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A randomized experiment on migrant resettlement decisions in Bangladesh[#]
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Abstract

In settings where complex social decisions are made, information is often aggregated into indices to facilitate decision making. The value added of such composite indices depend, inter alia, on the extent to which decision makers trust and make use of them. This paper presents a randomized experiment on the use of an index designed to inform migrant resettlement decisions, using 410 graduate students in Bangladesh as respondents. Respondents were randomly assigned to control and treatment conditions. In the control group, respondents faced a discrete choice experimental set-up where they were asked to allocate 1000 migrants between two locations described by five attributes (availability of cropland, distance to hospital, distance to school, poverty incidence, and frequency of floods, droughts and cyclones). In the treatment group, respondents also had access to the migrant resettlement index for the two locations, and we also had a second control group where an irrelevant attribute was included instead of the resettlement index. The results show that the resettlement index is used by the study participants, and mechanism analyses suggest that this is due to perceptions of improved benefits to costs from using the index to make decisions. Results from the control group also suggest that past adverse environmental events are particularly important for resettlement decisions. Use of the index in decision making does not depend much on respondent background characteristics, but the perceived importance of the five attributes in the control group does vary with background, sometimes in surprising ways. Notably, respondents who grew up in locations where land was scarce or floods, droughts and cyclones were frequent, placed *less* emphasis on these attributes in their migrant resettlement decisions.

Keywords: Migration, climate change, resettlement index, decision making, Bangladesh, discrete choice experiment

1. Introduction

Composite indices receive a lot of attention in debates on international development and sustainability. The Human Development Index (HDI) is a case in point, aggregating individual measures of education, health, and income into a single number, which is then used for annual rankings of countries that meet with considerable public interest. The advantages of such aggregate indices are avoiding over-reliance on individual indicators like GDP per capita, and usefulness for simple comparison, analysis and advocacy (Chowdhury and Squire, 2006). In complex cases, composite indices can also aid decision making by simplifying the considerable information that may be available to decision makers who may not have time or capacity to use it, allowing scarce resources to be allocated better. Importantly, in the face of adverse climate change impacts and other environmental changes, a number of indices have been developed to assess exposure, vulnerability, resilience and adaptive capacity of impacted communities (see Edmonds et al. (2020) for a recent summary).

These advantages notwithstanding, composite indices have been the source of considerable debate in the academic literature. Much of the discussion has revolved around the mechanics of the composite indices: the lack of a clear theoretical framework, the blurring of conceptual clarity that comes from mixing individual dimensions together, the inclusion or exclusion of relevant individual indicators, the aggregation method – including the weights for the individual indicators and the tradeoffs this leads to – robustness of rankings and more (Srinavasan, 1994; Ravallion, 2012). A different – though not unrelated – question related to the usefulness of composite indices is whether they are actually trusted and used by decision makers. In other words, if a decision maker has access to both an aggregate index and underlying information on individual indicators, do they rely on the index or on their own aggregation when making decisions? This is the question we focus on in this article.

We present results from a randomized experiment where we study the effect of having access to a migrant resettlement index on decisions to allocate migrants between host locations within a country. The resettlement index we test the effect of was developed by Walelign and Lujala (2022), and aggregates information on five asset and six condition dimensions central to livelihood reconstruction of migrants in host locations (see Figure A1 in the Appendix and further presentation in Section 2). The experiment was conducted in Bangladesh using graduate students as respondents. The respondents were randomly assigned to three groups which all faced a discrete choice experiment where the task was to allocate internal migrants between two unnamed host locations in Bangladesh, but where the information available on the two locations vary by treatment arm. In the main control group, the two locations are described in terms of five individual indicators (below referred to as attributes); i) availability of cropland, ii) distance to hospital, iii) distance to school, iv) poverty incidence, and v) frequency of floods, droughts and cyclones. The treatment group received information on the same five individual attributes, but also on the composite resettlement index. Since any difference in behaviour between the main control group and the treatment group could be driven by the number of attributes (six versus five) rather than the nature of the sixth attribute, we also included a second control group which received information on the five individual attributes plus an

irrelevant attribute (the number of neighbouring administrative units to the area in question). From the responses, we then elicit the effect of each of the attributes on migrant allocations, which allows us to test whether the resettlement index is trusted and used, and its relative importance compared to the five individual attributes.

The results show that the respondents in the treatment group relied on the resettlement index to allocate migrants, with estimates showing as great or greater emphasis being placed on the index than the five individual attributes. Additional analyses into mechanisms suggest that this is due to the perceived improvement in resettlement decisions the index contributes to, rather than order or experimenter demand effects. The use of the index does not vary with most background characteristics of the respondents, though we see somewhat lower reliance on the index from male respondents and more emphasis on the index by respondents who have a more favourable view of migration. Comparing the weight placed on the five individual attributes in the main control and treatment group, we see a slight (but insignificant) drop in some of their coefficients in the treatment group, but results from the second control group make this finding hard to interpret. The irrelevant attribute included in the second control group proved irrelevant, as expected. However, we observe a similar drop in the weight of the other attribute coefficients as for the treatment group, which means that we cannot rule out that any movement in the importance of these individual attributes when the index is included could be due to the addition of a sixth attribute rather than the specific addition of the resettlement index.

Our analysis speaks to the issue of how the next generation of decision makers assess information on community capacity to adapt to the effects of climate change in a context of extremely high exposure to environmental degradation. More specifically, the article makes three main contributions. First, we add to the understanding of the behavioural side of composite index use, essentially documenting a revealed preference among our respondents for having and using aggregate indices. In our case, it is likely that this is the result of a careful explanation of the index preceding the discrete choice tasks, which has instilled the necessary confidence in the index among our participants. Consistent with this, we show that the weight respondents place on the index proves to be increasing in the extent to which they believe the index was compiled by a competent research team, the ease with which it was conveyed in a clear and understandable manner, and the efficiency with which it can improve allocation decisions. The aforementioned finding that the index is emphasized more by those with a favourable view of migration also indicates that respondents more invested in the issue at hand may be more willing to use the index over other information. These findings can be used to understand settings in which developing and making composite indices available are more likely to be fruitful from an implementation point of view. These insights may also have relevance beyond the specific topic studied here, for example, in understanding information management in organizations more generally (see e.g. Chenhall and Morris, 1986). With the increasing digitalization of decision making processes in business and elsewhere, including the use of artificial intelligence to distil high-dimensional information, knowing the conditions under which aggregation leads to impacts on decision making behaviour is important.

Second, the discrete choice approach we adopt is particularly informative in allowing us to assess future decision makers' perceptions of the relative importance of host community characteristics important for resettlement capacity, as opposed to asking survey questions for one characteristic at a time. While surveys of experts are common in developing composite indices (and was used in developing the index framework by Walelign and Lujala (2022) whose use we test here), a discrete choice approach is not typically used to map expert views. The advantage to doing so, as we show in this paper, is to get better information on the relative weights for the individual indicators included in decision making. In our control group, respondents put a particularly strong emphasis on past adverse environmental events when allocating migrants between locations, the impact being significantly stronger than for most of the other attributes (distance to hospitals being the exception). Our control group results also show that respondent background influences the weight a respondent places on the different attributes, and not always in the way one would intuitively expect. Respondents who grew up in locations with scarcity of cropland or frequent adverse environmental events, judged these attributes to be less important for resettlement decisions. While surprising, these findings nevertheless mirror recent insights from studies of potential migrants suggesting that they may become less inclined to move after having experienced adverse environmental events (Wiig et al., 2022). More generally, while experts may be more objective than students, our results highlights the importance of critically assessing patterns in expert evaluations and implications for the aggregation of their views.

Third, our analysis speaks to the more technical literature on discrete choice experiments. A number of studies have shown that responses to such experiments are dependent on how they are structured, including on the number of attributes included (DeShazo, 2002; Caussade et al., 2005; Hensher, 2006; Weller et al., 2014; Meyerhoff et al., 2015). Our second control group results clearly suggest that this can be important, as the inclusion of an irrelevant attribute significantly changes results for the other attributes compared to the main control group with only five attributes. Since respondents are randomized into treatments, this does not reflect differences in background characteristics in the two control groups. For discrete choice experiments in general, this suggests that more effort should go into checking robustness of findings to alternative designs. And for randomized experiments like the one conducted here, it clearly suggests that if a treatment also leads to a change in design, as it does in our case, a second control group which can be used to assess the effects of such a change is absolutely essential.

The article is structured as follows. Section 2 presents the resettlement index used for the experiment, the experimental design, and the empirical strategy employed. Summary statistics for our sample are presented in Section 3. Section 4 contains our main results, with mechanisms discussed in Section 5 and heterogeneous effects in Section 6. Section 7 concludes.

2. Experimental design and empirical strategy

The experiment is designed to test the use of the resettlement index developed by Walelign et al. (2022) for Bangladesh. The index is based on their climate change resettlement capacity (CCRC) framework (Walelign and Lujala, 2022), which focuses on livelihood reconstruction as a key to successful resettlement of climate change impacted people and communities. The CCRC framework identifies five asset and six condition subdimensions that capture the availability of different resources to the resettled and factors that constrain or facilitate the use of these resources (see Figure A1 in the Appendix). The framework is designed for the purpose of assisting international organizations, governments, planners, and policymakers in identifying both more and less suitable places to resettle communities displaced due to climate change. Besides the index for Bangladesh, the CCRC approach has been used to construct a resettlement capacity index for Ethiopia (Walelign et al. 2021). Here we test the impact of the resettlement index on decision making using data at the union level from Bangladesh. The index has been computed based on 100 underlying individual indicators, including the five indicators that we use as attributes in our discrete choice experiment.

The experiment testing the effect of the resettlement index on migrant resettlement decisions was piloted on May 19, 2022 using a separate sample of 15 masters students recruited from disaster management studies at Dhaka University not included in our main experiment. For the main experiment, 410 masters students were recruited from Dhaka University and the Dhaka School of Economics. The students spanned five academic disciplines/programmes; development economics, environmental and resource economics, economics - other subdisciplines (including economics and entrepreneurship economics), planning and disaster management studies, and social sciences – other subdisciplines (including sociology, anthropology, and political science). The data collection for the main experiment was conducted from May 24 to June 29, 2022. The experiment was implemented in group sessions featuring 10-15 respondents at a time, overseen by a team of enumerators. The respondents were randomized individually into three treatment arms using randomly assigned login codes to the tablets on which the respondents recorded their responses to our questionnaire. After entering basic background information (gender, university, and discipline studied), respondents were shown a five-minute video explaining the discrete choice experiment, the attributes contained in the experiment, including the resettlement index and its construction from underlying data. The respondents then moved to the discrete choice experiment, explained in further detail below, before answering a set of questions designed to study mechanisms and heterogeneous effects in their responses.

In the discrete choice experiment, respondents were asked to allocate 1000 internal climate migrants between two unions A and B.[1] The choice sets used in the experiment took the form captured by Figures 1-3. While the introductory video was identical for all respondents, the attributes used to describe the two unions varied between the treatment arms. In the control group, respondents were

[1] Unions are the lowest tier of regional administration in Bangladesh.

shown information on five individual dimensions for the two unions; the availability of cropland, distance to hospital, distance to school, poverty incidence, and number of past adverse environmental events (cf. Figure 1). The attributes were chosen to reflect both the assets and conditions dimensions of the resettlement capacity framework of Walelign and Lujala (2022), and we included attributes which are very basic and intuitive in these dimensions. To keep the design from being too demanding for the respondents, only two levels were used for each attribute, whether the union scored better or worse on each attribute compared to the average union in Bangladesh. Respondents were told that the two unions were located in rural areas, and told to consider the two unions as identical in all other aspects than the ones included in the choice sets, including the cost of allocating migrants to the two unions. The eight choice sets that the control group responded to in succession were chosen through an orthogonal design procedure.

Figure 1. Sample choice set for control group

Indicator	Union_A	Union_B
Cropland per capita	More than average	Less than average
Distance to hospital	Shorter than average	Longer than average
Distance to school	Shorter than average	Longer than average
Poverty incidence	Lower than average	Higher than average
Flood, drought, and cyclone events	More than average	Fewer than average

Figure 2. Sample choice set for treatment group

Indicator	Union_A	Union_B
Cropland per capita	More than average	Less than average
Distance to hospital	Shorter than average	Longer than average
Distance to school	Shorter than average	Longer than average
Poverty incidence	Lower than average	Higher than average
Flood, drought, and cyclone events	More than average	Fewer than average
Resettlement capacity index	Worse than average	Better than average

Figure 3. Sample choice set for second control group (six attributes)

Indicator	Union_A	Union_B
Cropland per capita	More than average	Less than average
Distance to hospital	Shorter than average	Longer than average
Distance to school	Shorter than average	Longer than average
Poverty incidence	Lower than average	Higher than average
Flood, drought, and cyclone events	More than average	Fewer than average
Number of neighbouring unions	Fewer than average	More than average

For the treatment group, we added the resettlement index as an attribute, also with two levels of being better or worse than average (cf. Figure 2). Apart from this addition, the eight choice sets faced by the treatment group were identical to those of the control group. The values of the index for each choice set was chosen as follows: From all combinations where the index favoured union A in four choice sets, and union B in four choice sets, we selected a combination which was orthogonal to the other five attributes. While the unions in the experiment were in principle hypothetical, their attributes make them all correspond to actual unions in Bangladesh.

A key aim of including the added index attribute is to see whether its presence influences the use of the other five attributes. In order to test whether any change was due to the addition of the aggregate resettlement index, and not simply an increase in the number of attributes from five to six, we also included a second control group in our experiment. Instead of the resettlement index, this second control group included an attribute likely to be irrelevant to respondent decisions of resettling migrants (cf. Figure 3). The attribute chosen was the number of neighbouring unions of each union. While in principle this attribute could be associated with some other union characteristic that the respondents might consider important for resettlement decisions, our pilot data indicated that this attribute did not influence decisions. The eight choice sets faced by the second control group were identical to the treatment group, with better/worse in the index attribute being replaced by more/fewer neighbouring unions on the irrelevant attribute, since its likely irrelevance makes the direction of its levels unimportant.

With two alternatives (Union A and B) over eight choice sets and 410 respondents, our design generates a total of 410*8*2=6560 observations. Since our outcome variable is continuous (0-1000) rather than dichotomous, we analyze the data using ordinary least squares with fixed effects at the respondent-choice set level (and robust standard errors):

$$Allocation_{ijt} = \alpha_{ij} + \boldsymbol{x}_{ijt}\boldsymbol{\beta} + \varepsilon_{ijt} \quad (1)$$

where $Allocation_{ijt}$ is our dependent variable capturing the allocation of migrants of respondent i in choice set j to alternative t, and $\boldsymbol{x}_{ijt}$ is the vector of attribute levels for respondent I's choice set j and alternative t, and $\boldsymbol{\beta}$ the corresponding vector of coefficients for the attributes. The attribute level variables have all been specified as dummy variable which take the value of 1 if assets and conditions are favourable (as would be the case with more than average cropland per capita, and shorter than average distance to hospital), and 0 otherwise. Since there are no observations for the resettlement capacity index attribute or the number of neighbouring unions attribute in the other treatment arms, the full set of attributes and observations cannot be included in the same estimation. We first estimate equation (1) separately for each treatment group using the full set of attributes in order to see the influence of the resettlement capacity index on choices, and then estimate equation for the full set of observations using only the five shared attributes, and including interaction effects between the

attributes and dummies for the treatment and second control group, in order to study whether the availability of additional dimensions significantly affects the use of the five shared attributes. For robustness, we also conduct an additional conditional logit analysis using a dummy that equals one for the union with the largest allocation (i.e. above 500) as the dependent variable, with observations with equal allocations dropped from the sample.

Our main analysis focuses on testing the following four hypotheses for coefficient β_g^h, where h denotes attribute, and g treatment group:

Hypothesis 1: The resettlement index affects decisions of treatment group:

$$\beta_{treatment}^{resettlement\ index} > 0 \tag{2}$$

Hypothesis 2: Including the resettlement index reduces the impact of the other five attributes:

$$\beta_{treatment}^{other\ attributes} \leq \beta_{main\ control\ group}^{other\ attributes} \tag{3}$$

Hypothesis 3: Adding an irrelevant attribute does not affect decisions:

$$\beta_{second\ control\ group}^{number\ of\ neighbouring\ unions} = 0 \tag{4}$$

Hypothesis 4: Adding an irrelevant attribute does not affect the impact of the other five attributes:

$$\beta_{second\ control\ group}^{other\ attributes} = \beta_{main\ control\ group}^{other\ attributes} \tag{5}$$

In other words, our prior expectation is that the resettlement index should have a significant effect on allocation of migrants between unions (hypothesis 1), and that having access to it means that less weight is placed on other five dimensions (hypothesis 2 where the other dimensions are cropland per capita, distance to hospital, distance to school, poverty incidence, and floods, droughts and cyclone events). Including an irrelevant attribute should neither affect decisions (hypothesis 3) nor the weight placed on the other attributes (hypothesis 4). If hypothesis 2 holds, hypothesis 4 is included to test that the lower influence of the other attributes in the treatment group is due to the inclusion of the resettlement index rather than merely an increase in the number of attributes.

3. Descriptive statistics

The variables used in our analysis are defined in Table A1 in the Appendix. The dependent variables and attributes are as explained above, and together with the treatment variables form the main focus of the paper. However, we also include a number of survey questions which we use for analyzing mechanisms and heterogeneous effects. Data from 410 respondents who each made eight comparisons of two alternative unions gives us a total of 6560 observations. The main control group facing five attributes in the discrete choice experiment counts 136 respondents, the other two treatment arms consist of 137 respondents.

In Table A2 in the Appendix, we present descriptive statistics for our background variables at the individual level.[2] We return to the seven variables in the middle rows of the table in Section 5 on Mechanisms. For the demographic and attitude variables at the bottom of the table, we note that the backgrounds of our respondents are quite diverse. 61 per cent are male, a little over half are from an urban background, two-thirds study economics – the rest planning studies or other social sciences – almost half have a history of migrating in the first two decades of their lives, and over 60 per cent views migration to their home region as high in recent years. We also measure perceived conditions in the unions from which the respondents originate on each of the five attributes included in the discrete choice experiment. More than 60 per cent originate from unions where cropland per capita was scarce compared to the rest of Bangladesh, 45 and 25 per cent grew up in unions where hospitals and schools were more distant compared to the rest of the country, respectively, 42 per cent grew up in unions with a high level of poverty compared to the rest of Bangladesh, and 37 per cent grew up in locations where floods, droughts, and cyclones were more frequent than in the rest of the country. Means for the last two variables in Table A2 reflect the share that have a positive view of migrants (23 per cent), and of the importance of climate change as a phenomenon (58 per cent). We use the variables to analyze heterogeneous effects in Section 6 on heterogeneities.

Table A3 shows that there is balance across treatment groups in demographic background and attitudes. While the control group facing five attributes have a lower proportion of respondents that study economics compared to the other two groups, a larger share of respondents in the control group with an irrelevant sixth attribute included grew up in an area where cropland was scarce than in the other two groups, and a higher proportion of respondents in the control group facing six attributes grew up in an area where poverty was common compared to the control groups facing five attributes, these differences are no more numerous than expected by chance. The final column of Table A3 presents 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 in studying economics and growing up where cropland is scarce, which again is no more than one can expect by chance.

[2] Descriptive statistics for the allocation variables and the discrete choice attributes are not that interesting, as the average allocation of refugees to a union is 500 by design, and the attribute levels are balanced.

Randomization appears to have worked well in taking out differences in background characteristics between treatment groups.

4. Main results

The main results of the experiment are presented in Table 1. The first three columns present results for each treatment arm separately, with results for the main control group featuring five attributes in the discrete choice design in column one, results for the treatment group who additionally saw the resettlement index in column two, and results for the second control group including an additional irrelevant attribute in column three. Column four presents results using the full sample of observations, and including interaction effects between all the attributes and dummies for being in the treatment group or in the second control group with six attributes. Please note that in all regressions that include interaction terms, the main term of the variable the attributes are interacted with is subsumed in the fixed effects. The results in column two show that respondents in the treatment group use the resettlement index when choosing to allocate migrants between the two unions; the union that scores better on the index is on average allocated an additional 71 migrants according to the point estimate. The point estimate is also higher than those of the other five attributes, though significantly greater than only cropland per capita (p=.0111), distance to school (p=.0451), and poverty incidence (p=.015).

Comparing results from the main control group (column one) and the treatment group (column two), there are notable drops in the coefficients of three of the attributes when the resettlement index is added; cropland per capita, poverty incidence, and floods, droughts and cyclones all see drops of about 20 units. However, as shown by the interaction effects in column four, none of these drops are statistically significant. Moreover, the results for the second control group in columns three and four shed some additional light on the effects of these attributes. As expected, the attribute presumed to be irrelevant (number of neighbouring unions) is in fact irrelevant to the resettlement decisions (column three). But its inclusion reduces the coefficients of the same three variables as in the treatment group; cropland per capita, poverty incidence, and floods, droughts and cyclones, and the interaction effects in column four show that these changes are significant. This does not affect our main result that the resettlement index is used by the respondents having access to it, however, it means that any movement we see in the other five attributes may be the result of adding a sixth attribute generally rather than an effect of specifically including the resettlement index.

The results from the main control group in column one are also informative in how our respondents would perceive the relative importance of the five attributes for migrant allocation decisions when not having access to an aggregate index. Floods, droughts and cyclone events emerges as the relatively most influential one; the more favourable location is on average allocated 82 more migrants than the less favourable one. The coefficient of this attribute is also statistically greater than those of three of the other attributes; cropland per capita (p= .0291), distance to school (p= .0185), and poverty incidence (p= .0929), though not statistically greater than distance to hospital, nor are the other

coefficients statistically different from each other. The pattern that emerges from this is nevertheless that for future decision makers in heavily climate change exposed Bangladesh, past environmental damage matters for the assessment of which areas are favourable for future settlement decisions, and more so than agricultural and economic conditions, and certain forms of infrastructure (schools).

Table 1. Main results

	(1)	(2)	(3)	(4)
Dependent variable	*Allocation of migrants*	*Allocation of migrants*	*Allocation of migrants*	*Allocation of migrants*
Sample	*Control five*	*Treatment*	*Control six*	*Full*
Cropland per capita	46.256***	28.334**	-12.821	46.256***
	(11.97)	(12.10)	(11.30)	(11.96)
Distance to hospital	61.656***	67.797***	63.945***	61.656***
	(11.97)	(12.10)	(11.30)	(11.96)
Distance to school	43.219***	36.965***	54.657***	43.219***
	(11.97)	(12.10)	(11.30)	(11.96)
Poverty incidence	52.417***	31.104**	17.204	52.417***
	(11.97)	(12.10)	(11.30)	(11.96)
Flood, drought, and cyclone events	82.086***	62.597***	43.697***	82.086***
	(11.97)	(12.10)	(11.30)	(11.96)
Resettlement index		71.060***		
		(12.10)		
Number of neighbouring unions			2.526	
			(11.30)	
Treatment*Cropland per capita				-17.922
				(17.15)
Treatment*Distance to hospital				6.141
				(17.15)
Treatment*Distance to school				-6.253
				(17.15)
Treatment*Poverty incidence				-21.313
				(17.15)
Treatment*Flood, drought, and cyclone events				-19.490
				(17.15)
Control six*Cropland per capita				-59.077***
				(16.45)
Control six*Distance to hospital				2.289
				(16.45)
Control six*Distance to school				11.438
				(16.45)
Control six*Poverty incidence				-35.213**
				(16.45)
Control six*Flood, drought, and cyclone events				-38.389**
				(16.45)
Constant	357.183***	351.071***	415.396***	386.887***
	(13.52)	(15.52)	(14.27)	(7.82)
r2	0.100	0.095	0.063	0.077
N	2176	2192	2192	6560

*Note: Results from linear regressions with choice set fixed effects. Robust standard errors in parentheses. For all independent variables, the higher value reflects more favourable socio-economic or environmental conditions. Main term for the interacted variables captured by the fixed effects. *** indicates significance at the 1% level, ** at 5%, * at 10%.*

In Table A4 in the Appendix, we run conditional logit analyses corresponding to that of Table 1, using a dummy variable for the union allocated the largest number of migrants as the dependent variable (we drop observations where the allocation to both unions in a choice set is equal, i.e. 500). We do this to demonstrate the our results are robust to more traditional methods of analysing discrete choice experiment data, in addition, this also constitutes a test of whether our results are driven by

respondents making extreme allocation decisions (i.e. allocating all 1000 refugees to one union). As shown in Table A4, where results are presented as odds ratios, meaning values higher than one signify more refugees allocated to unions that do better on the attributes in question, and values lower than one signify fewer refugees allocated to the more favourable union, the results from the conditional logit analysis are qualitatively similar to our main results using linear fixed effects regressions.

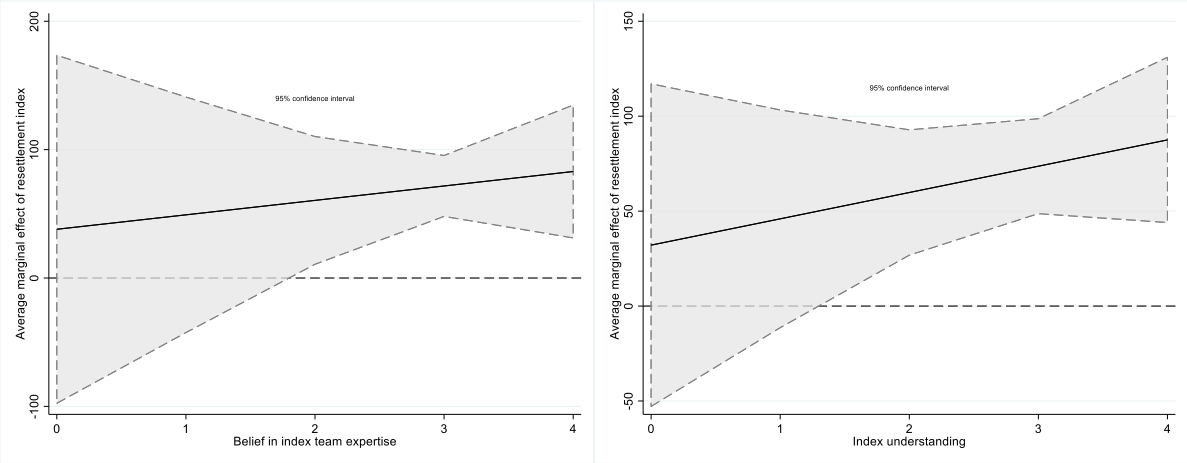
5. Mechanisms

Judging from its impact on migrant allocation decisions in the discrete choice experiment, our respondents appear to view the resettlement index as useful. In this section, we perform additional analyses to shed some light on whether and why this is the case. One set of reasons for using the index could be that our respondents see the index as facilitating better allocation decisions, and/or allowing such decisions to be made more efficiently compared to considering a larger set of individual attributes. Another, less benign reason for using the index it that it is simply convenient for the decision maker, that it saves time without making decisions better, or that using the index is a way of avoiding accountability for allocation decisions, since the index has been constructed by someone else than the respondent. Moreover, while the lack of significance of the irrelevant sixth attribute in the second control group suggests that the fact that being the last attribute in itself does not mean it is given attention, the possibility that the salience of being at the bottom of each choice card can be a reason for the significant effect of the resettlement index should be checked further. In addition, since the index was introduced in the video preceding the experiment, its importance in decision making could also be due to experimenter demand effects. In what follows, we explore these mechanisms further using information from survey questions on perceptions of the index asked after respondents had completed the choice tasks.

Evidence from our survey questions indicate that our introductory video convinced respondents both of the expertise of the team constructing the resettlement index, and provided respondents with a good understanding of its construction. When asked whether they agreed with the statement "The expertise of the team behind the index presented in the video seems convincing" (with response categories 0 - Disagree very strongly, 1 - Disagree, 2 - Neither agree nor disagree, 3 - Agree, 4 - Agree very strongly), 86 per cent of respondents agreed or agreed very strongly with the statement. Similarly, 78 per cent agreed or agreed very strongly with the statement "It was easy to understand how the index that was presented in the video was constructed." The benefits of using the index in making migrant allocations thus seem to be clear to the respondents. In Table A5 in the Appendix, we present results for the treatment group where we interact the resettlement index with responses to these two questions in columns one and two, respectively. The results are summarized in the marginsplots in Figure 4. The plots essentially convey two things. Firstly, few respondents displayed a low belief in the expertise of the index team, or found the index difficult to understand, as reflected in the width of the confidence intervals at lower values of these variables. Secondly, the average marginal impact of the resettlement index on resettlement decision increase with agreement with both the expertise and ease of

understanding of the index and is significant for the large majorities of respondents who agreed with these aspects, suggesting that trust in the expertise behind and the content of the index are important reasons why they have been used.[3]

Figure 4. Marginsplots showing average marginal effect of resettlement index by belief in index team expertise (left panel) and index understanding (right panel)



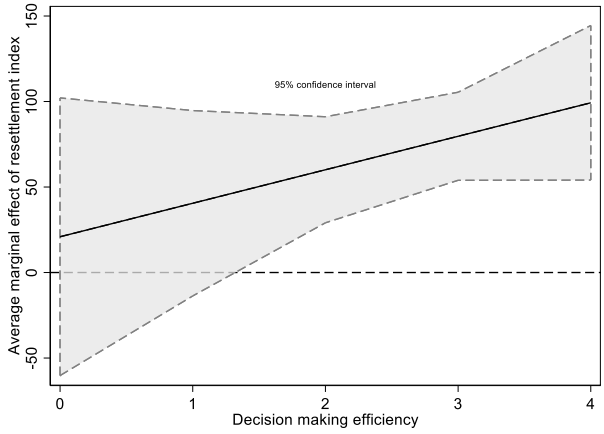
In column three of Table A5, we explore a further nuance in the potential benefits respondents see from using the index. One possibility is that they perceive the weights given to the five other attributes in constructing the index as convincing, another is that they believe the index incorporates more information than contained in the five attributes. While a majority of respondents (73 per cent) agree or agree very strongly with the statement "The index presented in the video is based on more extensive information on the unions than the individual characteristics on access to land, health, education, poverty and exposure to hazards", interacting the resettlement index with this variable does not indicate that those in greater agreement tended to rely more on the index. On the contrary, index importance decreases with agreement with this statement, making it unlikely that incorporation of additional dimensions is driving views of the benefits of the index.

The fourth column of Table A5 assesses the possibility that respondents believe the index does not only lead to better decisions, but also to greater efficiency in decision making. Two-thirds of respondents agreed with the statement "Having access to an index like the one presented in the video means that decisions can be made more quickly, while still being good decisions." Moreover, the marginsplot in Figure 5 illustrates results when this variable is interacted with the resettlement index as in column four of Table A5. Again, the width of the confidence intervals at low levels of agreement that the index improves decision making efficiency are due to a smaller number of observations here,

[3] On a related note, the control group facing a sixth, irrelevant attribute did not express a lower mean opinion of the expertise of the index team in the video than the main control group (p=.787) or the treatment group (p=.574). This indicates that their lower emphasis on some of the five first attributes is not due to a loss of confidence in the meaningfulness of the discrete choice exercise when an irrelevant dimension is included.

and the effect of the index on decision making is significant for those who agree that it increases decision making efficiency. In combination with the above results, this suggests that respondents see the index as both leading to better decisions, and also more efficient decision making.

Figure 5. Marginsplot showing average marginal effect of resettlement index by decision making efficiency from resettlement index



Two further survey questions allow us to address the more problematic possibility that the index is simply seen as a convenient way to simplify decision making without improving decisions, or as a way of avoiding accountability by being able to blame decision on someone else. While 76 per cent of respondents agreed or agreed very strongly with the statement "I believe other study participants will rely on the index to make decisions simply because it saves time, without necessarily improving their decisions", results from column five of Table A5, where this variable is interacted with the resettlement index indicate that agreement or disagreement with the statement does not preclude use of the index (a marginsplot in this case would reveal that the index has a significant effect on decisions for all levels of agreement with the statement). Only about half (51 per cent) of respondents agreed with the statement "I believe other study participants will rely on the index to make decisions because they can then blame poor decisions on flaws in the index". And the interaction of this variable with the resettlement index in column six of Table A5 shows that use of the index does not vary much with the extent of agreement with this statement. In other words, simple convenience or avoiding accountability does not seem to be influential on index use.

The final column of Table A5 interacts the resettlement index with a dummy variable capturing whether respondents were able to correctly identify which position the resettlement index had in the choice cards used in the discrete choice experiment. Surprisingly, only 55 per cent of respondents in the treatment group correctly stated that the resettlement index came last among the attributes. In general, this lack of recollection of the order of attributes is also reflected in responses to other questions we asked about the attribute order. Only 52 per cent of respondents in the treatment group were able to correctly answer what the second attribute on the choice cards was (distance to hospital),

and only 41 per cent correctly answered that the fifth attribute was floods, droughts, and cyclone events. In general, the attention that respondents had to the order of attributes in the discrete choice experiment does not seem that high. Nevertheless, as seen in the final column of Table A5, results for the resettlement index are driven by those who correctly noted that the resettlement index was the last attribute on the choice card. We therefore cannot entirely rule out some order effect here. Nevertheless, and as stated earlier, it seems unlikely that order alone is driving the effect of the resettlement index, as in that case we should also see an effect of the irrelevant attribute included as the final attribute for the second control group.

The attributes used in the discrete choice experiments were all presented in the introductory video, but there could still be a possibility that respondents perceived the resettlement index to be more important to the team of researchers, and the effects of the resettlement index in the treatment group due to experimenter demand effects. To gain some evidence on this, at the end of our survey we asked respondents a set of questions on what they perceived to be the purpose of the experiment. While many respondents were confident that they knew what the purpose of the experiment was, we also asked an open question asking them what they believed the purpose was. The answers were typically very general, and did not indicate that respondents believed testing the effect of the resettlement index on migrant allocation decisions was the main purpose of the experiment.[4] It therefore seems unlikely that the effects uncovered are driven by perceived expectations from the team of researchers.

6. Heterogeneous effects

Using data from Bangladesh, Lujala et al. (2020) show that attitudes towards migrants and migration vary with a number of character traits, importantly spatial, attitudinal and social proximity to migrants and their situation. Views on the proper allocation of migrants across resettlement locations is likely to similarly depend on the background of the respondent, on life experiences and formed beliefs and attitudes. General traits like gender and whether you grew up in a rural or urban community comes with different experiences which may influence views on resettlement. Moreover, specific experiences related to migration, such as having migrated yourself or being from an area with substantial in-migration may give you a different view of what an area needs to be a good destination for migrants. Whether you think a particular attribute is important to settle migrants in a location may also depend on whether that attribute was scarce in the region you come from. In addition, attitudes towards migrants and towards climate change may influence responses, with the possibility that those more critical to either phenomenon take the allocation task in our experiment less seriously. Using survey data on demographic, experiential, and attitudinal variables for our respondents, we explore such heterogeneities in this section.

[4] While too numerous to recount here, the full set of answers are available from the authors on request.

In Table A6 in the appendix, we consider whether decisions in the discrete choice experiment varies with gender, urban vs rural background, and discipline studied. In column one and two, we interact all the attributes with a dummy variable for being male, for the main control group and the treatment group, respectively. The results in column two show that male respondents place less emphasis on the resettlement index, however, the effect remains significant for both genders.[5] Column one reveals some gender differences in the weight placed on the five attributes for the control group; males place less emphasis on available cropland and more emphasis on hospitals in their resettlement decisions. Columns three and four present corresponding results where the attributes are interacted with a dummy for whether the respondent grew up in an urban area. This does not significantly affect use of the resettlement index, as shown in column four. Urban respondents in the control group place less emphasis on closeness to hospitals and more on poverty in their allocation decisions, as seen in column three. The final two columns of Table A6 interacts the attributes with a dummy variable capturing whether the respondent studies economics as opposed to planning studies or other social sciences. The results reveal little variation in responses across this disciplinary divide.

Turning to the question of how specific experiences with migration and migrants may shape resettlement decisions, Table A7 offers evidence on this. In the first two columns, the attributes are interacted with a dummy variable capturing whether the household the respondent grew up in migrated from one union to another in the first two decades of the respondent's life. The last two columns interact the attributes with a dummy variable for whether the extent of recent migration to the area where respondent grew up is high. The use of the resettlement index does not vary with either of these two interaction variables (columns two and four). For the control group results, respondents with a history of migration place less emphasis on poverty incidence in their relocation decisions (column one), and respondents from areas with a lot of in-migration put less weight on cropland, poverty and past adverse environmental events.

In Table A8, we test whether respondents place more emphasis on attributes which were scarce in the location the respondent grew up. To this end, we use data from the main control group, and in columns one through five interact each attribute with dummy variables capturing whether that attribute was scarce where the respondent grew up. The results reveal some patterns contrary to what could be expected; respondents who grew up in regions where cropland was scarce place significantly less weight on this attribute (column one), and those that grew up in locations where past environmental events were frequent place less weight on this attribute in allocating migrants (column five). One interpretation is that experience from such adversities may have tempered views that these attributes are essential for resettling migrants. And as noted, this is consistent with results from the study of potential migrants from climate affected coastal areas of Bangladesh conducted by Wiig et al. 2022,

[5] In unreported estimations (available on request), we find that the lesser emphasis of males on the resettlement index is not due to overconfidence. Our measure of overconfidence is agreement with the statement "I am better placed than the average person at making decisions that have large consequences for people", which correlates only weakly with gender, and the gender effects in Table A6 does not change substantially when controlling for additional interaction terms between the attributes and the confidence measure.

which finds that previous experience of adverse environmental events makes people less inclined to migrate. For the other three attributes, there are no significant differences for respondents who have experienced scarceness in each of them.

Finally, in Table A9 in the Appendix, we test whether responses depend on respondent views of migrants, and on climate change. In the first two columns, we interact the attributes with a dummy variable for whether respondents have a favourable view of migrants. This dummy reflects whether the respondent disagrees or disagrees very strongly with the statement "We should help people where they are rather than help them migrate to other locations." The results in column two show that respondents with a more favourable view of migrants place more emphasis on the resettlement index in their decisions, but the impact is also significant in the group with less favourable views. Results for the control group in column one indicates that those with favourable views of migrants place more emphasis on poverty incidence and past adverse environmental events, however, all attributes also have a significant impact on choices in the group with less favourable views. In the final two columns of Table A9, we similarly interact the attributes with a dummy variable reflecting respondent views on climate change. The dummy variable in this case captures disagreement or very strong disagreement with the statement "The problem of climate change is exaggerated in the media". Responses to this underlying question has a two-peaked distribution, suggesting two opposing camps on this question. Results in column four indicates, however, that differences in views on climate change do not lead to different emphasis on the resettlement index. And results in column three suggest that while those who disagree with the statement place more emphasis on cropland and poverty incidence in resettling migrants, the three other attributes influence decisions in the group who agree with the statement in question. The concern that the experiment will be experience as less meaningful for respondents more critical to migrants and to climate change is hence not borne out. If this was the case, responses in this group should be mere noise, and the coefficients insignificant. We do not see this in the data, which means that there is little reason to conclude that the more migrant and climate change critical see the task or allocating migrants across two locations as less meaningful.

In sum, the results discussed in this section show that the use of the resettlement index does not vary that much with respondent characteristics, the exceptions being that males put somewhat less emphasis on the index, and that those with more favourable views of migration use it more. The views of respondents on how the five individual attributes should be weighted varies with background, however. The most surprising findings in this respect is that respondents who grew up in areas where cropland was scarce and floods, droughts and cyclones frequent, tend to emphasize these attributes less in their migrant allocation decisions. In addition, we see some variation according to gender, urban background, migration experience personally and at the community level, and attitudes towards migration and climate change, but little variation over educational background.

7. Conclusion

In coming decades, the IPCC (2022) projects that climate change will affect the lives and livelihoods of hundreds of millions of people in developing countries. Considerable effort is going into understanding which areas of the world are the most vulnerable to these changes, and where adaptive capacity needs to be strengthened. Mapping vulnerabilities and potential through the creation of aggregate indices is one important way in which this is being done. While much of the analysis of these matters has focused on conceptual and mechanical aspects, attention to the behavioural side is also important. If aggregate information on vulnerabilities and adaptive capacities is not trusted or used by decision makers, their value added is limited. This article has tested the effect of a migrant resettlement index on migrant allocation decisions, and found it to hold promise in influencing decisions. Under the conditions studied here, where perceptions of strong underlying expertise and ease of understanding the index have inspired confidence in its efficiency, the development and dissemination of these forms of composite information tools seem productive. This does not mean that technical challenges in compiling composite indices should be downplayed, the technical and behavioural aspects are in fact tightly linked as it is hard to convince informed decision makers of the usefulness of indices that lack a strong basis.

Some limitations to our analyses should be noted. We have used a sample of graduate students for our experiment, which means we are focusing on the next generation of decision makers. The extent to which current decision makers in the area of social planning would make similar decisions is more of an open question. Their years of experience may lead them to trust their own aggregation of individual indicators over composite indices; on the other hand, the index in question has been developed in communication with experts like them, which could produce greater confidence in the composite index. Of course, actual decisions within a full bureaucratic and political context are going to be different from the hypothetical and relatively constraint-free decisions we have asked our respondents to make. External validity of our results to other countries should also be considered, the higher education sector in Bangladesh is substantially stronger than in many other developing countries, which could, on the one hand, lead students to get a better grasp of how the index in question is constructed, but, on the one hand, give them more of a background to make decisions based on their own assessment of the individual indicators. These challenges should be addressed in further research.

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Appendix

Figure A 1. Climate change resettlement capacity (CCRC) assessment framework. Source: Walelign and Lujala (2022).

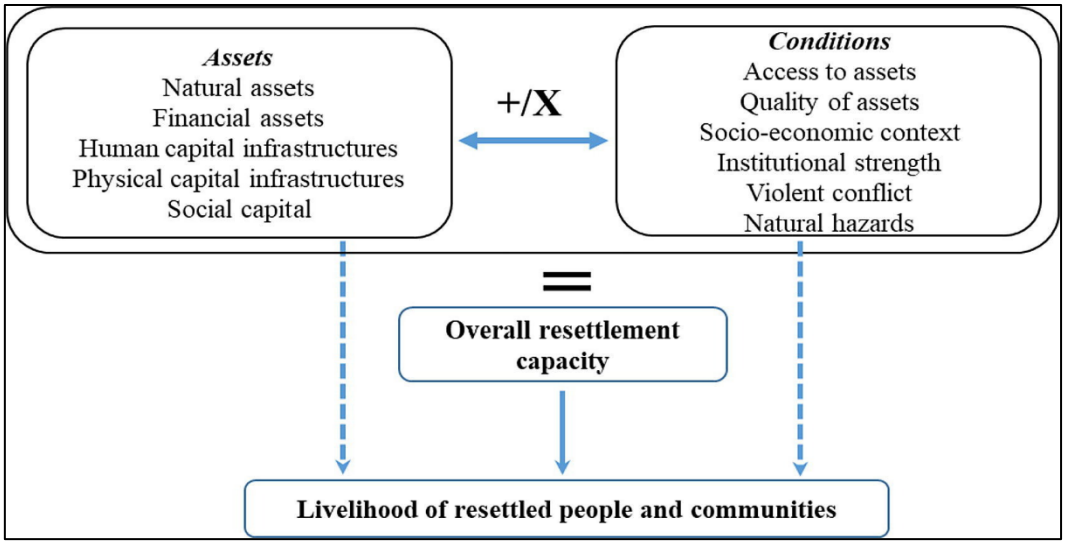

Table A 1. Main variables.

Variable	Explanation
Dependent variables	
Allocation of migrants	Number of migrants allocated to each union in the discrete choice experiment (0-1000)
Allocation dummy	Dummy variable for union to which the greater number of migrants is allocated
Attributes	
Cropland per capita	Dummy for whether union in choice set has more cropland per capita than the average union in Bangladesh (1 - More than average, 0 - Less than average)
Distance to hospital	Dummy for whether union in choice set has shorter distance to a hospital than the average union in Bangladesh (1 - Shorter than average, 0 - Longer than average)
Distance to school	Dummy for whether union in choice set has shorter distance to a school than the average union in Bangladesh (1 - Shorter than average, 0 - Longer than average)
Poverty incidence	Dummy for whether union in choice set has less poverty than the average union in Bangladesh (1 - Less poverty, 0 - More poverty)
Flood, drought, and cyclone events	Dummy for whether union in choice set has fewer floods, droughts, and cyclone events than the average union in Bangladesh (1 - Less poverty, 0 - More poverty)
Resettlement index	Dummy for whether union in choice set scores better than on the resettlement index than the average union in Bangladesh (1- Better score, 0 - Worse score)
Number of neighbouring unions	Dummy for whether union in choice set borders on more neighbouring unions than the average union in Bangladesh (1 - More neighbouring unions, 0 - Fewer neighbouring unions)
Treatment variables	
Control five	Dummy variable of whether respondent is assigned to the discrete choice experiment control group with five attributes (1 – Yes, 0 – No)
Treatment	Dummy variable of whether respondent is assigned to the discrete choice experiment treatment group where resettlement index is included as an attribute (1 – Yes, 0 – No)
Control six	Dummy variable of whether respondent is assigned to the discrete choice experiment control group with a sixth attribute included (1 – Yes, 0 – No)
Mechanism variables	
Belief in index team	Respondent agreement with the statement "The expertise of the team behind the index presented in the video seems convincing." (0 - Disagree very strongly, 1 - Disagree, 2 - Neither agree nor disagree, 3 - Agree, 4 - Agree very strongly)
Index understanding	Respondent agreement with the statement "It was easy to understand how the index that was presented in the video was constructed." (0 - Disagree very strongly, 1 - Disagree, 2 - Neither agree nor disagree, 3 - Agree, 4 - Agree very strongly)
Belief additional information	Respondent agreement with the statement "The index presented in the video is based on more extensive information on the unions than the individual characteristics on access to land, health, education, poverty and exposure to hazards." (0 - Disagree very strongly, 1 - Disagree, 2 - Neither agree nor disagree, 3 - Agree, 4 - Agree very strongly)
Decision making efficiency	Respondent agreement with the statement "Having access to an index like the one presented in the video means that decisions can be made more quickly, while still being good decisions." (0 - Disagree very strongly, 1 - Disagree, 2 - Neither agree nor disagree, 3 - Agree, 4 - Agree very strongly)
Decision time saved	Respondent agreement with the statement "I believe other study participants will rely on the index to make decisions simply because it saves time, without necessarily improving their decisions." (0 - Disagree very strongly, 1 - Disagree, 2 - Neither agree nor disagree, 3 - Agree, 4 - Agree very strongly)
Reduced accountability	Respondent agreement with the statement "I believe other study participants will rely on the index to make decisions because they can then blame poor decisions on flaws in the index." (0 - Disagree very strongly, 1 - Disagree, 2 - Neither agree nor disagree, 3 - Agree, 4 - Agree very strongly)
Correct index position	Dummy variable for whether respondent correctly identified the resettlement index as having been included as the final attribute in the discrete choice experiment (1 - Correct, 0 - Incorrect)
Heterogeneous effects variables	
Male	Dumme variable for gender of respondent (1 – male, 0 – female)
Urban	Dummy variable for whether respondent grew up in an urban area (1 – Yes, 0 – No)
Economics	Dummy variable for whether respondent studies economics (1 – Economics, 0 – Planning studies or other social sciences)
Migration history	Dummy variable for whether the household the respondent grew up in migrated from one union to another in the first two decades of the respondent's life (1 - Yes, 0 - No)
Migration to home region	Dummy variable for stated extent of recent migration to area where respondent grew up (1 - High, 0 - Low)
Cropland scarce	Dummy variable for whether respondent states that available cropland was scarce in the union where respondent grew up relative to the rest of Bangladesh (1 - Yes, 0 - No)
Hospital distant	Dummy variable for whether distance to a hospital where respondent grew up is above the mean of the sample (1 - Yes, 0 - No)
School distant	Dummy variable for whether distance to a secondary school where respondent grew up is above the mean of the sample (1 - Yes, 0 - No)
Poverty high	Dummy variable for whether respondent states that poverty was high in the union where respondent grew up relative to the rest of Bangladesh (1 - Yes, 0 - No)
Floods, droughts, and cyclones frequent	Dummy variable for whether respondent states that floods, drought and/or cyclones were more frequent in the union where respondent grew up relative to the rest of Bangladesh (1 - Yes, 0 - No)
Attitude to migrants	Dummy variable for whether respondent disagrees with the statement that "We should help people where they are rather than help them migrate to other locations." (1 - Disagrees very strongly/disagrees/neither agrees nor disagrees, 0 - Agrees very strongly/agrees)
Attitude to climate change	Dummy variable for whether respondent disagrees with the statement that "The problem of climate change is exaggerated in the media" (1 - Disagrees very strongly/disagrees/neither agrees nor disagrees, 0 - Agrees very strongly/agrees)

Table A 2. Descriptive statistics, by respondents

	Obs	Mean	Std. Dev.	Min	Max
Control five	410	0.332	0.471	0	1
Treatment	410	0.334	0.472	0	1
Control six	410	0.334	0.472	0	1
Belief in index team	408	2.909	0.618	0	4
Index understanding	402	2.846	0.741	0	4
Belief additional information	406	2.815	0.791	0	4
Decision making efficiency	402	2.709	0.825	0	4
Decision time saved	404	2.832	0.785	0	4
Reduced accountability	397	2.463	0.863	0	4
Correct index position	137	0.547	0.500	0	1
Male	410	0.612	0.488	0	1
Urban	410	0.520	0.500	0	1
Economics	410	0.663	0.473	0	1
Migration history	410	0.459	0.499	0	1
Migration to home region	404	0.606	0.489	0	1
Cropland scarce	410	0.612	0.488	0	1
Hospital distant	410	0.454	0.498	0	1
School distant	410	0.254	0.436	0	1
Poverty high	410	0.422	0.494	0	1
Floods, droughts, and cyclones frequent	410	0.371	0.484	0	1
Attitude to migrants	407	0.231	0.422	0	1
Attitude to climate change	410	0.578	0.494	0	1

Table A 3. Balance across treatments, by respondents

	Control five	Treatment	Control six	p-value (control five vs treatment)	p-value (control five vs control six)	p-value (treatment vs control six)	Orthogonality test
Male	0.618	0.613	0.606	0.939	0.842	0.902	0.980
	(0.042)	(0.042)	(0.042)				
Urban	0.537	0.547	0.474	0.860	0.305	0.228	0.429
	(0.043)	(0.043)	(0.043)				
Economics	0.559	0.708	0.723	0.010	0.005	0.790	0.009
	(0.043)	(0.039)	(0.038)				
Migration history	0.441	0.431	0.504	0.862	0.303	0.227	0.427
	(0.043)	(0.042)	(0.043)				
Migration to home region	0.560	0.644	0.615	0.157	0.360	0.616	0.358
	(0.043)	(0.041)	(0.042)				
Cropland scarce	0.559	0.577	0.701	0.767	0.015	0.033	0.027
	(0.043)	(0.042)	(0.039)				
Hospital distant	0.463	0.445	0.453	0.766	0.860	0.904	0.956
	(0.043)	(0.043)	(0.043)				
School distant	0.265	0.219	0.277	0.380	0.815	0.265	0.493
	(0.038)	(0.035)	(0.038)				
Poverty high	0.375	0.409	0.482	0.569	0.075	0.226	0.192
	(0.042)	(0.042)	(0.043)				
Floods, droughts, and cyclones freque	0.368	0.336	0.409	0.583	0.488	0.213	0.458
	(0.041)	(0.040)	(0.042)				
Attitude to migrants	0.231	0.235	0.226	0.939	0.921	0.860	0.985
	(0.037)	(0.037)	(0.036)				
Attitude to climate change	0.588	0.628	0.518	0.506	0.246	0.067	0.180
	(0.042)	(0.041)	(0.043)				
N	136	137	137				

Table A 4. Conditional logit estimation results using migrant allocation dummy as dependent variable.

	(1)	(2)	(3)	(4)
Dependent variable	*Allocation dummy*	*Allocation dummy*	*Allocation dummy*	*Allocation dummy*
Sample	*Control five*	*Treatment*	*Control six*	*Full*
Cropland per capita	1.230***	1.221***	0.936	1.230***
	(0.08)	(0.09)	(0.07)	(0.08)
Distance to hospital	1.349***	1.414***	1.470***	1.349***
	(0.09)	(0.10)	(0.10)	(0.09)
Distance to school	1.262***	1.175**	1.417***	1.262***
	(0.09)	(0.08)	(0.10)	(0.09)
Poverty incidence	1.342***	1.193**	1.088	1.342***
	(0.09)	(0.08)	(0.08)	(0.09)
Flood, drought, and cyclone events	1.466***	1.399***	1.192**	1.466***
	(0.10)	(0.10)	(0.08)	(0.10)
Resettlement index		1.479***		
		(0.10)		
Number of neighbouring unions			1.006	
			(0.07)	
Treatment*Cropland per capita				0.981
				(0.10)
Treatment*Distance to hospital				1.037
				(0.10)
Treatment*Distance to school				0.938
				(0.09)
Treatment*Poverty incidence				0.874
				(0.09)
Treatment*Flood, drought, and cyclone events				0.941
				(0.09)
Control six*Cropland per capita				0.761***
				(0.07)
Control six*Distance to hospital				1.090
				(0.11)
Control six*Distance to school				1.123
				(0.11)
Control six*Poverty incidence				0.811**
				(0.08)
Control six*Flood, drought, and cyclone events				0.813**
				(0.08)
r2_pseudo	0.071	0.077	0.053	0.059
N	1868	1802	1784	5454

*Note: Results from conditional logit estimations. Robust standard errors in parentheses. For all independent variables, the higher value reflects more favourable socio-economic or environmental conditions. Main term for the interacted variables captured by the fixed effects. *** indicates significance at the 1% level, ** at 5%, * at 10%.*

Table A 5. Mechanism regressions

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Dependent variable	*Allocation of migrants*	*Allocation of migrants*	*Allocation of migrants*	*Allocation of migrants*	*Allocation of migrants*	*Allocation of migrants*	*Allocation of migrants*
Sample	*Treatment*	*Treatment*	*Treatment*	*Treatment*	*Treatment*	*Treatment*	*Treatment*
Cropland per capita	28.334**	24.835**	28.291**	29.994**	28.939**	24.994**	28.334**
	(12.10)	(12.28)	(12.09)	(12.24)	(12.11)	(12.18)	(12.02)
Distance to hospital	67.797***	69.357***	67.598***	64.558***	66.765***	67.073***	67.797***
	(12.10)	(12.28)	(12.09)	(12.24)	(12.11)	(12.18)	(12.02)
Distance to school	36.965***	36.263***	41.680***	38.073***	38.624***	40.051***	36.965***
	(12.10)	(12.28)	(12.09)	(12.24)	(12.11)	(12.18)	(12.02)
Poverty incidence	31.104**	27.726**	28.509**	30.401**	30.639**	26.720**	31.104***
	(12.10)	(12.28)	(12.09)	(12.24)	(12.11)	(12.18)	(12.02)
Flood, drought, and cyclone events	62.597***	62.759***	61.950***	64.838***	63.894***	61.378***	62.597***
	(12.10)	(12.28)	(12.09)	(12.24)	(12.11)	(12.18)	(12.02)
Resettlement index	37.968	32.108	170.647***	20.927	106.389***	80.932**	18.815
	(69.16)	(43.34)	(50.48)	(41.41)	(40.89)	(39.86)	(17.37)
Belief in index team*Resettlement index	11.250						
	(22.89)						
Index understanding*Resettlement index		13.853					
		(15.02)					
Belief additional information*Resettlement index			-34.187**				
			(16.69)				
Decision making efficiency*Resettlement index				19.581			
				(14.77)			
Decision time saved*Resettlement index					-14.222		
					(14.84)		
Reduced accountability*Resettlement index						-3.577	
						(15.13)	
Correct index position*Resettlement index							95.435***
							(24.03)
Constant	351.071***	353.998***	349.791***	349.229***	351.180***	353.904***	351.071***
	(15.53)	(15.72)	(15.45)	(15.69)	(15.56)	(15.58)	(15.18)
r2	0.095	0.094	0.101	0.098	0.096	0.094	0.107
N	2192	2128	2160	2144	2160	2128	2192

*Note: Results from linear regressions with choice set fixed effects. Robust standard errors in parentheses. For all independent variables, the higher value reflects more favourable socio-economic or environmental conditions. Main term for the interacted variables captured by the fixed effects. *** indicates significance at the 1% level, ** at 5%, * at 10%.*

Table A 6. Heterogeneous effects by gender, urban background, and discipline studied

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variable	*Allocation of migrants*	*Allocation of migrants*	*Allocation of migrants*	*Allocation of migrants*	*Allocation of migrants*	*Allocation of migrants*
Sample	*Control five*	*Treatment*	*Control five*	*Treatment*	*Control five*	*Treatment*
Interaction variable	*Male*	*Male*	*Urban*	*Urban*	*Economics*	*Economics*
Cropland per capita	84.726***	12.335	29.397*	5.504	28.250	9.750
	(19.35)	(18.46)	(16.55)	(17.37)	(18.75)	(20.37)
Distance to hospital	19.120	67.995***	85.579***	57.077***	59.317***	34.312*
	(19.35)	(18.46)	(16.55)	(17.37)	(18.75)	(20.37)
Distance to school	35.130*	26.439	57.524***	11.673	27.017	35.625*
	(19.35)	(18.46)	(16.55)	(17.37)	(18.75)	(20.37)
Poverty incidence	74.072***	45.778**	16.357	7.198	45.600**	56.125***
	(19.35)	(18.46)	(16.55)	(17.37)	(18.75)	(20.37)
Flood, drought, and cyclone events	85.495***	48.137***	71.429***	76.673***	84.317***	53.687***
	(19.35)	(18.46)	(16.55)	(17.37)	(18.75)	(20.37)
Resettlement index		96.014***		61.593***		87.187***
		(18.46)		(17.37)		(20.37)
Interaction variable *Cropland per capita	-62.285**	26.094	31.408	41.703*	32.220	26.247
	(24.53)	(24.36)	(23.69)	(24.08)	(24.30)	(25.20)
Interaction variable *Distance to hospital	68.868***	-0.323	-44.569*	19.583	4.187	47.293*
	(24.53)	(24.36)	(23.69)	(24.08)	(24.30)	(25.20)
Interaction variable *Distance to school	13.096	17.168	-26.651	46.200*	28.993	1.893
	(24.53)	(24.36)	(23.69)	(24.08)	(24.30)	(25.20)
Interaction variable *Poverty incidence	-35.060	-23.933	67.181***	43.669*	12.199	-35.339
	(24.53)	(24.36)	(23.69)	(24.08)	(24.30)	(25.20)
Interaction variable *Flood, drought, and cyclone ev	-5.519	23.583	19.856	-25.713	-3.991	12.583
	(24.53)	(24.36)	(23.69)	(24.08)	(24.30)	(25.20)
Interaction variable *Resettlement index		-40.699*		17.294		-22.778
		(24.36)		(24.08)		(25.20)
Constant	357.183***	351.071***	357.183***	351.071***	357.183***	351.071***
	(13.47)	(15.52)	(13.40)	(15.47)	(13.50)	(15.50)
r2	0.114	0.100	0.113	0.105	0.103	0.100
N	2176	2192	2176	2192	2176	2192

*Note: Results from linear regressions with choice set fixed effects. Robust standard errors in parentheses. For all independent variables, the higher value reflects more favourable socio-economic or environmental conditions. Interaction term in each column as noted at top of table. Main term for the interacted variables captured by the fixed effects. *** indicates significance at the 1% level, ** at 5%, * at 10%.*

Table A 7. Heterogeneous effects by respondent migration history and extent to migration to home region

	(1)	(2)	(3)	(4)
Dependent variable	*Allocation of migrants*	*Allocation of migrants*	*Allocation of migrants*	*Allocation of migrants*
Sample	*Control five*	*Treatment*	*Control five*	*Treatment*
Interaction variable	*Migration history*	*Migration history*	*Migration to home region*	*Migration to home region*
Cropland per capita	61.954***	37.506**	90.784***	9.036
	(15.50)	(15.86)	(18.40)	(20.93)
Distance to hospital	57.974***	66.724***	63.581***	54.141***
	(15.50)	(15.86)	(18.40)	(20.93)
Distance to school	55.099***	39.494**	52.733***	60.078***
	(15.50)	(15.86)	(18.40)	(20.93)
Poverty incidence	73.421***	47.468***	80.360***	52.995**
	(15.50)	(15.86)	(18.40)	(20.93)
Flood, drought, and cyclone events	90.230***	58.647***	112.691***	84.193***
	(15.50)	(15.86)	(18.40)	(20.93)
Resettlement index		78.545***		86.172***
		(15.86)		(20.93)
Interaction variable *Cropland per capita	-35.583	-21.299	-77.481***	27.420
	(24.22)	(24.51)	(24.12)	(25.72)
Interaction variable *Distance to hospital	8.347	2.492	-8.831	19.288
	(24.22)	(24.51)	(24.12)	(25.72)
Interaction variable *Distance to school	-26.928	-5.871	-19.803	-37.012
	(24.22)	(24.51)	(24.12)	(25.72)
Interaction variable *Poverty incidence	-47.609**	-37.998	-53.684**	-36.113
	(24.22)	(24.51)	(24.12)	(25.72)
Interaction variable *Flood, drought, and cyclone ev	-18.459	9.170	-55.321**	-32.920
	(24.22)	(24.51)	(24.12)	(25.72)
Interaction variable *Resettlement index		-17.380		-25.278
		(24.51)		(25.72)
Constant	357.183***	351.071***	360.127***	353.957***
	(13.46)	(15.51)	(13.39)	(15.60)
r2	0.107	0.098	0.115	0.099
N	2176	2192	2144	2160

*Note: Results from linear regressions with choice set fixed effects. Robust standard errors in parentheses. For all independent variables, the higher value reflects more favourable socio-economic or environmental conditions. Interaction term in each column as noted at top of table. Main term for the interacted variables captured by the fixed effects. *** indicates significance at the 1% level, ** at 5%, * at 10%.*

Table A 8. Heterogeneous effects by attribute conditions in area where respondent grew up

	(1)	(2)	(3)	(4)	(5)
Dependent variable	*Allocation of migrants*	*Allocation of migrants*	*Allocation of migrants*	*Allocation of migrants*	*Allocation of migrants*
Sample	*Control five*	*Control five*	*Control five*	*Control five*	*Control five*
Cropland per capita	74.938***	46.256***	46.256***	46.256***	46.256***
	(17.79)	(11.97)	(11.97)	(11.97)	(11.94)
Distance to hospital	61.656***	52.729***	61.656***	61.656***	61.656***
	(11.95)	(17.16)	(11.97)	(11.97)	(11.94)
Distance to school	43.219***	43.219***	40.415***	43.219***	43.219***
	(11.95)	(11.97)	(13.90)	(11.97)	(11.94)
Poverty incidence	52.417***	52.417***	52.417***	59.574***	52.417***
	(11.95)	(11.97)	(11.97)	(15.08)	(11.94)
Flood, drought, and cyclone events	82.086***	82.086***	82.086***	82.086***	104.372***
	(11.95)	(11.97)	(11.97)	(11.97)	(14.81)
Cropland scarce*Cropland per capita	-51.326**				
	(24.00)				
Hospital distant*Distance to hospital		19.271			
		(23.80)			
School distant*Distance to school			10.592		
			(27.33)		
Poverty high*Poverty incidence				-19.083	
				(24.79)	
Floods, droughts and cyclones frequent*Floods, drought, and cyclone events					-60.617**
					(24.99)
Constant	357.183***	357.183***	357.183***	357.183***	357.183***
	(13.42)	(13.52)	(13.51)	(13.51)	(13.45)
r2	0.104	0.101	0.100	0.101	0.105
N	2176	2176	2176	2176	2176

*Note: Results from linear regressions with choice set fixed effects. Robust standard errors in parentheses. For all independent variables, the higher value reflects more favourable socio-economic or environmental conditions. Main term for the interacted variables captured by the fixed effects. *** indicates significance at the 1% level, ** at 5%, * at 10%.*

Table A 9. Heterogeneous effects by attitude towards migrants and attitude to climate change

	(1)	(2)	(3)	(4)
Dependent variable	*Allocation of migrants*	*Allocation of migrants*	*Allocation of migrants*	*Allocation of migrants*
Sample	*Control five*	*Treatment*	*Control five*	*Treatment*
Interaction variable	*Attitude to migrants*	*Attitude to migrants*	*Attitude to climate change*	*Attitude to climate change*
Cropland per capita	48.743***	37.565***	14.473	33.931*
	(13.55)	(13.70)	(17.84)	(17.64)
Distance to hospital	55.883***	52.844***	68.045***	68.127***
	(13.55)	(13.70)	(17.84)	(17.64)
Distance to school	40.626***	37.829***	43.652**	15.990
	(13.55)	(13.70)	(17.84)	(17.64)
Poverty incidence	35.519***	31.430**	-17.375	-3.382
	(13.55)	(13.70)	(17.84)	(17.64)
Flood, drought, and cyclone events	66.767***	57.748***	61.768***	25.186
	(13.55)	(13.70)	(17.84)	(17.64)
Resettlement index		56.132***		60.029***
		(13.70)		(17.64)
Interaction variable *Cropland per capita	-8.638	-43.424	54.030**	-8.917
	(29.41)	(29.29)	(23.78)	(23.87)
Interaction variable *Distance to hospital	25.770	64.500**	-10.860	-0.526
	(29.41)	(29.29)	(23.78)	(23.87)
Interaction variable *Distance to school	8.285	-6.814	-0.736	33.414
	(29.41)	(29.29)	(23.78)	(23.87)
Interaction variable *Poverty incidence	64.392**	0.757	118.647***	54.938**
	(29.41)	(29.29)	(23.78)	(23.87)
Interaction variable *Flood, drought, and cyclone ev	53.838*	19.831	34.542	59.596**
	(29.41)	(29.29)	(23.78)	(23.87)
Interaction variable *Resettlement index		66.055**		17.572
		(29.29)		(23.87)
Constant	359.615***	351.355***	357.183***	351.071***
	(13.60)	(15.60)	(13.22)	(15.42)
r2	0.105	0.105	0.126	0.105
N	2144	2176	2176	2192

*Note: Results from linear regressions with choice set fixed effects. Robust standard errors in parentheses. For all independent variables, the higher value reflects more favourable socio-economic or environmental conditions. Interaction term in each column as noted at top of table. Main term for the interacted variables captured by the fixed effects. *** indicates significance at the 1% level, ** at 5%, * at 10%.*

In settings where complex social decisions are made, information is often aggregated into indices to facilitate decision making. The value added of such composite indices depend, inter alia, on the extent to which decision makers trust and make use of them. This paper presents a randomized experiment on the use of an index designed to inform migrant resettlement decisions, using 410 graduate students in Bangladesh as respondents. Respondents were randomly assigned to control and treatment conditions. In the control group, respondents faced a discrete choice experimental set-up where they were asked to allocate 1000 migrants between two locations described by five attributes (availability of cropland, distance to hospital, distance to school, poverty incidence, and frequency of floods, droughts and cyclones). In the treatment group, respondents also had access to the migrant resettlement index for the two locations, and we also had a second control group where an irrelevant attribute was included instead of the resettlement index. The results show that the resettlement index is used by the study participants, and mechanism analyses suggest that this is due to perceptions of improved benefits to costs from using the index to make decisions. Results from the control group also suggest that past adverse environmental events are particularly important for resettlement decisions. Use of the index in decision making does not depend much on respondent background characteristics, but the perceived importance of the five attributes in the control group does vary with background, sometimes in surprising ways. Notably, respondents who grew up in locations where land was scarce or floods, droughts and cyclones were frequent, placed less emphasis on these attributes in their migrant resettlement decisions.

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