect on attitudes relative to the control group. Our results suggest caution in attempting to influence attitudes through attribution of blame to outside forces or third parties. Such narrative interventions may shift responsibility away from not just the migrants but also from the treated host community residents, and may increase social identification within the host community relative to outsiders.

JEL classification: C93, O15, Q54

Keywords: Climate change, global warming, migration, displacement, field experiment

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1. Introduction

Climate change will in coming decades lead to increased frequency and severity of floods, drought and extreme weather events (Intergovernmental Panel on Climate Change, 2018). As the more exposed areas of the world become increasingly inhospitable, this will lead to substantial climate induced displacement of people in developing countries. It is likely that displacement will predominantly be internal to countries, or regional to neighbouring ones, but international migratory pressures will also increase. In terms of numbers, Rigaud et al. (2018) project that by 2050 more than 140 million people could be displaced internally by the slow-onset impacts of climate change in Sub-Saharan Africa, South Asia, and Latin America. For affected countries and communities, such large-scale displacements will create not just technical and economic challenges in accommodating the displaced, but also social and political challenges in avoiding social tension and conflicts that may arise between the displaced and their host communities. It is therefore crucial to understand how attitudes towards migrants form and evolve, and how they can be influenced to ease resettlement processes and avert tension (Burke et al., 2015; Hsiang et al., 2013). For some countries, the stakes are particularly high. Bangladesh is a case in point; a densely populated, low-lying country with substantial exposure to cyclones, floods and drought, and predicted to be affected by increasingly severe climatic conditions in the decades to come (Stocker et al., 2013). The government of Bangladesh expects that “the greatest single impact of climate change might be on human migration/displacement,” estimating that “by 2050 one in every 7 people in Bangladesh will be displaced by climate change” (Comprehensive Disaster Management Programme, 2015:4).

This paper presents results from a randomized field experiment designed to test how different *attributions of responsibility* for the situation of the displaced affect views and attitudes towards climate migrants among residents in the receiving communities. The experiment was conducted among 1253 long-term residents in migrant receiving areas of the Satkhira district of Bangladesh, a district selected for its location in the most vulnerable part of the country’s coastal zone. Three treatment groups were exposed to narratives suggesting that the responsibility for climate change and displacement lies not with those displaced. Instead, the three narratives shift blame towards i) natural phenomena; ii) industrialized countries; and iii) government inaction, respectively. The narratives were delivered in the form of videos shown to respondents, with a placebo video without attribution of blame shown to the control group. A pre-analysis plan for the experiment was registered in the AEA RCT registry.¹

Existing experimental evidence suggests that in distributive situations, people will allocate money according to the extent they perceive others as being responsible for their own situation; in other words they will give more aid to a recipient the less they perceive him or her to be responsible for his or her own misfortune (Konow, 2000; List and Cherry, 2008). A main hypothesis that we test is hence that narratives locating the responsibility for displacement elsewhere than on the displaced, will lead to less resistance to accommodating the displaced. The treatments are also motivated by insights from the conflict literature suggesting that attribution of responsibility to a third party can lessen intergroup conflict by emphasizing a shared identity (Gaertner and Dovidio, 2000; Licata et al., 2011), as well as results from the literature on prosocial behaviour suggesting that interventions which generate sympathy or empathy increase people’s tendencies to assist others (Eisenberg et al., 2010).

Our results show that the narrative interventions had no significant effect on attitudes to migrants. With randomization at the individual level and in excess of 300 respondents in each treatment arm, the experiment was powered to detect reasonably small effects. If anything, one of our treatments exhibits a marginally significant negative effect on attitudes to migrants in some estimations, contrary to our main

¹ <https://www.socialscisceregistry.org/trials/4142>

hypothesis. Since not all respondents may have internalized the message of the treatments, we complement our estimates of intention-to-treat effects with estimates of effects of treatment on the treated through an instrumental variable approach, and get similar results. Our analysis of mechanisms suggests that any reduction in the perceived responsibility of migrants for their own situation in treated groups is countered by two effects working in the opposite direction. The first is that blaming outside forces or third parties may also reduce host community perceptions of their *own* responsibility to welcome climate migrants. The second is that blaming a third party may strengthen social identification with the narrow group of one's own host community members, rather than a wider group of fellow nationals which includes migrants.

Empirical evidence on migrant – host community relations is scarce in the context of low levels of development and high susceptibility to future internal displacement. Our experimental data from the Satkhira district are hence quite novel. A number of studies from developed countries, however, suggest that negatively framed political and social narratives on migration adversely affect attitudes towards international migrants, refugees, and victims of disaster (Gale, 2004; Andrighetto et al., 2014; Seate and Mastro, 2016; Utych, 2018; Dempsey and McDowell, 2019; Hoops and Braitman, 2019). To this, we add experimental evidence suggesting that the effects of narratives more sympathetic to the migrant situation are not necessarily straightforward, as they may affect not only attitudes to migrants but also self-perceptions of host community members. This is also an aspect that has met with little consideration in the emerging experimental literature analyzing the effects of providing information about the extent of immigration and the characteristics of immigrants on attitudes to migration (Hainmueller and Hopkins, 2014; Grigorieff et al., 2016).

Our results thus suggest that deliberate attempts to shape or change public discourse on migration are fraught with challenges, and may work in unpredictable ways. While the use of narratives to reduce social tensions and make local adaptation challenges less severe may be a complex (or even counter-productive) endeavour, our results also uncover some potential nuances that should be considered. In explorative analyses not pre-registered, we consider possible heterogeneous effects of our treatments. In line with theories emphasizing labour market competition as a determinant of attitudes to migration, we find that day-labourers are on average more critical to climate migrants than other occupational groups, but also a group where our treatments appear to significantly improve attitudes. Hence, it is possible that for groups for whom the issue matters more on a personal, economic level, changes in the attribution of responsibility may reduce tensions between migrants and host community members. However, the validity of this result needs to be examined in further studies.

In countries vulnerable to the effect of climate change, much of the attention of analysis and policy is devoted to questions of physical infrastructure and economic resources, for good reason. Bangladesh is judged to have advanced further in creating protection from rapid onset events, such as cyclone shelters, than neighbouring countries such as Myanmar, and has also sought to address slow onset phenomena such as increasing soil salinity through new types of crops. Our study is motivated by the importance of the social and political sides of climate change in vulnerable countries, changes in population patterns, social interaction, and distributional conflict over land and jobs and resources that will arise when local adaptation measures are no longer adequate to protect people and livelihoods in the most exposed places. Understanding the political economy of climate affected countries is essential to identifying their ability to adapt to climate change without serious increases in social conflict. Our main results offers some important insights to these challenges. In addition, we provide further descriptive results suggesting that in the area studied, there is greater opposition to climate migrants among the more educated and wealthy. While we do not claim that these are causal relations, this is contrary to what has been found

for attitudes to international migration in developed countries, where the educated and well-off tend to be more positive to migrants (Hainmueller and Hopkins, 2014). This has at least two implications. It means that results from studies of attitudes to migration may not travel well from developed to developing country contexts. Moreover, if the educated and wealthy are the most sceptical to migrants in Bangladesh, the relatively greater political power of these groups may pose an impediment to the effective use of migration as an adaptation strategy in the country.

The article is structured as follows. Section 2 presents the details of our randomized field experiment and empirical approach. Section 3 provides a descriptive overview of our data. Our main results are presented in Section 4, with underlying mechanisms and heterogeneous effects analyzed in Section 5. Section 6 concludes.

2. Research design

2.1 Sampling and experimental design

The field experiment was conducted in the Satkhira district of Bangladesh in March and April 2019, and included 1253 long-term residents as respondents.² This district is located in the South-Western region of Bangladesh, which is by far the most vulnerable part of the country's coastal zone.³ Prior to the experiment, we conducted two rounds of qualitative interviews with migrants, host community members, and local government officials in the district. The interviews indicated that climate related changes had been a relevant factor in mobility decisions of migrants. While our interviews suggested that there had been little conflict with host community members thus far, in part due to the availability of government land on which migrants had been resettled, the interviews suggested that long term residents would be more critical to future, permanent in-migration.

For the experiment, we selected 13 relevant unions from the seven upazilas in the Satkhira district, based on their history of or potential for climate related in-migration, and set the number of respondents in each union according to its share of the total population of the 13 unions. In each union, a team of five to six enumerators set out in pre-defined routes evenly spaced in different directions, starting from the union office, selecting every sixth household along the route and alternating between interviewing an adult female or male in each household. Only long-term residents in the surveyed locations were interviewed, defined as having been born in the community in question or having lived there for at least 20 years, or as having a spouse that was born in the community and having lived there for at least five years.

The instrument and treatment videos were thoroughly piloted before the survey experiment started. Interviews were conducted electronically using tablets running ODK (Open Data Kit), and the videos were also shown to the respondents on the tablets. The questionnaire had the following sections:

1. Respondent selection procedure

² The experiment was conducted concurrently with a separate experiment, and while conceptually distinct, the two experiments share the control group. A total of 1568 interviews were conducted for the two experiments, of which 1253 observations comprise the treatment and control groups for the experiment described here. Due to some practical challenges in the field, the number of observations is marginally smaller than that specified in the pre-analysis plan.

³ Islam and Hasan (2016) estimate that more than 2 million people in the region were displaced as a result of the 2009 cyclone Aila; upazilas in the Satkhira district were among the most heavily affected.

2. Consent
3. Practicalities (location etc.)
4. Covariates
5. Heterogeneous effects variables
6. Video treatment
7. Obfuscation and outcome variables
8. Mechanism variables
9. Additional variables (for descriptive analysis of control group)

In section 6, respondents were randomized into one of the treatments, or to the control group. This was done through lists of random choices prepared in advance and given to each enumerator. The enumerators moved down the list, crossing off the current video shown and moving on to the next one on the list in the next interview. This resulted in between 310 and 318 respondents in each treatment arm. Randomization is hence at the individual level, and not blocked by location.

2.2 Treatments

In the treatment section, respondents were randomly assigned to watch one of the treatment videos, or the placebo video if in the control group. The structure of the videos is outlined in Figure A1 in Appendix A. All videos share a first section, which is a general introduction to the phenomenon of climate change and the likely effects on future displacement in Bangladesh. After this first section, the treatment videos include distinct second sections which shift responsibility for climate change and its consequences from migrants towards natural forces (Treatment 1), industrialized countries (Treatment 2), and local authorities (Treatment 3). In this second part, the visual part of the videos froze on a still picture, in order to make the voiceover narratives salient to the treated participants. The placebo video for the control group does not contain a second section, which makes it shorter, but not to an extent where one would expect this to have an independent effect on responses.

All videos also include a third section, designed for obfuscation purposes, where we tell the respondents that we want their feedback on the format of the video to improve it for further audiences. The section of the questionnaire immediately following treatment also starts with four questions on the format of the video. While done to alleviate experimenter demand concerns, the inclusion of this information in the last part of the video is not to be considered deceptive, as reactions to the form of information presented is also of interest to us in discussing policy implications and future directions from the results of the project. The full scripts for the voiceover used in the videos (translated into English) are presented in Appendix A.

2.3 Empirical strategy

The variables used in our analysis are presented in Table B1 in Appendix B. Our outcome variable is Attitude to migrants, reflecting responses to the survey question “To what extent do you agree with the following statement: ‘It is a good thing that new migrants settle permanently in my home community.’” Responses were given on a five point scale: 5 – Agree very strongly, 4 – Agree, 3 – Neither agree nor disagree, 2 – Disagree, 1 – Disagree very strongly. Our main hypothesis is that by locating the responsibility for displacement elsewhere than on the displaced, the treatments will improve respondent attitudes to migrants. We test this hypothesis using OLS estimation (with robust standard errors) of the following equation:

$$y_i = \alpha + \beta_{T1}T1_i + \beta_{T2}T2_i + \beta_{T3}T3_i + \varepsilon_i \quad (1)$$

where y_i is the outcome for individual i , and Tt_i are indicator variables taking the value one if individual i is in treatment group t , and zero otherwise. We also estimate an equation which includes the covariates specified in the pre-analysis plan and detailed in Table B1 in Appendix B (including union fixed effects), captured by the vector X_i :

$$y_i = \alpha + \beta_{T1}T1_i + \beta_{T2}T2_i + \beta_{T3}T3_i + X_i\gamma + \varepsilon_i \quad (2)$$

We also test for differences in effects between the treatments using two-sided t-tests. While our outcome variable is strictly speaking an ordinal variable, we treat it as a continuous variable in our main analysis, but show that results are robust to using ordered probit and ordered logit estimation. With this specification, and based on means and standard deviations from our pilot data, the minimum detectable effect at 80% power and .05 significance is .208, or .224 of a standard deviation.⁴

In the case of less than perfect take-up of our treatments, the above estimated parameters can be interpreted as intention-to-treat effects. To measure take-up, we asked respondents what or who was identified by the video they had seen as responsible for climate migration. We define three treatment take-up dummies which equal one if a respondent is in treatment group $j \in \{1,2,3\}$ and their response corresponds to the message of the video of treatment j , and zero otherwise. We estimate effects of treatment on the treated, through instrumental variable estimation where the treatment dummies are used as instruments for the take-up variables.

While our survey instrument was designed to also analyze heterogeneities in effects across groups, and mechanisms behind our results, we did not pre-specify these analyses, noting the trade-off between the credibility that pre-specification generates and the potential costs in terms of developing highly complex pre-specification with limits on potential learning from the data (Olken, 2015).

3. Data

Summary statistics for our sample are presented in Table B2 in Appendix B. Our sample consists of 1253 individuals aged 18 and above. On attitude to migrants, the mean response falls in the middle of our scale, which is neither disagreeing nor agreeing with the statement 'It is a good thing that new migrants settle permanently in my home community.' The mean respondent is 41 years old, about half of the respondents are male, a little less than half household heads, and the mode in terms of education is to have completed primary education (the omitted category is no completed education). The most common occupations are housewife, self-employment (with or without non-family employees), day labourer, and farmer (the omitted category is other occupations than the ones listed). Our household asset index is based on factor analysis of the following asset variables: ownership of house, bicycle, radio, TV, motor vehicle or motorcycle, mobile phone, computer, and number of rooms the household occupies.⁵ More than three quarters of respondents live in households that own land, and the mean household size is five members. Almost 60 per cent of respondents were born in the host community in question, and the number of years they have lived in the community is a minimum of 5 (since this was our cutoff for inclusion in the sample)

⁴ In the pre-analysis plan, we specified one-sided tests for the three coefficients, which would make the minimum detectable effect even smaller. Limited compliance, on the other hand, pulls in the opposite direction.

⁵ The asset index was computed for the sample of household that also included the treatment group from our concurrent experiment to be analyzed separately, which is why its mean deviates slightly from zero and its standard deviation is different from one.

and an average of 33 years. The median household has never moved between unions, the largest number of such moves is 10.

Table B3 in Appendix B presents the number of respondents randomized into each of our three treatments, which is 310 (nature treatment), 313 (industrialized treatment), 312 (government treatment); there are 318 respondents in the control group. Almost all our respondents reported finding the videos easy to understand (99 per cent) and of an appropriate length (85 percent).⁶ Most respondents (72 per cent) answered that the video told them something they did not already know. Nevertheless, while take-up is high in the nature treatment, with almost three quarters of respondents being able to identify the message of the treatment in the follow up question, this proportion falls to less than 40 per cent for respondents in the industrialized treatment, and to just over 20 per cent in the government treatment.

It is hard to say whether the limited take-up is due to images of natural phenomena being prevalent in all parts of the videos, or an order effect where the first response category is more readily chosen.⁷ Since it is difficult to design videos of climate migration without including images of natural forces, our take-up variables may not perfectly track compliance. In principle, it is possible that respondents in other treatment groups who identify natural forces as the main force behind climate displacement may still have internalized the shift in responsibility away from migrants towards industrialized countries or local authorities, and our take-up variables may hence underestimate compliance. Given imperfect compliance, we compute both intention to treat effects and effects of treatment on the treated; the results are not qualitatively different. It is not obvious which of the two would be more relevant; we piloted our videos for high impact, but there are limits to what any message can achieve in terms of being received and internalized among respondents.

Tests for balance on our covariates across treatment arms are presented in Table B4 of Appendix B. There are few significant differences between groups, and no more than one would expect by chance. The final column of Table B4 contains the p-value of an F-test of the null hypothesis that the treatment arms do not predict the means on each balancing variable. There is balance on all variables except age, which again is no more than one would expect by chance. Randomization appears to have worked well in taking out differences between treatment groups.

4. Main results

Our main results are presented in Table 1. Column one shows the results from estimating equation (1), i.e. regressing our outcome variable on the treatment variables only. The treatments shifting blame for climate related migration towards natural forces and onto the government display negative coefficients, the treatment shifting blame towards industrialized countries a positive coefficient, but none of these estimates are statistically significant. Adding covariates in column two increases precision slightly, with the result that the treatment highlighting the role of the government has a statistically significant negative effect on attitudes to migrants, while the other two treatments have no effect. In general, we find no evidence of a positive effect of shifting the responsibility for their situation off the migrants themselves, on attitudes of long term residents in receiving communities towards migrants. The government treatment may even have a negative effect, and certainly has a significantly worse effect on attitudes than

⁶ These proportions are not reported in the Appendix B tables.

⁷ Our treated groups were all able to identify the correct answer to this question at a higher rate than respondents in the control group who were also asked this question following the placebo video. The most common response in the control group was also to identify the role of natural forces as the message of the video.

the industrialized countries treatment ($p=.012$). Qualitatively, we get the same results if we estimate effects of the treatments on the treated through the instrumental variable approach, as displayed in columns three and four of Table 1. While the estimated coefficients increase in absolute size, so does the imprecision of the estimates. As shown in Table C1 in Appendix C, ordered probit and ordered logit estimation produce the same qualitative results, except for the effect of the government treatment which is not significant, even with covariates included.

The estimated coefficients for our covariates add some interesting information on the correlates of attitudes to climate migrants. Education and wealth seem to be the variables most consistently associated with attitudes to migrants. In contrast to studies from developed countries focusing on international migration, however, in our case the more educated and more wealthy are significantly more critical to new migrants settling in their communities. In some estimations, household heads are more positive to migrants, which could relate to greater decision making power, a more secure personal position that follows from diversification of the activities of other household members, or a history of making decisions to have other household members migrate. The significance of the household head coefficient is, however, not robust to changes in the estimation method (cf. Table C1 in Appendix C). For our other covariates, there are few robust associations. We do, however, find some heterogeneous effects of our treatments, which we present in the following section after looking at possible mechanisms.

Table 1. Main results

	(1)	(2)	(3)	(4)
Dependent variable	Attitude to migrants	Attitude to migrants	Attitude to migrants	Attitude to migrants
Effect	Intention to treat	Intention to treat	Treatment on treated	Treatment on treated
Treatment nature	-0.111 (0.10)	-0.077 (0.09)		
Treatment industrialized	0.048 (0.10)	0.071 (0.09)		
Treatment government	-0.131 (0.10)	-0.149* (0.09)		
Take-up nature (predicted)			-0.154 (0.14)	-0.103 (0.12)
Take-up industrialized (predicted)			0.125 (0.25)	0.196 (0.22)
Take-up government (predicted)			-0.639 (0.47)	-0.718* (0.43)
Age		0.008 (0.01)		0.007 (0.01)
Male		-0.007 (0.14)		0.011 (0.14)
Head of household		0.191* (0.11)		0.195* (0.11)
Education primary		-0.183** (0.09)		-0.196** (0.09)
Education secondary		-0.354*** (0.10)		-0.390*** (0.10)
Education higher secondary		-0.396*** (0.13)		-0.417*** (0.13)
Education tertiary		-0.563*** (0.14)		-0.593*** (0.14)
Occupation farmer		-0.076 (0.18)		-0.116 (0.18)
Occupation farm labourer		-0.272 (0.27)		-0.303 (0.27)
Occupation gatherer		0.089 (0.45)		0.217 (0.49)
Occupation self-employed		-0.056 (0.16)		-0.064 (0.15)
Occupation employer		-0.070 (0.20)		-0.068 (0.20)
Occupation day labourer		-0.012 (0.18)		-0.006 (0.17)
Occupation high skilled employee		0.148 (0.22)		0.146 (0.22)
Occupation low skilled employee		0.051 (0.21)		0.040 (0.21)
Occupation housewife		0.261 (0.18)		0.268 (0.18)
Occupation student		0.064 (0.21)		0.055 (0.21)
Asset index		-0.111*** (0.04)		-0.106*** (0.04)
Land owner		-0.087 (0.09)		-0.079 (0.09)
Household size		0.030* (0.02)		0.028 (0.02)
Born in host community		0.274* (0.16)		0.262 (0.16)
Years lived in host community		-0.013* (0.01)		-0.012 (0.01)
Migration history		-0.001 (0.05)		-0.002 (0.05)
Constant	3.182*** (0.07)	3.413*** (0.34)	3.182*** (0.07)	2.622*** (0.31)
Union fixed effects	No	Yes	No	Yes
r2	0.004	0.230	-0.001	0.216
N	1253	1250	1253	1250

Note: Results from OLS regressions in columns 1 and 2, and instrumental variable regressions in columns 3 and 4. Robust standard errors in parentheses. Variables as defined in Table B1 in Appendix B, with the take-up variables predicted from the first stage of the instrumental variable regressions using the treatment variables as instruments. *** indicates significance at the 1% level, ** at 5%, * at 10%.

5. Mechanisms and heterogeneous effects

As noted in Section 2.1, our survey instrument includes a number of questions designed to look into mechanisms behind our experimental results. For flexibility, the analysis of these variables was not specified in the pre-analysis plan. The results from our analyses of mechanisms are summarized in Table 2. Each column in the table shows results from an OLS regression using the mechanism variable specified at the top of the column as the dependent variable, with the mechanism variables defined in detail in Table B5 in Appendix B. All regressions in Table 2 include covariates; results are qualitatively the same without covariates, and if using an instrumental variable approach to identify effects of treatments on the treated.⁸

Our main hypothesis of a positive effect of the video interventions on attitudes to migrants was based on the idea that the treatments would reduce the perceived responsibility of migrants for their own situation. In column one in Table 2 we present results of a regression using Migrant responsibility as the dependent variable. This variable is defined through respondent's agreement with the statement "If people have to move due to climate change, that is their own fault", with responses given on the same five-point scale as our main outcome variable (from 5 – Agree very strongly, to 1 – Disagree very strongly). The treatment coefficients are all negative, in line with the theory behind our main hypothesis, but are too small to be statistically significant.

By contrast, the second column of Table 2 has respondents' perceptions of their own Host community responsibility for helping migrants as the dependent variable. Results for the nature and industrialized treatments suggest that they significantly *reduced* the obligations long term residents in host communities believe they have for aiding climate migrants. Moreover, in column three of Table 2 the dependent variable reflects respondent agreement with the statement "I have more in common with the members of my community than with migrants that arrive here." The results suggest that our third treatment, stressing the responsibility of the government, solidified narrow identification with respondents' own host community relative to wider identification with migrants. Attributing blame to a third party (the government) in this case seems to have reinforced a narrower form of social identity than anticipated.

In sum, the results of the first three columns of Table 2 provide a set of explanations for our main result of no (or a marginal negative) impact of our interventions on attitudes to migrants. Any reduction in the perceived responsibility of migrants for their own situation that our videos created, is (more than) offset by a reduction in perceived obligations of host communities for helping migrants, or tighter social identification with one's own host community members relative to outsiders such as migrants. Shifting blame for the consequences of climate change towards other forces or third parties hence seems a risky thing; it shifts blame not only from the vulnerable but also from locals upon whom they will come to rely, or may create a narrow sort of solidarity within local host communities rather than the wider kind needed to welcome vulnerable outsiders displaced by climate change.

⁸ Results available on request.

Table 2. Mechanism results

	(1)	(2)	(3)	(4)	(5)
Dependent variable	Migrant responsibility	Host community responsibility	Host community identity	Perceived migrant wealth	Perceived scale of migration
Treatment nature	-0.049 (0.08)	-0.114* (0.07)	0.104 (0.07)	-0.048 (0.06)	0.061 (0.05)
Treatment industrialized	-0.004 (0.08)	-0.115* (0.07)	0.035 (0.07)	-0.163** (0.06)	0.079* (0.05)
Treatment government	-0.012 (0.08)	-0.050 (0.07)	0.160** (0.07)	-0.044 (0.06)	0.063 (0.05)
Constant	1.564*** (0.24)	3.291*** (0.31)	4.028*** (0.27)	1.827*** (0.25)	4.458*** (0.18)
Covariates	Yes	Yes	Yes	Yes	Yes
r ²	0.047	0.057	0.150	0.126	0.056
N	1248	1229	1104	1116	1233

Note: Results from OLS regressions. Robust standard errors in parentheses. Variables as defined in Tables B1 and B5 in Appendix B. *** indicates significance at the 1% level, ** at 5%, * at 10%.

The final two columns in Table 2 present results that shed light on possible reasons why the treatment that emphasizes the responsibility of industrialized countries has less of a negative effect on attitudes to migrants than the other two treatments. The dependent variable in column four captures responses to the question "The typical migrant to my community is likely to be _____", with the options given on the five point scale 5 - Extremely rich, 4 - Rich, 3 - Neither poor nor rich, 2 - Poor, 1 - Extremely poor. The industrialized treatment appears to trigger an implicit comparison of migrants to the populations of the Western industrialized countries mentioned in the video, leading to lower assessments of the wealth of climate migrants than in the control group and the other two treatments (the differences to the nature and government coefficients are significant at $p=.078$ and $p=.073$, respectively).

Moreover, the dependent variable in column five of Table 2 reflects respondent agreement with the statement "After seeing the video, I believe that climate change will lead to substantial migration of people in Bangladesh", again measured on a five point scale. The results suggest that the industrialized treatment leads respondents to perceive the scale of climate migration to be greater than respondents in the control group, perhaps by introducing a global frame of reference, though the precise reason is hard to assess. However, the difference to the perceptions of the other treatment groups is not statistically significant.

Potential explanations for the less negative effect of the treatment stressing the responsibility of industrialized countries are hence cues that emphasize poverty among migrants, and (possibly) induced perceptions of greater climate migration challenges. Though the industrialized country treatment has less negative effects on attitudes towards migrants, a possibility is that it also contributes to political radicalization by stressing the role of Western countries in climate change. We tested this through an additional survey question on whether the West generally respects religious freedom everywhere, and found no evidence that the treatment induces radicalization.⁹

Some of our respondents are in occupations where they are likely to be in direct competition with climate migrants from poor and vulnerable areas. In particular, this would seem to be the case for respondents relying on gathering/foraging/hunting, and day labourers. Any more critical attitudes to migrants from these occupational group are not immediately apparent from the covariate results in Table 1. However, a regression of attitudes to migrants on covariates for the control group only reveals a different pattern.¹⁰

⁹ Results available on request.

¹⁰ Results available on request.

Those with occupations in gathering and day labourers have the most negative mean scores on the attitude to migrants question, and these are the only two occupation categories with significantly lower scores than the excluded category (other occupations). We take this as a possible sign of heterogeneous effects of our treatments in these occupational categories, while also noting that any analysis of this has not been pre-registered and remains explorative.

The gatherers in our sample only count five respondents, so we cannot meaningfully test for heterogeneous effects for this group. The number of day labourers in our sample is 90, and Table 3 presents results of tests of heterogeneous treatment effects for this group. We include interaction terms for all three treatment variables with the occupation day labourer dummy (as well as the day labourer dummy itself and all other covariates which for brevity are suppressed in the output). Results for the interaction terms suggest that the effects of the nature treatment and the industrialized treatment are significantly more positive for day labourers than for other groups. The three bottom rows of Table 3 report the p-values of tests that the treatment effects for day labourers are zero, which is rejected in the cases of the nature and industrialized treatments, but not in the government treatment. If shifting the blame from migrants for their own situation works for any group, our results hence suggest beneficial effects on attitudes to migrants in occupations in direct competition with them, and these are also occupations whose members tend to be more critical to migrants to begin with. Since our analysis of heterogeneous effects in our experiment is explorative, we consider this a hypothesis to be more carefully tested in future work.

Table 3. Heterogeneous effects

<i>Dependent variable</i>	(1) <i>Attitude to migrants</i>
Treatment nature	-0.123 (0.09)
Treatment industrialized	0.000 (0.09)
Treatment government	-0.164* (0.09)
Treatment nature*Occupation day labourer	0.617** (0.29)
Treatment industrialized*Occupation day labourer	0.914*** (0.30)
Treatment government*Occupation day labourer	0.139 (0.35)
Occupation day labourer	-0.457* (0.26)
Constant	3.433*** (0.34)
Covariates	All
r ²	0.236
N	1250
p-value (Treatment nature + Treatment nature*Occupation day labourer = 0)	0.075
p-value (Treatment industrialized + Treatment industrialized*Occupation day labourer = 0)	0.002
p-value (Treatment government + Treatment government*Occupation day labourer = 0)	0.941

Note: Results from OLS regression, results for other covariates than Occupation day labourer suppressed in output. Robust standard errors in parentheses. Variables as defined in Table B1 in Appendix B. *** indicates significance at the 1% level, ** at 5%, * at 10%.

6. Concluding remarks

Narratives can be powerful in framing public discourse on migration, as seen in the use of the term “economic migrant” in immigration debates. Shaping or changing the narrative can, however, be a difficult

endeavour with unpredictable consequences, as our analysis shows. Our experimental results among long term host community residents in Bangladesh show that shifting the blame for climate migration from the migrants onto outside forces or third parties might do more to relieve host communities of perceived obligations to migrants than to increase identification with their plight and willingness to receive them. In light of the limited impact of the narratives on overall attitudes to migrants, it is also possible that our respondents had relatively strong prior views on climate migration, which would be hard to shift through narrative interventions. Consistent with this, responses to questions on knowledge of climate change asked prior to our interventions suggest that our respondents were at least somewhat knowledgeable about the cause and/or symptoms of climate change.

Our data also reveals a puzzle of worse average attitudes to climate migrants among the well off and educated, in contrast to results from other countries (Hainmueller and Hopkins, 2014). While this suggests that there may be socio-economic fault lines in handling future migration challenges in Bangladesh, more work is needed to understand the robustness of these results, and the underlying mechanisms. One possibility is that the views are shaped by social distance to the migrants, another that the more wealthy and educated expect to shoulder more of the economic implications of future migration, for instance through increases in taxes. Though our results suggest caution in approaching the issue of migration as climate adaptation, and social conflicts that may arise, through narrative interventions, we do also provide some ways forward that should be pursued. The hypothesis that narratives can be effective in improving attitudes to migrants in groups for whom the issue matters most - those in direct labour market competition with climate migrants - is one explorative finding from the experiment that deserves to be followed up on in future studies.

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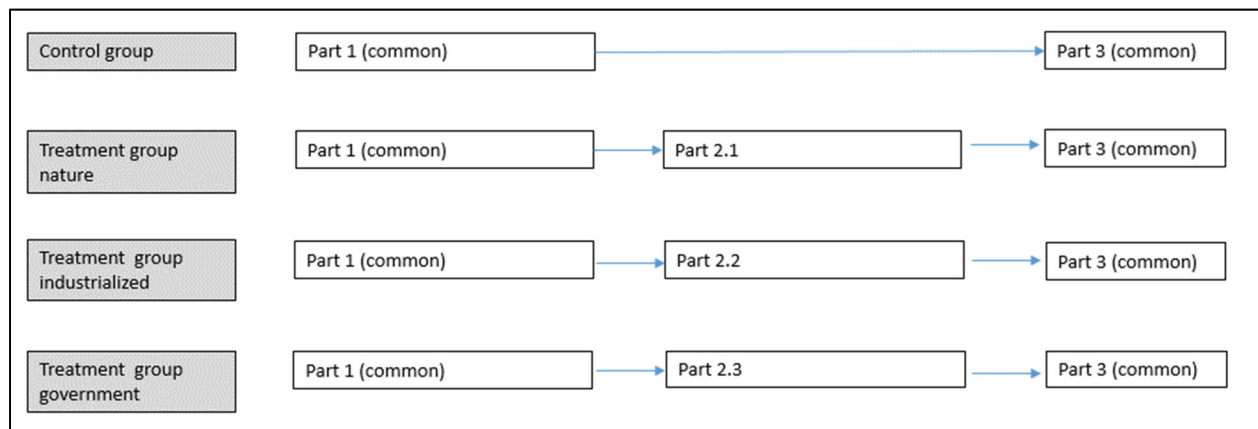
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Appendix A. Manuscripts for treatment videos

Figure A 1. Structure of video interventions



Voiceover part 1 (all groups):

“A lot of people migrate from one place to another in Bangladesh. Some of them for shorter periods, others for longer, and some migrate permanently. Some households send a member to another village or city, in other cases the whole household may move.

People migrate for many different reasons, and to different places.

You probably have some migrants in your neighbourhood, village or town?”

“One reason people are moving in Bangladesh is that the climate is changing.

This leads to more extreme weather events and worse living conditions in areas where people live.

You probably remember the cyclone Ayla, which brought devastation to many communities.

And you may have noticed or have heard that rising sea levels and increased salinity are making land less useful for growing food.

And finding drinking water more difficult.

Many families have also lost their homes or land through river erosion and flooding.

Some say that the mangrove forest is dying.”

“The problems created by a changing climate are likely to get worse.

More people will have to move as a result.

Perhaps to the place where you live?

Some of these people will not have a job or a place to live waiting for them in the new location.

The poor and landless will also be forced to move.

Where will they all go?

Where will they live?

What will they do for work?”

Voiceover part 2.1 (treatment nature)

“The climate is changing due to a build up of certain gases in the air around us.
This is a powerful natural phenomenon.
And these natural forces do not discriminate, but affect everyone.
There is little you can do if these powerful forces come your way.

Sometimes things happen to us that are not our own fault.
There is little people in affected areas of Bangladesh can do about the natural forces that bring extreme weather and damage to homes and land.
But their lives and livelihoods are affected by them.
And they may have no other choice than to move.”

Voiceover part 2.2 (treatment industrialized)

“The climate is changing due to a build up of certain gases in the air around us.
Gas emissions from rich, Western countries are a major factor in causing climate change.
People in rich, Western countries enjoy a high standard of living, and their lifestyle and consumption result in large emissions of damaging gases.
While people in poorer countries like Bangladesh suffer the negative consequences of rich countries’ gas emissions.

Sometimes things happen to us that are not our own fault.
People living in affected areas of Bangladesh have not contributed much to the climate problems bringing extreme weather and damage to homes and land.
But their lives and livelihoods are affected by them.
And they may have no other choice than to move.”

Voiceover part 2.3 (treatment government)

“The climate is changing due to a build up of certain gases in the air around us.
To cope with the problems created by climate change, the authorities have to play an active role.
The authorities need to protect and assist people so they can stay in their homes.
The authorities must assist in finding housing and livelihood opportunities for those who need to move.
If the living and housing situation turns out to be really bad, this may be because the authorities have not done enough.

Sometimes things happen to us that are not our own fault.
People living in affected areas can only do so much to protect themselves from extreme weather and damage to homes and land.
But their lives and livelihoods are affected by them.
And they may have no other choice than to move.”

Voiceover part 3 (all groups)

“It is important that you are well informed about future events that may affect your life. The people of Bangladesh deserve good and useful information. We have attempted to make the message of this video as clear and relevant to you as we can. We hope we have succeeded in this.”

“And we are also interested in how we can provide the information in even better ways. How this video can be improved. You probably have some ideas on how this can be done. What do you think? How can the video be made more informative, clear, and interesting? Your view matters. Thank you for your attention.”

Appendix B. Variable definitions and summary statistics

Table B 1. Main variables.

Variable	Explanation
<i>Dependent variable</i>	
Attitude to migrants	Respondent attitudes to migrants based on response to question "To what extent do you agree with the following statement: 'It is a good thing that new migrants settle permanently in my home community.'" (5 – Agree very strongly, 4 – Agree, 3 – Neither agree nor disagree, 2 – Disagree, 1 – Disagree very strongly, missing – Don't know)
<i>Treatment variables</i>	
Treatment nature	Dummy variable of whether respondent watched video shifting blame for for climate change and its consequences from migrants towards natural forces (1 – Yes, 0 – No)
Treatment industrialized	Dummy variable of whether respondent watched video shifting blame for for climate change and its consequences from migrants towards industrialized countries (1 – Yes, 0 – No)
Treatment government	Dummy variable of whether respondent watched video shifting blame for for climate change and its consequences from migrants towards local authorities (1 – Yes, 0 – No)
<i>Treatment take-up variables</i>	
Take-up nature	Takeup nature treatment (dummy variable, 1 – if respondent is in nature treatment group and responds "Natural forces" to the question "According to the video, if people in Bangladesh need to move due to climate change, who bears the main responsibility for this? Please note that we want you to say who the video said is responsible, not who you think is to blame." , 0 – otherwise)
Take-up industrialized	Takeup industrialized treatment (dummy variable, 1 – if respondent is in the industrialized treatment group and responds "Western countries" to the question "According to the video, if people in Bangladesh need to move due to climate change, who bears the main responsibility for this? Please note that we want you to say who the video said is responsible, not who you think is to blame." , 0 – otherwise)
Take-up government	Takeup government treatment (dummy variable, 1 – if respondent is in the government treatment group and responds "Bangladeshi authorities" to the question "According to the video, if people in Bangladesh need to move due to climate change, who bears the main responsibility for this? Please note that we want you to say who the video said is responsible, not who you think is to blame." , 0 – otherwise)
<i>Covariates</i>	
Age	Age of respondent (number of years)
Male	Gender of respondent (dummy variable, 1 – male, 0 – female)
Head of household	Respondent is head of household (dummy variable, 1 – Yes, 0 – No)
Education primary	Respondent has completed primary school (dummy variable, 1 – Yes, 0 – No)
Education secondary	Respondent has completed secondary school (dummy variable, 1 – Yes, 0 – No)
Education higher secondary	Respondent has completed higher secondary school (dummy variable, 1 – Yes, 0 – No)
Education tertiary	Respondent has completed tertiary school (dummy variable, 1 – Yes, 0 – No)
Occupation farmer	Occupation farming, fish/shrimp production, on own land (dummy variable, 1 – Yes, 0 – No)
Occupation farm labourer	Occupation farm or fish/shrimp production labourer or day labourer (dummy variable, 1 – Yes, 0 – No)
Occupation gatherer	Occupation gathering/foraging/hunting (dummy variable, 1 – Yes, 0 – No)
Occupation self-employed	Occupation self-employed (owns business with no non-family employees) (dummy variable, 1 – Yes, 0 – No)
Occupation employer	Occupation self-employed (owns business with at least one non-family employee) (dummy variable, 1 – Yes, 0 – No)
Occupation day labourer	Occupation day labourer (dummy variable, 1 – Yes, 0 – No)
Occupation high skilled employee	Occupation employee (high skilled) (dummy variable, 1 – Yes, 0 – No)
Occupation low skilled employee	Occupation employee (low skilled) (dummy variable, 1 – Yes, 0 – No)
Occupation housewife	Occupation housewife (dummy variable, 1 – Yes, 0 – No)
Occupation student	Occupation student (dummy variable, 1 – Yes, 0 – No)
Asset index	Household asset index based on factor analysis of the following asset variables: ownership of house, bicycle, radio, TV, motor vehicle or motorcycle, mobile phone, computer, number of rooms the household occupies
Land owner	Land owner (dummy variable, 1 – household owns land, 0 – otherwise)
Household size	Total number of household members
Born in host community	Respondent born in host community (Dummy variable, 1- born in community, 0-otherwise)
Years lived in host community	Number of years respondent has resided in community
Migration history	Migration history of household (how many times has the household relocated from one union to another)
Union fixed effects	Dummy variables for each of the 13 unions

Table B 2: Descriptive statistics

	Obs	Mean	Std. Dev.	Min	Max
Attitude to migrants	1253	3.134	1.217	1	5
Age	1253	41.449	13.851	18	89
Male	1253	0.504	0.500	0	1
Head of household	1253	0.454	0.498	0	1
Education primary	1253	0.297	0.457	0	1
Education secondary	1253	0.237	0.425	0	1
Education higher secondary	1253	0.116	0.320	0	1
Education tertiary	1253	0.121	0.326	0	1
Occupation farmer	1253	0.069	0.254	0	1
Occupation farm labourer	1253	0.019	0.137	0	1
Occupation gatherer	1253	0.004	0.063	0	1
Occupation self-employed	1253	0.151	0.358	0	1
Occupation employer	1253	0.045	0.207	0	1
Occupation day labourer	1253	0.072	0.258	0	1
Occupation high skilled employee	1253	0.034	0.180	0	1
Occupation low skilled employee	1253	0.042	0.200	0	1
Occupation housewife	1253	0.421	0.494	0	1
Occupation student	1253	0.063	0.243	0	1
Asset index	1252	0.024	1.025	-1.841	6.611
Land owner	1252	0.764	0.425	0	1
Household size	1253	4.939	2.007	1	21
Born in host community	1253	0.591	0.492	0	1
Years lived in host community	1253	33.698	16.133	5	89
Migration history	1253	0.253	0.800	0	10

Table B 3. Treatment take-up.

	Number of respondents	Take-up number	Take-up proportion
Treatment nature	310	224	0.72
Treatment industrialized	313	119	0.38
Treatment government	312	64	0.21

Table B 4. Balance across treatment arms

	Control	Treatment nature	Treatment industrialized	Treatment government	p-value (control vs nature)	p-value (control vs industrialized)	p-value (control vs government)	p-value (nature vs industrialized)	p-value (nature vs government)	p-value (industrialized vs government)	Orthogonality test
Age	41.915 0.816	43.206 0.840	39.981 0.728	40.699 0.731	0.271	0.077	0.267	0.004	0.025	0.487	0.022
Male	0.500 0.028	0.529 0.028	0.466 0.028	0.519 0.028	0.468	0.400	0.630	0.119	0.807	0.188	0.415
Head of household	0.459 0.028	0.484 0.028	0.406 0.028	0.468 0.028	0.535	0.177	0.825	0.050	0.692	0.117	0.223
Education primary	0.274 0.025	0.287 0.026	0.291 0.026	0.337 0.027	0.707	0.633	0.087	0.920	0.184	0.218	0.355
Education secondary	0.236 0.024	0.235 0.024	0.252 0.025	0.224 0.024	0.991	0.629	0.732	0.624	0.742	0.412	0.877
Education higher secondary	0.138 0.019	0.087 0.016	0.125 0.019	0.112 0.018	0.042	0.610	0.321	0.128	0.297	0.631	0.195
Education tertiary	0.101 0.017	0.152 0.020	0.118 0.018	0.112 0.018	0.055	0.480	0.639	0.223	0.147	0.814	0.276
Occupation farmer	0.085 0.016	0.065 0.014	0.070 0.014	0.058 0.013	0.332	0.493	0.185	0.774	0.723	0.521	0.602
Occupation farm labourer	0.009 0.005	0.029 0.010	0.022 0.008	0.016 0.007	0.075	0.195	0.462	0.600	0.275	0.564	0.273
Occupation gatherer	0.009 0.005	0.003 0.003	0.000 0.000	0.003 0.003	0.326	0.083	0.324	0.318	0.996	0.318	0.171
Occupation self-employed	0.148 0.020	0.158 0.021	0.125 0.019	0.173 0.021	0.721	0.396	0.388	0.231	0.615	0.089	0.368
Occupation employer	0.031 0.010	0.045 0.012	0.045 0.012	0.058 0.013	0.372	0.385	0.111	0.979	0.480	0.463	0.444
Occupation day labourer	0.069 0.014	0.077 0.015	0.080 0.015	0.061 0.014	0.693	0.610	0.674	0.910	0.418	0.355	0.781
Occupation high skilled employee	0.028 0.009	0.032 0.010	0.038 0.011	0.035 0.010	0.773	0.483	0.620	0.681	0.836	0.838	0.908
Occupation low skilled employee	0.047 0.012	0.029 0.010	0.038 0.011	0.051 0.013	0.235	0.584	0.812	0.520	0.158	0.435	0.473
Occupation housewife	0.425 0.028	0.400 0.028	0.454 0.028	0.407 0.028	0.533	0.462	0.657	0.176	0.858	0.240	0.536
Occupation student	0.063 0.014	0.058 0.013	0.073 0.015	0.058 0.013	0.800	0.599	0.784	0.438	0.984	0.426	0.850
Asset index	0.038 0.055	0.081 0.061	-0.013 0.055	-0.009 0.060	0.606	0.512	0.567	0.258	0.301	0.956	0.648
Land owner	0.751 0.024	0.742 0.025	0.776 0.024	0.788 0.023	0.799	0.451	0.263	0.316	0.172	0.714	0.483
Household size	4.814 0.098	5.048 0.137	4.859 0.097	5.038 0.118	0.165	0.745	0.145	0.260	0.956	0.241	0.331
Born in host community	0.594 0.028	0.561 0.028	0.588 0.028	0.622 0.027	0.403	0.869	0.481	0.503	0.125	0.386	0.496
Years lived in host community	34.472 0.966	34.361 0.918	32.476 0.864	33.478 0.892	0.934	0.124	0.450	0.135	0.490	0.420	0.361
Migration history	0.233 0.050	0.261 0.047	0.275 0.035	0.244 0.047	0.678	0.493	0.874	0.820	0.790	0.595	0.901
N	318	310	313	312							

Table B 5. Mechanism variables

Variable	Explanation
<i>Mechanism variables</i>	
Migrant responsibility	Respondent perception of climate migrant responsibility for their own situation, based on agreement with the following statement: "If people have to move due to climate change, that is their own fault" (5 – Agree very strongly, 4 – Agree, 3 – Neither agree nor disagree, 2 – Disagree, 1 – Disagree very strongly, missing – Don't know)
Host community responsibility	Respondent perception of host communities obligation to help climate migrants, based on inverted values for stated agreement with the following statement: "Our community has no responsibility for helping climate migrants." (5 – Agree very strongly, 4 – Agree, 3 – Neither agree nor disagree, 2 – Disagree, 1 – Disagree very strongly, missing – Don't know)
Host community identity	Respondent identification with fellow host community members over outsiders/migrants, based on agreement with the following statement: "I have more in common with the members of my community than with migrants that arrive here." (5 – Agree very strongly, 4 – Agree, 3 – Neither agree nor disagree, 2 – Disagree, 1 – Disagree very strongly, missing – Don't know)
Perceived migrant wealth	Respondent perception of the wealth of migrants, based on responses to the question "The typical migrant to my community is likely to be _____" (5 -Extremely rich, 4 - Rich, 3 - Neither poor nor rich, 2 - Poor, 1 - Extremely poor, missing - Don't know)
Perceived scale of migration	Respondent perception of the scale of future migration in Bangladesh, based on agreement with the following statement: "After seeing the video, I believe that climate change will lead to substantial migration of people in Bangladesh" (5 – Agree very strongly, 4 – Agree, 3 – Neither agree nor disagree, 2 – Disagree, 1 – Disagree very strongly, missing – Don't know)

Appendix C. Additional results

Table C 1. Ordered probit and ordered logit results

	(1)	(2)	(3)	(4)
<i>Dependent variable</i>	<i>Attitude to migrants</i>	<i>Attitude to migrants</i>	<i>Attitude to migrants</i>	<i>Attitude to migrants</i>
<i>Estimation method</i>	<i>Ordered probit</i>	<i>Ordered probit</i>	<i>Ordered logit</i>	<i>Ordered logit</i>
Treatment nature	-0.099 (0.09)	-0.077 (0.09)	-0.172 (0.15)	-0.149 (0.16)
Treatment industrialized	0.046 (0.08)	0.079 (0.09)	0.072 (0.15)	0.129 (0.16)
Treatment government	-0.111 (0.09)	-0.148 (0.09)	-0.195 (0.15)	-0.261 (0.16)
Age		0.004 (0.01)		0.011 (0.01)
Male		0.063 (0.14)		0.066 (0.26)
Head of household		0.180 (0.12)		0.294 (0.20)
Education primary		-0.209** (0.10)		-0.344** (0.17)
Education secondary		-0.428*** (0.10)		-0.781*** (0.18)
Education higher secondary		-0.494*** (0.13)		-0.887*** (0.24)
Education tertiary		-0.679*** (0.14)		-1.220*** (0.25)
Occupation farmer		-0.068 (0.18)		-0.092 (0.33)
Occupation farm labourer		-0.325 (0.26)		-0.464 (0.47)
Occupation gatherer		-0.058 (0.41)		-0.097 (0.79)
Occupation self-employed		-0.124 (0.16)		-0.179 (0.29)
Occupation employer		-0.104 (0.21)		-0.128 (0.37)
Occupation day labourer		-0.146 (0.18)		-0.223 (0.33)
Occupation high skilled employee		0.171 (0.21)		0.335 (0.37)
Occupation low skilled employee		-0.006 (0.21)		0.048 (0.38)
Occupation housewife		0.237 (0.18)		0.377 (0.32)
Occupation student		0.069 (0.20)		0.163 (0.37)
Asset index		-0.113*** (0.04)		-0.194*** (0.07)
Land owner		-0.061 (0.09)		-0.085 (0.16)
Household size		0.031* (0.02)		0.052* (0.03)
Born in host community		0.188 (0.17)		0.346 (0.30)
Years lived in host community		-0.010 (0.01)		-0.020 (0.01)
Migration history		-0.017 (0.05)		-0.007 (0.09)
Union fixed effects	No	Yes	No	Yes
Pseudo r2	0.001	0.106	0.001	0.104
N	1253	1250	1253	1250

Note: Results from ordered probit regressions in columns 1 and 2, and ordered logit regressions in columns 3 and 4. Robust standard errors in parentheses. Variables as defined in Table B1 in Appendix B. *** indicates significance at the 1% level, ** at 5%, * at 10%.

A number of studies suggest that our narratives about the situation of the poor and vulnerable affect how we view them and treat them. Theoretically, a potentially powerful way to make host communities more welcoming of climate migrants is to shift the blame for their situation away from the migrants themselves and onto other forces or agents. We present results from a randomized field experiment conducted among long term residents of host communities in the Satkhira district of Bangladesh. We exposed three treatment groups to narratives that shift the responsibility for climate migration towards natural forces, Westerns countries, and local authorities, respectively. Despite power to detect reasonably small effects, we find no positive effects of the narratives on attitudes to climate migrants. On the contrary, one treatment has a borderline negative effect on attitudes relative to the control group. Our results suggest caution in attempting to influence attitudes through attribution of blame to outside forces or third parties. Such narrative interventions may shift responsibility away from not just the migrants but also from the treated host community residents, and may increase social identification within the host community relative to outsiders.

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