Research in Social Stratification and Mobility 102 (2026) 101134

Contents lists available at ScienceDirect

Research in Social Stratification and Mobility

journal homepage: www.elsevier.com/locate/rssm

It takes two to court: Partnership formation in the context of forced migration

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ARTICLE INFO

Keywords:
Cross-national partnership
Refugee
Opportunity structure
Partnership preferences
Germany

ABSTRACT

Since 2015, Germany has seen a significant influx of Syrian and Afghan refugees, predominantly young, unmarried, Muslim men without well-established co-national communities. Confronted with an often unwelcoming reception context, a key question arises: how likely are these refugees to develop close social ties with the resident population? This study explores the relationship between the attitudes of the resident population in Germany toward partnerships with refugees of varying religious affiliations and educational backgrounds and the likelihood of cross-national partnerships among refugees. By utilising a factorial survey experiment from the 58th wave of the German Internet Panel (GIP; N = 3192) and data from the first wave of the PARFORM survey of Syrian and Afghan refugees (N = 1512), we examine whether these attitudes influence partnership outcomes. Our findings reveal that favourable views of the "average" refugee do not correlate with higher probabilities of cross-national partnerships. Whereas positive views of non-Muslim, highly religious, and low-educated refugees show no relationship with cross-national partnership formation, favourable perceptions of Muslim, lowly religious, and highly educated refugees are associated with a greater likelihood of such partnerships. This study underscores the importance of considering resident population preferences as a critical element in the opportunity structure for refugee integration.

1. Introduction

Violent and armed conflicts in Syria and Afghanistan and the rise of the Islamic State in the first half of the 2010s led to a large number of people seeking asylum in neighbouring and European countries in 2015. When Middle Eastern countries, which had been hosting many asylum-seekers mainly from Syria until 2014 (Jordan, Lebanon, Egypt) and 2015 (Turkey), started to become more restrictive in their acceptance, increasingly more asylum-seekers headed to Europe (Brücker et al., 2020; Zaragoza-Cristiani, 2015). As a result, 3.1 million asylum-seekers arrived in the European Union (EU) between 2015 and 2017, with about half of them settling in Germany. By 2018, Germany had the largest population of asylum seekers in the EU, amounting to 1.8 million people (Brücker et al., 2019).

Most asylum seekers who arrived in Germany were from Syria and Afghanistan (around 65 %). Among these, the majority were male (73 %), young (64 % were aged 20–35) and single (50 %) (Brücker et al., 2019, 2020). Hence, this population is characterised by an imbalanced sex ratio, with a significant surplus of men in the typical partnership-forming age range. Predominantly Muslim, these groups, however, lacked support from co-ethnic or co-national communities due to sparse immigration from Syria and Afghanistan in the decades before. These conditions may favour forming partnerships with the resident non-refugee population in Germany, as there are limited opportunities for partnering with people from their own nationality or ethnic group.

The influx of asylum-seekers in Europe has sparked heated political and social debates surrounding migration. Studies have reported negative opinions about refugees and Muslims among sizeable shares of the European population in the years before the large asylum-seeker influx (Wike et al., 2016). This research has also shown that exposure to refugees from the Middle East—especially when the number of asylum-seekers increases rapidly (Deiss-Helbig & Remer, 2022)—can lead to more exclusionary attitudes among the local population (Hangartner et al., 2019) and to a rise in the electoral support of anti-immigration parties (Dinas et al., 2019). In Germany, despite the federal government's open stance towards refugee migration and the fact that the population did not react massively against refugees in the early stages of the influx, there has been growing electoral support for the

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https://doi.org/10.1016/j.rssm.2026.101134
Received 24 April 2025; Received in revised form 3 December 2025; Accepted 1 February 2026
Available online 2 February 2026

anti-immigration party Alternative für Deutschland (AfD), particularly in opposition to Syrian and Afghan refugees, one of its core issues since 2015 (Grotz & Schroeder, 2023; Mader & Schoen, 2019). Negative attitudes towards immigration and support for anti-immigration parties are more pronounced in Eastern Germany than in Western German states (Gerhards et al., 2016; Talò, 2017), creating a geographically differentiated societal context of reception. This may considerably hamper the ability of refugees to partner with members of the resident population and condition them to look for partners in the in-group despite the obvious obstacles.

Against the backdrop of male asylum seekers from Syria and Afghanistan in Germany facing structural challenges to partnering with female members of their in-group, there is potential for the creation of ties with the local population. However, this potential is also met with opposition from the latter. In this context, the general question arising is what the prospects for the social integration of this group are, understood as the establishment of meaningful social ties with the resident population in Germany. We narrow down this question to the following: how is acceptance of partnership with refugees among the resident population in Germany associated with cross-national partnerships among Syrian and Afghan refugees in Germany?

To answer this question, we analyse the probability of Syrian and Afghan refugees—in general and differentiated by levels of education and religious affiliations—to partner with a person from a different country of origin than themselves and the extent to which this probability is associated with the acceptance of partnerships with refugees among the German resident population. We focus on partnerships as they are considered one of the most intimate forms of social interaction and bonding and the ultimate stage in the process of group boundary-crossing in diverse societies (Kalmijn, 1998), although this view is disputed (Lundquist et al., 2024). However, ethnic/racial minority-majority intermarriage is still the exception rather than the norm despite it being more common nowadays than in the past (Kalmijn, 1998; Rosenfeld, 2008).

By incorporating the attitudes of the resident population in Germany towards partnerships with refugees into the analysis, we address an important gap in the literature on majority-minority inter-group partnerships: the lack of attention to the double-sidedness of the partnership formation process. To the best of our knowledge, no previous study has analysed minorities' partnership outcomes while simultaneously considering majority views on partnerships with refugees.

We find that assessments of non-Muslim, highly religious, and lowly educated refugees are not associated with the likelihood of cross-national partnerships. However, more positive perceptions of Muslim, lowly religious, and highly educated refugees are linked to higher probabilities of cross-national partnership formation. Although the results are not statistically significant, they nonetheless yield important new insights into the complexity of refugee social integration, warranting validation through further research.

2. Background and hypotheses

2.1. Preferences, third parties and opportunity structures

The literature on partnership formation typically mentions three factors that influence the creation of partnerships and the characteristics of partners: (i) individuals' preferences towards specific partner characteristics, (ii) the preferences of the social context regarding partnership and ideal partners' characteristics, and (iii) the opportunity structure for social interaction in which an individual is embedded (González-Ferrer, 2006; Kalmijn, 1998; Potarca, 2017; van Zantvliet et al., 2015).

Starting with preferences, individuals in the partner market are commonly viewed as holding a set of ideal requirements they want their potential partners to meet (Schwartz, 2013). On the one hand, following the economic model of marriage and complementarity theory, individuals with similar characteristics in relevant domains (race, ethnicity, religion, socioeconomic status, etc.) partner when these traits are complementary and foster mutual satisfaction, shared lifestyles and enhanced opportunities for joint activities (Kalmijn, 1998; Potarca, 2017; Schwartz, 2013). On the other hand, the competition hypothesis and exchange theory argue that individuals with dissimilar characteristics may partner when their differences provide substitute resources that offset individual shortcomings and maximize collective well-being (Merton, 1941; Nakonezny & Denton, 2008; Schwartz, 2013).

The second factor influencing partnerships is "third parties", agents and institutions surrounding the focal individual, like family members, friends, or religious institutions, which guide it in selecting suitable partners. According to Kalmijn (1998), third parties promote endogamous marriages to maintain internal cohesion and the homogeneity of the in-group through in-group identification and group sanctions. Social identity theory (Tajfel & Turner, 2008) argues that individuals derive self-worth from in-group affiliations, which can result in in-group favouritism and an inclination towards homogeneity in partner choice. Children tend to be socialised to align with the in-group. Accordingly, inter-ethnic marriage "reduces the ability of families to pass their cultural practices and beliefs to the next generation" (Huijnk et al., 2013, p. 1906) and can undermine the homogeneity and functioning of the family (Huijnk et al., 2013). As happens with individual preferences, third parties may promote endogamous partnerships under the belief that they lead to higher marital stability, because cultural similarity enhances mutual understanding and cohesion between partners and, eventually, higher marital and life satisfaction (Kalmijn, 1994, 1998)—a desired outcome of parents for their children. Some studies find a considerable opposition towards family members marrying interethnically, which is stronger the larger cultural differences with the outgroup, although opposition is not always the predominant position (Dunn et al., 2021; Huijnk et al., 2013; Munniksma et al., 2012). Research shows that asylum seekers are the least desired minority group for a relative to marry in Germany (Rippl & Seipel, 2023, Fig. 2) and that parental involvement in children's partner choice differs by immigrant background and immigrant generation in the Netherlands but not much by degree of cultural integration (van Zantvliet et al., 2014).

The realisation of individual partner preferences depends on the opportunities to meet others with the desired characteristics, which are constrained by the population structure of the geographic area where individuals make their everyday life (Blau et al., 1982). Blau defines the population structure as the composition of the population of a given area along socially relevant dimensions that condition life chances, the supply of contact opportunities with (dis)similar others and their interactions (Blau, 1994). Furthermore, he defines the opportunity structure as a "multidimensional space of social positions among which a population is distributed" (Blau, 1994, p. 9). Four structural parameters influence the opportunities to establish intergroup relations: the *heterogeneity* of the population in terms of the number of social groups and their size; the *inequality* in possession of socially relevant resources, and the *consolidation* of intergroup differences, the extent to which positions in one social dimension are strongly associated with positions in another social dimension (e.g., the extent to which ethnicity overlaps with social class) (Blau, 1994). An additional parameter is *spatial segregation*, the extent to which groups living in the same location are evenly distributed across or geographically concentrated (Blau, 1977).

From a theoretical perspective, larger ingroup sizes limit opportunities for intergroup interactions, as individuals in these groups are more likely to encounter more ingroup members and fewer outgroup members (Blau, 1994; Kalmijn, 1998). Population heterogeneity fosters intergroup relations by increasing the likelihood of fortuitous encounters with outgroup members (Blau, 1994). Inequality can enhance contact between status-distant groups (South & Messner, 1986), while the consolidation of intergroup differences reduces these opportunities, thus reinforcing group boundaries (Spörlein et al., 2014). Spatial segregation can further limit interactions, leading to stronger in-group

identification (van Tubergen & Maas, 2007).

Research following Blau's work indicates that racial and national-origin heterogeneity positively correlates with outmarriage rates at the aggregate and individual levels, but only among Asian and Hispanic individuals in the latter case (Blau et al., 1982; Choi & Tienda, 2017; South & Messner, 1986). Findings on the Black minority are, however, mixed (Blau et al., 1982 vs. South & Messner, 1986). Ethnic group size is generally negatively associated with interethnic marriage (Choi & Tienda, 2017; González-Ferrer et al., 2018). Racial income inequality in metropolitan areas positively correlates with out-marriage rates (South & Messner, 1986), though the relationship varies depending on group dynamics (Hwang et al., 1997). Racial and ethnic residential segregation similarly negatively correlates with aggregate outmarriage rates (Hwang et al., 1997; South & Messner, 1986; van Tubergen & Maas, 2007), while a higher in-group sex ratio tends to increase ethnic outmarriage opportunities (González-Ferrer, 2006; González-Ferrer et al., 2018; Spörlein et al., 2014) or have no effect on intermarriage (Choi & Tienda, 2017; Kalmijn & Van Tubergen, 2010). Finally, the consolidation of social positions also predicts increased endogamy (Spörlein et al., 2014).

2.2. Two-sidedness of partnership formation across the group boundaries

Most of the literature that analyses the formation of cross-group partnerships and the role of the opportunity structure on the latter adopts a one-sided analytical approach. Only the perspective of one of the members of the partnership, usually the member of the minority group, is considered. Exceptions include Martinović (2013), who investigated interethnic contact in the Netherlands from the perspectives of both natives and immigrants but did not assess how outgroup characteristics affect one's interethnic contact. Tolsma et al. (2007) analysed opposition to ethnic intermarriage among the Dutch native population by considering the structural characteristics of ethnic minorities but sidestepped attitudes of minorities towards interethnic marriage either as *explanans* or *explanandum*. Similarly, Rahnu et al. (2020) considered the effect of the share of immigrants in the neighbourhood and workplace on natives' partnerships with immigrants in Finland but disregarded immigrants' preferences towards partnerships with natives or an actual incidence of interethnic partnerships. Finally, Carol (2013) studied attitudes towards intermarriage among Muslim migrants and majority members separately, without investigating how outgroups' attitudes towards intermarriage influence predispositions to marriage with one's ingroup. Nevertheless, she finds that migrant Muslims in all analysed countries are more favourable towards intermarriage than non-Muslim natives, with Germany exhibiting one of the largest gaps. This finding emphasises the importance of considering the perspective of the resident population about intermarriage to understand the social integration of immigrants.

The partnership formation process inextricably involves two parties and requires that the two are jointly considered to understand how it occurs. This is especially important when analysing the chances of intergroup partnership from the perspective of minorities, particularly when the latter are recent refugees from very distant social, cultural normative contexts, as is the case with Syrian and Afghan refugees in Germany. In this paper, we propose that the preferences of the resident population towards partnerships with refugees should be considered an additional feature of the opportunity structure for refugees' partnership formation. Beyond the structural sociodemographic characteristics of the areas in Germany where refugees reside—which provide insight into the opportunities for potential interaction with natives—the views of the resident population about partnering with refugees are crucial in determining the feasibility of forming strong majority-minority ties. Negative attitudes held by the majority are likely to impede the development of such partnerships, as the mere possibility of contact is insufficient to foster meaningful relationships in the presence of unfavourable attitudes.

Views on refugees among the resident population may reflect symbolic boundaries that have evolved into social boundaries, demarcating a clear distinction between the in-group ("us") and the out-group ("them"). Symbolic boundaries are "conceptual distinctions made by social actors to categorise objects, people, practices [and] also separate people into groups and generate feelings of similarity and group membership" (Lamont & Molnár, 2002, p. 168). When symbolic boundaries become widely agreed upon, they constrain and pattern social interaction, thus turning into social boundaries (Lamont & Molnár, 2002) and, therefore, barriers for fluid social interaction between members of different groups defined by traits that represent core and opposed components of the identity of each group.

While Germany's population comprises both individuals with and without immigrant backgrounds, Syrian and Afghan refugees stand out as visible minorities and recent arrivals. The resident population's views on refugees may reflect perceptions of a distinct boundary between these groups. A negative assessment of refugees could indicate a bright boundary, wherein these refugees are perceived as a fundamentally different group along salient dimensions that are difficult to reconcile. In contrast, a positive view suggests better compatibility and a blurred boundary between the resident population and refugees. Among resident minorities who share religion, language, and broader cultural traditions with the refugee groups discussed above, symbolic boundaries may be less pronounced but remain salient due to differences in ethnic backgrounds and refugee experiences. Social identity theory (Tajfel & Turner, 1986) links the evaluation of outgroups to the likelihood of engaging with them constructively. This theory states, first, that individuals "strive to maintain or enhance their self-esteem" (Tajfel & Turner, 1986, p. 16) through positive social identity, which consists of those aspects of their self-image that depend on their group membership. Second, group membership carries positive or negative connotations. Third, one's group is evaluated in relation to others. When the social identity that stems from group membership is threatened by a negative in-group evaluation, individuals may attempt to improve their group's image or distance themselves from it. Negative attitudes among the resident population can thus hinder partnerships with refugees, as such attitudes serve to protect the in-group's social identity. Conversely, positive views among the resident population can facilitate cross-national partnerships since there is less perceived threat to their identity.

2.3. General vs. characteristic-specific attitudes towards refugees as potential partners

When respondents express their views about partnering with refugees, an important question arises: whom do they have in mind? Do they envision a specific refugee whose characteristics they know through direct experience, or do they rely on a stereotypical, generalised image of an "average refugee" (Kunda & Spencer, 2003). The distinction between these two cases can be illuminated through the lens of statistical discrimination and stereotype-based discrimination. Originally developed to explain decision-making under limited information in labour markets (Spence 1973; Phelps 1972), statistical discrimination framework can be extended to the domain of intergroup attitudes. According to this perspective, in the absence of detailed, personal knowledge about individual refugees, members of the resident population are likely to rely on readily available group-based signals to form judgments. Perceived average characteristics — in terms of legal status or religiosity — thus function as informational shortcuts guiding their evaluations.

A related but distinct mechanism is proposed by the stereotype-based discrimination approach (Fiske et al., 1987), which emphasises the role of socially shared stereotypes in shaping perception. In this view, individuals are categorised and evaluated through group-based labels — such as "vulnerable individuals" or "traditional groups" — that ascribe meaning and value based on cultural schemas rather than on actual experience.

However, as interpersonal contact increases and individuals acquire more direct, individualised information, these group-level generalisations are expected to be gradually replaced by more differentiated assessments. To approximate this process empirically, our study employs tailored indices that simulate increasingly individualized evaluations. These indices take into account specific refugee characteristics — such as religion, religiosity, educational attainment, and their various combinations — to capture how attitudes may shift when more precise information becomes available.

This approach is particularly pertinent given that the Syrian and Afghan refugees who arrived in Germany constitute a highly heterogeneous population. They vary in cultural and sociodemographic characteristics such as religion, religiosity, and level of education. These characteristics may influence their chances of forming exogamous partnerships, as the resident population may judge refugees' acceptability as potential partners differently depending on these characteristics.

Research on attitudes and preferences towards immigrants in general and asylum seekers in particular has documented a strong anti-Muslim bias among European and other European-heritage populations (Bansak et al., 2016; Dunn et al., 2021; Wike et al., 2016). This is commonly explained by referring to the perceived cultural dissimilarity and distinct group identity between Muslims and the majority population in these countries (Bloom et al., 2015). It is often perceived that values-based differences exist between Muslim and majority non-Muslim populations, and that these perceived differences reinforce the belief that Muslims in European countries maintain distinct cultural practices rather than assimilating into the broader receiving society (Wike et al., 2016). In brief, Islam and Muslim identity often represent a bright boundary between European and Christian heritage populations and the Muslim minority in Europe, reflected both in public perceptions and institutional arrangements to accommodate religious practices in everyday life (e.g., Foner & Alba, 2008) Regarding religiosity, the argument is very similar, although the effect of religion is rarely separated from the effect of religiosity (Helbling & Traunmüller, 2020). The values espoused by highly religious individuals are often perceived as conflicting with modern secular values, and, in the case of Muslims, this perception can intensify concerns about a group viewed as culturally distinct. Indeed, negative perceptions about Muslims tend to focus primarily on those perceived as highly religious or fundamentalist rather than on moderates, who, in fact, are often viewed more favourably than fundamentalist Christians, whether native or immigrant (Helbling & Traunmüller, 2020). The more negative assessment of Muslims also applies to Germans in the context of the mid-2010s asylum-seeker inflow (Czymara & Schmidt-Catran, 2016). These conclusions are consistent with the intergroup threat theory, which posits that intercultural contact potentially leads to the perception of an intangible harm—specifically, threats to the integrity or legitimacy of a group's cultural meaning systems—and, ultimately, the erosion of positive intercultural relations (Hainmueller & Hopkins, 2014; Stephan & Stephan, 2017).

There is also greater acceptance of refugees who had higher-skilled occupations before arriving in the country of destination (Bansak et al., 2016; Ford & and Mellon, 2020). The German population also exhibits pro-employable-refugee/immigrant biases (Bansak et al., 2016; Czymara & Schmidt-Catran, 2016; Fietkau & Hansen, 2018; Ford & and Mellon, 2020). A common regularity across countries is that more educated individuals have higher employment and lower unemployment rates (OECD, 2024, Table A3.2, A3.3). Hence, refugees with higher levels of education are generally more likely to gain employment or require less training to become employable, which could, in theory, lead to more favourable reception by the resident population (Kosyakova & Kogan, 2022). More skilled immigrants are also less often perceived as a burden to the economy of the country (Ford & and Mellon, 2020).

These considerations lead us to formulate the following hypothesis:

Hypothesis 1: *The more positive the attitudes towards partnerships with refugees among the resident population in a given region—either in general or with consideration of refugees' characteristics such as religious affiliation or educational background—the higher the probability of cross-national partnerships (i.e., cross-national exogamy) among refugees.*

This represents a general hypothesis regarding the relationship between attitudes toward partnerships with refugees and actual partnership outcomes, which we expect to hold irrespective of refugees' characteristics.

3. Research design[1]

3.1. Data

In this paper, we utilise two different datasets. To estimate the likelihood of partnerships among refugees, we rely on the PARFORM survey dataset (pre-publication version of the data: first wave, version v3.0), which contains information on partnership biographies, social networks, and sociodemographic characteristics of male refugees from Syria and Afghanistan in Germany who arrived between 2014 and 2018. The survey sample was drawn based on the addresses acquired from municipal registers of 23 German cities and the central register of foreigners (AZR, *Ausländerzentralregister*) for 44 municipalities with a high density of Afghan and Syrian nationals (BAMF-Forschungsdatenzentrum, 2021). The survey sample only included men from Syria and Afghanistan born between 1984 and 2002 and arrived unmarried between 2014 and 2018 in Germany, enabling a representative account of the named population. The survey was conducted between the summer of 2022 and early 2024, utilising both CAPI (Computer-Assisted Personal Interviewing) and CAWI (Computer-Assisted Web Interviewing) modes. The overall survey sample size is 3412 respondents. For more information on sampling and survey design, see the technical reports by (Gerber et al., 2024) and (Kogan et al., 2025). This survey is the primary source of information for measuring the individual characteristics of refugees, their partnership status at the time of the survey, and the characteristics of their partners. We initially restrict the sample to respondents partnered at the time of survey participation who have valid values in the variables included in the models, resulting in 1223 respondents. We apply multiple imputation techniques to this *observed* sample to replace missing values in certain variables. This enables us to achieve a final analytical sample size of 1512 respondents. We explain the multiple imputation procedure in Section 3.3, "Analytical procedure".

To capture attitudes of the German resident population towards refugees, we use data from a factorial survey experiment implemented in the 58th wave of the German Internet Panel (GIP)—a representative online panel survey of the German population funded by the German Research Foundation as part of the Collaborative Research Center 884 (SFB 884; Project Number 139943784; Project Z1)—conducted in March 2022 (GIP; DOI: 10.4232/1.14054; Blom et al., 2022). The factorial survey experiment allows us to isolate the effects of specific refugee characteristics (i.e., religion, religiosity, education level) independently from each other. This is important because of the high correlation between these characteristics among the refugee population under study. The experimental set-up further reduces social desirability in respondents' evaluations, producing a less biased estimate of attitudes towards refugees (Auspurg & Hinz, 2015).

In the survey experiment, respondents were presented with six descriptions of hypothetical situations in which a relative would engage in a partnership with a refugee who had arrived in Germany a few years

[1] Due to several datasets used in the preparation of the data for this paper requiring on-site access and use at the premises of the University of Mannheim, please contact the authors for details on how to access the datasets and the replication codes. See also this site for further information: Palomo Lario, C., Kogan, I., Heyne, S., & Kuhlemann, J. (2026, February 10). It takes two to court: Partnership formation in the context of forced migration. https://doi.org/10.17605/OSF.IO/EK2P9

ago. Respondents were then asked to evaluate their likely reaction to this hypothetical situation (question: "How would you react in this situation?") on a scale from 1 ('very negative') to 11 ('very positive'). The descriptions (vignettes) varied the refugees' characteristics in terms of gender, country of origin, religion, religiosity, educational level, and the type of partnership the relative would engage in with the refugee (see Table A1 and Box A1 in the Supplementary Appendix for the full list of vignette levels and dimensions and a vignette example, respectively). We used a D-efficient design to select 36 vignettes from a total of 96 possible combinations of dimensions, accounting for all two-level interactions. Those 36 vignettes were distributed among six experimental groups. Respondents were randomly assigned to one experimental group, in each of which they were presented with six vignettes in randomised order. The total sample size of wave 58 of GIP is 3978 respondents. Of these, we used 19,052 vignette evaluations by 3129 respondents that meet the scope conditions of the analysis (see Section 3.2, "Variables").

3.2. Variables

The dependent variable is whether a respondent (of the PARFORM survey) is partnered with someone from a different country of origin (cross-national partnership). Using a multiple choice question about the country of origin of the partner, we consider respondents as cross-nationally partnered if they were partnered at the time of the survey and did not tick an option of partnering with a person from Syria (for Syrian respondents) and Afghanistan (for Afghan respondents), as opposed to co-nationally partnered if they ticked that they were partnered with a person from Syria/Afghanistan. In supplementary analyses, we also examine partnership with Germans, i.e., current partner coming from Germany, vs. partnership with non-Germans, i.e., individuals not originating in Germany. We code respondents as partnered with a German if they indicated that their current partner comes from Germany and as not partnered with a German if they did not select Germany as the country of origin and selected any of the other countries provided as response categories.

The analytically relevant variables at the individual level are the religion, religiosity and level of education of respondents. Regarding religion, we juxtapose respondents of Muslim and non-Muslim faith. The latter category includes also individuals who stated Christianity, Buddhism, Hinduism, Judaism or another religion, as well as those with no religion.

Regarding religiosity, we distinguish between lowly and highly religious refugees. Respondents were asked to rate how important religion was to them on a scale ranging from 1 (not important at all) to 5 (very important). To match the categorisation used in the vignette, we define lowly religious respondents as those choosing 1 to 3 and highly religious as those ticking 4 and 5. We address an alternative coding of the middle category in the sensitivity analyses.

Regarding the level of education, we distinguish between lowly and medium/highly educated respondents. Respondents were asked about their highest level of education before moving to Germany using educational institutions and types specific to their countries of origin. We define as lowly educated respondents those who left school without a graduation certificate, who finished elementary school at most, or who graduated from middle school at most. We define as medium or highly educated those who graduated from practical secondary school, general secondary school, higher education (Afghanistan), an intermediate institute (Syria), or university with a bachelor's, master's or doctoral degree. This classification is not identical to the categories applied in the vignettes but is the best possible approximation.

We also control for the parents' highest education level applying the dominance approach (no degree, primary school degree, secondary school degree, university degree), the desire to stay in Germany forever (response categories: yes/no), the number of years potentially spent on the dating market in Germany for those arrived above age 16 and the number of years from this age onwards for those arrived before 16 years old, and the age of the respondent.

We additionally control for indicators of third-party influences and immediate opportunity structures. The indicator of third-party influences is whether respondents met their current partner through their family or relatives. The indicators of the opportunity structure are the self-reported share of co-nationals (Syrians or Afghans, depending on the country of origin of the respondent) in the place of the main activity (either employment, school, training, studies or internship) and the neighbourhood, coded on the scale with the following categories: none/very few, less than half, about half, more than half, all or almost all or respondents do not engage in any main activity (this last category does not apply to the share of co-nationals in the neighbourhood).

We create a set of indices of acceptance of partnerships with refugees among the German resident population with the help of the GIP data. These indices constitute the key aggregate-level variables used to measure a newly proposed dimension of the opportunity structure for partnership formation among refugees. By capturing the views of *relatives* toward partnerships with refugees, they also reflect third-party influences within the resident population—potentially shaping the partnership preferences of younger individuals within these communities. These indices are based on the vignette scores from the GIP factorial survey experiment. They are computed for the combinations of the German federal states (*Bundesländer*) and the counties (*Kreise*) with the population size ranging between 100,000 and 500,000 inhabitants and/or exceeding 500,000 inhabitants, resulting in overall 15 combinations (i.e., hereafter clusters). We define as a condition to keep a separate cluster for the analyses that at least 20 PARFORM respondents live in it. The indices of acceptance are calculated in each of these clusters separately. This allows us to have a single measure for each index in each cluster (see the section "Creation of the clusters" and Tables A2–A4 in the Appendix for a detailed explanation of the creation of the clusters).

The first index is an overall assessment of partnership with refugees. We calculate it by regressing the individual vignette score on all the vignette dimensions for each cluster and predicting the margins from this regression model. The index is therefore the average score in the assessment scale in each cluster for a Syrian or an Afghan refugee, therefore reflecting the resident population's general attitudes toward partnering with refugees, irrespective of the refugees' specific characteristics.

Secondly, we compute indices of acceptance based on each single characteristic of the fictitious refugees (religion, religiosity and education level). In the vignettes, religion is captured through the juxtaposition of the Christian and Muslim religions and thus differs from the categorisation of religion in the PARFORM data. The religiosity contrasts refugees for whom religion does not play a big role in life vs. those for whom religion plays a big role in life. Educational attainment is measured by distinguishing between refugees with and without a tertiary degree, which again introduces some discrepancies compared to the categorisation used in the PARFORM data. In a single model, we regress the vignette score on these three dimensions while controlling for the other dimensions of the vignettes: sex, partnership type, country of origin and vignette order. We then calculate the average marginal effects (i.e., the predicted average) of each of the three dimensions separately to obtain an index of acceptance based on religion, another based on religiosity and a third one based on education.

Subsequently we compute indices based on possible two-way combinations (i.e., three two-way interactions) of each refugee's relevant characteristic and finally a three-way interaction between all three dimensions. To this end, we regress the vignette score on each of the interactions of these dimensions and control for the rest of the vignette dimensions. We then compute the average marginal effects for these interacted variables. This results in an index of acceptance based on (a)

religion and religiosity; (b) religion and education; (c) religiosity and education, and a final index (d) based on these three variables. We refer to these indices as "tailored indices", interpreting them as the opinion towards partnerships when the resident population has a more informed and characteristic-specific knowledge of the potential partners, instead of relying on a generic or stereotypical image of them.

Finally, we assign the scores of the above-described indices to PARFORM survey respondents depending on their characteristics (religion, religiosity and education) and the cluster where they live, creating a separate variable in the PARFORM dataset for each characteristic or a combination of characteristics. For example, a Muslim and highly religious PARFORM respondent residing in cluster A with populations between 100,000 and less than 500,000 inhabitants gets a score of acceptance of partnerships by religion and religiosity in the very same cluster from the GIP data. This way, we get a unique context- and person-specific measure of the context of reception that Syrian and Afghan asylum-seekers with specific characteristics encounter in Germany. The overall undifferentiated index is, in contrast, not matched by any of the individual characteristics but is based solely on the cluster of residence.

The last set of cluster-level control variables contains three traditional indicators of the opportunity structure: the sex ratio of co-nationals (Afghans/Syrians), the relative group size of co-nationals and the index of national heterogeneity. The sex ratio of co-nationals is the ratio of the number of men with Afghan (Syrian) nationality to the number of women with Afghan (Syrian) nationality in each cluster. A value of 1 indicates that there are as many men as women of a given nationality, whereas a value above (below) 1 indicates that there are more men (women) than women (men). The relative group size of co-nationals is the percentage of inhabitants with Afghan (Syrian) nationality over the total population of each cluster. The Blau index of national heterogeneity indicates how diverse a cluster is in terms of nationalities and their size. The index has the formula $H = 1 - \sum_k p_{nk}^2$, where p_{nk}^2 represents the squared proportion of each nationality n in the population of the cluster k, $\sum_k$represents the summatory of all nationality squared proportions in cluster k, which is latter subtracted from 1. The index ranges from 0 (no diversity) to 1 (maximum diversity). To compute the three indicators, we use the official statistics of the total population and the population by nationality and gender of each German *Kreise* in 2020 available at the Genesis-Destatis website of the German Statistical Office (Statistiches Bundesamt) (Genesis-Destatis, 2025a, 2025b). For the calculation, we use *only* the *Kreise* where PARFORM respondents live at the time of the survey.

3.3. Analytical procedure

We apply standard binomial logistic regression to estimate the probability of partnering with someone from another country (cross-national partnerships). We treat macro-level variables (indices of acceptance and indicators of the opportunity structure) as individual-level variables and apply cluster-robust standard errors to address the correlation of standard errors within clusters, since we assume that individuals nested in the same cluster are not independent (for a similar modelling strategy, see Kanas & Steinmetz, 2021).[2]

We organise our analysis into two sections. In the first, we present the descriptive statistics and the distribution of the dependent variables across the 15 clusters using *only the observed data*. We also present the distribution of the indices of acceptance by religion, religiosity and education, with the cluster as the unit of analysis.

In the second section, we analyse the association between the indices of acceptance and the probability of cross-national partnerships using the multiply imputed sample to test our research hypothesis. We start with a more general analysis of the "effect" of the overall index and proceed with more fine-grained hypothesis testing under progressively more specific situations, using the tailored indices. The baseline model of partnership outcomes of individual i in cluster c is:

$$logit[P(y_{ic}=1)] = \beta_0 + \beta_1 A_c + \beta_n z_{ic} + \beta_n Z_c + u_{ic},$$

where A_c is the score in each of the indices of acceptance in each cluster; z_{ic} is a vector of individual-level controls; Z_c is a vector of cluster-level controls, and u_{ic} is an error term.

In the second step, we examine the interaction effect between the religion, religiosity and education level of the PARFORM panel study participants and the assessment of partnerships with refugees by each of the indices of acceptance of these characteristics. The baseline model is:

$$logit[P(y_{ic}=1)] = \beta_0 + \beta_1 R_{ic} + \beta_2 Rel_{ic} + \beta_3 Edu_{ic} + \beta_4 A_c + \beta_5 IV_{ic} * A_c + \beta_n z_{ic} + \beta_n Z_c + u_{ic},$$

Where R_{ic} is the religion of the respondent; Rel_{ic} is the religiosity of the respondent; Edu_{ic} is the education level of the respondent; A_c is a vector that reflects each of the indices of acceptance by religion, religiosity and education; $IV_{ic} * A_c$ is the interaction between each of the key individual-level variables (religion, religiosity and education) and its corresponding index of acceptance; z_{ic} is a vector of individual-level controls; Z_c is a vector of cluster-level controls, and u_{ic} is an error term.

We conduct the multivariate analyses on multiply imputed data. The PARFORM study sample with available information on partnership status is 3029 respondents. Among these, 1512 (49.9 %) are partnered, forming the basis for our analysis. Listwise deletion of cases without valid values in the dependent variables and the religious affiliation, religiosity and educational level results in 1223 respondents without missing values (80.9 % of the partnered sample). We impute missing values in the dependent variables and the religion, religiosity, and educational level of respondents only on the partnered sample and only using the information available on it. Missing values across these variables varied between 12 % (both dependent variables) and 4.8 % (education). We apply the Stata 18 multiple imputation package -mi- to create and analyse 30 datasets through chained equations using predictive mean matching with the 1-nearest neighbour algorithm. Every imputed variable enters into the imputation process of the others. Auxiliary variables include the interview mode (CAPI or CAWI), subsample (Afghan or Syrian), interview language, nationality, interview month, mother's and father's religiosity, and all the individual-level variables used in the estimation models.[3]

We do not impute missing values for categorical control variables parental education, current partner met through family, share of co-nationals in the main activity and neighbourhood and wish of permanent settlement in Germany, but include a dummy variable capturing a category containing missing values for these covariates. The continuous variables years dating in Germany and age have no missing values.

[2] We do not use multilevel methods despite examining the effect of macro-level variables because there is an insufficiently high number of macro-level units (15). Multilevel modelling with a small number of macro-level units, binary outcomes estimated via logistic regressions and requiring cross-level interactions and random slopes, as would the case of our analysis, yield non-reliable estimates of the effect of macro-level variables, variance components and standard errors (Bryan & Jenkins, 2016).

[3] Since clustering is not possible with the Stata -mi- package, we control for the cluster in which the respondents live. We apply probability weights both in the imputation and estimation process. We use the "force" and "augment" specifications in the imputation models to address issues related to missing imputed values and perfect prediction, respectively (StataCorp, 2023). We do not use the whole PARFORM study sample to impute missing values because either the imputation models do not converge, or the number of cases with imputed values is lower than all imputable cases.

4. Results

4.1. Descriptive statistics

The descriptive statistics of the unimputed analytical sample in Table 1 indicate that most respondents' partners are co-national (68 %), with around a third of the respondents in cross-national relationships. Among cross-nationally partnered respondents, around a half are with a German person and another half with individuals from other countries of origin. There is a pronounced variation across clusters in exogamy rates (cf. Fig. 1): the proportion of respondents in cross-national partnerships (including Germans) ranges between 19 % and 41 %. For comparison, the proportion of respondents in partnerships with Germans ranges from just 6 % and 26 %, depending on the cluster. Interestingly, in some clusters, proportions of partnerships with Germans are relatively high (e.g., cluster 13 containing *Kreise* with 500,000 + inhabitants in Brandenburg/Saxony), whereas in other clusters partnerships with individuals of non-German origin seem to be relatively prominent (e.g., cluster 14 containing *Kreise* between 100,000 and less than 500,000 inhabitants in Saxony-Anhalt).

In terms of the individual characteristics, the sample is predominantly Muslim and highly religious, with respondents typically holding a medium to high level of education (at least graduated from secondary education in the country of origin). The distribution of the remaining variables can be found in Table 1.

The assessment of partnerships with refugees among the resident population in Germany is moderately positive, and dispersion around the mean is not very high. The mean score in all the acceptance indices is around 7 on a 1–11 scale, and the standard deviations are no higher than 4.5 % of their respective mean (see Table 1). Fig. 2 shows the distribution of acceptance of partnership of a hypothetical refugee by the religion, religiosity and education in the GIP vignettes. In accordance with the literature, our data show that the resident population in Germany tends to be more favourable towards partnerships with Christian than with Muslim refugees. German residents show greater acceptance of partnerships with lowly than with highly religious refugees and with highly than with lowly educated refugees.

4.2. Cross-national partnerships: multivariate analysis

First, we examine the association between the probability of partnership with individuals from a different country of origin and the overall and tailored indices of acceptance. The results are visualised in Fig. 3, which shows the predicted probability of this outcome in the PARFORM survey at different levels of assessment of partnership with refugees among the resident population. The full set of results is available in Table A5 in the Supplementary Appendix.

Both the overall and tailored indices of acceptance are positively associated with exogamy: the more positive the assessment of partnership with refugees, the higher the exogamy rate (see Models 2–6 in Table A5 & Fig. 3). The association of the tailored indices with the outcome is stronger than the association of the overall index, as judged by the steepest slope of the former. The exogamy rate barely increases from 29 % to 31 % between the lowest and the highest score of the overall index (an increase from the lowest (6.65) to the highest value (7.77)). Exogamy rates increase between 32 % and more than 100 % between the lowest and the highest acceptance scores of the tailored indices. Among them, the tailored index based on the three-way interaction and, therefore, the most nuanced index, is the most strongly associated with the outcome. The exogamy rate more than doubles between the lowest and highest scores of this index. Given the reduced range of the indices, we consider this to be a rather strong effect despite none of the associations being statistically significant.

Returning to Model 1 in Table A5, it is notable that Muslims are not statistically different from non-Muslims in the likelihood of cross-national partnership (OR: 0.67, SE: 0.17), with the estimated probability of this outcome being 0.29 vs. 0.36, respectively (not shown in the tables). Highly religious respondents are less often in exogamous partnerships (OR: 0.69, SE: 0.10; estimated probability of highly religious vs lowly religious: 0.27 vs. 0.33). Medium-highly educated respondents are less likely than lowly-educated ones to partner exogamously, but the difference is neither statistically nor substantively significant (OR: 0.84, SE: 0.17; est. probability of medium/highly educated vs. lowly educated: 0.28 vs. 0.31). Hence, religiosity is the only core attribute that makes a statistically significant difference in cross-national partnerships.

In the second stage, we focus on the interaction between the core individual characteristics of PARFORM survey respondents, discussed above, and the indices of acceptance by the religion, religiosity and education level of refugees. In doing so, we pursue a question, whether assessments of partnerships with refugees possessing characteristics favourably viewed by the resident populations are associated with particularly higher exogamy rates among refugees possessing these characteristics. The plots of the marginal effects of interaction terms can be found in Fig. 4 (the complete results of the models are in Table A6 in the Appendix).

Beginning with religion, more acceptance of partnerships with Muslim and non-Muslim refugees is associated with a higher probability of cross-national partnerships for both groups. The estimated exogamy rate of non-Muslims increases from 34 % to 37 % between the lowest and the highest scores of acceptance of partnership with Christians. Among Muslims, the effect is stronger (from 26 % to 34 %). The gap in exogamy between both groups closes as acceptance increases. There are no statistically significant differences between the groups for any score on the acceptance scale (see Figure A1 in the Appendix).

Regarding religiosity (Model 2 in Table A6), more acceptance goes hand in hand with higher exogamy rates only for lowly religious refugees. The estimated exogamy rate of lowly religious refugees changes from 27 % at the lowest acceptance score (6.3 on the 1–11 scale) to 37 % at the highest acceptance score (8.0) (35 % increase). In contrast, lowly religious refugees' exogamy rates remain stable at 27 %. The differences between both groups are not statistically significant at any point of the acceptance scale (see Figure A1).

Finally, medium to highly educated refugees are more likely to partner exogamously as partnerships with them are assessed more positively (Model 3 in Table A6), with their exogamy rate increasing by 37.5 % from the lowest to the highest acceptance score. In contrast, a different pattern emerges for lowly educated refugees, whose cross-national exogamy rates barely change as their acceptance increases. Thus, the cross-national exogamy rate of lowly educated refugees is largely independent of the assessment of partnerships with them. Remarkably, at low acceptance levels, highly educated respondents exhibit lower exogamy rates despite being generally more positively evaluated as partners than their lowly educated counterparts. The small sample sizes within each cluster prevent us from conducting a more in-depth investigation, which would be necessary to better understand this finding.

To summarise, *Muslims*, *lowly religious* and *medium-highly educated* refugees are *more cross-nationally exogamous* when the *context of reception is more favourable* to them. On the contrary, cross-national exogamy rates *do not or only barely change* among non-*Muslims, highly religious and lowly educated refugees* despite their evaluation as partners by the resident population increases.

4.3. Supplementary analyses

4.3.1. Current partner is German

Due to the importance of partnerships with the host-country majority population, we also discuss results for partnerships with Germans, following the same structure as in the presentation of results for cross-national partnerships. Table A7 in the Appendix contains the regression coefficients for the overall and tailored acceptance indices.

Table 1
Descriptive statistics of the unimputed sample.

Individual-level variables[a]		Range
N	1223	
Current partnership: cross-national		
No	834 (68.2 %)	
Yes	389 (31.8 %)	
Current partner: German		
No	1025 (83.8 %)	
Yes	198 (16.2 %)	
Religion		
Non-Muslim	190 (15.5 %)	
Muslim	1033 (84.5 %)	
Religiosity		
Lowly religious	474 (38.8 %)	
Highly religious	749 (61.2 %)	
Education level at migration		
Lowly educated	486 (39.7 %)	
Medium/Highly educated	737 (60.3 %)	
Highest parental education		
No degree	270 (22.1 %)	
Primary school degree	129 (10.5 %)	
Secondary school degree	328 (26.8 %)	
University degree	409 (33.4 %)	
Missing	87 (7.1 %)	
Current partner met through family		
No	712 (58.2 %)	
Yes	498 (40.7 %)	
Missing	13 (1.1 %)	
Share of co-nationals[1] in the place of main activity		
None/very few	439 (35.9 %)	
Less than half	235 (19.2 %)	
About half	186 (15.2 %)	
More than half	80 (6.5 %)	
All or almost all	25 (2.0 %)	
Respondent not engaged in a main activity	103 (8.4 %)	
Missing	155 (12.7 %)	
Share of co-nationals in the neighbourhood		
None/very few	417 (34.1 %)	
Less than half	326 (26.7 %)	
About half	192 (15.7 %)	
More than half	94 (7.7 %)	
All or almost all	22 (1.8 %)	
Missing	172 (14.1 %)	
Wish of permanent settlement in Germany		
No	124 (10.1 %)	
Yes	1074 (87.8 %)	
Missing	25 (2.0 %)	
Years of dating in Germany	7.693 (0.888)	5–10
Age (in years)	29.792 (4.337)	21–39
Cluster-level variables		
Overall acceptance of partnership with refugees[b]	7.126 (0.32)	6.65–7.78
Acceptance of partnership with refugees by their religion[b]		
Muslims	6.84 (0.33)	6.33–7.51
Christians	7.40 (0.31)	6.96–8.01
Acceptance of partnership with refugees by their religiosity[b]		
Low religiosity	7.41 (0.32)	6.89–8.03
High religiosity	6.84 (0.33)	6.30–7.51
Acceptance of partnership with refugees by their education[b]		
Lowly educated	6.72 (0.31)	6.27–7.30
Highly educated	7.53 (0.33)	7.03–8.23
Acceptance of partnership with refugees by their religion & education[b]	7.12 (0.32)	6.54–7.76
Acceptance of partnership with refugees by their education & religiosity[b]	7.12 (0.32)	6.65–7.77
Acceptance of partnership with refugees by their religion & religiosity	7.01 (0.33)	6.34–7.57
Acceptance of partnership with refugees by their religion, education & religiosity[b]	7.10 (0.32)	6.26–7.75
Sex ratio of co-nationals[2] in 2020[c]	1.623 (0.192)	1.36–2.13
Relative group size of co-nationals[2] in 2020[3c]	0.736 (0.440)	0.24–1.62
National heterogeneity index in 2020[c]	0.295 (0.129)	0.09–0.52

Source: [a]PARFORM survey wave 1 (pre-publication version v3.0); [b]GIP, wave 58; [c]Genesis-Destatis, (2025a), (2025b).
Notes: Figures outside brackets represent absolute frequencies (means), and figures within brackets represent relative frequencies (standard deviations). Unweighted statistics.
The values of cluster-level variables use the cluster as the unit of analysis.
[1] "Co-nationals" refers to Syrians (Afghans) in the case of Syrian (Afghan) respondents.
[2] "Co-nationals" refers to inhabitants of the cluster with Syrian (Afghan) nationality in the case of Syrian (Afghan) respondents.
[3] The relative group size is expressed as a percentage.

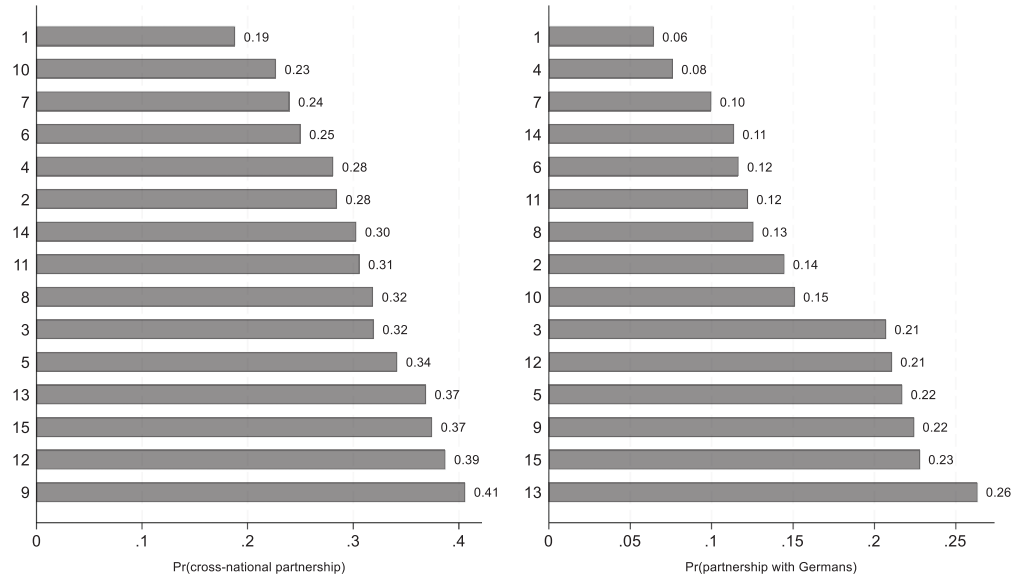

Fig. 1. Exogamy rates of Syrian/Afghan refugees in each cluster Note: The legend for clusters, which are depicted in Y-axis, is as follows: 1: Schleswig-Holstein x 100,000 to < 500,000 inhabitants; 2: Hamburg x 500,000 + ; 3: Niedersachsen/Bremen x 100,000–500,000 + ; 4: Nordrhein-Westfalen x 100,000 to < 500,000; 5: Nordrhein-Westfalen x 500,000 + ; 6: Hesse/Rheinland-Pfalz/Saarland x 100,000 to < 500,000; 7: Hesse/Rheinland-Pfalz/Saarland x 500,000 + ; 8: Baden-Württemberg x 100,000–500,00 + ; 9: Bayern x 100,000 to < 500,000; 10: Bayern x 500,000 + ; 11: Berlin x 500,000 + ; 12: Brandenburg/Sachsen x 100,000 to < 500,000; 13: Brandenburg/Sachsen x 500,000 + ; 14: Sachsen-Anhalt x 100,000 to < 500,000; 15: Thüringen x 100,000 to < 500,000. Source: PARFORM survey wave 1 (pre-publication version v3.0).

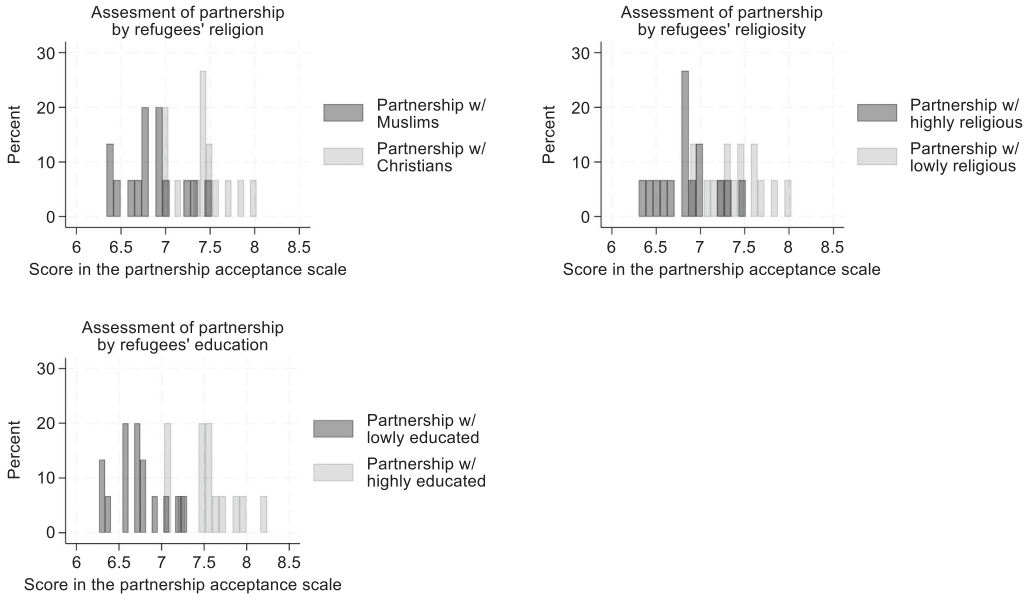

Fig. 2. Assessment of partnerships with refugees among the resident population in Germany by the religion, religiosity and education level of refugees Note: scales range from 1(very negative) to 11 (very positive). The unit of analysis is the cluster. Source: GIP, wave 58.

The results regarding the various indices of acceptance (cf. Fig. 5 & Model 2-6 in Table A7) deviate from the findings of the main analyses for the cross-national partnerships. The overall index of acceptance, as well as indices for religion and education and education and religiosity, are negatively and non-substantively associated with the probability of refugees partnering with Germans. Conversely and similarly to the findings of the main analysis, the results of the two-way tailored indices by religion and religiosity and the index based on the three-way interaction are positively associated with partnerships with Germans. Again, no index is statistically significantly associated with the outcome.

Second, we examine the interaction between the religion, religiosity and education level of the PARFORM respondents and the assessment of partnerships with refugees depending on their religion, religiosity and education (see Fig. 6 and Table A8 in the Supplementary Appendix). Whereas the associations between acceptance of partnership and the likelihood of partnership with Germans for lowly religious and highly educated refugees follow the same pattern as in the main analyses, the pattern is meaningfully different when it comes to religion. Non-Muslim refugees tend to partner more often with Germans as acceptance of partnerships with Christians increases. In contrast, Muslims tend to partner less often as acceptance of partnerships with them increases. The rising likelihood of cross-national partnerships observed among Muslims in the regions with higher acceptance is relevant only in the case of partnerships with non-Germans. Another noteworthy finding, which

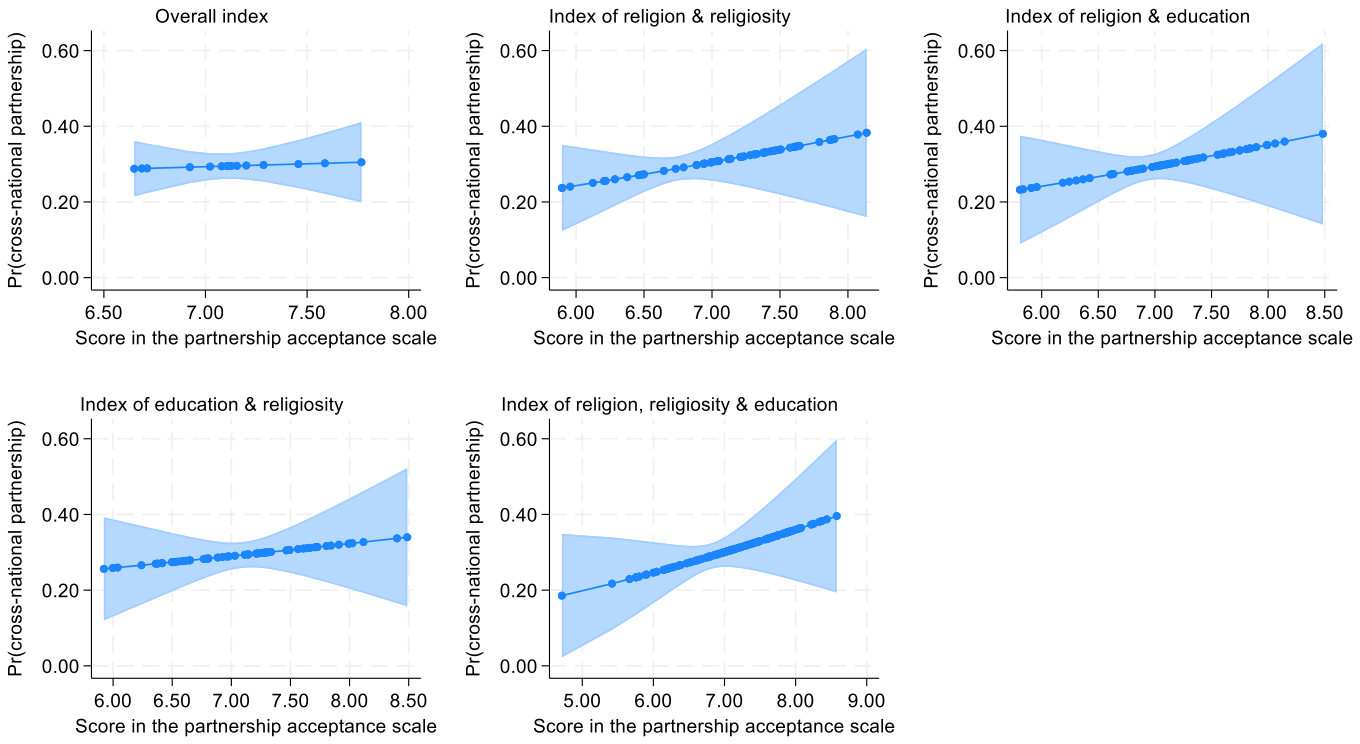

Fig. 3. Relationship between the assessment of partnership with refugees depending on different characteristics and the probability of cross-national partnership among PARFORM respondents using the multiply imputed sample Note: N = 1510. Source: PARFORM survey wave 1 (pre-publication version v3.0); GIP, wave 58.

deviates from the patterns observed in the main analysis, is the negative association between acceptance and partnerships with Germans among highly religious and less-educated refugees. Once again, the data reach their limits, preventing a deeper investigation into these unexpected results.

4.3.2. *Selection into partnerships*

We run a Heckman selection model to analyse partnership outcomes while accounting for selection bias regarding partnership status at the time of the survey. The main equation evaluates the likelihood of cross-national partnerships. The selection equation assesses the probability of being in a partnership at the time of the survey. We use prior dating experiences in the respondent's home country as a selection instrument. We only conduct the robustness check on the observed (non-imputed) sample.

Respondents who dated before migration are more likely to be partnered at the moment of the survey than those who did not (cf. Table A9 in the Appendix). Differences are statistically significant at the 99 % level or higher. Conversely, having a prior dating history has a weak substantive association with being partnered with a cross-national

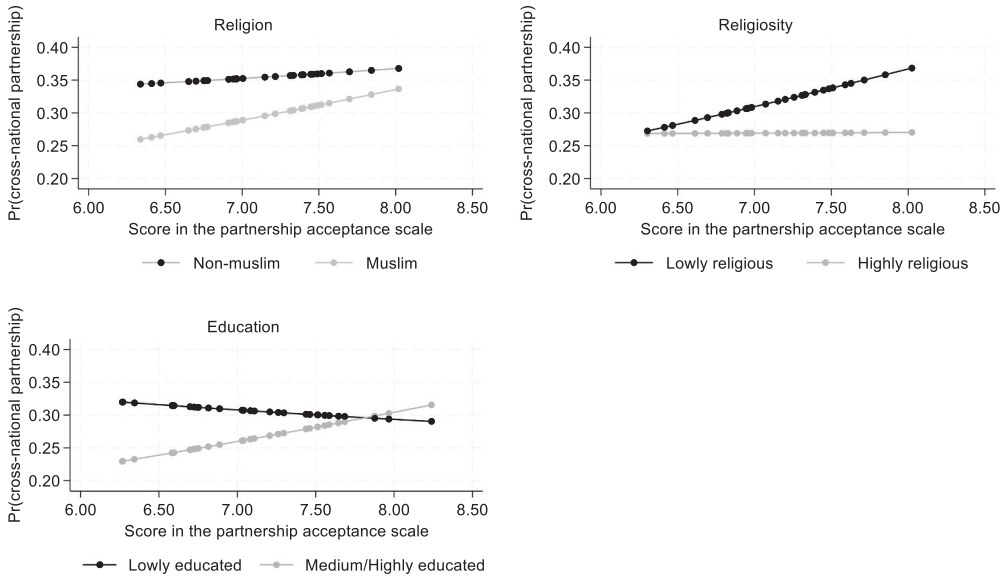

Fig. 4. Interaction between the religion, religiosity and education level of PARFORM respondents and the assessment by the resident population of partnership with refugees by their characteristics. Outcome: cross-national partnership. Note: N = 1510. Source: PARFORM survey wave 1 (pre-publication version v3.0); GIP, wave 58.

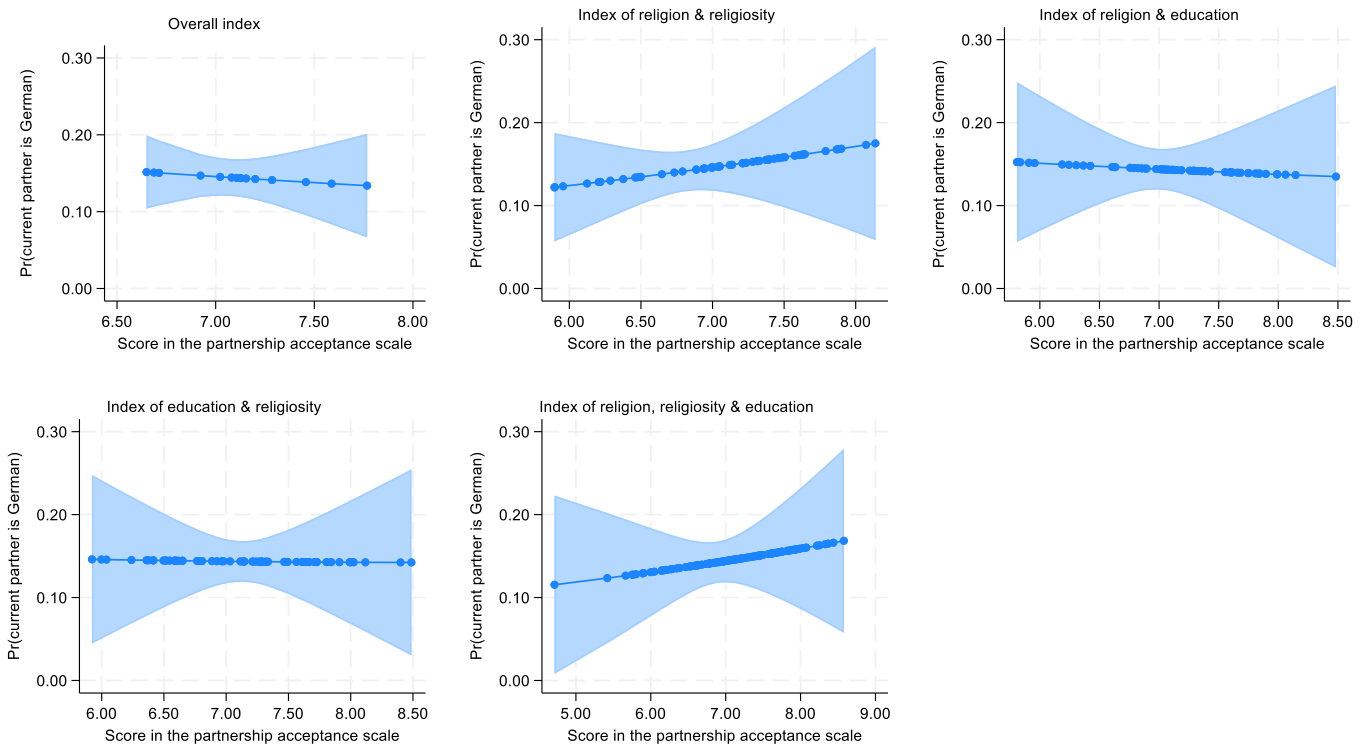

Fig. 5. Relationship between the assessment of partnership with refugees and the probability of PARFORM respondents partnering with Germans Note: N = 1510. Source: PARFORM survey wave 1 (pre-publication version v3.0); GIP, wave 58.

person (cf. Table A10). Thus, we consider the dating history of respondents as an acceptable selection instrument.

The Heckman selection model indicates that there is selection into partnership, but that the selection does not meaningfully bias the estimates of the effect of religion, religiosity and education on the probability of cross-national partnerships (see Table A11 in the Appendix). The rho statistic indicating the correlation between error terms in both equations and whether they are different is high (rho = −0.74) and statistically significant at the level of confidence of 95 % (Wald test of independent equations [rho=0]: Chi-squared for 1 degree of freedom: 5.81, p-value: 0.0159) but the estimated coefficients of the variables of interest (religion, religiosity and education) are very similar in the model without selection compared to the model with controls for selection into partnerships.

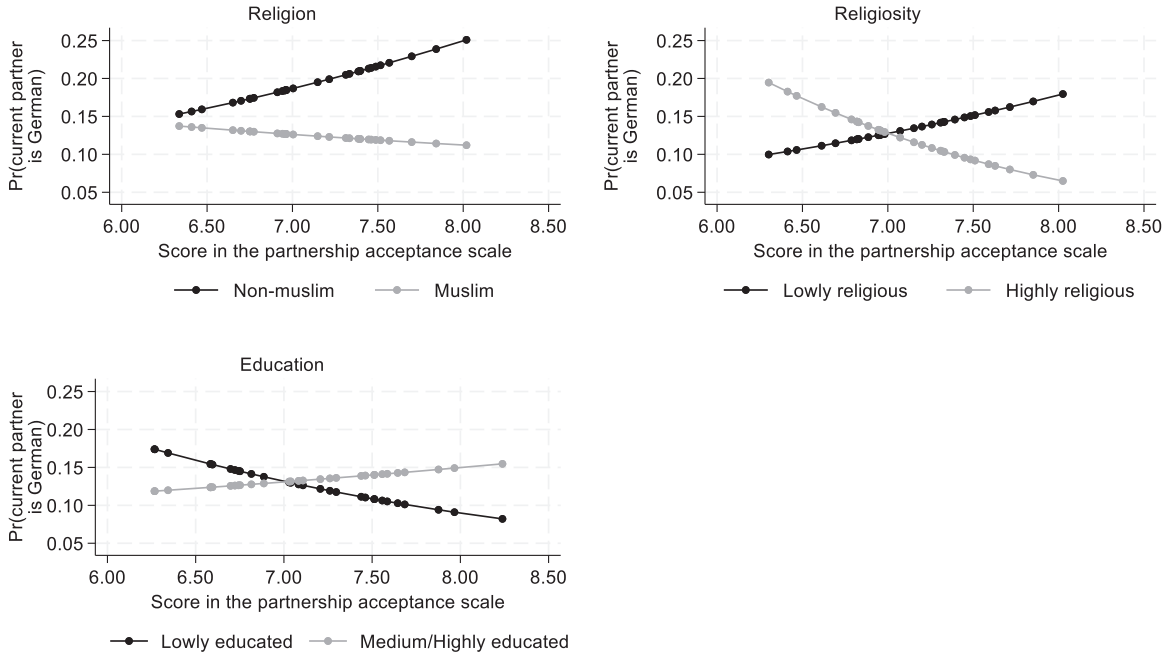

Fig. 6. Interaction between the religion, religiosity and education level of PARFORM respondents and the assessment by the resident population of partnership with refugees by their characteristics. Outcome: current partner is German. Note: N = 1510. Source: PARFORM survey wave 1 (pre-publication version v3.0); GIP, wave 58.

5. Robustness checks

In the first robustness check, we reclassify respondents who view religion as neither important nor unimportant as highly religious. The associations between cross-national partnerships and the tailored indices of religion and religiosity, religion and education, and religion, education and religiosity remain similar to the main analyses (see Figure A2). However, lowly religious refugees are less likely to be cross-nationally partnered with increased acceptance, while highly religious refugees show the opposite trend (see Figure A3). This differs from the main analysis, suggesting that the effects of religiosity depend on how it is defined. We adher to the specification used in the main analysis, as classifying those indifferent to religion as lowly religious more accurately reflects both their worldviews and how they are perceived by others.

In the second robustness check, we redefine the education level by including qualifications obtained in Germany. Respondents with a *Fachhochschulreife* or *Hochschulreife* who were low educated before migrating are classified as medium/highly educated in this new variable. The tailored indices of acceptance by religion and education, by education and religiosity and by religion, education and religiosity show a somewhat stronger positive correlation with cross-national partnerships (see Figure A4 in the Appendix). The pattern for interaction between the individual educational attainment and the index of acceptance by education also changes compared to the main analysis (see Figure A5 in the Appendix). This indicates the measurement sensitivity of education. We prefer to rely on pre-migration education as it is more credible to consider it exogenous to partnership formation compared to education obtained in Germany, which may result from finding a partner.

In the third robustness check, we re-run all the models using the observed sample exclusively (without imputations). The association of the overall and the tailored indices of acceptance with the likelihood of partnerships involving cross-national persons are similar to that of the main analyses (see Figure A6). The results of the interactions between the individual characteristics of respondents and the indices of acceptance by these characteristics are also consistent with the main analyses (see Figure A7). In conclusion, the results with the observed and the imputed samples are highly similar.

In the fourth robustness check, we re-ran the analyses using 18 clusters instead of 15 by lowering the sample size requirement to at least 10 respondents in the PARFORM survey (see Table A12 in the Online Appendix to check the whole list of 18 clusters and their sample size). The overall index and all the tailored indices are positively associated with the probability of cross-national partnerships, as in the main analysis. The strength of the association is very similar, and none is statistically significant (see Figure A8). Regarding the interactions between refugees' characteristics and acceptance by these characteristics (see Figure A9), the results for religiosity and education are quite similar to those in the main analyses. The results for religion are partly different. The probability of cross-national partnership among Muslims increases with acceptance, but it decreases among non-Muslims. In the main analyses, it increases for both groups. Overall, these results are consistent with those of the main analyses, so 15 clusters seem a good compromise between variability across clusters and sample sizes large enough. The discrepancies suggest a low reliability of the findings for religion.

6. Discussion and conclusions

Between 2015 and 2017, Germany experienced a significant influx of asylum seekers from Middle Eastern countries, primarily Syria and Afghanistan, becoming the European country with the largest asylum-seeking population during that period. This cohort was predominantly composed of young, unmarried, Muslim men. While the initial response from both the German government and segments of the local population was generally welcoming, opposition emerged swiftly. Empirical research suggests that increased exposure to refugees from the Middle East, particularly when they are Muslim and arrive in large numbers—correlates with heightened exclusionary attitudes and growing support for anti-immigration political parties. In light of the demographic structure of the asylum-seeking population in Germany, which encourages exogamy, we must consider the challenges posed by the societal context of reception. This context is frequently marked by limited openness and contentious public debates about asylum seekers' rights to remain in Germany. Against this backdrop, the present study examines the association between the assessment of partnerships with asylum-seekers among the population in Germany and the probability of cross-national partnerships among refugees. The study of ethnic exogamy is particularly relevant because partnership is the strongest form of social bonding, and interethnic partnership is often considered a key indicator of mutual integration between majority and minority groups.

We hypothesise that a more positive assessment of partnerships with refugees among the resident population is associated with a higher probability of cross-national partnerships among refugees themselves. We test this hypothesis by defining the amount of information about the hypothetical refugee, which might be relevant in the assessment of the extent to which partnerships with refugees are accepted by the German residents. First, our analysis demonstrates that a general index measuring overall acceptance of partnerships with refugees is positively—albeit extremely weakly—associated with the probability of cross-national partnerships. Second, several tailored indices—designed to reflect specific characteristics of refugees—exhibit stronger and more consistent positive correlations with the likelihood of such partnerships. However, the lack of a statistically significant association prevents us from rejecting the null hypothesis of no difference and claiming that actual effects exist beyond the analysed sample of individuals and communities.

The contrast between the null effect of the overall acceptance index and the stronger, positive effects of the tailored acceptance indices is particularly noteworthy. We interpret the general indices as indicative of attitudes toward a generic image of Syrian or Afghan refugees commonly held by members of the resident population. In contrast, the tailored indices capture more group-specific or even individualised assessments, reflecting identifiable and nuanced perceptions of refugees as potential partners. The finding that the tailored indices more strongly predict refugees' cross-national partnerships than the overall index might suggest that the ability of asylum seekers to form meaningful interpersonal ties with the resident population depends not only on their individual characteristics but also on how these characteristics are framed and perceived within the broader societal context.

The final analysis examines whether the probability of cross-national partnerships among refugees with specific characteristics—namely religion, religiosity, and educational attainment—is particularly affected by the resident population's attitudes toward partnerships with individuals possessing those same attributes. We consider this to be the stricter test of the hypothesis, as it involves the most fine-grained comparisons. The results show that Muslim, lowly religious, and highly educated refugees are significantly more likely to form cross-national partnerships as acceptance of individuals with these characteristics increases. In contrast, this pattern is not observed among non-Muslim, highly religious, or lowly educated refugees, for whom the likelihood of entering cross-national partnerships remains largely unchanged or changes weakly, regardless of the level of acceptance. Robustness checks with 18 clusters, instead of the 15 clusters in the main analyses, overall lead to the same conclusions. The exception is acceptance and partnership by religion. Supplementary analyses focusing specifically on partnerships with German nationals reveal a contrary pattern for religious affiliation: increased acceptance is associated with higher levels of exogamy only among non-Muslim refugees—a group generally more positively perceived by the resident population. This association does not hold for Muslim refugees, suggesting that increased acceptance may not equally translate into refugees' partnerships with Germans and

Germany's ethnic minorities.

Despite relatively strong effect sizes, the findings lack sufficient statistical power to conclusively assert that more positive acceptance of partnerships with refugees is indeed associated with higher levels of exogamy. Moreover, the analyses including the interaction between refugees' characteristics and the indices of acceptance by these characteristics do not show a consistent positive association between acceptance and cross-national partnership probabilities. In particular, the partly inconsistent findings regarding the association between acceptance by religion and partnership by religion, particularly among non-Muslims, prevent us from drawing strong conclusions about the partnership behaviour among this group.

Although the findings do not provide systematic evidence linking greater acceptance to stronger exogamy, this paper emphasises the importance of considering the dual nature of the partnership formation process. Partnerships between minority and majority groups are likely shaped not only by the traditional components of the opportunity structure but also by the attitudes of the resident population, as indicated by several tailored indices and the index of acceptance based on religiosity and education for lowly religious and medium/highly religious refugees. This highlights the need to view the minority-majority integration process as reciprocal, with both immigrants and the resident population required to engage with one another. In this context, the attitudes of the resident population emerge as both a significant factor in the opportunity structure for refugees and a measure of third-party influence on the immigrant population.

Returning to the broader question of the prospects for social integration of Syrian and Afghan refugees, our findings indicate that only those groups that are more positively assessed can translate this favourable assessment into successful cross-national partnerships, particularly with Germans. For highly religious and lowly educated refugees, increased acceptance does not seem to promote stronger integration with the resident population, irrespective of whether this population is of German or non-German origin. The situation is more nuanced for Muslims: while their likelihood of forming partnerships with non-co-national increases with higher levels of acceptance, their likelihood of forming partnerships with Germans remains unaffected by acceptance levels. Given that Germans are the dominant ethnic group both numerically, politically and symbolically, with the power to influence who is considered a legitimate member of the nation and state, the short-term prospects for integration between the German majority and refugee minorities appear less promising.

Finally, we acknowledge several limitations. First, as we only have data on the acceptance of partnerships by the resident population at a single point in time, we cannot establish a clear temporal relationship between acceptance at the cluster level and the moment of partnership formation. Second, and related to this, our estimates regarding the relationship between acceptance and partnership outcomes are correlational rather than causal. Third, the measurements for the focal variables, religion, religiosity and education, are not fully identical for PARFORM respondents and for the hypothetical vignette persons, introducing some noise in the interpretation of the interaction effect between these dimensions. Finally, some of our findings rely on small sample sizes at both the individual and cluster levels. This is the main reason why the results are not statistically significant, and some estimates may be imprecise. However, given that we are working with new, unprecedented data on a previously understudied immigrant group—distinct from other refugee populations in Germany—our results remain highly relevant to both scientific and public debates. Future research should aim to validate these findings using larger sample sizes, additional forced or economic migrant groups, multiple time points, and a broader range of countries.

CRediT authorship contribution statement

Irena Kogan: Writing – review & editing, Visualization, Supervision, Project administration, Methodology, Investigation, Funding acquisition, Data curation, Conceptualization. **Carlos Palomo Lario:** Writing – review & editing, Writing – original draft, Visualization, Validation, Supervision, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Stefanie Heyne:** Writing – review & editing, Methodology, Investigation. **Jana Kuhlemann:** Writing – review & editing.

Declaration of Generative AI and AI-assisted technologies in the writing process

during the preparation of this work, the author(s) used ChatGPT and Grammarly in order to rewrite some fragments of the text exclusively to improve clarity and readability. After using this tool/service, the author (s) reviewed and edited the content as needed and take(s) full responsibility for the content of the publication.

Declaration of Competing Interest

None.

Acknowledgements

The authors acknowledge the funding by the European Research Council (ERC) through the European Union's Horizon 2020 research and innovation program [grant agreement number 864683].

The authors thank the participants of the following conferences and seminars for their valuable feedback: RC28 2024 Summer Meeting (Brown University); 2024 Analytical Sociology Seminar (Venice International University); 2024 IIL research seminars (University of Amsterdam); 2025 Analytical Sociology Seminars (Linköping University); and 2025 SPS Departmental Seminar Series (European University Institute, EUI).

Appendix A. Supporting information

Supplementary data associated with this article can be found in the online version at doi:10.1016/j.rssm.2026.101134.

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