

How attitudes towards refugees are shaped by the sex ratio of inflows: Evidence from an online survey experiment

The impact of the male surplus from the refugee influx to Europe has strongly affected many countries in Europe, especially Germany. Dancygier et al. (2022) indicate that the skewed sex ratio of refugee populations drives hostility and hate crimes against immigrants through the increase of courtship threats. Ward (2019) found that a high proportion of young immigrant men in an immigrant group decreases public preference of settlement. Through an online vignette experiment, with respondents recruited via targeted advertisement of Meta Advertising Manager (Meta Ads), we test to what extent the demographic composition of the refugee population, in terms of the proportion of young men, affects people's non-acceptance and perceived threats—perceived threats to job competition, mate competition, German culture, and safety—of that population.

Our findings indicate that non-acceptance toward a refugee group increases in line with the increase of the sex ratio toward males of this group. Furthermore, the perceived threats to German culture and safety are particularly pronounced when confronted with an extreme sex ratio toward male of non-white refugees. With the explanation of the sex of respondents, we find out that female respondents tend to exhibit more tolerant attitudes when the refugee group comprises a lower proportion of males than male respondents. Nonetheless, female respondents perceived higher threats in culture and mate competition from the non-white male refugees than male respondents. In addition, male respondents perceived higher threats in job competition from non-white male refugees than female respondents. Both female and male respondents express heightened concerns about safety from non-white male refugees.

Skewed sex ratio of outgroups and competition

In past studies, a skewed sex ratio at birth has been proven to squeeze the male competition in the marriage market (Gillen et al. 2016; Guilmoto 2012; Kaur et al. 2015). The imbalanced sex ratio of the refugee population in Germany is seen as a driver of anti-immigrant attitudes. Excessive young immigrant men, especially young Muslim men, could increase intolerance toward immigrants (Erisen and Kentmen-Cin 2017). Besides, young immigrant men are inevitably linked to **concerns of security threats**, including fears of terrorism, sexual assault, theft, and other kinds of violence (Lahav and Courtemanche 2012; Ward 2019). Furthermore, young immigrant men may also trigger perceived threats of host communities in the aspects of **job competition and cultural impact** (e.g. Ben-Nun Bloom, Arikan, and Lahav 2015; Ponce 2017; Halikiopoulou and Vlandas 2020), such as different languages (Hopkins 2014; 2015; Hopkins, Tran, and Williamson 2014; Newman, Hartman, and Taber 2012), the national identity (Sides and Citrin 2007; Wright 2011), and norms and values ((Sniderman, Hagendoorn, and Prior 2004).

Recent studies suggest that the incidence and support for xenophobic attacks against refugees and asylum seekers may be attributed to the skewed sex ratio of refugee populations (Dancygier et al. 2022; Gereke, Schaub, and Baldassarri 2020). The migrant population often presents skewed sex ratios toward males (Dyson 2012; Menashe-Oren 2020; South, Han, and Trent 2022), and this could cause **courtship anxiety and mate competition** among native men toward male outgroups, ultimately leading to violence and discrimination against refugees (Dancygier et al. 2022).

Empirical evidence from a conjoint experiment has shown that groups of immigrants with a large share of young men receive less support from respondents due to concerns about security and cultural threats (Ward 2019). Another experimental evidence shows that Germans are less likely to trust immigrant men than women in strategic encounters, such as in a trust

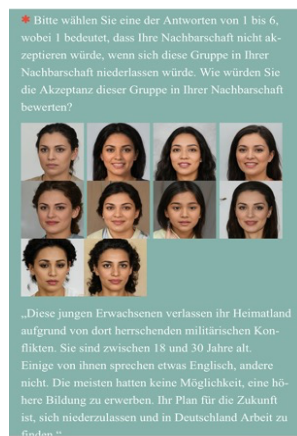
game, while in non-strategic situations, like daily encounters, they are equally pro-social toward immigrant men and women (Gereke, Schaub, and Baldassarri 2020). Overall, the demographic composition of the refugee population is essential in shaping perceptions of native residents toward refugees. We derive our hypotheses from these prior studies.

H1: The skewed sex ratio of the refugee population intensifies threats perceived by native residents and then leads to an increase of perceived threats toward refugees.

H2: The skewed sex ratio of the refugee population leads to an increase on perceived threats to: H2.1 job competition; H2.2 German culture; H2.3 safety; H2.4 mate competition.

Data and Methods

In this study, we conducted an online vignette survey experiment with two waves in March and June 2023. Respondents are sampled through targeted Facebook advertisements in Mecklenburg–Western Pomerania, Germany.



Respondents read vignettes describing the gender and ethnic characteristics of people moving into their community, then provided answers regarding the reactions they expect would be aroused in the community. In our analysis, we focus on three vignette conditions that varied the sex ratio via images showing ten refugees, with the three conditions featuring 0%, 50%, or 100% non-white male refugees (which correspond to 100%, 50%, or 0% non-white female refugees, respectively). The number of completed cases we collected is 376. This includes 176 in the three non-white refugee groups we analyze in the next section and 200 in conditions describing white/German individuals we will examine in future analyses. We weighted the data based on a post-stratification approach with the sex groups and age groups targeted by Meta Ads.

Main Results

Fig. 1: Weighted mean non-acceptance by conditions of non-white refugee sex ratio

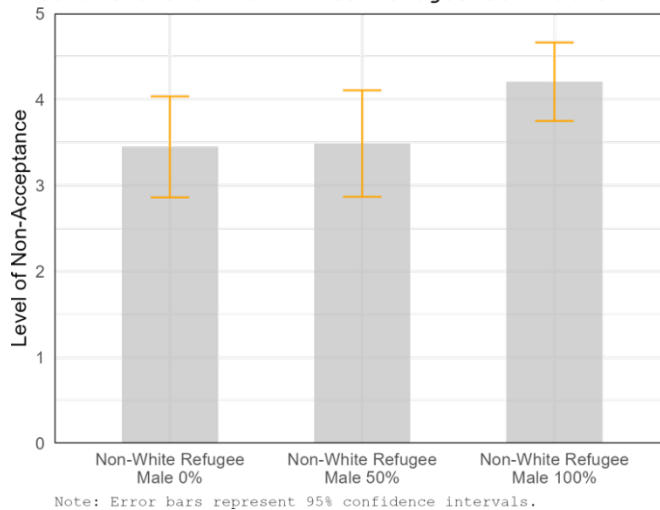
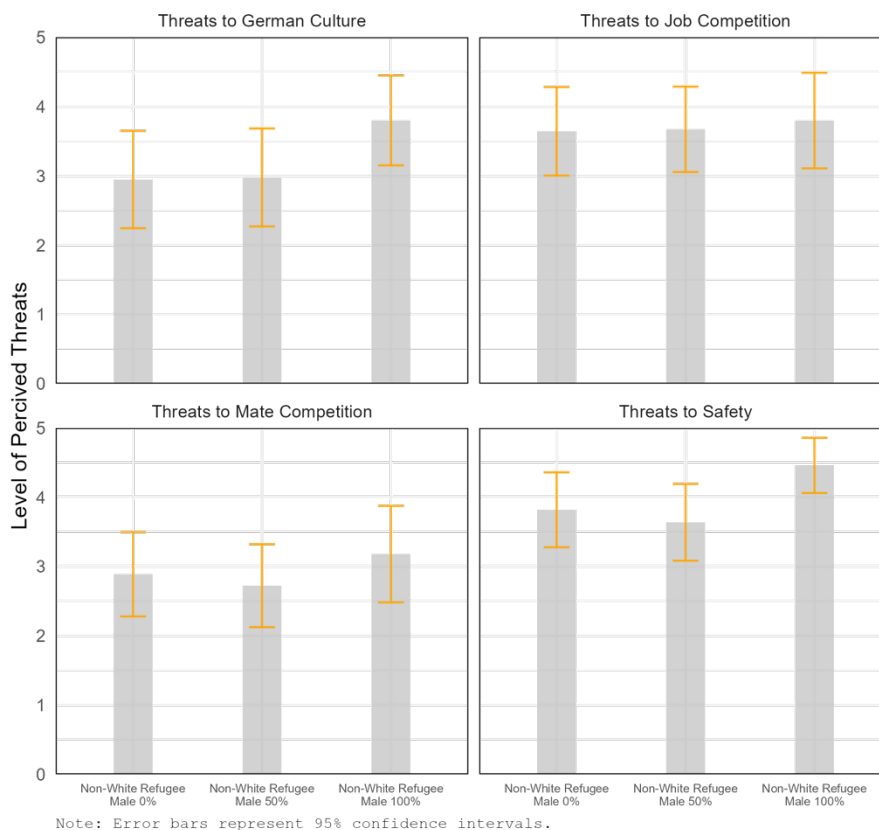


Figure 1 shows the results of the hypothesis of general non-acceptance towards groups of non-white male refugees. Using an indirect questioning approach (Fisher 1993), which is believed to minimize the influence of social desirability bias by asking participants to "report on the nature of the external world" rather than themselves (Westfall, Boyd Jr, and Campbell 1957, p. 138), we expect that respondents project their unconscious biases into ambiguous response situations, providing insight into their true attitudes (Campbell 1950; Holmes 1968; Sherwood 1981). Using a scale of "Definitely accept" to

"Absolutely not accept" from 0 to 5, we find that mean scores of non-acceptances toward non-white male refugees of 0%, 50% and 100% are 3.45, 3.49, and 4.21. The group with 100% non-white male refugees triggers a high score of non-acceptance.

Figure 2 shows the hypothesis of four types of perceived threats towards groups of non-white male refugees. The perceived threats to job competition are generally high but the difference among the three refugee groups is not pronounced (mean score 3.64, 3.67, and 3.80 for 0%, 50%, and 100% non-white-male refugees). The perceived threat to mate competition is slightly marked from the group of 100% non-white male refugees (mean score 2.89, 2.72, and 3.17 for 0%, 50%, and 100% non-white-male refugees). Noteworthily, the group with 50% male is lower than with 0% male. Extreme sex ratio toward male and female can both possibly lead to perceived threats to mate competition. Perceived threats to German culture and safety are specially marked of the group of 100% non-white young males (mean score of threats to German culture 2.95, 2.98, and 3.80 for 0%, 50% and 100% non-white-male refugees; Mean score of threats to Safety 3.81, 3.64, and 4.46 for 0%, 50%, and 100% non-white-male refugees).

Fig. 2: Weighted mean across types of perceived threats by conditions of non-white refugee sex ratio



To unpack the non-acceptance and perceived threats, we examined the comparison of the effect between the male and female respondents. We find that female respondents tend to manifest more tolerant attitudes when the refugee group comprises a lower proportion of males relative to our male respondents. However, it is notable that female respondents also exhibit an increased perception of cultural and mate competition. This is to say, female respondents tend to expect high male surplus will cause an impact on the marriage market in Germany. Moreover, male respondents, in contrast, report heightened concerns regarding job competition originating from non-white male refugees in comparison to female respondents. Both male and female respondents express elevated apprehensions regarding their safety caused by non-white male refugees.

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