CHANGING TIDES

PUBLIC ATTITUDES ON CLIMATE CHANGE AND CLIMATE MIGRATION

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Sabrina B. Arias and
Christopher W. Blair

Kleinman Center
for Energy Policy

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INTRODUCTION

Since September 1, 2019, when Hurricane Dorian made landfall on Abaco Island in the Bahamas, more than 70,000 people have been displaced, with at least 3,900 people fleeing to the United States. One year earlier, in August 2018, more than 1 million people in India's Kerala state were displaced by flooding. Hurricane Katrina in August 2005 forced out an equivalent number of people—more than 1 million in total—from New Orleans, with nearly half never returning to their homes.

Displacement and flight after Dorian, Kerala's floods, and Katrina are emblematic of a broader global phenomenon: climate-induced migration. As climate change causes extreme weather events to increase in frequency and intensity, the magnitude of the challenge of climate-induced migration will continue to grow. The World Bank (2016) estimates there will be more than 143 million climate migrants worldwide by 2050, but other estimates place the number as high as 700 million worldwide by 2100 (Miller 2017). Even more conservative estimates of the extent of climate-induced migration anticipate that climatic events will displace several million people before the turn of the century (McLeman 2014).

Despite dire predictions about the prospects of climate-induced displacement, and substantial academic and policy attention paid to migration and climate change generally, we know little about climate-induced migration, or the relationships between migration, climate change, and climate migration (but see Reuveny 2007 and Koubi 2019 for prominent exceptions). To be sure, some facets of the problem of climate migration have been explored.

Legal scholars have analyzed how climate migrants might be integrated into international legal paradigms for migration. Economists and demographers have studied the effects of climatic events on migration flows. And political scientists have examined the effects of climate change on conflict, including conflict between climate migrants and hosts. What is left out of existing work, however, is a systematic analysis of public opinion about climate-induced migration.

Our research aims to fill this gap, providing the first experimental evidence on public opinion about climate migration. Using two distinct experiments embedded in nationally representative surveys in the U.S. and Germany, we estimate the extent to which mass publics hold unique attitudes about climate-induced migrants compared to more traditional categories like labor migrants or refugees. Our design also allows us to test the effect of priming concerns about climate migration on attitudes about climate change and sustainability.

We find that individuals in both countries conceive of climate migrants as a distinct category of migrants and view them more favorably—preferring to host them in their own communities—than *individuals who migrate seeking economic opportunities*. On the other hand, our respondents are less supportive of hosting *climate migrants* in their own communities than of hosting *individuals who flee persecution*. Different climatic reasons for migration (floods, droughts, and wildfires) are not viewed distinctly. People with high levels of empathy are more likely to favor initiatives to support climate migrants, as are those with internationalist views on foreign policy.

Other demographic factors including employment, political interest, ideology, and partisanship matter in

predicting support for climate migrants and climate change mitigation policies, but to a lesser extent. Increased levels of salience achieved through media priming or exposure to the effects of migration in the local environment do not have meaningful impacts on attitudes related to climate migration or climate change mitigation. These findings indicate that there may be room to cultivate public support for policy responses to the problems posed by climate change and climate migration, but not by increasing issue salience. Rather, targeting key populations like empathetic individuals—who we find are more supportive of climate migrants—to build a supporting coalition is likely to be a more effective policy strategy.

WHAT IS CLIMATE MIGRATION?

A variety of terms including "environmental refugees," "climate refugees," "environmentally forced migrants," "climate-induced migrants," and "climate migrants" are used to discuss the movement of peoples for climate-related reasons (Warner 2010). Terminological precision is key because refugees are entitled to more legal protections than other categories of migrants.

On one hand, both refugee flight and flight from many climatic events are involuntary, meaning climate migrants may be due similar protections to forced migrants. On the other hand, climate migration is a complex phenomenon that takes many forms, sometimes resembling opportunistic flight akin to traditional economic migration, and at other times resembling acute displacement akin to refugee flight (Suhrke 1994).

For instance, while some Bangladeshi migrants have fled the destruction of their homes and communities by cyclones, others flee more gradual phenomena like coastal erosion, which affect employment and livelihoods, but do not destroy homes or lives directly. Phenomena like these blur the lines between climatic and livelihood reasons for displacement.

We follow the International Organization for Migration (IOM), and define climate migrants as "persons or groups of persons who, for compelling reasons of sudden or progressive changes in the environment that adversely affect their lives or living conditions, are obliged to leave their habitual homes, or choose to do so, either temporarily or permanently, and who move either within their country or abroad."

CLIMATE CHANGE, CLIMATE MIGRATION, AND CONFLICT: WHY PUBLIC OPINION MATTERS

A growing body of research identifies links between environmental change and migration *within* and *between* countries. In particular, most evidence suggests that sudden onset environmental catastrophes like hurricanes and floods, as well as gradual onset climatic changes like desertification, drought, and soil erosion can cause affected populations to migrate in response.

Individuals weigh the costs of leaving versus the prospective benefits of migrating to various destination countries before deciding whether and where to go, subject to uncertainty and budget constraints. Factors driving individuals to leave their home countries are "push" factors, while factors inducing gravitation toward certain destinations are "pull" factors.

In the context of climate migration, extant research explores the role of environmental changes as "push" factors (Reuveny and Moore 2009). Existing work points to prominent instances of climate migration stemming from diverse phenomena, including the Dust Bowl in Oklahoma (Hornbeck 2012), droughts in Mali (Findley 1994), land degradation and deforestation in Nepal (Massey, Axinn, and Ghimire 2010), warming temperatures in Indonesia and Pakistan (Bohra-Mishra, Oppenheimer, and Hsiang 2012; Mueller, Clark, and Kosec 2014), coastal erosion in Bangladesh (Penning-Rowsell, Sultana, and Thompson 2013), flooding in Vietnam (Dun 2011), and crop failures in Bangladesh and Mexico (Gray and Mueller 2010; Feng, Krueger, and

Oppenheimer 2010), among others. Attitudes about climate migration are important determinants of how well climate migrants integrate into host communities, and how much conflict occurs (Reuveny 2007).

Moreover, opinion about the migratory effects of climate change is likely to affect the strategies and resources governments can mobilize for climate change mitigation and adaptation more broadly. Given scientific consensus that climate change is occurring and will have severe impacts, including through its effects on migration, studying whether and how policymakers and publics will respond is critical.

As climate migration is likely to be a large-scale disruptor, coordinated government policies across issue areas ranging from infrastructure to energy security to education will be needed, and public support will be required to attain any legislative outcomes, as well as to implement policies. Understanding public opinion on climate migration, then, represents an antecedent for further research on how governments will respond to the challenges of climate change and migration, and how effective policy responses can best be implemented through democratic processes.

NOT LABOR MIGRANTS, NOT REFUGEES

We consider whether climate migrants occupy an intermediate place in the public view. Ample evidence suggests that the public privileges migrants with demonstrated humanitarian needs, like refugees (Bansak, Hainmueller, and Hangartner 2016). In reality, though not legally, many climate migrants hold a similar place. Insofar as typical climate migrants flee involuntarily because of climatic factors beyond their control, the public may view them similarly to traditional categories of forced migrants, like refugees, who flee political or social persecution.

On the other hand, many climate migrants also move in search of better opportunities, especially when environmental changes harm their employment prospects. Because gradual environmental changes that reduce employment prospects can also trigger climate migration, host citizens may also view climate-induced migrants as economic opportunity-seekers. Given well-known fears about migrant–native labor market competition (Scheve and Slaughter 2001; Mayda 2006), climate migrants, then, might elicit comparable opposition to labor migrants. Extending these insights, it seems likely that the public will view climate migrants more favorably than traditional labor migrants but less favorably than refugees.

To test this perspective, we conducted a conjoint experiment embedded in nationally representative surveys of adult respondents in the U.S. and Germany. Conjoint designs allow researchers to experimentally vary many different attributes of interest—in our case characteristics of hypothetical migrants—and compare how these attributes affect whether respondents prefer one profile or another—in our case by asking respondents to indicate which of two hypothetical migrants they would prefer to settle in their community (Hainmueller, Hopkins, and Yamamoto 2014).

In the context of migration, respondents evaluating migrant profiles might consider an individual's reason for migration (e.g. economic opportunity, climatic events, persecution), but also their gender, language fluency, religion, and other factors (Hainmueller and Hopkins 2015). Conjoint designs are particularly useful when many different attributes are potentially relevant because they allow researchers to randomly vary many different levels of unique attributes and determine the causal contribution of each simultaneously.

In our survey, respondents were first asked a series of pre-treatment questions to gather data on their demographic characteristics and attitudinal dispositions (e.g. how empathetic they were), then presented with a series of nine paired migrant profiles, each on a new screen. Respondents were asked to rate and choose between the profiles as if they were applying for admission for entry to the respondent's home state. Each migrant profile provided information on seven different attributes: the reason for migration, language fluency of a migrant, gender of a migrant, occupation of a migrant, religion of a migrant, origin country of a migrant, and vulnerability (e.g. disability, food insecurity)

TABLE 1: CONJOINT ATTRIBUTES

Attribute	Levels
Reason for Migration	Political/religious/ethnic persecution; *Economic opportunity*; Flooding, drought, wildfires
Language Fluency	Fluent; Broken; *None*
Gender	Male; *Female*
Occupation	Cleaner; Teacher; Doctor; *Unemployed*
Religion	Christian; Muslim; *Agnostic*
Origin	Afghanistan; Ethiopia; Ukraine; Myanmar; *Another region in your country*
Vulnerability	Post Traumatic Stress Disorder (PTSD); Food insecurity; No surviving family members; Physically Handicapped; *None*

Notes: Baseline levels in italics. Factors and levels were the same for the samples in the U.S. and Germany, with the exception of Agnostic, which was replaced with Atheist in Germany for cultural relevance.

of a migrant. The number of tasks and attributes were chosen to maximize statistical power without reducing response quality (Bansak et. al. 2018). The attributes we randomized in each migrant profile are outlined in Table 1.

To test perceptions of climate-induced migrants relative to labor migrants and refugees, we randomly assigned each migrant profile's reason for migration. Among the reasons for migration, we included economic opportunity (i.e. labor migrants), political/religious/ethnic persecution (i.e. refugees), and three climatic drivers of migration—drought, flooding, and wildfires. Each of the three climatic drivers has been responsible for recent mass migration events. Moreover, while two of the climatic drivers are sudden onset events (flooding and wildfires), one is a gradual onset event (drought).

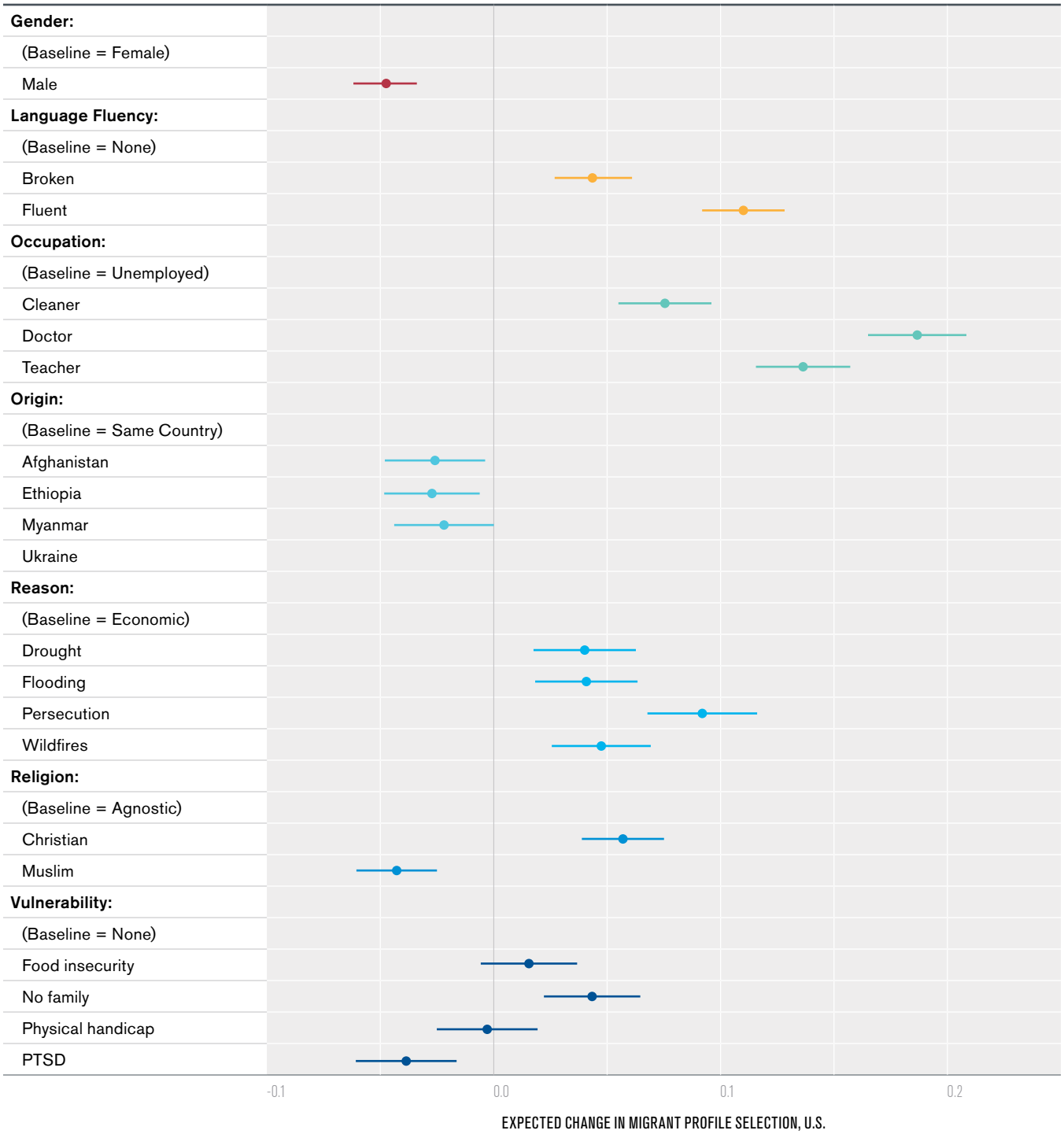
In total, our conjoint experiment gives 20,573 individual choice tasks—where respondents select between profiles—across 1,176 respondents in the U.S. sample and 18,862 individual choice tasks across 1,074 respondents in the German sample. In Figure 1 we display results for the conjoint experiment with the U.S. sample, and in Figure 2 we display results for the conjoint experiment with the German sample. Both figures show the effect of each attribute relative to the baseline on the expected change in the probability of migrant profile selection. Results are highly similar across both samples.

For example, changing a migrant's reason for migration from the baseline category (economic opportunity) to flooding increases the expected probability that this migrant's profile will be selected for admittance by approximately five percentage points. Both figures show the effect of each randomly varied attribute on the probability of preferring a migrant profile in the choice task relative to the baseline level of the attribute.

In both the U.S. and German samples, we see that respondents view climate migrants less favorably than traditional refugees but more favorably than labor migrants. There are no statistically significant differences between the purported climatic drivers of migration, suggesting the public views migrants fleeing floods, droughts, and wildfires comparably.

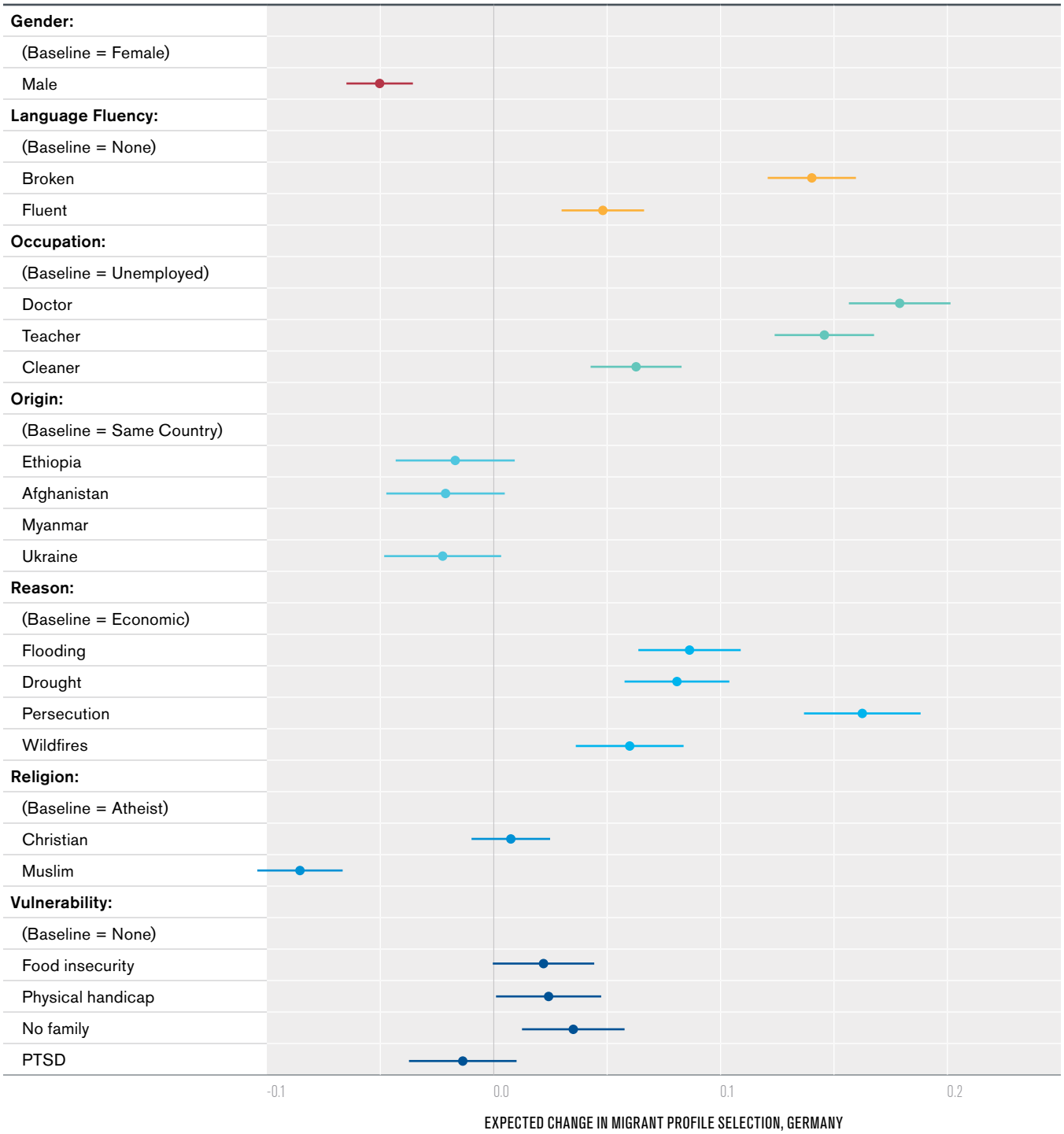
Relative to labor migrants, climate migrants are 4 to 5 percentage points more likely to be preferred in the U.S. sample and 6 to 8 percentage points more likely to be preferred in the German sample. The magnitude of these effects is substantively important. The expected change in a migrant's probability of being preferred when moving from a labor migrant to a climate migrant is equivalent in magnitude to the expected change moving from a migrant that has no language fluency to

FIGURE 1: EFFECTS OF EACH ATTRIBUTE ON SUPPORT FOR HOSTING A MIGRANT, U.S. SAMPLE



Notes: Baseline levels in parentheses. Factors and levels were the same for the samples in the U.S. and Germany, with the exception of Agnostic, which was replaced with Atheist in Germany for cultural relevance.

FIGURE 2: EFFECTS OF EACH ATTRIBUTE ON SUPPORT FOR HOSTING A MIGRANT, GERMAN SAMPLE



Notes: Baseline levels in parentheses. Factors and levels were the same for the samples in the U.S. and Germany, with the exception of Agnostic, which was replaced with Atheist in Germany for cultural relevance.

one that has moderate (i.e. broken) fluency, or going from unemployed to employed as a cleaner. These are, therefore, substantial and substantively meaningful shifts in the composition of a potential migrant's profile.

CAN PRIMING CLIMATE MIGRATION AFFECT SUPPORT FOR CLIMATE CHANGE MITIGATION?

Having shown that climate migrants occupy a distinct place in the public view, we administered a second experiment—also on nationally representative U.S. and German samples—to test whether priming the human effects of climate change in the form of migration can increase support for climate change mitigation.

In the second experiment, respondents were randomly assigned to read an article describing anthropogenic climate change, migration, or climate migration (factor 1) occurring locally or globally (factor 2). Control subjects read an article about soccer. Priming articles were meant to increase the salience of the respective issue in the respondent's view, arguably replicating the mechanism of increased attention in the media or public discourse on the topic. We assessed a variety of outcomes to determine whether priming climate migration increased support for climate change mitigation, including the issue importance individuals attach to climate change and whether they would support tax increases to fund mitigation efforts.

Despite the possibility that priming people to think about the human migratory effects of climate change could increase their support for climate change mitigation, given the distinct place climate migrants hold in the public view and high baseline levels of issue importance afforded to the topic of climate migration, our experiments find no evidence of this in either the U.S. or Germany. This finding supports Bernauer and McGrath's (2016) conclusion that simply reframing climate change does little to increase support for climate change mitigation.

However, dispositional factors are important in understanding patterns of support for climate change mitigation policies across both populations. While our experimental interventions had no significant effects on these attitudes, people with high levels of empathy (as measured using an index of questions from the pre-test battery) were more likely to view climate change and climate migration as a significant problems, as were those with internationalist views on foreign policy (also measured using an index of questions from the pre-test battery). Other demographic factors including employment, political interest, ideology, and partisanship matter in predicting support for climate migration policies, but to a lesser extent. These findings constitute new evidence on subgroup heterogeneity in attitudes on climate migration that could help to understand whether strategies previously employed for advancing policy goals on climate change or on migration are likely to be replicable.

IMPLICATIONS AND CONCLUSIONS

This project works to untangle public attitudes on climate change, migration, and climate migration to better understand the underlying mechanisms in the construction of such attitudes and the key features that contribute to these outcomes, which will have a key bearing on strategies to implement climate migration adaptation policies. The results of our first experiment show that the public perceives climate migrants distinctly from either refugees or labor migrants. In contrast, there are no differences in perceptions of climate migrants according to the specific climatic events that displace them. The relative magnitude of support for climate migrants is high.

Our second experiment, however, suggests that priming climate migration is unlikely to increase respondent support for climate change mitigation. Rather, dispositional factors are central for attitudes about and support for climate change mitigation and sustainability, particularly empathy and the propensity to support internationalist foreign policies. This result fits with other evidence that reframing the effects of climate change—in our case by talking about its human consequences

in the form of climate migration—does not boost public support for climate policy (Bernauer and McGrath 2016).

In terms of policy, this research implies that advocates seeking policy advancement on climate change mitigation cannot rely on increasing the salience of climate migration through media framing. Instead, activists would do best to target key dispositional groups (e.g. liberals and younger people) to develop coalitions, emphasizing the human aspect of the climate migration problem to invoke empathy-based responses.

As the incidence of climate change and migration, as well as their intersection in the form of climate-driven migration, become more frequent and serious concerns for individuals, governments, and international organizations, understanding public attitudes on these matters is a subject of critical importance, and a prerequisite to crafting policy responses that are likely to be implemented. Future work should continue to explore questions surrounding public attitudes about climate migration.

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ABOUT THE AUTHORS

Sabrina Arias a Ph.D. candidate in international relations at the University of Pennsylvania.

Christopher Blair is a Ph.D. candidate in international relations at the University of Pennsylvania.

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kleinmanenergy.upenn.edu

Kleinman Center for Energy Policy

University of Pennsylvania
Stuart Weitzman School of Design
Fisher Fine Arts Building, Suite 401
220 S. 34th St.
Philadelphia, PA 19104

P 215.898.8502
F 215.573.1650

kleinmanenergy@upenn.edu