



Interactions between migrant race and social status in predicting acceptance of climate migrants in Norway

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Received: 30 September 2022 / Accepted: 26 March 2023 / Published online: 15 April 2023
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Abstract

An emerging stream of research documents that climate migrants are more acceptable than economic migrants to citizens in high-income countries. However, extant research has not considered migrant race, and how race, along with socioeconomic status, interact with reasons for migrating to impact the perceptions of acceptability among residents in the receiving society. We investigated the joint effects of reason for migration (economic vs. climate), race (Black vs. White), and socioeconomic status (low vs. high) on migrant acceptability judgments among a national sample of Norwegian residents ($N=1637$) using a pre-registered survey experiment. The results indicate that climate migrants are more acceptable to participants than economic migrants, and White migrants are preferred to Black migrants. There was also an interaction between reason for migrating, race, and social status whereby Black, low social status, and economic migrants were less accepted than any other migrant profile. Especially notable was the finding that Black climate migrants of low socioeconomic status were seen by participants as being much more acceptable than Black economic migrants of low socioeconomic status. The notion that climate and economic migrants can be meaningfully differentiated in the real world is debatable. Nonetheless, our study suggests that framing migrants' motivation in terms of environmental influences, compared with economic motivations, has potentially major effects on migrant acceptance in receiving societies.

Keywords Climate migrants · Climate refugees · Racial bias · Immigration

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1 Interactions between migrant race and social status in predicting acceptance of climate migrants in Norway

The relationship between climate change and migration is complex and context dependent. However, in many cases, environmental factors directly or indirectly drive migration (Cissé et al. 2022; Hoffmann et al. 2020; Kaczan and Orgill-Meyer 2020). This has led to extensive research efforts to determine when and where people migrate in response to environmental adversity, who migrates, and which factors impact their decisions (Cissé et al. 2022; Hoffmann et al. 2020; Kaczan and Orgill-Meyer 2020). A crucial part of this larger picture is how people in destination communities or countries perceive climate migrants. People who migrate due to environmental adversity cannot apply for asylum and refugee status under current international law (Convention and Protocol Relating to the Status of Refugees 1951/1967). Citizens' perceptions of climate migrants are therefore likely a key factor in determining public policies on the acceptance and integration of climate migrants in receiving societies (Arias and Blair 2022; Cissé et al. 2022; Helbling 2020; McLeman 2020).

Despite an extensive literature on attitudes to immigrants and immigration, there is limited evidence on public opinion toward climate migrants as a distinct social and political category. An emerging stream of research indicates that climate migrants are more acceptable than economic migrants to citizens in high-income countries (Arias and Blair 2022; Hedegaard 2021; Helbling 2020). In the present study, we expand on previous work by considering public opinion to climate migrants in a new national context, Norway. Secondly, we argue that citizens' acceptance of climate migrants versus economic migrants partly depends on the migrants' social status and race, and that investigating the interactive effects of reasons for migrating, migrant social status, and race is critical for understanding public perceptions of climate migrants.

1.1 Public perceptions of climate migrants

Environmental migrants are defined as “persons or groups of persons who, for 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 territory or abroad” (International organization for migration 2022). Climate migrants are a subgroup of environmental migrants and belong to this broader category (McAuliffe and Triandafyllidou 2021). It is well established that citizens in receiving societies do not accept all immigrants equally. The acceptance of asylum seekers, refugees, and immigrants more generally, varies with the migrants' perceived deservingness, reasons for migrating (forced vs. voluntary), religious background, educational level, and country of origin (Bansak et al. 2016; Esses 2021; Verkuyten et al. 2018). Importantly, the terms or labels used to create and delineate categories of migrants matter significantly for public opinion concerning migrants (Esses 2021; Kotzur et al. 2017).

As a relatively new social and political category, it is not well established how citizens perceive and accept climate migrants. However, three studies have addressed public perceptions of climate migrants in the European and North American context, specifically in Denmark, Germany, and the USA (Arias and Blair 2022; Hedegaard 2021; Helbling 2020). This research consistently shows that climate migrants are preferred over economic migrants. Like political refugees, climate migrants appear to elicit humanitarian concerns

and perceptions of being forced to migrate rather than leaving their home countries voluntarily. In line with existing research, we expect to also find a higher acceptability of climate versus economic migrants in the Norwegian context (Hypothesis 1).

Previous literature on perceptions of migrants also documents natives' preference for migrants with higher socioeconomic status based on either educational level or occupational status (Bansak et al. 2016; Hainmueller and Hopkins 2015; Valentino et al. 2019). In the studies specifically addressing acceptability of climate migrants, a general preference for high status migrants has been shown (Arias and Blair 2022; Hedegaard 2021; Helbling 2020). Across migrant profiles, we similarly expect to observe that high-socioeconomic-status (SES) migrants are preferred to low-SES migrants (Hypothesis 2).

The role of migrant race in acceptance of climate migrants has not previously been explored, but we argue that this is an important factor to address. Race and ethnicity often inform the categorization of people into social groups, and social categorizations function as a basis for distinguishing perceivers' ingroups and outgroups (Tajfel and Turner 1979). As concisely put by Richeson and Summers (2016, p. 445), "this basic distinction between one's ingroups and outgroups influences perception, cognition, affect, and behavior in ways that systematically produce and reinforce pervasive intergroup biases." Dominant majority groups can, by affording ingroup members more trust, cooperation, and support, maintain or create inequalities in outcomes across groups. Consistent with existing literature on how perceptions of race/ethnicity shape social categorization and intergroup relations (Richeson and Sommers 2016), research shows that markers of ethnicity such as religion and country of origin can have a significant influence on the degree to which a migrant is perceived to be acceptable. For example, Helbling (2020) observed lower acceptance of Muslim migrants than Christian migrants, among a German national sample using a conjoint experiment. Similarly, Hedegaard (2021), who also employed a conjoint experimental design in a representative sample of Danes, found that both Muslim and Hindu migrants were less accepted than Christian migrants. Finally, Arias and Blair (2022) used conjoint analyses with large population samples from Germany and the US and showed lower acceptance of Muslims (as compared to atheists), as well as lower acceptance in the US sample of migrants originating from countries with a predominantly Muslim and/or non-White population (specifically, Afghanistan and Ethiopia).

In Norway, inadequate attention has been paid to the role of migrant race in public attitudes toward immigration (Brekke et al. 2020). It is clear, however, that stereotypes of immigrant groups vary by country of origin, with more negative stereotypes directed at immigrants of African origins (Bye et al. 2014). In fact, both studies of stereotypes of immigrants and immigration attitudes demonstrate an ethnic hierarchy in Norwegian's perceptions: culturally close, White immigrants (Swedes and Poles) are perceived more positively, than culturally more distant, Black (Somali) immigrants (Brekke et al. 2020; Bye et al. 2014; See Hagendoorn and Sniderman, 2001, for a similar observation in the Netherlands). In surveys in several European countries, De Coninck (2020) found that when asked explicitly about their preference for immigrants/refugees of the same or different race/ethnicity as most of the native population, respondents consistently favored same-race immigrants/refugees. Against this backdrop, we expect to find that acceptability is higher for White migrants compared to Black migrants (Hypothesis 3).

However, these broad trends in citizens' expected preferences may hide important nuances. First, although citizens generally prefer high-skilled migrants (Hainmueller et al. 2015), how does migrant social status interact with their reason for migrating? This question was not addressed in any of the three previous studies on perceptions of climate migrants (Arias and Blair 2022; Hedegaard 2021; Helbling 2020). Given the general

preference for high-status migrants, the preference of climate migrants over economic migrants may be stronger for low-status migrants (Hypothesis 4).

A second nuance to consider is the potential interaction between reason for migrating and migrant race. On this issue, there is little previous empirical work to draw on. An exception is Arias and Blair (2022) whose analyses showed a pattern of nonsignificant interactions between reason for migrating and country of origin across both their US and German sample. Similarly, the pattern of means in De Coninck (2020), who compared perceptions of same race vs. different race refugees and economic migrants, does not suggest an interaction. On the other hand, empathy is closely related to support for climate migrants (Arias and Blair 2022). To the extent that the empathy felt for migrants in part finds its basis in a shared racial group membership, then we would expect that reason for migrating matters more for Black than White migrants in the eyes of a predominately White Norwegian population. Our conjecture is that White economic migrants have “an empathy advantage” over Black economic migrants, so that the increased acceptance that migrating for climate reasons vs. economic reasons gives is larger for Black than for White migrants. Put differently, we expect there to be a significant interaction between migration reason and race, whereby the effect of migration reason on acceptance is stronger for Black than for White migrants (Hypothesis 5).

Third, for both economic and climate migrants, race and social status may interact. Research among US participants suggests that social class is racialized; especially among class-prejudiced perceivers the category of “poor people” was mentally represented as Black. Wealthy people were mentally represented as White (Lei and Bodenhausen 2017). These results suggest that a Black person may be more likely to be perceived as lower in socioeconomic status irrespective of their educational background, occupation, or economic circumstances. If so, then a description of high socioeconomic status may contribute less to acceptability for Black than for White migrants. In the broader literature on attitudes to immigration, if and how migrant race and SES interacts in predicting acceptability among citizens is still an open question. In line with our argument, there is some evidence that race moderates the effect of SES. Espana-Najera and Vera (2020) found that Californian voters were less in favor of accepting high-skilled migrants when they were described as Hispanic as compared to high-skilled migrants without an ethnicity specified. In line these findings, we expect Black migrants to benefit less from the advantage on acceptability that high social status generally provides. Specifically, we predict that there is a significant interaction between SES and race, whereby the effect of SES on acceptance is weaker among the Black than White migrants (Hypothesis 6).

2 Methods

2.1 Experimental design

We tested our hypotheses in a 2 (race: Black vs. White) \times 2 (reason for migrating: economic vs. climate) \times 2 (social status: low vs. high) between-groups experimental design. Each participant was presented with a profile of a hypothetical male migrant, which included a written description of the person containing the manipulation of social status and reason for migrating. Climate migrants were described as wanting to relocate to Norway due to their home country becoming uninhabitable due to rising sea levels caused by climate change. The wording of this manipulation was based on the text stimulus used by Helbling (2020).

Economic migrants were described as wanting to relocate to Norway due to being unable to find work in their home country because of an increasingly dire economic situation. Social status was manipulated by stating that the migrant was either a farm worker (low SES) or an agricultural scientist (high SES). Migrant race was not mentioned in the written description. Instead, each profile was accompanied by a picture of either a White or a Black male. The pictures were taken from the Chicago face database. The images chosen were rated similarly on attractiveness in pretests (Ma et al. 2015). After viewing the profiles, each respondent rated on a 100-point scale the degree to which they thought the migrants' application should be absolutely denied (0) or absolutely granted (100) and made a forced choice between rejecting or accepting the migrant's application (coded as 0 = reject and 1 = accept). The experiment was preregistered at the Open Science Framework (https://osf.io/bg3vq/?view_only=ba04890bd9ec4244aac5f24c514636c3). The full text of the profiles can be found in the original Norwegian version and an English translation in the codebooks of the Norwegian Citizen Panel (Ivarsflaten et al. 2021b).

2.2 Participants and procedure

The experiment was embedded in a larger survey conducted in the Norwegian Citizen Panel (NCP; <https://www.uib.no/en/citizen>). This is a research-purpose online panel, where respondents are invited based on simple random samples drawn from the Norwegian population registry. All inhabitants in Norway above the age of 18 have an equal probability of being invited to the panel. When consenting to be part in the panel, respondents register their email address and are invited to online surveys 2–3 times per year. Our experiment was fielded in a random sub-panel of the NCP in October–November 2022 (Wave 22 of the NCP). A total of 1923 participants were in the subpanel containing the experiment. As detailed in our pre-registration, we excluded (1) respondents who in their background information have indicated that they themselves or (either one of) their parents had immigrated to Norway, (2) respondents who reported that their citizenship is not Norwegian, and (3) respondents who have not answered the questions about immigration status or citizenship. A total of 286 respondents were excluded on these grounds leaving a sample of 1637.

The data from the NCP are available for research and educational purposes from Sikt–Norwegian Agency for Shared Services in Education and Research (<https://sikt.no/>). The data from wave 22 (Ivarsflaten et al. 2021a) can be found at <https://doi.org/10.18712/NSD-NSD3053-V1>.

2.3 Preliminary analyses

Statistical analyses were conducted in IBM SPSS version 28 (IBM Corp 2021) and R version 4.1.2 for Mac (R Core Team 2022). As a preliminary analysis to assess the randomization to experimental conditions, we checked the distribution of men and women and age groups across the experimental groups. The gender, $\chi^2(7) = 6.26$, $p = 0.51$, and age, $\chi^2(14) = 12.92$, $p = 0.53$, distributions did not differ significantly across groups. Demographic information across experimental groups is included in Table 1.

For the 0–100 rating of acceptability, a total of 249 respondents failed to indicate a rating (i.e., 15.2% missing data), whereas there were 46 missing responses for the dichotomous accept/reject decision (2.8%). Although we cannot be certain, we attribute

Table 1 Sex and age distribution across experiment groups

Experiment group				Sex		Age		
Reason	Race	SES	Group <i>N</i>	Male	Female	1959 or earlier	1960–1989	1990 or later
Economic	Black	Low-SES	(<i>N</i> = 201)	51.7%	48.3%	44.8%	50.2%	5.0%
		High-SES	(<i>N</i> = 199)	48.7%	51.3%	49.2%	43.7%	7.0%
	White	Low-SES	(<i>N</i> = 201)	53.2%	46.8%	45.8%	45.8%	8.5%
		High-SES	(<i>N</i> = 212)	50.9%	49.1%	47.2%	47.2%	5.7%
Climate	Black	Low-SES	(<i>N</i> = 208)	52.4%	47.6%	53.8%	40.9%	5.3%
		High-SES	(<i>N</i> = 194)	58.2%	41.8%	51.5%	42.3%	6.2%
	White	Low-SES	(<i>N</i> = 216)	49.5%	50.5%	49.1%	43.5%	7.4%
		High-SES	(<i>N</i> = 206)	56.8%	43.2%	40.8%	51.9%	7.3%

this discrepancy to difficulties in providing a rating using the slider for some respondents. We therefore chose to focus our analysis on the respondents’ decision to accept or reject the applicant.

3 Results

3.1 Descriptive statistics

The frequency of the accept/reject decision for each hypothetical migrant by race, migration reason, and SES is summarized in Fig. 1, Fig. 2, and Table 2. Figure 1 shows the acceptance rate across the three manipulated variables: migration reason, race, and

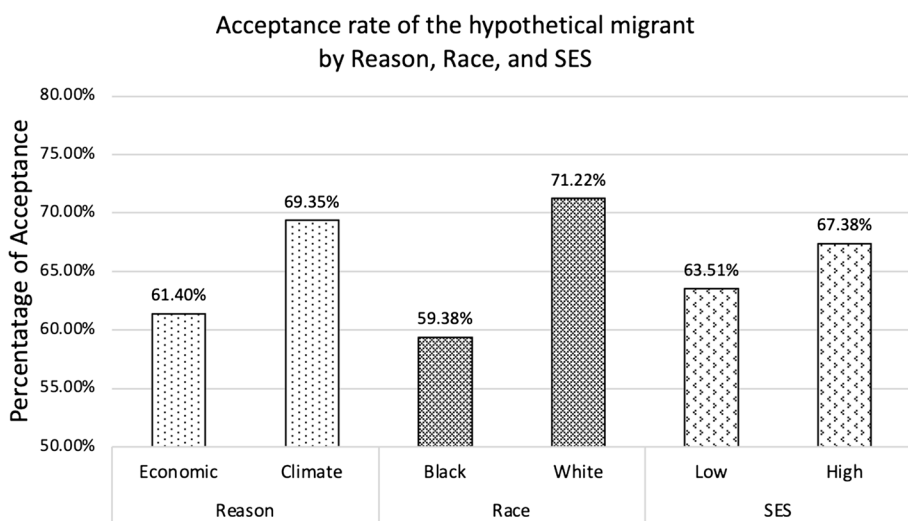


Fig. 1 The acceptance rate of the hypothetical migrant by reason, race, and SES

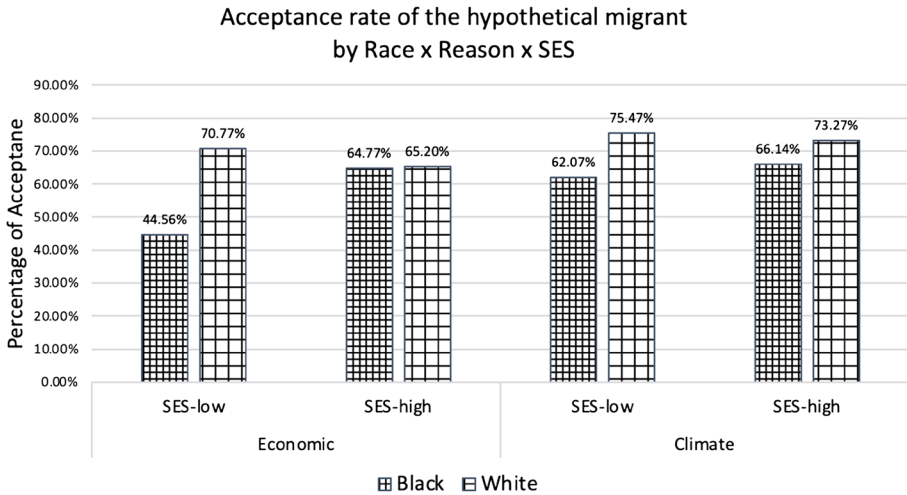


Fig. 2 The acceptance rate of the hypothetical migrant by reason × race × SES

socioeconomic status. Respondents indicated greater acceptance of climate migrants (69.35%), White migrants (71.22%), and high-SES migrants (67.38%) than economic (61.40%), Black (59.38%), and low-SES migrants (63.51%). Figure 2 and Table 2 together show the acceptance rate when the interaction of the three variables is considered. The average acceptance rate (65.4%) across all migrant categories was high, ranging from 62.07 to 75.47%, except for one: the Black, low-SES economic migrant received an acceptance rate of 44.56%, the only category that was lower than 50%. The identical profile described as a climate migrant had an acceptance rate of 62.07%. In other words, describing a Black, low-SES migrant as migrating due to climate change confers a 17.51% increase in their acceptance compared with when they are described as migrating for economic reasons.

3.2 Main analyses

Hierarchical logistic regression analyses were conducted to test our hypotheses. In the first step, we tested the average effects of migrating reason, migrants’ race, and SES (Hypotheses 1–3). Next, we added the two-way interactions (Hypotheses 4–6) and in the final model

Table 2 Acceptance of the hypothetical migrant across all experimental groups

		Black			White		
		Accept	Reject	Acceptance rate	Accept	Reject	Acceptance rate
Economic	Low-SES	86	107	44.56%	138	57	70.77%
	High-SES	125	68	64.77%	133	71	65.20%
Climate	Low-SES	126	77	62.07%	160	52	75.47%
	High-SES	125	64	66.14%	148	54	73.27%

SES social economic status

we added the three-way interaction. We had not preregistered a hypothesis for the three-way interaction but included it for exploratory purposes, as stated in the preregistration. The results are summarized in Table 3.

When interactions were not considered (Table 3, model 1), the average effect of migration reason was significant, with an odds ratio (OR) of 1.43, 95% CI of OR [1.16, 1.78], $p < 0.001$, indicating that respondents preferred climate migrants over economic migrants in line with the descriptive results and hypothesis 1. Hypothesis 2 was not supported. The average effect of the hypothetical migrant's SES was in the expected direction (higher acceptability of high-SES migrants) but was not significant at the 0.05 level: OR = 1.20, 95% CI of OR [0.96, 1.48], $p = 0.095$. However, the average effect of the hypothetical migrant's race was significant, with an OR of 1.70, 95% CI of OR [1.40, 2.11], $p < 0.001$, indicating that participants preferred White migrants over Black migrants in line with Hypothesis 3.

When the two-way interactions were added (Table 3, model 2), we did not find support for Hypothesis 4 predicting an interaction between reason for migrating and SES, $B = -0.27$, $\exp(B) = 0.76$, 95% CI of $\exp(B)$ [0.50, 1.15], $p = 0.202$. We also did not find support for Hypothesis 5 predicting an interaction between migration reason and race, $B = -0.08$, $\exp(B) = 0.92$, 95% CI of $\exp(B)$ [0.60, 1.42], $p = 0.718$. In line with Hypothesis 6, the interaction between race and SES ($B = -0.70$, $\exp(B) = 0.50$, 95% CI of $\exp(B)$ [0.33, 0.75], $p = 0.001$) was significant. However, the nature of the interaction was opposite to our prediction and indicated that the difference in acceptance of the White, high-SES vs. the White, low-SES migrant was significantly smaller than the difference in acceptance of the Black high-SES vs. the Black low-SES migrant. In other words, the high SES advantage was more pronounced among the Black migrants than the White migrants.

These results need to be understood considering a plausible three-way interaction between migration reason, race, and SES, as clearly suggested by the descriptive results (i.e., that the Black, low-SES, economic migrant was markedly less accepted than all the other migrant profiles). In the final step, we added the three-way interaction (Table 3, model 3). The interaction was significant at $p < 0.10$; $B = 0.79$, $\exp(B) = 2.20$, 95% CI of $\exp(B)$ [0.95, 5.12], $p = 0.066$. As a follow-up analysis, the odds ratios of acceptance were calculated for each condition in comparison to the Black, economic, low-SES migrant, which was set as the reference group (Table 4). In comparison to the Black, low-SES, economic migrant, respondents were 2.29 times more likely to accept the Black, high-SES, economic migrant; 2.03 times more likely to accept the Black, low-SES, climate migrant; 2.44 times more likely to accept the Black, high-SES, climate migrant; 3.00 times more likely to accept the White, low-SES, economic migrant; 2.34 times more likely to accept the White, high-SES, economic migrant; 3.82 times more likely to accept the White, low-SES, climate migrant; and 3.42 times more likely to accept the White, high-SES, climate migrant.

4 Discussion

To understand the acceptability of climate migrants among Norwegian citizens, and how reason for migrating interacts with migrant race and socioeconomic status to impact acceptability, we conducted a survey experiment. The results showed, in line with our hypotheses, that climate migrants were more likely to be accepted than economic migrants and that White migrants were accepted at higher frequency than Black migrants. Because

Table 3 Binomial logistic regression result of the effects of reason, race, and SES on acceptance of the hypothetical migrant

	B	SE	Exp(B)	95% CI Exp(B)	Wald's χ^2	p-value
Model 1						
Reason	0.36	0.11	1.43	[1.16, 1.78]	11.32	< .001
Race	0.53	0.11	1.70	[1.40, 2.11]	24.33	< .001
SES	0.18	0.11	1.20	[0.96, 1.48]	2.78	.095
Model 1 statistics			χ^2 (df=3)=38.60, p <.001, Nagelkerke's R^2 =.033			#
Model 2						
Reason	0.53	0.18	1.70	[1.19, 2.42]	8.86	.003
Race	0.91	0.18	2.48	[1.74, 3.54]	24.44	< .001
SES	0.64	0.18	1.90	[1.33, 2.70]	12.51	< .001
Reason×race	-0.08	0.22	0.92	[0.60, 1.42]	0.13	.718
Reason×SES	-0.27	0.21	0.76	[0.50, 1.15]	1.63	.202
Race×SES	-0.70	0.21	0.50	[0.33, 0.75]	10.64	.001
Model 2 statistics			χ^2 (df=6)=50.95, p <.001, Nagelkerke's R^2 =.043			**
Model 2 and 1 comparison			$\Delta\chi^2$ (Adf=3)=12.35, p =.006			
Model 3						
Reason	0.71	0.20	2.03	[1.37, 3.01]	12.06	< .001
Race	1.10	0.21	3.00	[1.99, 4.53]	26.57	< .001
SES	0.83	0.21	2.29	[1.52, 3.46]	15.70	< .001
Reason×race	-0.47	0.30	0.62	[0.35, 1.12]	2.41	.121
Reason×SES	-0.65	0.30	0.52	[0.29, 0.94]	4.79	.028
Race×SES	-1.08	0.30	0.34	[0.19, 0.61]	13.04	< .001
Reason×race×SES	0.79	0.43	2.20	[0.95, 5.12]	3.38	.066
Model 3 statistics			χ^2 (df=7)=54.33, p <.001, Nagelkerke's R^2 =0.046			#
Model 3 and 2 comparison			$\Delta\chi^2$ (Adf=1)=3.38, p =.066			
Model 3 and 1 comparison			$\Delta\chi^2$ (Adf=4)=15.73, p =.003			

CI confidence interval

*** p <.001; ** p <.01; * p <.05; # p <.10

Table 4 Odds ratio of acceptance of the hypothetical migrant based on the full-factorial logistic regression model

		Black	White
Economic	SES-low	1.00	3.00
	SES-high	2.29	2.34
Climate	SES-low	2.03	3.82
	SES-high	2.44	3.42

SES social economic status. The reference group is the Black, low-SES economic migrant condition

of differences in design, it is difficult to directly compare acceptance rates across studies. However, our findings align with the results from Denmark (Hedegaard 2021), the USA, and Germany (Arias and Blair 2022; Helbling 2020), showing that international climate migrants are more acceptable than economic migrants. These results contrasts with those of Spilker et al. (2020) who focused on the acceptance on rural-to-urban climate migration in Vietnam and Kenya. They found that migration due to climate change and economic reasons was similarly accepted in these contexts. As argued by Arias and Blair (2022), studying attitudes to climate migrants across national contexts is important as both experiences of, and attitudes to, migration and climate change differ substantially. Our findings add to the literature on perceptions of climate migrants as more deserving than economic migrants in the Global North by considering the previously unresearched Norwegian context.

However, the overall preference for climate migrants and White migrants must be understood in light of the interplay between migration reason, race, and socioeconomic status. We hypothesized that the advantage of climate migrants over economic migrants would be stronger for low-SES migrants (Hypothesis 4). Our results, however, indicated that this is only true for Black migrants. A Black, low-SES migrant described as migrating due to climate change had a 17.5 percentage point higher acceptability than the identical profile described as migrating for economic reasons. We had also hypothesized that the effect of migration reason on acceptance would be stronger for Black than for White migrants (Hypothesis 5). However, migrating for climate reasons (vs. economic reasons) generally increased acceptance for both White and Black migrants. Again, returning to the three-way interaction, it was particularly the Black, low-SES migrant who gained a substantial increase in acceptance when described as migrating due to climate reasons rather than economic pursuit.

Finally, although the existing literature is largely silent on the issue of how migrant race and SES might interact, we expected Black migrants to benefit less from the advantage on acceptability that high social status generally provides and predicted that the effect of SES on acceptance would be weaker among the Black than White migrants (Hypothesis 6). Contrary to this prediction, we found that the difference in acceptance between low- and high-SES Black migrants was substantially larger than the (essentially non-existing) difference in acceptability between low- and high-SES White migrants. Acceptance of White migrants in this study was generally high (71.22%), regardless of SES and migration reason. Therefore, there may have been a ceiling effect among White migrants where there is little room for the effects of different levels of SES to show as acceptance levels are already so high. Also, returning to the three-way interaction, high SES only substantially impacted the acceptability of the Black economic migrant, which suggests that socioeconomic status considerations may be less salient for migrants of any racial background when the reason for migrating is perceived to be due to climate change.

The policy implications of these findings are twofold. At this point in time, the Norwegian public is generally accepting of climate migrants. Exploratory analyses reported in the Supplementary Material indicate that acceptability of climate migrants tends to be higher among those on the political left, among citizens concerned about climate change, and among individuals holding positive views on immigration more generally. Other research shows that acceptability of climate migrants is related to the expected number of migrants coming to the country (Helbling 2020). The broad acceptance we observed is likely to be (temporarily) reduced in the event of sudden influxes of large groups of climate migrants, similar to the changes observed over the 2015 refugee crisis (Nordø and Ivarsflaten 2022). That said, other research focusing on the 2015 refugee crisis show that public opinion on migrants is impacted by government rhetoric and policy (Gaucher et al. 2018). The acceptance of climate migrants among citizens may be similarly impacted by the narratives constructed and policy decisions of national governments. The overall favorable view of climate migrants that we document suggests that there is an openness in the population for immigration policies that benefit this group, an openness that is not currently reflected in international or national immigration policy (McLeman 2019).

Second, what is new with our work is that we demonstrate the racial penalty likely to be paid by Black, especially Black and low-SES, migrants. As the international legal frameworks for protecting climate migrants are not in place, and climatic and economic drivers of migration remain inextricably linked (McLeman 2019), the public's perceptions of Black migrants' reasons for migrating are likely to substantially impact their acceptance among the largely White Norwegian population. This suggests that the dynamics of public opinion associated with future climate migration will be shaped by the racial composition of migrant groups.

4.1 Limitations

The issue of climate migrants, commonly called climate refugees in Norwegian public discourse, is an emerging topic in Norwegian politics. Some political parties have suggested policies targeting climate refugees (e.g., a separate quota for climate refugees suggested by the Green party, changing asylum rules to encompass climate refugees suggested by the Liberal party; Aasen 2021); other parties remain hesitant or silent on the issue. While climate migration is not absent from political debate, it is not (yet) high on the political agenda. We cannot rule out that our results may have looked different in a context where climate migration was strongly politicized and contested. Elite political rhetoric and actual immigration policies could impact both the overall acceptance of migrants in the population and the size of the gap in acceptance of Black and White migrants. Moreover, at the present time, it is uncertain how climate related migration will develop, both within Europe (Bednar-Friedl et al. 2022) and into Norway specifically (Tønnesen 2014). Future migration patterns will be contingent on several factors, including international and national legal frameworks and migration policies. Following public opinion on climate migrants of different national and ethnic origins as policies and migration patterns develop is an important task for future research.

The Norwegian Citizen Panel is a high-quality panel with a 95% wave-to-wave retention rate of participants (Skjervheim et al. 2021). However, some strata of the population are underrepresented (e.g., young men, people with shorter educations; Skjervheim et al. 2021). To address this, survey weights are constructed so that the panel participants match the population on key demographics when the data are weighted. However,

for survey experimental designs such as ours, employing weights is not necessarily beneficial (Miratrix et al. 2018) and we have presented results on the unweighted data. Identical analyses performed on data weighted on gender, age, education, and geography do not change the substantive conclusions reported in this paper.

When surveying people about their opinions on immigrants and immigration policy, the question arises whether respondents report their genuine attitudes or report what they perceive to be the socially desirable or politically correct response. Are people less accepting of migrants than they are willing to admit? We do not suspect that our results are distorted by socially desirable responding as they show that ~25 to 55% of respondents were willing to deny access to the hypothetical migrant (depending on migrant characteristics). Other research employing open-ended questions about attitudes to asylum seekers among NCP respondents also show that respondents willingly report negative views and associations (e.g., asylum seekers are criminal, rapists, take advantage of welfare benefits, etc.; Bjånesøy, 2019). Of course, we cannot rule out that perceptions of social norms influence people's answers, but the data do not suggest that such normative influences lead to excessive pro-migrant responses.

Another issue with online surveys is establishing whether respondents are attentive and respond to the questions being asked rather than providing some form of nonsense response (e.g., providing random answers). An advantage of the NCP is that respondents are contacted based on random sampling from the population registry and that participation is not paid (respondents enter a raffle and can win a travel gift certificate). This should work to reduce the threat of respondents repeatedly rushing through surveys to maximize their economic pay-off. The total length of the survey in each wave of the NCP is kept to ~15 min to prevent respondent fatigue. We cannot rule out that some respondents in our sample were inattentive, rushed, or answered randomly; however, given that the results largely supported the pre-registered hypotheses and align well with research from other national contexts, we maintain that a sufficient number of participants provided valid responses.

In the current study, participants were shown a picture of a man against a light background with a simple description; and then participants were asked to decide whether this man should be allowed to live in Norway. This allowed us to disentangle the effects of race, SES, and migration reason on acceptance among Norwegian citizens. However, this “clean” presentation of individual migrants differs in comparison to real media presentations of migrants. It has been reported that main news outlets such as BBC and Al Jazeera commonly portray climate refugees as aggregated, collectivized, and generic abstractions (Høeg and Tulloch 2019). Portraying migrants as individuals may have facilitated their acceptance and enhanced the effect of single characteristics in comparison to a collectivized representation (KhosraviNik 2010). For citizens, the media has a key role as a source of information about immigration to the country (Bye et al. 2021). Future studies should therefore extend our findings to more realistic scenarios based on media portrayals of migrants and examine how media representation may facilitate or hinder the acceptability of migrants in receiving societies.

It is worth mentioning that the current study only addressed the acceptance of male migrants. Whereas Hedegaard (2021) showed that Danes were equally likely to grant permanent residency to men and women across migration reasons, other studies showed that males were less favored than female migrants (Arias and Blair 2022; Bansak et al. 2016). Adding a fourth variable (migrant gender) to our full-factorial $2 \times 2 \times 2$ design was not feasible; however, future studies need to explore the potential effect of migrant

gender effect and its interaction with other personal characteristics on the acceptability of climate migrants.

5 Conclusion

Climate changes are projected to have substantial impacts on future migration patterns (Cissé et al. 2022). Moreover, there is high agreement among scientists that perceptions of migrants and framing of policy discussions are important determinants of the success of migration as an adaptive response to climate change (Cissé et al. 2022). Our results indicate that emphasizing climate change over economic reasons for migration increases migrant acceptability among citizens. In the Norwegian context, where most of the population is White, we demonstrate that perceived reasons for migrating especially impact the acceptability of Black migrants with low socioeconomic status.

Supplementary Information The online version contains supplementary material available at <https://doi.org/10.1007/s10584-023-03523-2>.

Acknowledgements The authors would like to thank the participants at the 2022 DIGSSORE workshop at the University of Bergen for constructive comments on an earlier version of the paper.

Author contribution Hege H. Bye: formal analysis; methodology; project administration; writing—original draft; writing—review and editing.

Hui Yu: formal analysis; methodology; project administration; validation; visualization; writing—original draft; writing—review and editing.

Jennie S. Portice: methodology, writing—review and editing.

Charles A. Ogunbode: conceptualization, methodology, project administration, writing—review and editing.

Bye and Yu contributed equally to the paper and share first authorship.

Funding Open access funding provided by University of Bergen (incl Haukeland University Hospital) This paper uses data from the Norwegian Citizen Panel wave 22 (Ivaresflaten et al. 2021b). The Norwegian Citizen Panel was financed by the University of Bergen (UiB) and the Trond Mohn Foundation (TMS). Data collection was coordinated by UiB, implemented by Ideas2Evidence, and distributed by Sikt–Norwegian Agency for Shared Services in Education and Research and UiB. Neither UiB, I2E, nor Sikt are responsible for the analyses/interpretation of the data presented here. Preparation of the manuscript was supported by a SPIRE guest researcher grant from the University of Bergen.

Data availability The data from the NCP are available for research and educational purposes from Sikt–Norwegian Agency for Shared Services in Education and Research (<https://sikt.no/>). The data can be found at <https://doi.org/10.18712/NSD-NSD3053-V1>.

Declarations

Ethics statement The Norwegian Citizen Panel deals with human subjects and follow the EU General Data Protection Regulation (GDPR). According to this, the NCP has conducted a Data Protection Impact Assessment (DPIA), which is approved by the University of Bergen. The DPIA was conducted in cooperation with what is now named Sikt–Norwegian Agency for Shared Services in Education and Research. The DPIA number is 118868. Participants in the panel provided written informed consent.

In addition, the Scientific Committee of the Norwegian Citizen Panel reviews all questions that are to be fielded in the NCP, reviewing based on ethical issues, scientific issues, and on how the questions will impact the respondent. A separate IRB approval is not necessary in Norway, but the NCP data adheres to national and university-level ethical standards (Source: <https://www.uib.no/en/digsscore/156878/note-ethics-and-personal-data-protection-norwegian-citizen-panel>).

Consent for publication Not applicable.

Competing interests The authors declare no competing interests.

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