DISCUSSION PAPER SERIES

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ABSTRACT

Discrimination in the General Population*

We present representative evidence of discrimination against migrants through an incentivized choice experiment with over 2,000 participants. Decision makers allocate a fixed endowment between two receivers. To measure discrimination, we randomly vary receivers' migration background and other attributes, including education, gender, and age. We find that discrimination against migrants by the general population is both widespread and substantial. Our causal moderation analysis shows that migrants with higher education and female migrants experience significantly less discrimination. Discrimination is more pronounced among decision makers who are male, non-migrants, have right-wing political preferences, and live in regions with lower migrant shares.

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1. Introduction

Discriminatory behavior has been at the forefront of economic research for decades, at least since (Becker, 1971). Discrimination is not only a prime societal concern for its direct economic impacts on victims of discrimination, but also for its broader detrimental effects on social cohesion, trust, and public-good production (Bertrand & Duflo, 2017; Habyarimana et al., 2007; Kudashvili & Lergetporer, 2022). Existing field evidence on discrimination against minorities is extensive, focusing mainly on specific contexts such as hiring, renting, education, medical services, or the judicial system (e.g., Ahmed & Hammarstedt, 2008; Angerer et al., 2019; Arnold et al., 2022; Bertrand & Mullainathan, 2004; Lavy et al., 2022). Naturally, this literature has focused on discriminatory behavior of specific members of society, like employers, landlords, teachers, or doctors, whose economic outcomes are directly affected by their decisions (e.g., whom they choose to hire or rent an apartment to).[1] In contrast, the prevalence of discrimination against migrants and other minorities in the broader general population, and how it varies across key population subgroups, is largely unexplored. This is the research gap that we address in this paper.

Understanding discrimination against migrants and other minorities in the general population is important for several reasons. Examining the prevalence of general discriminatory attitudes of the population, rather than focusing solely on situational discrimination (e.g., during job searches), sheds light on the potential for minorities to face routine, everyday discrimination or "micro-aggressions." These incidents, though individually minor, can accumulate to have profound, negative impacts on minorities' health, well-being, and other important outcomes (Giulietti et al., 2017; Small & Pager, 2020). The population perspective is essential for grasping the full scope of the adverse impacts of discrimination on migrants and other minorities in society. Furthermore, from a policy perspective, discerning general discriminatory tendencies is key for designing effective anti-discrimination interventions and laws aimed at curtailing such behaviors (e.g., the U.S. *Civil Rights Act*, United States Congress (1964); or the German *General Act on Equal Treatment*; Bundesministerium der Justiz (2006)). Similarly, in the realm of political economy, understanding the broader population's discriminatory inclination is crucial for determining voter support for anti-discrimination policies, a significant factor for their political feasibility.

In particular, we study discrimination through an incentivized choice experiment conducted with a representative sample of the German adult population (N> 2,000 participants). We measure discrimination using the simple other-other allocation task (e.g., Chen & Li, 2009), where decision makers divide a fixed endowment of four Euros between two receivers without being able to keep anything for themselves. This task measures pure discriminatory inclinations, devoid of any strategic or selfish motives. As pre-registered, our main research interest is whether receivers with a migration background are systematically discriminated against. Therefore, we randomly vary receivers' migration background, along

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[1] Complementing field studies, a considerable literature investigates discrimination through laboratory experiments involving economic games, predominantly relying on convenience samples such as university students (see Lane (2016) for a meta-analysis).

with other attributes (i.e., educational background, gender, and age).[2] The independent randomization of receiver attributes – which was inspired by the methodology of discrete-choice (or "conjoint") experiments (e.g., Hainmueller et al., 2014, 2015; Maestas et al., 2023) – facilitates estimating the causal effect of each attribute on allocation choices, while keeping the respective other attributes constant. Each participant completed three other-other allocation tasks.

We find substantial and significant discrimination against migrants in the general population: On average, receivers with a Turkish migration background are 3.9 percentage points less likely than non-migrants to receive more than half of the endowment, and they receive 3.6 percentage points less of the endowment. This magnitude of discrimination is comparable to recent large-scale correspondence studies investigating discrimination against blacks in the U.S. labor market and in other specific contexts (Bergman & McFarlin, 2018; Giulietti et al., 2017; Kline et al., 2022). The overall discrimination arises from the diverse choices of two distinct decision-maker types: A majority of 54.3% exhibits no discrimination at all, always choosing the equal allocation. Conversely, their counterparts display strong discrimination against migrants, which drives the significant average discrimination observed in the overall sample.

Next, we study how other receiver attributes affect discrimination against migrants. The random assignment of all receiver attributes allows for a causal interpretation of this moderation analysis. Irrespective of the values of other receiver attributes, receivers with a migration background consistently receive a smaller share of the endowment compared to non-migrants, demonstrating that discrimination is a widespread issue affecting migrants across diverse attributes. Additionally, we find that education and gender moderate discrimination: The negative effect of a migration background on the endowment received is significantly lower for better-educated receivers and females.

Finally, leveraging the representative nature of our data, we study whether discriminatory behavior against migrants varies across key population subgroups. We observe that discrimination is more pronounced among male decision makers than females. Political preferences also emerge as a significant predictor, with discrimination being particularly strong among supporters of the right-wing (extremist) party "Alternative fuer Deutschland" (AfD). AfD supporters are also much more likely than non-supporters to state that migration background was the most important receiver attribute influencing their allocation decision after the experiment. This finding suggests that their high level of discrimination is a conscious choice. Notably, discrimination against migrants is fully driven by non-migrant decision makers, whereas those with a migration background do not discriminate. Additionally, decision makers living in regions with an above-median share of migrants show less discrimination.

To our knowledge, this study presents the first incentivized experiment to measure discrimination against migrants in a representative sample of the general population. In doing so, we contribute to the literature in several dimensions. A rich array of field studies has scrutinized discrimination against migrants and other minorities in various market and non-market settings (for excellent reviews, see

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[2] We focus on discrimination against receivers with a Turkish migration background, given that Turkish migrants constitute the largest migrant group in Germany and face worse life outcomes compared to non-migrants. See Appendix D for detailed information on Turkish migrants in Germany.

Anderson et al., 2006; Bertrand & Duflo, 2017; List & Rasul, 2011). These studies offer crucial insights into the discriminatory behavior of specific decision makers, who serve as gatekeepers in certain contexts (e.g., employers during hiring processes). We add to the existing field evidence on discrimination by extending our focus towards discriminatory behavior of the general population.[3] Inspired by the laboratory-experimental literature typically involving university students, we evaluate discrimination through decisions made in a generic, incentivized, and context-independent allocation task (see, e.g., Chen & Li (2009) and Fershtman & Gneezy (2001) for seminal laboratory experiments on discrimination, and Lane (2016) for a recent meta-analysis).[4] These decisions capture pure discriminatory inclinations since they are by design unaffected by decision-makers' strategic or selfish motives.

We also contribute to the nascent literature in experimental economics using laboratory-experimental methods on members of the general population. Probably propelled by the COVID-19-induced closure of economics laboratories worldwide, experimental economists have been increasingly implementing incentivized choice experiments in large and diverse online samples, with the general conclusion that the data quality from such experiments is adequate (e.g., Arechar et al., 2018; Buso et al., 2021). While such experiments have measured a broad range of economic traits, including distributional preferences (Kerschbamer & Müller, 2020), time preferences (e.g., Brañas-Garza et al., 2023), or public-good provision (e.g., Gächter et al., 2022), our paper is, to the best of our knowledge, the first to use a representative, incentivized online experiment to measure discrimination against migrants in the general population.

The rest of the paper is structured as follows. Section 2 presents our data and experimental design. Section 3 presents our results. Section 4 concludes.

2. Data and research design

In this section, we first describe the data-collection procedure and our sample. Then, we discuss our experimental design. Finally, we present the empirical model and balancing tests.

2.1. Data collection and sample

We implemented our randomized experiment in an online survey which was conducted between August and September 2023 with adults aged 18 to 69 years in Germany. The experiment was pre-registered in the AEA RCT Registry (AEARCTR-0011830). IRB approval was obtained by the University of Innsbruck (Project 58/2023). Our sample comprises a total of 2,180 participants. Sampling was executed by the

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[3] It is worth noting that a few recent field experiments leverage large samples to study discrimination on a nationwide scale. Still, these studies focus on discriminatory behavior of specific population subgroups, like child care managers (Hermes et al., 2023), principals of charter schools (Bergman & McFarlin, 2018), local public service providers (Giulietti et al., 2017), or employers (Kline et al., 2022).

[4] In that sense, we also add to this laboratory literature by applying laboratory measures of discrimination to the general population. We consider this broader perspective important given that growing evidence shows that student samples do not adequately represent the general population in terms of behavior in experimental games (e.g., Cappelen et al., 2015; Carpenter & Connolly, 2008), or other economically relevant traits, such as attitudes towards migrants (e.g., Lergetporer et al., 2021).

polling company CINT to match official population statistics regarding age, gender, educational background, and federal state. Column 1 of Appendix Table A1 presents participants' sociodemographic characteristics. Comparing participant characteristics to the German Microcensus (2015) reveals that our sample matches official population statistics very well (see Appendix Table A2).[5]

Participants completed the experiment online on their own digital devices, without any assistance from a surveyor. The median response time spent on the entire survey was 14 minutes. Besides the experiment on discrimination, we elicited participants' sociodemographic characteristics and political and economic preferences. The survey also included a second experiment on cooperation (Angerer et al., 2023). Participants played a prisoner's dilemma game with another survey participant (distinct from the receivers in the discrimination experiment), where the inclusion of third-party punishment was randomly determined. Importantly, the independently randomized treatment in the cooperation experiment does not affect any results of the discrimination experiment (see columns 3 and 6 of Appendix Table A3 and Appendix Table A4).[6]

2.2. Experimental design

Each participant (henceforth "decision maker") completed three other-other allocation tasks (e.g., Almås et al., 2020; Bindra et al., 2020; Chen & Li, 2009). The full experimental instructions are presented in Appendix B. In each task, the decision maker had to divide four Euros between two other randomly chosen participants (henceforth "receivers"). The decision maker could not keep anything for herself, which mutes potential strategic or selfish motives.

When making an allocation choice, decision makers were shown the profiles of both receivers, which includes the following attributes: Migration background (born in Germany/Turkey), educational background (high/low; i.e., with or without *Abitur* (the university entrance qualification)), gender (male/female), and age group (18-37/38-54/55-69). Following the methodology of discrete-choice (or "conjoint") experiments (e.g., Hainmueller et al., 2015; Maestas et al., 2023), we randomized the values of each attribute independently for every receiver profile. This method enables us to estimate "average marginal component effects", the causal effect of each receiver attribute on decision-makers' allocation choices, while keeping the respective other receiver attributes constant.

As pre-registered, our main interest is on the causal effect of Turkish migration background on allocation choices. Turkish migrants are the largest and most geographically dispersed migrant group in Germany (see Appendix D for details). They experience poorer life outcomes compared to non-migrants and have been shown to face discrimination in various contexts, such as when submitting email applications to online job postings (e.g., Bartoš et al., 2016; Kaas & Manger, 2012). We included the additional

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[5] Relatedly, Grewenig et al. (2023) show that online surveys that are drawn to match population characteristics represent the entire population (onliners and offliners) well.

[6] We employed the strategy method to elicit choices in the cooperation experiment, with payments made several days later. Consequently, participants were unable to deduce the cooperativeness or other economic traits of other participants based on this experiment.

randomized attributes besides migration background for the following reasons: First, to anchor decision-makers' beliefs about receiver attributes that might influence discriminatory behavior (Giulietti et al., 2017; Hermes et al., 2023). For instance, if decision makers associate Turkish migration background with lower education, lower allocations to migrants could actually stem from biases against the lower educated. Including these additional attributes helps avoid incorrectly attributing discrimination to migration background when it may actually be due to these other factors. Second, to investigate how discrimination against migrants varies across different migrant characteristics. Thereby, the random assignment of receiver attributes enables us to estimate the causal impact of these other attributes on the extent of discrimination against migrants. Third, to reduce the salience of our research objective to the decision makers and thus minimize experimenter-demand effects.[7]

We randomly selected one in ten participants to be eligible for payment. For each of them, an actual allocation decision was implemented using a randomly chosen receiver profile that matched their characteristics. Before making allocation choices, decision makers were informed of this procedure and that their decisions would never be implemented for themselves as receivers. Our large sample size and the exhaustive values of each receiver attribute ensured that participants selected for payment could be matched with a unique experimental allocation choice according to their specific characteristics.[8]

Following the three allocation tasks, we asked decision makers two survey questions to better understand the motivations behind their allocation choices. In particular, we asked them (i) to specify the receiver attribute that was most important for their allocation decision, and (ii) to briefly explain what other factors were important for their decision-making process in an open text field.

Outcomes

We are interested in how decision makers allocate their endowment of four Euros between two receivers with differing profiles. We define two outcome variables to capture different dimensions of discrimination in these decisions. Our first outcome, "Received more than half", measures the presence of unequal treatment in allocation decisions, reflecting the extensive margin of discrimination. This variable is coded *one* if a receiver is allocated more money than the other, and *zero* otherwise. The second outcome, "Received share of endowment", additionally captures the intensity of discrimination by dividing the amount allocated to a receiver by the total endowment of four Euros. This approach scales the outcome to reflect the share of the endowment the receiver gets, where 100% represents receiving the entire endowment, and 0% represents receiving nothing.

2.3. Empirical model and balancing tests

To estimate the average marginal component effect of each receiver attribute on the allocation choice of the decision maker, we use the following regression model:

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[7] The presentation order of attributes in the allocation task was age group, gender, educational background, and finally migration background, aiming to subtly de-emphasize our focus on migration background to decision makers. See Appendix C for a screenshot of the decision screen.

[8] Selecting a random subset of choices for payment is a common practice in conducting incentivized choices experiments in large samples (Haaland et al., 2023). Clot et al. (2018) show that paying a subset of participants, instead of everyone, does not alter giving behavior in the dictator game.

$$y_{ijk} = \alpha_0 + \alpha_1 Migration_{ijk} + \alpha_2 Education_{ijk} + \alpha_3 Gender_{ijk} + \alpha_4 Age_{ijk} + \epsilon_{ijk} \tag{1}$$

where y_{ijk} is the outcome of interest for decision maker i in decision k over alternative profiles j. $Migration_{ijk}$, $Education_{ijk}$, $Gender_{ijk}$, and Age_{ijk} are (sets of) indicators corresponding to the values of the randomized receiver attributes described above, and ϵ_{ijk} is the error term. The average effects of receiver attributes, α_1 to α_4, are identified because of the random assignment of those attributes for each receiver profile. Additional covariates are not required to identify these causal effects, but they may increase the precision of estimates. Therefore, we present regressions with and without covariates. Following Abadie et al. (2023), we cluster standard errors at the level of randomization, i.e., the level of 6,540 individual decisions k between two profiles each. Results are qualitatively identical when clustering at the level of the 2,180 decision makers i (see Appendix Table A5 and Table A6).

Furthermore, we examine the interactions between receivers' migration background and other randomized attributes to determine if they moderate discrimination against migrants. Therefore, we extend equation (1) to incorporate interactions between migration background and other attributes:

$$
\begin{aligned}
y_{ijk} = \beta_0 + \beta_1 Migration_{ijk} + \beta_o OtherAttributes_{ijko} + \\
\beta_{2o} Migration_{ijk} \times OtherAttributes_{ijko} + \epsilon_{ijk}
\end{aligned}
\tag{2}
$$

where $Migration_{ijk}$ indicates whether the receiver has a migration background, and $OtherAttributes_{ijko}$ are (sets of) indicators corresponding to the values of the other attributes (educational background, gender, age group). The coefficient β_{2o} on the interaction term measures whether the migration-background effect differs by the respective other attribute.

Finally, we also analyze whether the effects of receivers' migration background vary by the characteristics of the decision makers. To do so, we estimate our baseline equation (1) across different decision-maker subgroups, and also estimate the following interacted model:

$$y_{ijk} = \beta_0 + \beta_1 Migration_{ijk} + \beta_2 Subgroup_{ic} + \beta_3 Migration_{ijk} \times Subgroup_{ic} + \epsilon_{ijk} \tag{3}$$

where $Subgroup_{ic}$ equals *one* if decision maker i is a member of the respective subgroup c, and *zero* otherwise. The effect of receivers' migration background for decision makers who are not members of the respective subgroup is given by β_1, and β_3 measures the additional effect for subgroup members. We pre-registered to investigate heterogeneities by decision-makers' gender, political preferences, and migration share of their home region. In addition, we also investigate heterogeneities by the decision-makers' own migration background in an exploratory analysis.

Before discussing our results, we present balancing tests. Columns 4-9 of Table A1 show that the randomization of receiver attributes worked as intended. Each cell in the table reports the p-value based

on a regression of the respective decision-maker characteristic on an indicator for the respective randomized receiver attribute (i.e., migration background, educational background, gender, age group). Only 6 out of 150 regressions (4.0%) yield a significant coefficient at the 5 percent level, which would be expected by pure chance. Additionally, all 24 possible receiver profiles, each representing a unique combination of receiver attributes, occur with the same frequencies between 3.8% and 4.7%.

3. Results

We present our results in two steps. We start by showing the average discrimination against migrants in the German population. Then we present heterogeneities by other randomized receiver attributes, and by characteristics of the decision makers.

3.1. Average discrimination in the general population

Figure 1 shows the average marginal component effects and 95% confidence intervals for each attribute value based on equation (1), for the outcomes "Received more than half" (depicted as circles), and "Received share of endowment" (depicted as squares). Appendix Table A3 presents the underlying regressions. The results show a highly significant negative effect of migration background on both outcomes. On average, holding all other attributes constant, receivers with migration background are 3.9 percentage points less likely to receive more than half of the endowment. Likewise, they obtain a 3.6 percentage points smaller share of the endowment compared to receivers without a migration background. The effect sizes we observe align with recent large-scale studies on discrimination. For instance, estimated black-white response gaps in U.S. correspondence studies, spanning various contexts such as education, public service, and the labor market, range between 2 and 4 percentage points (Bergman & McFarlin, 2018; Giulietti et al., 2017; Kline et al., 2022). Differing from these field experiments, we measure discrimination in anonymous one-shot decisions without any selfish or strategic motives, which makes the documented discrimination all the more concerning.

Regarding the other attributes, receivers with lower educational background and females are significantly more likely to receive more than half of the endowment compared to their counterparts, and they also receive a significantly larger share. Turning to differences by age group, the middle-aged group (38-54 years) tends to receive less than the younger group (18-37 years), and notably less than the older age group of 55-69 year-olds (see post-estimation Wald tests in Appendix Table A3). Interestingly, when comparing the effects of the different randomized receiver attributes, migration background, and gender stand out as having the largest impacts on allocation decisions in absolute terms.

Leveraging the fact that we obtained three allocation decisions from each decision maker, we can show that the average discrimination against migrants documented so far stems from highly varied choice patterns of two distinct types of decision makers. A majority of decision makers (54.3%) display no discrimination at all, opting for the equal allocation of two Euros for both receivers in all three tasks. Unlike these strict egalitarians, their counterparts show very strong discrimination against migrants:

Figure 1: Effects of migration background and other attributes on allocations
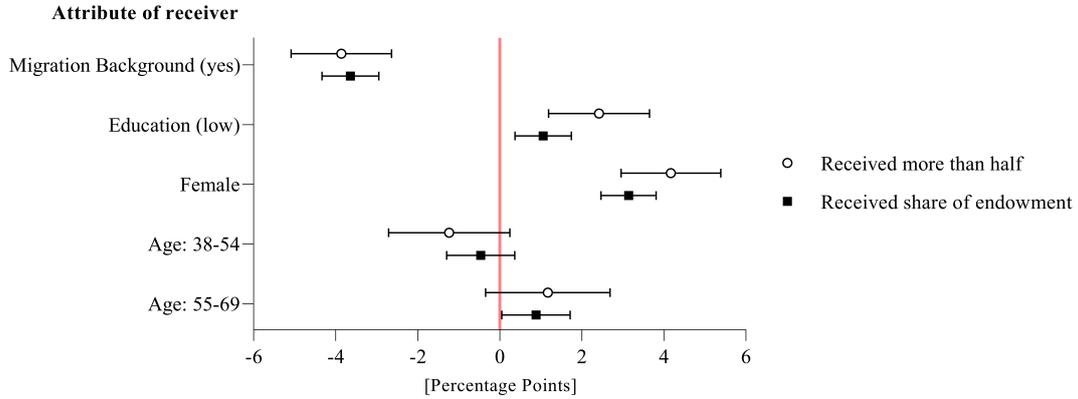
Note: Coeffient plot: This plot shows the effect of randomly assigned receiver attributes on i) the probability of receiving more than half of the endowment and ii) the share of the received endowment. Estimates are based on the OLS regressions with clustered standard errors on individual decisions (between two receiver profiles) (see Appendix Table A3 for the regression output). Error bars represent 95% confidence intervals. When allocating their endowment between two receivers, decision makers were shown the profiles of each receiver side by side. The receiver profiles may differ along the following attributes: migration background (born in Germany/Turkey), educational background (high/low; i.e., with or without Abitur [the university entrance qualification], gender (male/female), and age group (18-37/38-54/55-69).

Among those decision makers who deviate from the equal split in at least one decision, receivers with migration background have a 16.1 percentage points lower probability of receiving more than half, and they receive on average 12.5 percentage points less of the endowment compared to receivers without a migration background (see Appendix Table A7).

To provide some descriptive evidence on the factors influencing allocation decisions, we consider decision-makers' responses to the post-experimental question about the most important receiver attribute for their allocation decision (see Appendix B for the question wording). In the overall sample, 13.2% and 12.8% identify age and educational background as pivotal, followed by country of birth (i.e., migration background) at 7.6% and gender at 5.9% (see column 1 of Appendix Table A8). However, a majority of 60.1% indicate "no specific attribute." This response is primarily selected by strict egalitarians, with 93.6% of them choosing this option (column 2). In open-text responses explaining what other factors were important for their decision-making process, terms like "fair" and "equal" were prevalent for these decision makers (see word clouds in Appendix Figure A1), verifying their strong egalitarian preferences. While informative, these self-reports should be interpreted cautiously due to potential for bias in self-reporting (Coffman et al., 2017).

3.2. Heterogeneity analysis

Next, we study heterogeneities in discriminatory behavior against migrants by (i) receivers' other randomized attributes and (ii) decision-makers' characteristics. To streamline the presentation, our hetero-

geneity analysis primarily focuses on the outcome "Received share of endowment", but we also show that all results hold for the outcome "Received more than half".

3.2.1. Heterogeneities by other receiver attributes

We start our heterogeneity analysis by examining how discrimination against receivers with a migration background is influenced by other receiver attributes. Given the random assignment of all receiver attributes, this moderation analysis allows for a causal interpretation to what extent the other receiver attributes amplify or mitigate discrimination against migrants. Based on Equation 2, Figure 2 presents the predicted shares of the endowment allocated to receivers with and without a migration background, across the different values of the other three receiver attributes. Appendix Table A4 depicts the underlying regressions and also provides estimates for the other outcome of interest, i.e., whether a receiver was allocated more than half of the endowment.

Figure 2: Effects of migration background on allocations, by other receiver attributes
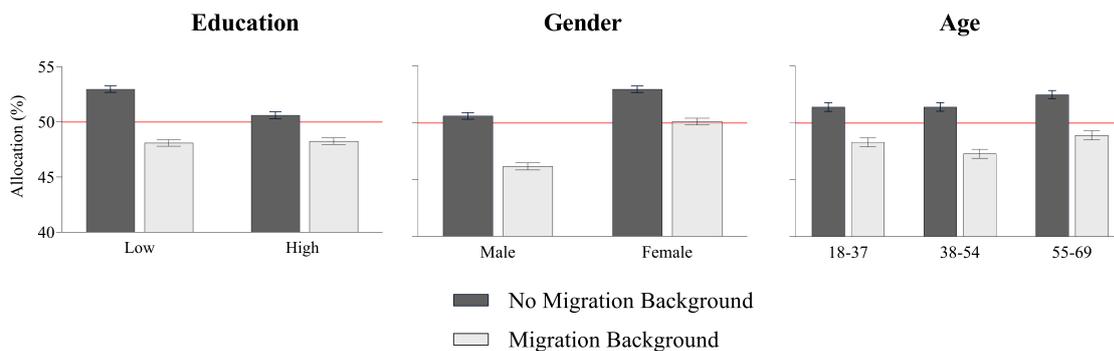
Note: Predicted margins with 95% confidence intervals: This figure shows the received share of the endowment of receivers with and without migration background conditional on other receiver attributes. Estimates are based on the OLS regressions with clustered standard errors on individual decisions (between two receiver profiles) (see Appendix Table A4 for the regression output.) The dependent variable is the relative share of the endowment (4 Euros) received by the receiver. When allocating their endowment between two receivers, decision makers were shown the profiles of each receiver side by side. The receiver profiles may differ along the following attributes: migration background (born in Germany/Turkey), educational background (high/low; i.e., with or without Abitur [the university entrance qualification], gender (male/female), and age group (18-37/38-54/55-69).

The analysis reveals the following key results. First, irrespective of the values of other receiver attributes, receivers with a migration background always receive less of the endowment compared to receivers without a migration background. This indicates that discrimination against migrants is a pervasive issue, affecting migrants across a wide range of diverse attributes.

Second, having a higher educational background significantly decreases discrimination against migrants. Notably, this reduction is not due to migrants with higher education receiving more of the endowment compared to those with lower education. Rather, it results from non-migrants with lower

education receiving a larger share compared to those with higher education. Consequently, the difference in received endowment between migrants and non-migrants decreases with higher education. The finding that higher education does not increase the endowment received by migrants aligns with existing correspondence studies, which demonstrate that higher education does not necessarily enhance outcomes for migrants. In partiular, several studies show that signals indicating migrants possess a higher educational or occupational background do not significantly improve relevant outcomes for them, like call-back rates when applying for a job (Oreopoulos, 2011), for a child-care slot (Hermes et al., 2023), or when seeking public services (Giulietti et al., 2017).[9]

Third, while both male and female migrants face discrimination, it is more pronounced against males. The lesser discrimination against female migrants echoes previous findings that ethnicity-based discrimination tends to target males more severely than females (Fershtman & Gneezy, 2001). Reflecting the preferential treatment of female over male receivers outlined in the previous section, Figure 2 shows that both migrant and non-migrant females receive a larger share of the endowment compared to their male counterparts. Finally, the receivers' age group does not moderate discrimination against migrants.

3.2.2. Heterogeneities by decision-makers' characteristics

In Section 3.1, we demonstrate that the average discrimination observed is due to varying behaviors of decision-maker subgroups, distinguished by their revealed egalitarian preferences. In this section, utilizing the representative nature of our data, we examine whether levels of discrimination against migrants vary across key population subgroups, categorized by gender, political preferences, decision-makers' own migration background, and the migration share in their home region. Unlike the previous section, this heterogeneity analysis based on decision-maker characteristics is descriptive in nature. Figure 3 depicts discriminatory behavior in terms of the share of received endowment in the different subgroups considered. Panel A of Appendix Table A9 presents the underlying regressions, and Panel B presents the corresponding results for the outcome of whether a receiver was allocated more than half of the endowment.

While discrimination is prevalent among both male and female decision makers, our findings reveal that males allocate a significantly smaller share of endowment to receivers with a Turkish migration background than females do. Thus, we show that the pattern that males discriminate more than females previously observed in studies with university students or school children (Fershtman & Gneezy, 2001; Angerer et al., 2017) generalizes to the entire population.

To study the relationship between political preferences and discriminatory behavior, we classify participants based on their support for the "Alternative fuer Deutschland" (AfD), a right-wing (extremist) party with considerable popularity. Discriminatory behavior is very large among AfD supporters: They

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[9] Contrary to our findings, these studies typically show no discrimination against highly educated natives compared to those with lower education (see also Angerer et al. (2019) for evidence that non-migrants with a university degree receive preferential treatment over those without in accessing health care). Our results suggest a general tendency favoring the less educated in the allocation task devoid of selfish motives. However, this form of discrimination is understandably absent in decisions like hiring, where an individual's education directly impacts firm productivity and other economically relevant outcomes.

Figure 3: Effects of migration background on allocations, by decision-maker characteristics
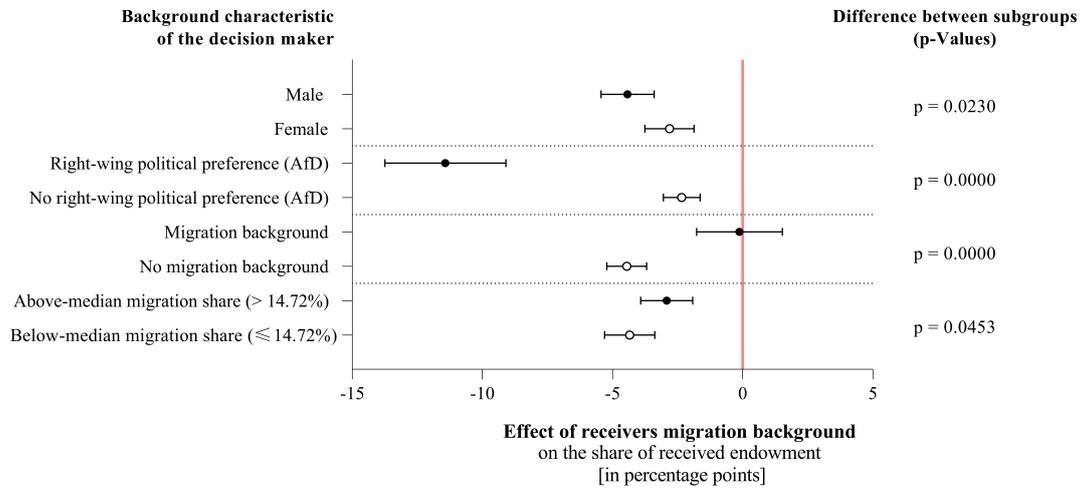
Note: Coeffient plot: This plot shows the effect of randomly assigned receiver migration background (born in Turkey) on the share of received endowment for different subgroups of decision makers. Estimates are based on the separate OLS regressions with clustered standard errors on individual decisions (between two profiles) (see Panel A of Appendix Table A9 for the regression output). Error bars represent 95% confidence intervals.

allocate 11.4 percentage points less of the endowment to migrants compared to non-migrants. This level of discrimination is significantly greater than among non-supporters of the AfD, who allocate "only" 2.3 percentage points less of the endowment to migrants. They are also more likely to identify country of birth (i.e., migration background) as the most important receiver attribute for their allocation decision (17.3% versus 6.0%; see columns 6 and 7 of Appendix Table A8), indicating that their high discrimination level reflects a conscious choice rather than an unconscious bias (Bertrand et al., 2005).

Next, we study how discriminatory behavior varies based on decision-makers' own migration background. Therefore, we classify decision makers as having a migration background if they or their parents were born outside Germany. We find that discrimination against Turkish migrants is confined to decision makers without a migration background. Those with a family history of migration do not discriminate. This pattern is observationally consistent with social identity theory (Tajfel et al., 1979): Individuals with a migration background might not perceive those born in Germany as their in-group, and/or those born in Turkey as their out-group. As a result, they do not discriminate based on the country of origin.

Finally, we explore if the level of discrimination differs by the migrant population share in decision-makers' home regions. Therefore, we merge our experimental data with foreigner-population statistics at the level of Germany's 97 spatial planning regions *("Raumordnungsregionen")* (BIB, 2020). For our analysis, we categorize regions by whether their migrant share is above or below the median value of 14.72%.[10] Figure 3 shows that decision makers from regions with a higher share of migrants discriminate

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[10] Since 45 decision makers (2.1% of the sample) could not be matched unambiguously to a spatial planning region, we excluded them from this analysis.

significantly less than those from regions with a lower share of migrants.[11] It is crucial to interpret heterogeneities by regional characteristics with caution, as a region's migration share may be correlated with other unobserved regional characteristics that might be associated with discriminatory behavior.

4. Conclusion

We study discrimination against migrants within the general population. In our incentivized allocation experiment with more than 2,000 participants representative of the German adult population, decision makers split a fixed endowment between two receivers. To identify discrimination, we randomly vary whether receivers have a migration background, along with other receiver attributes (educational background, gender, and age). We find that discrimination against receivers with Turkish migration background is widespread and substantial in size. Our causal moderation analysis indicates that while all migrant subgroups face discrimination, those with a better education and females experience significantly less. Furthermore, we find higher levels of discrimination among male decision makers, non-migrants, participants with right-wing political preferences, and residents of regions with a lower migrant share.

The pronounced discrimination in the general population that we have documented raises important questions for future research. First, it would be very interesting to uncover the *reasons* behind discrimination both across the general population and within specific subgroups. In fact, the documented discrimination in our experimental allocation task can potentially be driven by different factors. For instance, decision makers may discriminate not solely due to a preference against migrants, but also based on (potentially erroneous) beliefs about how efficiently different recipients would use the allocated endowment, leading to instances of (inaccurate) statistical discrimination. Determining whether the discrimination observed stems from factors such as taste-based discrimination (Becker, 1971), (inaccurate) statistical discrimination (Arrow, 1972a,b; Bohren et al., 2023; Phelps, 1972), or implicit discrimination (Bertrand et al., 2005), is important for designing effective anti-discrimination policies. Second, although we focus on discrimination against Turkish migrants, given their high relevance in the German context, exploring how discriminatory behavior of the general population varies by migrants' country of origin would be very insightful.

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[11] This heterogeneity could be explained by the possibility that increased intergroup contact reduces discrimination (Allport et al., 1954; Steinmayr, 2021). Another possible explanation could be location-choice patterns, where individuals less inclined to discriminate tend to move to regions with a higher share of migrants, and conversely, migrants may also choose regions with lower levels of discrimination. Finally, participants from regions with a high share of migrants are more likely to be migrants themselves, so the lower discrimination observed in these regions could reflect the generally lower discriminatory inclination among migrants documented above.

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Appendix A Additional Figures and Tables

Table A1: Summary statistics and balancing

				Balancing of receiver attributes					
							Agegroups		
	Mean	**SD**	**Obs**	Migration	Education	Gender	18-37 vs. 38-54	18-37 vs. 38-54	38-54 vs. 55-69
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Sociodemographics									
Female [%]	49.82	50.00	2180	0.239	0.271	0.782	0.814	0.544	0.401
Age in Years	43.80	14.50	2180	0.990	0.138	0.078	0.228	0.497	0.592
Born in Germany [%]	93.66	24.36	2178	0.512	0.577	0.305	0.550	0.880	0.650
Migration Background [%]	18.74	39.03	2177	0.514	0.752	0.283	0.947	0.829	0.778
Living in the East of Germany [%]	22.98	42.07	2180	0.987	0.708	**0.041**	0.694	0.478	0.758
Equivalized household size	1.54	0.46	2176	0.604	0.341	0.162	0.136	0.913	0.163
Equivalized household income [in Euros]	1,887	847	2018	0.681	0.840	0.985	0.372	0.241	0.797
University degree [%]	12.48	33.05	2180	0.184	0.120	0.278	**0.006**	**0.003**	0.855
Highest school degree [%]									
No degree/basic degree	1.01	10.00	2180	0.622	0.470	0.796	0.653	0.973	0.626
Middle school degree	57.39	49.45	2180	0.209	0.427	0.976	0.724	0.501	0.305
University entrance qualification	41.06	49.20	2180	0.223	0.362	0.982	0.648	0.535	0.281
Student	0.55	7.40	2180	0.713	0.826	0.761	0.944	0.678	0.732
Work status									
Currently working [%]	70.37	45.66	2177	0.927	0.547	0.978	0.165	0.238	0.819
Political party preferences [%]									
AfD[1]	14.33	35.04	2177	0.513	0.983	0.407	0.019	0.483	0.096
CDU/CSU[1]	15.71	36.39	2177	0.699	**0.036**	0.936	0.643	0.604	0.326
FDP[1]	7.12	25.72	2177	0.941	0.064	0.850	0.551	0.850	0.430
SPD	14.61	35.32	2177	0.179	0.312	0.931	0.885	0.904	0.790
Die Linke	5.19	22.19	2177	0.894	0.964	0.798	0.169	0.915	0.135
Die Grünen	10.47	30.62	2177	0.312	0.739	0.241	0.813	0.502	0.668
Other/none Political Party	32.57	46.87	2177	0.167	0.721	0.170	0.247	0.416	0.718
(Economic) Preferences									
Risk-taking	4.50	2.45	2178	0.541	0.710	**0.014**	0.076	0.093	0.907
Patience	65.40	2.19	2178	0.422	0.978	0.661	0.865	0.907	0.956
Altruism	70.71	2.19	2178	0.290	0.478	0.164	0.891	0.444	0.363
Competitiveness	54.18	2.39	2178	0.282	0.919	0.952	**0.047**	0.092	0.745
Above-median migration share [%]	50.83	50.00	2180	0.276	0.356	0.433	0.184	0.115	0.820

Note: Column 1 (2) shows the mean values (standard deviations SD) of the characteristics of our participants. Column 3 shows how many participants answered the corresponding questions. Columns 4-9 show the balancing of the receiver attributes over the various background characteristics. Every value shows the p-value of a regression, regressing the background characteristic on an indicator for the receiver attribute. Migration Background shows whether the decision maker has a family history of migration (*one* if either the decision maker or one of his/her parents was not born in Germany, *zero* otherwise). Equivalized household size is a measure of household size using a standard (equivalence) scale, the modified OECD scale, which gives a weight of 1 to the first adult in the household, 0.5 to each other person in the household aged 14 years or older, and 0.3 to each child under the age of 14. Equivalized household income corresponds to the reported household income divided by the equalized household size. Currently working is *one* if participants report being (self-)employed. Political party preference was elicited by asking which party participants generally sympathize with. Risk-taking, Patience, Altruism, and Competitiveness were measured on 11-point Likert scales following Falk et al. (2018). Above-median migration share is *one* if the decision maker lives in a region (spatial planning region, *("Raumordnungsregion")* with an above-median share of migrants (> 14.72%) and *zero* otherwise (≤ 14.72%).

[1] Leaning toward any of these political parties is classified as a conservative political orientation.

Table A2: Comparison of characteristics of our sample and official statistics

	Sample	*Microcensus*	*Difference*
	(1)	(2)	(3)
Age groups			
18-29	20.92	20.15	-0.77
30-39	20.09	19.17	-0.92
40-49	18.30	18.1	-0.20
50-59	21.28	23.90	2.62
60-69	19.40	18.68	-0.72
Gender			
Male	50.11	50.47	0.36
Female	49.89	49.53	-0.36
Highest school degree			
Student	0.55	0.28	-0.27
Basic	25.00	25.97	0.97
Middle	33.39	33.33	-0.06
University entrance qualification ("Abitur")	41.06	40.00	-0.64
Country of residence			
Baden-Württemberg	11.61	13.37	1.76
Bayern	14.72	15.85	1.13
Berlin	5.50	4.45	-1.05
Brandenburg	3.12	3.05	-0.07
Bremen	0.96	0.81	-0.15
Hamburg	2.89	2.24	-0.65
Hessen	6.70	7.58	0.88
Mecklenburg-Vorpommern	2.29	1.93	-0.36
Niedersachsen	9.45	9.65	0.20
Nordrhein-Westfalen	20.78	21.50	0.72
Rheinland-Pfalz	4.54	4.93	0.39
Saarland	1.61	1.18	-0.43
Sachsen	6.51	4.84	-1.67
Sachsen-Anhalt	2.61	2.59	-0.02
Schleswig-Holstein	3.76	3.50	-0.26
Thüringen	2.94	2.52	-0.42

Note: This table shows participant characteristics of our final sample (n= 2,180) and the German Microcensus (German Microcensus, 2015). Our sample was drawn to match official population statistics concerning age, gender, educational background, and federal state. We ask participants "*What is your highest general education degree?*" and categorize them into four groups as follows: Student ("*I am currently a student*"), Basic ("*No general school leaving certificate*" and "*Elementary school certificate*"), Middle ("*Secondary school certificate*"), Universit entrance qualification ("*Abitur*") ("*High school diploma*" and "*Advanced technical college certificate*").

Table A3: Effects of migration background and other attributes on allocations

	Received more than half (yes/no)			Received share of endowment		
	(1)	(2)	(3)	(4)	(5)	(6)
Migration Background (yes)	-0.039***	-0.038***	-0.038***	-0.036***	-0.037***	-0.036***
	(0.006)	(0.007)	(0.006)	(0.004)	(0.004)	(0.004)
Education (low)	0.024***	0.025***	0.024***	0.011***	0.012***	0.011***
	(0.006)	(0.007)	(0.006)	(0.003)	(0.004)	(0.003)
Female	0.041***	0.045***	0.041***	0.031***	0.031***	0.031***
	(0.006)	(0.006)	(0.006)	(0.003)	(0.004)	(0.003)
Age: 38-54	-0.012	-0.015*	-0.012	-0.005	-0.005	-0.005
	(0.008)	(0.008)	(0.008)	(0.004)	(0.004)	(0.004)
Age: 55-69	0.012	0.014*	0.012	0.009**	0.012***	0.009**
	(0.008)	(0.008)	(0.008)	(0.004)	(0.004)	(0.004)
	Additional Controls					
Background Characteristics[1]		✓			✓	
Treatment assignment in CG game[2]			✓			✓
Control Mean[3]		0.131			0.495	
	p-values of post-estimation Wald Tests [Difference of effect]					
Age: 38-54 vs Age: 55-69	0.0013	0.0002	0.0014	0.0010	0.0000	0.0010
R-squared	0.008	0.018	0.009	0.018	0.019	0.018
Number of profiles	13080	12108	13080	13080	12108	13080
Number of decisions	6540	6054	6540	6540	6054	6540
Number of decision makers	2180	2018	2180	2180	2018	2180

Note: This table shows the effect of randomly assigned receiver attributes on the received share of the endowment. Estimates are based on the OLS regression estimators with clustered standard errors on individual decisions (between two profiles). The dependent variable is the probability of receiving more than half of the endowment (columns 1-3) and the share of the received endowment (columns 4-6). The independent variables are indicators of receiver attributes. When allocating their endowment between two receivers, decision makers were shown the profiles of each receiver side by side. The profiles potentially differ along the following attributes: Migration background (country of birth: Germany | Turkey), education background (with or without University entrance qualification (Abitur) - which we denote as low/high education respectively), gender (female | male), and age group (18-37 | 38-54 | 55-69). We control for decision-makers' background characteristics (columns 2 and 4) and the treatment assignment in an unrelated cooperation game (columns 3 and 6).

[1] Background characteristics: Female, age in years, whether the decision maker has a family history of migration (*one* if either the decision maker or one of his/her parents was not born in Germany, *zero* otherwise), whether the decision maker is currently working (*one* if participants report being (self-)employed), highest school degree, conservative political party preference (elicited by asking which party decision makers generally sympathize with (leaning toward AfD, CDU/CSU, or FDP is classified as conservative political orientation), and equivalized household income corresponds to the reported household income divided by the equalized household size (equivalized household size is a measure of household size using a standard (equivalence) scale, the modified OECD scale, which gives a weight of 1 to the first adult in the household, 0.5 to each other person in the household aged 14 years or older, and 0.3 to each child under the age of 14.).

[2] The survey comprised an incentivized experiment on cooperation (Angerer et al., 2023), played before the allocation task. In this cooperation experiment, participants played a prisoner's dilemma game with or without third-party punishment (between-subject design).

[3] Mean of the outcome variable for a receiver in the reference category: Young male, aged between 18-37 years, born in Germany with a higher education (University entrance qualification).

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A4: Effects of migration background on allocations, by other receiver attributes

	Received more than half (yes/no)			Received share of endowment		
	(1)	(2)	(3)	(4)	(5)	(6)
Migration Background (yes)	-0.024*	-0.022	-0.024*	-0.028***	-0.029***	-0.028***
	(0.013)	(0.014)	(0.013)	(0.007)	(0.008)	(0.007)
Education (low)	0.044***	0.046***	0.044***	0.023***	0.024***	0.023***
	(0.009)	(0.010)	(0.009)	(0.005)	(0.005)	(0.005)
Female	0.033***	0.033***	0.033***	0.023***	0.021***	0.023***
	(0.009)	(0.009)	(0.009)	(0.005)	(0.005)	(0.005)
Age: 38-54	-0.005	-0.005	-0.005	0.000	-0.000	0.000
	(0.011)	(0.012)	(0.011)	(0.006)	(0.006)	(0.006)
Age: 55-69	0.008	0.015	0.008	0.011*	0.015***	0.011*
	(0.011)	(0.012)	(0.011)	(0.006)	(0.006)	(0.006)
Migration Background (yes) × Female	0.016	0.025**	0.016	0.016**	0.021***	0.016**
	(0.012)	(0.013)	(0.012)	(0.007)	(0.007)	(0.007)
Migration Background (yes) × Lower Education	-0.041***	-0.042***	-0.041***	-0.025***	-0.025***	-0.025***
	(0.012)	(0.013)	(0.012)	(0.007)	(0.007)	(0.007)
Migration Background (yes) × Age: 38-54	-0.016	-0.021	-0.015	-0.010	-0.010	-0.010
	(0.015)	(0.015)	(0.015)	(0.008)	(0.008)	(0.008)
Migration Background (yes) × Age: 55-69	0.007	-0.002	0.007	-0.004	-0.006	-0.004
	(0.015)	(0.016)	(0.015)	(0.008)	(0.008)	(0.008)
	Additional Controls					
Background Characteristics[1]		✓			✓	
Treatment assignment in CG game[2]			✓			✓
	p-values of post-estimation Wald Tests [Difference of effect]					
Interaction 38-54 vs. Interaction 55-69	0.1327	0.2189	0.1362	0.4820	0.6312	0.4807
R-squared	0.010	0.019	0.010	0.019	0.021	0.019
Number of profiles	13080	12108	13080	13080	12108	13080
Number of decisions	6540	6054	6540	6540	6054	6540
Number of decision makers	2180	2018	2180	2180	2018	2180

Note: This table shows the effect of receivers' migration background (born in Turkey vs. born in Germany) on the received share of the endowment over additional receiver attributes. Estimates are based on the OLS regression estimators with clustered standard errors on individual decisions (between two profiles). The dependent variable is the probability of receiving more than half of the endowment (columns 1-3) and the share of the received endowment (columns 4-6). The independent variables are indicators of receiver attributes and interactions thereof. When allocating their endowment between two receivers, decision makers were shown the profiles of each receiver side by side. The profiles potentially differ along the following attributes: Migration background (country of birth: Germany | Turkey), education background (with or without University entrance qualification (Abitur) - which we denote as low/high education respectively), gender (female | male), and age group (18-37 | 38-54 | 55-69). We control for decision-makers' background characteristics (columns 2 and 5) and the treatment assignment in an unrelated cooperation game (columns 3 and 6).

[1] Background characteristics: Female, age in years, whether the decision maker has a family history of migration (*one* if either the decision maker or one of his/her parents was not born in Germany, *zero* otherwise), whether the decision maker is currently working (*one* if participants report being (self-)employed), highest school degree, conservative political party preference (elicited by asking which party decision makers generally sympathize with (leaning toward AfD, CDU/CSU, or FDP is classified as conservative political orientation), and equivalized household income corresponds to the reported household income divided by the equalized household size (equivalized household size is a measure of household size using a standard (equivalence) scale, the modified OECD scale, which gives a weight of 1 to the first adult in the household, 0.5 to each other person in the household aged 14 years or older, and 0.3 to each child under the age of 14.).

[2] The survey comprised an incentivized experiment on cooperation (Angerer et al., 2023), played before the allocation task. In this cooperation experiment, participants played a prisoner's dilemma game with or without third-party punishment (between-subject design).

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A5: Effects of migration background and other attributes on allocations (cluster on decision-maker ID)

	(1) Received more than half (yes/no)	(2) Received share of endowment
Migration Background (yes)	-0.039***	-0.036***
	(0.007)	(0.004)
Education (low)	0.024***	0.011***
	(0.007)	(0.004)
Female	0.042***	0.031***
	(0.006)	(0.004)
Age: 38-54	-0.012	-0.005
	(0.008)	(0.004)
Age: 55-69	0.012	0.009*
	(0.008)	(0.005)
Control Mean[1]	0.131	0.495
	p-values of post-estimation Wald Tests [Difference of effect]	
Age: 38-54 vs Age: 55-69	0.0018	0.0015
R-squared	0.008	0.018
Number of profiles	13080	13080
Number of decisions	6540	6540
Number of decision makers	2180	2180

Note: This table shows the effect of randomly assigned receiver attributes on the received share of the endowment. Estimates are based on the OLS regression estimators with clustered standard errors on the ID of decision makers. The dependent variable is the probability of receiving more than half of the endowment (column 1) and the share of the received endowment (column 2). The independent variables are indicators of receiver attributes. When allocating their endowment between two receivers, decision makers were shown the profiles of each receiver side by side. The profiles potentially differ along the following attributes: Migration background (country of birth: Germany | Turkey), education background (with or without University entrance qualification (Abitur) - which we denote as low/high education respectively), gender (female | male), and age group (18-37 | 38-54 | 55-69).

[1] Mean of the outcome variable for a receiver in the reference category: Young male, aged between 18-37 years, born in Germany with a higher education (University entrance qualification).

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A6: Effects of migration background on allocations, by other receiver attributes (cluster on decision-maker ID)

	(1) Received more than half (yes/no)	(2) Received share of endowment
Migration Background (yes)	-0.024*	-0.028***
	(0.014)	(0.008)
Education (low)	0.044***	0.023***
	(0.010)	(0.005)
Female	0.033***	0.023***
	(0.009)	(0.005)
Age: 38-54	-0.005	0.000
	(0.011)	(0.006)
Age: 55-69	0.008	0.011*
	(0.012)	(0.006)
Migration Background (yes) × Female	0.016	0.016**
	(0.012)	(0.007)
Migration Background (yes) × Lower Education	-0.041***	-0.025***
	(0.013)	(0.007)
Migration Background (yes) × Age: 38-54	-0.016	-0.010
	(0.015)	(0.008)
Migration Background (yes) × Age: 55-69	0.007	-0.004
	(0.015)	(0.008)
	p-values of post-estimation Wald Tests [Difference of Effect]	
Interaction 38-54 vs. Interaction 55-69	0.1404	0.4878
R-squared	0.010	0.019
Number of profiles	13080	13080
Number of decisions	6540	6540
Number of decision makers	2180	2180

Note: This table shows the effect of receivers' migration background (born in Turkey vs. born in Germany) on the received share of the endowment over additional receiver attributes. Estimates are based on the OLS regression estimators with clustered standard errors on the ID of decision makers. The dependent variable is the probability of receiving more than half of the endowment (column 1) and the share of the received endowment (column 2). The independent variables are indicators of receiver attributes and interactions thereof. When allocating their endowment between two receivers, decision makers were shown the profiles of each receiver side by side. The profiles potentially differ along the following attributes: Migration background (country of birth: Germany | Turkey), education background (with or without University entrance qualification (Abitur) - which we denote as low/high education respectively), gender (female | male), and age group (18-37 | 38-54 | 55-69).

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A7: Effects of migration background and other attributes on allocations (given discrimination)

	Received more than half (yes/no)			Received share of endowment		
	(1)	(2)	(3)	(4)	(5)	(6)
Migration Background (yes)	-0.161***	-0.163***	-0.161***	-0.125***	-0.125***	-0.125***
	(0.017)	(0.017)	(0.017)	(0.012)	(0.012)	(0.012)
Education (low)	0.054***	0.056***	0.054***	0.033***	0.035***	0.033***
	(0.017)	(0.018)	(0.017)	(0.012)	(0.012)	(0.012)
Female	0.154***	0.156***	0.154***	0.107***	0.106***	0.107***
	(0.016)	(0.017)	(0.016)	(0.011)	(0.012)	(0.012)
Age: 38-54	-0.015	-0.018	-0.015	-0.017	-0.020	-0.017
	(0.021)	(0.021)	(0.021)	(0.014)	(0.015)	(0.014)
Age: 55-69	0.052***	0.064***	0.052***	0.035**	0.045***	0.035**
	(0.020)	(0.021)	(0.020)	(0.014)	(0.015)	(0.014)
	Additional Controls					
Background Characteristics[1]		✓			✓	
Treatment assignment in CG game[2]			✓			✓
Control Mean[3]		0.464			0.487	
	p-values of post-estimation Wald Tests *[Difference of effect]*					
Age: 38-54 vs Age: 55-69	0.0008	0.0001	0.0008	0.0003	0.0000	0.0003
R-squared	0.056	0.059	0.056	0.061	0.063	0.061
Number of profiles	3800	3546	3800	3800	3546	3800
Number of decisions	1900	1773	1900	1900	1773	1900
Number of decision makers	997	932	997	997	932	997

Note: Like Table A3, this table shows the effect of randomly assigned receiver attributes on the received share of the endowment, but **only for decisions where decision makers discriminate (decide against an equal split)**. Estimates are based on the OLS regression estimators with clustered standard errors on individual decisions (between two profiles). The dependent variable is the probability of receiving more than half of the endowment (columns 1-3) and the share of the received endowment (columns 4-6). The independent variables are indicators of receiver attributes. When allocating their endowment between two receivers, decision makers were shown the profiles of each receiver side by side. The profiles potentially differ along the following attributes: Migration background (country of birth: Germany | Turkey), education background (with or without University entrance qualification (Abitur) - which we denote as low/high education respectively), gender (female | male), and age group (18-37 | 38-54 | 55-69). We control for decision-makers' background characteristics (columns 2 and 4) and the treatment assignment in an unrelated cooperation game (columns 3 and 6).
[1] Background characteristics: Female, age in years, whether the decision maker has a family history of migration (*one* if either the decision maker or one of his/her parents was not born in Germany, *zero* otherwise), whether the decision maker is currently working (*one* if participants report being (self-)employed), highest school degree, conservative political party preference (elicited by asking which party decision makers generally sympathize with (leaning toward AfD, CDU/CSU, or FDP is classified as conservative political orientation), and equivalized household income corresponds to the reported household income divided by the equalized household size (equivalized household size is a measure of household size using a standard (equivalence) scale, the modified OECD scale, which gives a weight of 1 to the first adult in the household, 0.5 to each other person in the household aged 14 years or older, and 0.3 to each child under the age of 14.).
[2] The survey comprised an incentivized experiment on cooperation (Angerer et al., 2023), played before the allocation task. In this cooperation experiment, participants played a prisoner's dilemma game with or without third-party punishment (between-subject design).
[3] Mean of the outcome variable for a receiver in the reference category: Young male, aged between 18-37 years, born in Germany with a higher education (University entrance qualification).
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A8: Most important receiver attribute for allocation choice (self-reported)

| | | Strict Egalitarian | | Gender | | Right-wing political preference (AfD) | | Migration Background | | Above-median migration share | |
| | All | Yes | No | Females | Males | Yes | No | Yes | No | Yes | No |
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
None/I don't know	60.07	93.58	20.28	63.78	56.40	47.44	62.14	50.25	62.30	64.12	56.15
Country of Birth	7.57	0.42	16.06	6.36	8.78	17.31	5.95	5.15	8.14	7.46	7.69
Education	12.76	2.37	25.10	11.61	13.89	11.54	12.98	20.10	11.08	11.18	14.29
Gender	5.87	1.27	11.35	5.44	6.31	5.45	5.95	6.13	5.82	5.13	6.60
Age	13.72	2.37	27.21	12.81	14.63	18.27	12.98	18.38	12.66	12.12	15.28
Observations	2179	1183	996	1085	1094	312	1865	408	1769	1073	1106

Note: Following the three allocation tasks, decision makers answered the question "*Which attribute was most crucial to your decision?*", where they could select one of the answers shown in the rows of the first column. Each cell shows the percent of decision makers (of the subgroups indicated in each column) who chose the respective answer. Decision makers who always allocate their endowment 50/50 between the receivers are classified as being strictly egalitarian. Migration Background shows whether the decision maker has a family history of migration (*Yes* if either the decision maker or one of his/her parents was not born in Germany, *No* otherwise). We categorize decision makers, by whether they live in a spatial planning region *("Raumordnungsregion")* with an above-median share of migrants or not. The median share of migrants in the region was 14.72%, the minimum 4.95%, and the maximum 22.86%).

Table A9: Effects of migration background on allocations, by decision-maker characteristics

	Characteristics of decision maker (subgroup)	Effect of Migration (subgroup)		Not (¬) subgroup	Effect of Migration (¬ subgroup)	*Differences* (p-values)
	Panel A: relative share of endowment					
(1a)	Female	-0.028***	(0.005)	Male	-0.044***(0.005)	0.0230
(2a)	Right-wing pol. pref. (AfD)	-0.114***	(0.012)	No right-wing pol. pref. (AfD)	-0.023***(0.004)	0.0000
(3a)	Migration history	-0.001	(0.008)	No migration history	-0.044***(0.004)	0.0000
(4a)	Below-median migration share	-0.043***	(0.005)	Above-median migration share	-0.029** (0.005)	0.0453
	Panel B: received more than half					
(1b)	Female	-0.023***	(0.009)	Male	-0.054***(0.009)	0.0116
(2b)	Right-wing pol. pref. (AfD)	-0.125***	(0.019)	No right-wing pol. pref. (AfD)	-0.024***(0.007)	0.0000
(3b)	Migration history	-0.018	(0.015)	No migration history	-0.052***(0.007)	0.0000
(4b)	Below-median migration share	-0.027***	(0.009)	Above-median migration share	-0.050** (0.009)	0.0689

Note: This table shows the effect of receivers' migration background (born in Turkey vs. born in Germany) separately for subgroups defined over participants' characteristics. Every row is a separate OLS regression with clustered standard errors on individual decisions (between two profiles). The dependent variable is the share of the received endowment (Panel A) and the probability of receiving more than half of the endowment (Panel B). The independent variable is an indicator of receivers' migration background interacted with an indicator for subgroups defined over decision-makers background characteristics. Those background characteristics are Gender (female/male); whether the decision maker has a family history of migration (*one* if either the decision maker or one of his/her parents was not born in Germany, *zero* otherwise); whether the decision maker affiliates with the right-wing party AfD, and whether the decision maker lives in a spatial planning region *("Raumordnungsregion")* with an above-median migration share or not. The median share of migrants in the regions was 14.72%, the minimum 4.95%, and the maximum 22.86%).

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Figure A1: Stated factors influencing allocation decision

Note: Figure shows 40 most used words in the answers to question *"Were there any other reasons that were important to your decision?"*. Stopwords and punctuation are removed from the open answers and words are stemmed using the Quanteda Package (Benoit et al., 2018). The original language is German, for the English word clouds the information was translated into English using the Deeplr package (Zumbach & Bauer, 2023) and then stopwords and punctuation were removed from the open answers, and words were stemmed using the Quanteda Package (Benoit et al., 2018). N = 1644 participants.

Appendix B   Experimental Instructions

Now we come to a new game:

In this **distribution game**, we ask you to make a choice that can affect the payout for a real person who participates in this survey. We would like you to **divide 4 Euros between two people** (person A and person B).

At the end of the survey, we will **randomly draw every tenth** participant and implement a random decision for that participant based on their characteristics. Your decision is completely anonymous. If your choice is implemented, the participant in question will be credited with the amount you chose, but will not receive any other information.

As a reminder, the participants are individuals between the ages of 18 and 69 who represent the overall population in Germany as closely as possible. We describe these two individuals based on their **gender**, **age**, **migration background**, and **education level**.

Please note: Your decision can never affect your own payout. If you should be selected, the decision of another participant will be implemented.

Please make your decision! (1 of 3)[1]

Please indicate in the field below how you would like to split the 4 Euros between person A and person B.

	Person A	**Person B**
Age	???	???
Gender	???	???
Education level	???	???
Born in ...	???	???

Person A: 4€ Person B: 0€	Person A: 3€ Person B: 1€	Person A: 2€ Person B: 2€	Person A: 1€ Person B: 3€	Person A: 0€ Person B: 4€

Which attribute was most crucial to your decision?

o Sex
o Age
o Level of education
o Country of birth
o I don't know / there was no specific attribute

---

[1] For the following two decisions, we wrote: **Please make another decision for two new people! (2 of 3)** and **Please make your final decision for two new people! (3 of 3)** in order to make it salient that this is another decision.

Were there any other reasons that were important to your decision?

[open comment field]

[Pre-experimental questionnaire]

I am ...

- o Female
- o Male
- o Diverse

When were you born?

Month: [Dropdown with months]
Year: [Dropdown with years from xxx to xxx]

What is your highest general education degree?

- o No general school leaving certificate
- o Elementary school certificate
- o Secondary school certificate
- o Advanced technical college certificate
- o High school diploma
- o I am currently a student

What professional training degree do you have?
Please tick all that apply.

- o I do not have professional training and am not in professional training.
- o I have completed professional-in-company training (apprenticeship) or professional-school training (professional school, commercial school).
- o I have completed training at a technical school, master craftsman school, technical school, professional- or technical academy.
- o I have a polytechnic degree (e.g., diploma, bachelor, master).
- o I have a university degree (e.g., diploma, state examination, bachelor, master's).
- o I have another professional degree.
- o I am still in professional training (trainee, apprentice, professional-/ commercial school).
- o I am a student.

[Cooperation Game[2]]

[Discrimination Game: see Appendix B]

[Post-experimental questionnaire]

Next, we are interested in whether you have taken the following actions to combat climate change in the past year.

Are you actively trying to do something about climate change by ...

	Yes	No
... participating in demonstrations, supporting petitions, or environmental organizations?	O	O
... participating in blockades?	O	O
.. regularly using environmentally friendly alternatives to your own car?	O	O
... purchase electricity from renewable energy sources?	O	O
... adapt your purchasing behavior to the ecological footprint of products?	O	O
... compensate your CO2 emissions by buying climate protection certificates?	O	O
.. adapt your water or energy consumption?	O	O
... make sure when buying new household appliances that they are energy-saving.	O	O

Are you or have you ever volunteered for an extended period of time?
(Volunteer here means taking on a job where you help others but are not paid)

- o Yes
- o No

[If volunteer:] **Do you have or have you had a leadership role in the volunteer organization that required you to coordinate other volunteers?**

- o Yes
- o No

[If volunteer:] **In which of the following organizations/institutions were they involved in volunteering?**

[Dropdown field with various institutions[3]]

---

[2] At this stage, we ran an unrelated cooperation game (one shot prisoners' dilemma). For detailed instructions please refer to Angerer et al. (2023).

[3] Church, volunteer fire department, DLRG, sports club/association, Political parties, trade unions, social/charitable institutions, pupil/student initiatives, cultural institutions, environmental/nature conservation associations, scouts, educational and training institutions (non-university). Other [open comment]

Have you already received one or more doses of COVID-19 vaccine?

o Yes
o No

[If vaccinated:] **Why did you get vaccinated?**

Please tick everything that applies!

o Voluntarily, to protect myself.
o Voluntarily, to protect others.
o Because I had to (travel, events, etc.).
o Because of social pressure.
o Others, namely ... [open comment box].

When were you vaccinated against the flu?

o In the last twelve months
o More than twelve months ago
o Never

Do you have an organ donor card or living will that provides for organ donation?

o Yes
o No

When was the last time you donated blood?

o In the last twelve months
o More than twelve months ago
o Never

How do you rate yourself personally? Are you generally a risk-taker or do you try to avoid taking risks?
(*Please tick a box on the scale, where the value 0 means "not at all willing to take risks" and the value 10 means "very willing to take risks". You can use the values in between to grade your assessment.*)

Not at all risky   Very risky

O   O   O   O   O   O   O   O   O   O   O

Are you someone who is generally willing to give up something today to benefit from it in the future, or are you not willing to do so?

(*Please tick a box on the scale, where a value of 0 means "not at all willing" and a value of 10 means "very willing". You can use the values in between to grade your assessment.*)

Not at all   Very

O   O   O   O   O   O   O   O   O   O

Are you someone who is generally willing to share with others without expecting anything in return, or are you unwilling to do so?

(*Please tick a box on the scale, where a value of 0 means "not at all willing" and a value of 10 means "very willing". You can use the values in between to grade your assessment.*)

Not at all   Very

O   O   O   O   O   O   O   O   O   O

How competitive do you consider yourself to be?

(*Please check a box on the scale, where a value of 0 means "not at all competitive" and a value of 10 means "very competitive." *)

Not at all competitive   Very competitive

O   O   O   O   O   O   O   O   O   O

Were you born in Germany?

o Yes
o No

[If not born in Germany:] **In which country were you born?**

o Turkey
o Poland
o Syria
o Romania
o Italy
o Other country ... [+ open field].

Were both your parents born in Germany?

- o Yes, both parents were born in Germany
- o No, one parent not born in Germany
- o No, both parents not born in Germany

[If "No, one parent not born in Germany":] **In which country was this parent born?**

- o Turkey
- o Poland
- o Syria
- o Romania
- o Italy
- o Other country ... [+ open field].

[If "No, both parents not born in Germany":] **In which country was the first parent born?**

- o Turkey
- o Poland
- o Syria
- o Romania
- o Italy
- o Other country ... [+ open field].

[If "No, both parents not born in Germany":] **In which country was the second parent born?**

- o Turkey
- o Poland
- o Syria
- o Romania
- o Italy
- o Other country ... [+ open field].

Many people in Germany tend to vote for a particular political party in the long term, even if they occasionally vote for another party. **Which party do you generally sympathize with?**

- o CDU or CSU
- o SPD
- o AfD
- o FDP
- o Die Linke
- o Bündnis90/Die Gruenen
- o Another party, namely _____
- o None

What is the best way to describe your acquisition situation?

- o Pupil, trainee, student
- o Full-time employed (incl. short-time work)
- o Part-time employed (incl. short-time work)
- o Self-employed
- o Unemployed
- o Househusband/housewife
- o In retirement, pension or early retirement
- o Other employment situation, namely _____

How many people currently live with you in a household - including yourself

_____ adults (18 years and older)
_____ children (under 18)

What is the total monthly net income of your household?
(*This means the sum resulting from wages, salary, income from self-employment, pension, or retirement pension, in each case after deduction of taxes and social security contributions. Please also include income from public assistance, income from renting, leasing, housing allowance, child benefit, and other income.*)

- o below 400 Euro
- o 400 until below 500 Euro
- o 500 until below 750 Euro
- o 750 until below 1.000 Euro
- o 1.000 until below 1.250 Euro
- o 1.250 until below 1.500 Euro
- o 1.500 until below 1.750 Euro
- o 1.750 until below 2.000 Euro
- o 2.000 until below 2.250 Euro
- o 2.250 until below 2.500 Euro
- o 2.500 until below 2.750 Euro
- o 2.750 until below 3.000 Euro
- o 3.000 until below 3.250 Euro
- o 3.250 until below 3.500 Euro
- o 3.500 until below 3.750 Euro
- o 3.750 until below 4.000 Euro
- o 4.000 until below 5.000 Euro
- o 5.000 Euro and more
- o No answer

What is the postal code of your place of residence?

Appendix C   Screenshots of decision and information screens

Please make your decision! (1 of 3)

Please indicate in the field below how you would like to split the 4 euros between person A and person B.

	Person A	**Persion B**
Age	18-37	55-69
Gender	Male	Male
Education level	No university entrance degree	No university entrance degree
Born in ...	Germany	Turkey

| Person A: 4€ Person B: 0€	Person A: 3€ Person B: 1€	Person A: 2€ Person B: 2€	Person A: 1€ Person B: 3€	Person A: 0€ Person B: 4€

Appendix D   Turkish Migrants in Germany

Turkish immigrants represent the largest and most geographically dispersed ethnic group within Germany. In 2021, there were approximately 2.7 million people with a Turkish migration background in Germany, accounting for approximately 3.3% of the German population and 12.3% of all migrants in the country. Following closely are Polish immigrants, constituting 2.6% of the German population and around 9.7% of all migrants. The initial influx of Turkish migrants to Germany occurred during the 1960s to bolster the country's labor force. This migration was facilitated through an agreement with Turkey aimed at recruiting guest workers. Subsequently, in the 1970s, a second wave of migration from Turkey to Germany transpired, primarily driven by family reunification and political instability in Turkey. Consequently, the majority (53.3%) of individuals with a Turkish migration background belong to the second or third generation, lacking personal migration experience themselves (BAMF, 2022).

Despite the extensive presence of Turkish migrants in Germany, individuals with Turkish migration backgrounds exhibit lower levels of education and income compared to native Germans. For example, within the broader German population, roughly 7% of individuals of Turkish descent hold a university degree, while 17% of those without a migration background possess such qualifications. Moreover, the average equalized household income differs substantially between households where no member has any migration background (€2,127) and those where at least one member has a migration background from Turkey (€1,723) (Destatis, 2021). Prior evidence also substantiates the discrimination faced by individuals with a Turkish migration background within the German labor market (Bartoš et al., 2016; Kaas & Manger, 2012).

Figure D1: Share of Turkish foreigners

■ (2,5] ■ (1,2] ■ (1,1] □ (0,1] □ [0,0]
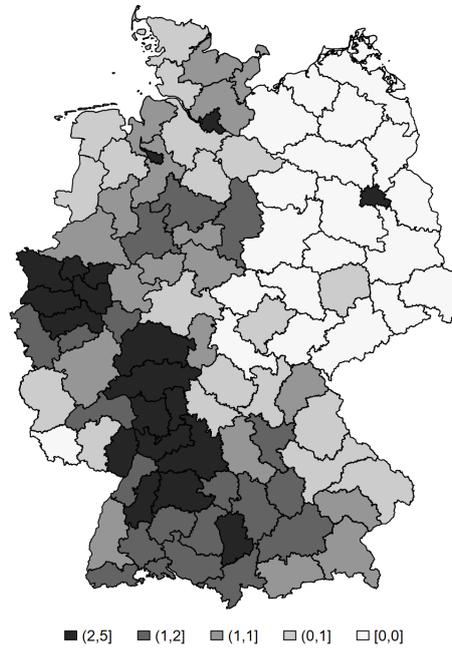
Note: Share of Turkish foreigners in the German Population in %, aggregated in 5 quintiles. The darker the color, the higher the share. One region represents one spatial planning region *("Raumordnungsregion")*.

Figure D2: Share of foreigners

■ (16,23] ■ (14,16] ■ (11,14] □ (8,11] □ [5,8]
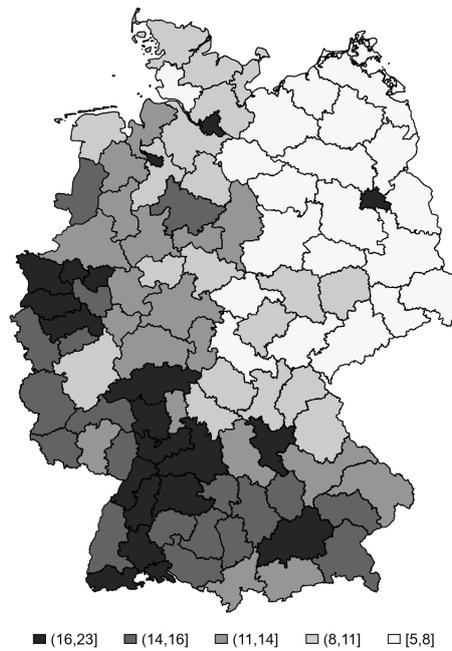
Note: Share of foreigners in the German population in %, aggregated in 5 quintiles. The darker the color, the higher the share. One region represents one spatial planning region *("Raumordnungsregion")*.