

CREATING A POLITICAL AND SOCIAL CLIMATE FOR CLIMATE CHANGE ADAPTATION – AMENDMENT #3 (CPSCCA3)

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EXECUTIVE SUMMARY

Climate change impacts will be unavoidable in the coming decades leading to increased frequency and severity of floods, drought and extreme weather events particularly in the developing world. According to the recent IPCC report 2022 on climate adaptation; hundreds of millions of people in developing countries will have their lives and livelihoods affected by climate change. As the more exposed areas of the world become increasingly uncongenial, this will lead to substantial climate induced displacement of people in the developing countries. The detrimental impacts of climate change in poor and fragile states, particularly in terms of livelihoods, forced migration and conflict, are highlighted in the Norglobal call. It is likely that displacement will predominantly be internal to countries, or regional to neighbouring ones, but international migratory pressures will also increase. For affected countries and communities, this creates challenges in accommodating the displaced, and in avoiding social tension and conflicts that may arise.

Large-scale internal migration as a result of climate change will put pressure on migrant destination locations in terms of scarce natural, human, and infrastructural resources. As climate change increases the frequency and severity of floods, drought and extreme weather events in coming decades, there can be little doubt that those hardest hits will be populations of developing countries. Therefore, Bangladesh and Ethiopia are focal cases in this study as populous and nations with high climatic risks.

An important part of addressing these challenges is mapping the resources and opportunities communities have for receiving displaced and identifying areas that can more easily sustain inflows of migrants and increase in population. In a recent project funded by the Research Council of Norway, we have developed an approach to identify potential destination places for climate migrants i.e., the climate change resettlement capacity (CCRC) framework. Using the CCRC approach, we have constructed resettlement capacity indices for Ethiopia and Bangladesh. The indices have been constructed using 75 indicators for Ethiopia and 100 indicators for Bangladesh. The impact of the aggregate information provided by the indices ultimately depends on their use by experts in resettlement decisions.

This study will assess and analyse the extent to which the indices will be used in policy decisions, by conducting a randomized controlled experiment using 410 university students in Bangladesh as subjects. Through a discrete choice experimental design, students will be asked to allocate 1000 migrants between two otherwise anonymized destination locations in Bangladesh. A control group will do so based on a set of individual indicators for the destination locations, while a treatment group will in addition have access

to the resettlement capacity index. The objective of the study is to find out whether the treatment group makes use of the resettlement capacity index, and relies less on the individual indicators.

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 the experiment was conducted in Bangladesh using graduate students as subjects. The subjects were randomly assigned to three groups facing a discrete choice experiment where the task is to allocate 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 or attributes (availability of cropland, distance to hospital, distance to school, poverty incidence, and frequency of floods, droughts and cyclones). The treatment group get 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 include second control group which gets 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 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 individual attributes.

The results show that the respondents in the treatment group relied on the resettlement index to allocate migrants, and placed significantly more emphasis on the index than most of the individual attributes. Additional analyses into mechanism suggests 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 in the five individual dimensions in the main control and treatment group, we see a slight (insignificant) drop in some of their coefficients in the treatment group, but results from the second control group makes 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 included could be due to the addition of a sixth attribute rather than the specific addition of the resettlement index.

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 subjects 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. This insight may also have relevance beyond the specific topic studied here, for understanding for information management in organizations more generally (see Chenhall and Morris, 1986 for example). 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, our findings speak to the specific issue of how community capacity to adapt to absorb the effects of climate change are evaluated by the next generation of decision makers in a context of extremely high exposure to environmental degradation. The discrete choice approach we adopt is particularly informative in also allowing us to assess the relative perceived importance of host community characteristics for their resettlement capacity, as opposed to asking survey questions for one characteristic at a time. In our control group, the results reveal a particularly strong emphasis on past adverse environmental events on perceived capacity to resettle migrant, significantly stronger than for most of the other attributes (distance to hospitals being the exception). While surveys of experts are common in developing composite indices (and was used in developing the index by Walelign and Lujala (2022) that we use here) a discrete choice approach is not typically used to map expert views. The advantage to doing so would be to get better information on the relevant weights for the individual indicators. Our control group results also show that respondent background influences the weight respondent place on the different attributes, and not always in the way one would expect. Respondents who grew up in locations with scarcity of cropland or adverse environmental events frequent, judged these attributes to be less important for resettlement decisions. While experts may be more objective than students, this 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 suggests 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. 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.

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.