Impacts of immigration on low-status groups

Right-wing voting, ethnic discrimination, and inter-ethnic relations in the wake of the 2015 refugee crisis in Germany

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Zusammenfassung

Welche sozialen Auswirkungen hat Immigration auf Gruppen mit niedrigem Status? Während sich die bestehende Forschung zu Effekten von Zuwanderung größtenteils auf die Mehrheitsbevölkerung beschränkte, richtet diese Dissertation den Fokus auf wirtschaftlich benachteiligte Personen und ethnische Minderheiten, weil diese von Migration oft stärker betroffen sind als andere soziale Gruppen. Darüber hinaus haben frühere Migrationsstudien überwiegend Meinungen statt Verhaltensweisen untersucht. Im Gegensatz dazu werden in dieser Dissertation auch Verhaltensreaktionen betrachtet, insbesondere Wahlverhalten und diskriminierende Handlungen. Eine weitere Herausforderung der bisherigen Forschung ist die Tendenz von Migranten, sich in bestimmten Regionen niederzulassen, was eine kausale Analyse der Auswirkungen von Migration erschwert. Im Gegensatz zu einer solchen selbstselektiven Form der Zuwanderung bietet die Flüchtlingskrise 2015/2016 in Deutschland aufgrund der quasi-zufälligen Verteilung der Flüchtlinge eine einzigartige Gelegenheit, die Effekte von Zuwanderung zu untersuchen. Damals lösten soziale Spannungen, Revolutionen und Bürgerkriege in Nordafrika und dem Nahen Osten einen unerwarteten Anstieg der Flüchtlingszuwanderung nach Deutschland aus. Diese Dissertation analysiert die Auswirkungen der Flüchtlingszuwanderung auf ethnische Minderheiten als sozial benachteiligte Gruppe. Zudem wird untersucht, ob Menschen mit niedrigem sozioökonomischen Status eher Rechtspopulisten wählen. Damit trägt diese Arbeit zu einem besseren Verständnis von Rechtspopulismus, Diskriminierung, interethnischen Beziehungen und ethnischen Grenzen bei.

Frühere Untersuchungen zeigen, dass die rechtspopulistische Partei Alternative für Deutschland (AfD) den massiven Zustrom von Flüchtlingen nach Deutschland genutzt hat, um durch einwanderungsfeindliche Propaganda Wähler zu gewinnen. Eine alternative Forschungsrichtung bietet eine ökonomische Erklärung an, die besagt, dass diejenigen, die durch die Modernisierung benachteiligt werden, eher populistische Parteien unterstützen. Die Forschung zu dieser Modernisierungsverliererertheorie (MLT) ist jedoch in Bezug auf AfD-Wähler uneindeutig und basiert überwiegend auf Vorwahlbefragungen und problematischen Kausalannahmen. Die erste Studie dieser Dissertation analysiert Nachwahl-Umfragedaten aus dem Jahr 2017 der German Longitudinal Election Study ($N \approx 1.200$), wodurch das tatsächliche Wahlverhalten untersucht wird. Durch eine valide kausale Argumentation und eine verbesserte Modellwahl kommt die Studie zu dem Ergebnis, dass im Widerspruch zur MLT ein niedriger sozioökonomischer Status keinen signifikanten Einfluss auf die Wahrscheinlichkeit hatte, die AfD zu wählen. Stattdessen erwies sich die subjektive Wahrnehmung von Benachteiligung als ein entscheidender Faktor zugunsten der AfD-Wahl. Darüber hinaus demonstriert die Studie, dass eine stärkere Unzufriedenheit mit der Politik als mediierender Faktor zwischen subjektiver Benachteiligung und AfD-Wahl wirkt.

Die Zuwanderung von Flüchtlingen könnte fremdenfeindliche Einstellungen verstärkt und damit ethnische Diskriminierung verschärft haben. Die zunehmende Fremdenfeindlichkeit könnte sich zudem auch gegen frühere Einwanderergruppen richten.

In der zweiten Studie dieser Dissertation wird untersucht, ob die Flüchtlingskrise die ethnische Diskriminierung türkischer Bewerber auf dem deutschen Mietwohnungsmarkt beeinflusste. Frühere Studien stützten sich häufig auf Querschnittsvergleiche von Stadtteilen mit unterschiedlichen Migrantenanteilen, was aufgrund unbeobachteter Confounder und Selbstselektion von Zuwanderern problematisch ist. Um kausale Rückschlüsse darüber ziehen zu können, wie sich Zuwanderung auf ethnische Diskriminierung auswirkt, nutzten meine Mitautoren und ich Daten eines Feldexperiments – der Goldstandard für die Analyse von Diskriminierung. Es wurden E-Mail-Korrespondenztests auf einer großen Online-Wohnungsplattform kurz vor Ausbruch der Flüchtlingskrise durchgeführt (1. Welle) und das Experiment wurde auf dem Höhepunkt der Krise wiederholt (2. Welle). Unser longitudinaler Ansatz, kombiniert mit der quasi-zufälligen räumlichen Verteilung der Flüchtlinge, ermöglicht kausale Rückschlüsse mit geringer Verzerrung. Basierend auf etwa 10.000 E-Mail-Bewerbungen für 5.000 Mietwohnungen stellten wir fest, dass der Zustrom von Flüchtlingen das Ausmaß der ethnischen Diskriminierung von Türken auf dem deutschen Mietwohnungsmarkt nicht signifikant veränderte.

Während sich die ersten beiden Artikel dieser Dissertation vor allem auf das Verhalten der ethnischen Mehrheit in Deutschland konzentrieren, untersucht der dritte Artikel die Auswirkungen der Flüchtlingszuwanderung auf die Sichtweise der beiden größten ethnischen Minderheiten in Deutschland: Personen mit polnischem und türkischem Migrationshintergrund. Diese Studie ist eine der ersten, die in einem europäischen Land untersucht, welche sozialen Auswirkungen die Zuwanderung einer neuen Gruppe auf bereits bestehende Zuwanderergruppen hat. Hierfür kombiniere ich Makrodaten über Flüchtlinge mit individuellen Längsschnittdaten einer groß angelegten deutschen Panelbefragung (SOEP) von 2012 bis 2018, basierend auf einer Zufallsstichprobe. Mithilfe von Fixed-Effects-Schätzungen zeigt diese Studie, dass ein steigender Anteil von Flüchtlingen in einem Landkreis die Sorgen über Zuwanderung erhöhte und die selbst wahrgenommene Diskriminierung unter türkischen ($N \approx 700$ Befragte, $n \approx 2.900$ Personenjahre) und polnischen ($N \approx 500$ Befragte, $n \approx 2.100$ Personenjahre) Befragten verringerte. Darüber hinaus fühlten sich türkische Einwanderer tendenziell deutscher als Reaktion auf die Flüchtlingskrise, während sie gleichzeitig eine stärkere Verbundenheit mit der Türkei empfanden. Polnische Einwanderer fühlten sich ebenfalls deutscher, jedoch nicht stärker mit Polen verbunden. Diese Ergebnisse unterstützen die Annahme, dass sich Minderheitengruppen von neuen Zuwanderern distanzieren. Zugleich nutzen sie die Situation, um ihre soziale Position zu verbessern, indem sie ihre Identifikation mit der Mehrheitsgruppe und/oder ihrer eigenen ethnischen Gruppe stärken.

Zusammenfassend verdeutlicht diese Dissertation die Multidimensionalität des sozialen Status, indem sie zeigt, dass dieser mehr umfasst als nur den objektiven sozioökonomischen Status. Es wird aufgezeigt, dass der objektive Status von der subjektiven Wahrnehmung sowie von der Bewertung des Status abweichen kann. Während

ein objektiv niedriger sozioökonomischer Status keinen Einfluss auf die Wahrscheinlichkeit hatte, Rechtspopulisten zu wählen, hatte die subjektive Bewertung des eigenen Status einen erheblichen Effekt. Eine Abweichung gab es auch zwischen objektivem und subjektivem Status von Migranten. Obwohl die objektive Diskriminierung durch die Zuwanderung von Flüchtlingen kurzfristig nicht beeinflusst wurde, zumindest nicht auf dem Mietwohnungsmarkt, nahmen subjektive Diskriminierungserfahrungen ab. Dies lässt sich dahingehend interpretieren, dass sich die Beziehungen zur deutschen Mehrheitsgesellschaft aus der Perspektive der türkischen und polnischen Minderheiten verbesserten; dies aber nicht von der deutschen Mehrheit bestätigt wurde. Diese Ergebnisse zeigen, dass Forscher subjektive Perspektiven stärker berücksichtigen sollten.

Abstract

What are the social impacts of immigration on low-status groups? While existing research on the effects of immigration has mostly focused on the majority population, this dissertation shifts the focus to economically disadvantaged individuals and ethnic minorities, as these groups are often more affected by migration than others. Furthermore, previous migration studies have predominantly examined opinions rather than behaviors. In contrast, this dissertation also considers behavioral responses, particularly voting behavior and discriminatory actions. Another challenge in prior research is the tendency of migrants to settle in specific regions, making causal analysis of migration's effects difficult. Unlike such self-selective migration patterns, the 2015/2016 refugee crisis in Germany, due to the quasi-random distribution of refugees, provides a unique opportunity to examine the effects of immigration. Back then, social tensions, revolutions, and civil wars in North Africa and the Middle East triggered an unexpected increase in refugee migration to Germany. This dissertation analyzes the impact of refugee immigration on ethnic minorities as a socially disadvantaged group. Additionally, it explores whether individuals with low socioeconomic status are more likely to vote for right-wing populists. Thus, this dissertation contributes to a better understanding of right-wing populism, discrimination, interethnic relations, and ethnic boundaries.

Previous studies show that the right-wing populist party Alternative for Germany (AfD) exploited the massive influx of refugees into Germany to gain voters through anti-immigration propaganda. An alternative line of research offers an economic explanation, suggesting that those disadvantaged by modernization are more likely to support populist parties. However, research on this modernization losers' theory (MLT) in relation to AfD voters is inconclusive and largely based on pre-election surveys and problematic causal assumptions. The first study of this dissertation analyzes post-election survey data from 2017, part of the German Longitudinal Election Study ($N \approx 1{,}200$), which allows for the examination of actual voting behavior. Through valid causal reasoning and improved model selection, the study finds that, contrary to the MLT, a low socioeconomic status had no significant impact on the likelihood of voting for the AfD. Instead, the subjective perception of disadvantage proved to be a decisive factor in favor of voting for the AfD. Moreover, the study demonstrates that greater dissatisfaction with politics acts as a mediating factor between perceived disadvantage and AfD voting.

The immigration of refugees may have intensified xenophobic attitudes and thereby exacerbated ethnic discrimination. Increasing hostility could also be directed against earlier immigrant groups. The second study in this dissertation examines whether the refugee crisis influenced the ethnic discrimination of Turkish applicants in the German rental housing market. Previous studies often relied on cross-sectional comparisons of neighborhoods with varying migrant populations, which is problematic due to unobserved confounders and the self-selection of migrants. To draw causal conclusions about how immigration affects ethnic discrimination, my co-authors and

I used data from a field experiment – the gold standard for analyzing discrimination. Email correspondence tests were conducted on a large online housing platform just before the onset of the refugee crisis (1st wave), and the experiment was repeated at the peak of the crisis (2nd wave). Our longitudinal approach, combined with the quasi-random geographic distribution of refugees, allows for causal inferences with minimal bias. Based on approximately 10,000 email applications for 5,000 rental apartments, we found that the influx of refugees did not significantly alter the level of ethnic discrimination against Turks in the German rental housing market.

While the first two studies of this dissertation primarily focus on the behavior of the ethnic majority in Germany, the third study examines the impact of refugee immigration on the perspectives of the two largest ethnic minorities in Germany: individuals with Polish and Turkish migration backgrounds. This study is one of the first in a European country to investigate the social impacts of the immigration of a new group on established immigrants. To do so, I combine macro-level data on refugees with individual longitudinal data from a large German panel survey (SOEP) from 2012 to 2018, based on a random sample. Using fixed-effects estimations, this study shows that an increasing proportion of refugees in a county raised concerns about immigration and reduced perceived discrimination among Turkish ($N \approx 700$ respondents, $n \approx$ 2,900 person-years) and Polish ($N \approx 500$ respondents, $n \approx 2{,}100$ person-years) respondents. Furthermore, Turkish immigrants tended to feel more German in response to the refugee crisis, while simultaneously feeling a stronger connection to Turkey. Polish immigrants also felt more German, though not more connected to Poland. These findings support the assumption that minority groups distance themselves from new immigrants while also using the situation to improve their social position by strengthening their identification with the majority group and/or their own ethnic group.

In summary, this dissertation highlights the multi-dimensionality of social status by demonstrating that it encompasses more than just objective socioeconomic status. It shows that objective status can differ from subjective perception and status evaluation. While an objectively low socioeconomic status had no influence on the probability of voting for right-wing populists, the subjective assessment of one's status had a significant effect. A discrepancy was also found between the objective and subjective status of migrants. Although objective discrimination was not influenced by the influx of refugees in the short term, at least not in the housing market, subjective experiences of discrimination decreased. This can be interpreted as an improvement in relations with the German majority from the perspective of Turkish and Polish minorities, though this was not confirmed by the German majority. These findings suggest that researchers should place greater emphasis on subjective perspectives.

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List of Abbreviations

AfD	Alternative für Deutschland (Alternative for Germany)
ATE	Average treatment effect
CBT	Cultural backlash theory
DIW	Deutsches Institut für Wirtschaftsforschung
FE	Fixed effects
GDP	Gross Domestic Product
GLES	German Longitudinal Election Study
ISIS	Islamic State of Iraq and Syria
LPM	Linear probability model
MLT	Modernization losers' theory
PAPI	Paper and pencil interview
p.c.	Per capita
pp	Percentage points
RRC	Refugee reception center
SES	Socioeconomic status
SIT	Social identity theory
SOEP	Socio-Economic Panel
UR	Unemployment rate

Chapter 1

Conceptual framework: Impacts of immigration on low-status groups

1.1 Introduction

Immigration has been a hotly debated topic in Europe in the media (Presse-Monitor, 2024; Illner, 2024), academic research (Eberl et al., 2018), public opinion (Dennison and Geddes, 2019), and political discourse (Green-Pedersen and Otjes, 2019). In Germany, public sentiment towards immigrants has grown increasingly hostile over the years: Media coverage of refugees[1] has become more negative (Maurer et al., 2021), and the discourse has shifted from focusing on "humanitarian aid" to "economic refugees", and ultimately to "illegal immigrants" (Holzberg, Kolbe, and Zaborowski, 2018; Vollmer and Karakayali, 2018; Brelie, 2023). Additionally, the right-wing populist party AfD (Alternative für Deutschland) has gained significant momentum in Germany, especially in the East. In Saxony, the AfD emerged as the second strongest party, securing 30.6% of the vote in the 2024 state election. In Thuringia, the AfD even became the leading party with 32.8%. Even conservative politicians have voiced anti-immigrant sentiments. Friedrich Merz, chairman of the conservative CDU, for instance, criticized immigrants by stating, "They sit at the dentist's and have their teeth redone, and the German citizens next door can't get appointments" (Taz, 2023). In such an emotionally charged debate, it is crucial to step back and closely examine the facts: What are the actual consequences of immigration? Social research plays a vital role in analyzing the diverse impacts of immigration on society. This dissertation investigates some of the effects of immigration, focusing on the 2015/2016 refugee crisis in Germany.

The refugee crisis was caused by revolutions and civil wars in North Africa and the Middle East. Germany was one of the most popular destination countries in Europe, and received over 1.2 million asylum seekers in 2015 and 2016 (Grote, 2018, p. 15). The large influx of refugees caused significant organizational challenges, as authorities were unprepared for such numbers. Insufficient accommodations forced officials to improvise, housing refugees in tents, sports halls, and hotels. This led to considerable

[1] I use the term refugees in a broad, informal sense to encompass all displaced individuals, including all foreigners in Germany who are seeking asylum or have a protected status.

chaos and even instances of violence among asylum seekers (Hagen and Maxwill, 2015). Due to these unforeseen problems, the media quickly labeled the situation as "the refugee crisis".[2]

From a research perspective, the refugee crisis has offered a unique opportunity to examine the effects of immigration on society. This influx of refugees can be viewed as a quasi-natural experiment due to its unexpected nature, the significant increase in immigration numbers, and the quasi-random geographical distribution of asylum seekers. Unlike other forms of immigration, which typically involve self-selection of immigrants into specific areas (Jaeger, 2007; Verdugo, 2015) leading to biased research results, the refugee crisis allows for more reliable causal conclusions.

Immigration can have diverse economic effects on the host country. These effects have been studied extensively, though results vary (Longhi, Nijkamp, and Poot, 2005). Research indicates that immigration often reduces wages for lower-status groups (Borjas, 2003), whereas wages at the top often increase (Dustmann, Frattini, and Preston, 2013). It also impacts the labor market structure, prompting individuals to alter their education or occupation (Llull, 2018). Additionally, immigration can drive up rents and housing prices (Ottaviano et al., 2006; Mussa, Nwaogu, and Pozo, 2017). Overall, immigration tends to benefit highly educated individuals and housing suppliers, while disadvantaging low-status groups, including low-educated, low-paid workers, and renters.

This dissertation examines the impact of immigration on two low-status groups. The first group consists of individuals with low socioeconomic status, characterized by low income, low education, and/or low occupational status. The second group comprises ethnic minorities already residing in Germany, specifically those with Turkish or Polish immigration backgrounds, as these are the two largest ethnic minority groups in the country. Ethnic minorities frequently have a low social status which manifests as discrimination across various aspects of life, including education (Diehl and Fick, 2016; Wenz and Hoenig, 2020), the labor market (Kaas and Manger, 2012), and the housing market (Auspurg, Schneck, and Hinz, 2019). This ethnic discrimination often contributes to a low socioeconomic status of immigrants. Both low-status groups can be particularly impacted by new immigrants as potential economic rivals. Refugees are more likely than other migrants to work in low-paid jobs, often below their qualifications, are frequently in marginal employment, and have very low incomes (Wiedner, Salikutluk, and Giesecke, 2018). Consequently, refugees compete with low-skilled workers and other migrants in the job market in the long term.

Regarding the group with low socioeconomic status, the first study of this dissertation investigates whether they are more likely to vote right-wing populist (Chapter 2). According to the modernization losers' theory, individuals with low income, low education, or low job status feel marginalized by society and politics, making them more

[2]Some argue that the term "refugee crisis" unfairly places the blame for the chaotic circumstances surrounding the refugee arrivals on the asylum seekers themselves, rather than on the failures of politics and bureaucracy. Nevertheless, I will continue to use this term due to its widespread conventional use, with no intention of any negative connotation toward refugees.

susceptible to right-wing populist rhetoric. Thus, the first study examines whether objective or subjective deprivation increases the probability of voting for the right-wing populist AfD (Alternative für Deutschland).

Beyond economic impacts, immigration also has social and emotional implications. Residents of Germany might perceive the predominantly Muslim refugees as a cultural threat to German culture and Christian traditions, leading to increased hostility towards foreigners. This animosity could extend to previous Muslim immigrants. While most research focuses on the ethnic majority's reaction to immigration, the second and third studies of this dissertation explore the effects of immigration on other ethnic minorities. The second study, based on a field experiment in the German housing market, analyzes whether ethnic discrimination has changed since the start of the refugee crisis (Chapter 3). The third study examines the perspectives of Polish and Turkish immigrants in Germany, investigating how their inter-ethnic relations and identities have evolved in response to the refugee crisis (Chapter 4). It addresses questions such as whether they are concerned about the new immigrant group, whether they feel more discriminated against since the crisis, and how their social identity has developed – whether they feel more German or more connected to their country of origin. Together, these studies provide initial insights into whether ethnic boundaries in Germany have shifted in response to the refugee crisis.

In terms of research design, this dissertation emphasizes the importance of studying actual behavior rather than merely attitudes. Most prior studies have relied on pre-election data to study support for the AfD. However, voting intentions and party identification do not necessarily translate into voting behavior. Similarly, research on hostility towards foreigners has primarily focused on attitudes towards immigration. In consequence, previous studies are often affected by social desirability bias and do not clearly demonstrate how xenophobic attitudes impact immigrants in real life. To address these limitations, this dissertation examines voting behavior using post-election data and investigates discriminatory actions through a field experiment, considered the gold standard for assessing discrimination.

Furthermore, this dissertation considers both objective and subjective perspectives. It analyzes whether objectively low socioeconomic status increases the probability of voting for the AfD while also considering the role of perceived disadvantage. For ethnic minority groups, the dissertation investigates the impact of the refugee crisis on both actual discrimination and self-reported experiences of discrimination.

1.2 Historical background

1.2.1 The refugee crisis in Germany

In 2015, Germany experienced a sudden and sizeable influx of refugees caused by a large-scale migration from the Middle East and North Africa, as people fled political instability, armed conflicts, state repression, the Syrian civil war, and the declaration

of a caliphate by ISIS ("Islamic State of Iraq and Syria") in the region. A large proportion of the refugees were Muslims.[3] In early September 2015, Hungary's inability to register more asylum-seekers led Germany and Austria to agree to open their borders without controls. Then-Chancellor Angela Merkel described her decision as a "national duty" at a press conference on August 31st and encouraged the country with her famous phrase "Wir schaffen das!" (We can do it!). This decision temporarily abandoned the Dublin regulation, allowing asylum applications in Germany even though it was not the first country of entry within the EU.[4] Consequently, around 900,000 refugees arrived in Germany in 2015. The influx continued until March 2016, when an agreement between the EU and Turkey committed Turkey to retain refugees and prevent their migration to the EU in exchange for subsidizing humanitarian aid for the refugees in Turkey. This agreement substantially reduced the number of refugees arriving in Germany (Fendrich, 2017). Figure 1.1 illustrates the trend of refugee arrivals in Germany from 2012 to 2018, highlighting the significant surge in 2015.

When asylum-seekers report their intention to seek asylum in Germany, they are sent to the nearest initial refugee reception center (RRC), where their personal information is entered into the federal EASY[5] system that determines the responsible reception facility (BAMF, 2016c). The asylum seekers are redistributed across the sixteen federal states based on quota regulations known as the "Königsteiner Schlüssel". In the assigned area, asylum seekers must register at the local immigration office and submit their asylum application to the Federal Office for Migration and Refugees (BAMF). After submission, they receive a temporary residence permit and are required to reside in their designated area during the asylum process. During this period, asylum applicants are not permitted to work. For the first 6 weeks to 6 months, asylum seekers were sheltered in refugee reception centers. Due to the surge in arrivals, new RRCs needed to be established, and emergency shelters were set up.

The German news media extensively covered the refugee crisis, flooding consumers with a large volume of news and reports (Haller, 2017). The media's coverage in 2015 faced criticism for several shortcomings (ibid.). Firstly, reports often remained at the abstract level of institutionalized politics, largely neglecting the perspectives of those immediately affected, such as helpers and the refugees themselves. Secondly, the media frequently used the concept of the "welcoming culture" (Willkommenskultur) in an uncritical manner, while most commentators did not address the concerns and resistance of a growing segment of the German population. Media reporters often suspected critical voices of xenophobia. Following numerous sexual assaults by refugees in Cologne on New Year's Eve 2015, media coverage became more negative towards refugees (Wigger, Yendell, and Herbert, 2022). Haller (2017, p. 141) argues that the media's one-sidedness significantly contributed to the polarization and disintegration of society, as those not supporting the welcoming culture felt restricted,

[3] 76 percent of the refugees arriving in 2016 were Muslims (BAMF, 2016a, p. 25).

[4] The Dublin regulation determines the EU Member State of first entry as responsible for examining an asylum application (EU Regulation No 604/2013).

[5] EASY is an acronym for "Erstverteilung der Asylsuchenden" (Initial distribution of asylum seekers).

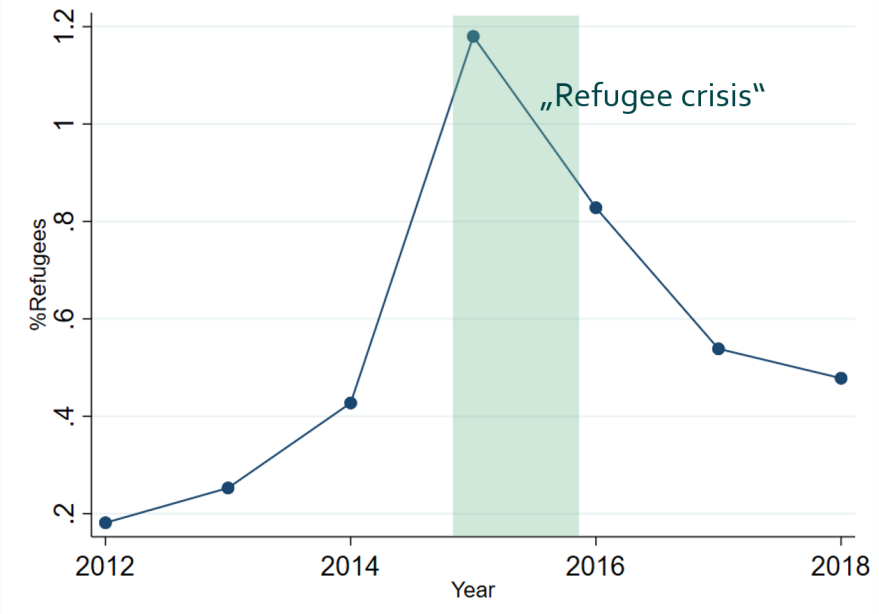

FIGURE 1.1: Yearly share of asylum seekers in Germany: Recipients of asylum seeker benefits per 100 inhabitants. Based on data from DESTATIS.

mistreated, and frustrated.

More generally, media research indicates that the dynamics of anti-immigration attitudes are influenced by both the frequency and tone of news coverage regarding immigrants (Germany: Boomgaarden and Vliegenthart (2009), Spain: Schlueter and Davidov (2011)). A panel data analysis over 15 years in Germany revealed that the mere frequency of media debates about immigration is sufficient to raise concerns: A vivid discussion about immigration increases the probability of being very concerned about immigration by 13 percentage points compared to minimal discussion (Czymara and Dochow, 2018). In conclusion, the media play a crucial role in shaping the perception of immigration.

In recent years, the reception of refugees has become highly salient again: Since the Russian invasion of Ukraine in 2022, Germany has received over 1 million Ukrainian refugees (Bundesagentur für Arbeit, 2024). However, German society has perceived and treated these refugees differently from those from Africa and the Middle East. Europeans generally perceive immigrants with similar values and culture as less threatening and are less opposed to their immigration (Davidov et al., 2020). Reflecting this more positive perception, European countries have treated Ukrainian refugees favorably by shortening and simplifying the administrative processes for recognition and by providing quick access to essential services and work permits (De Coninck, 2022). In addition, Europeans are more willing to help refugees from Ukraine than those from Africa and the Middle East, as they perceive Ukrainians as less threatening and culturally more similar (Xuereb, 2023; Sinclair, Granberg, and Nilsson, 2024).

1.2.2 Polish and Turkish immigration to Germany

The arrival of refugees in 2015 and 2016 has changed the ethnic landscape of a country that had already been ethnically diverse. 21% of the residents in Germany already had a migration background before the refugee crisis. A person has a migration background if they themselves or at least one of their parents were born without German citizenship (BAMF, 2016b, p. 158). The two largest ethnic minority groups in Germany had been Turks and Poles: 17% of those with a migration background were of Turkish origin, 10% of Polish origin (BAMF, 2016b, p. 163). The Turkish immigration history mainly started with the recruitment of "guest workers" after World War II, when Germany had a shortage of low-skilled labor. The 1961 recruitment agreement between Germany and Turkey facilitated the arrival of Turkish workers to contribute to Germany's booming industries. After a recruitment stop in 1973, many workers permanently settled in the country and subsequently brought their families to Germany. Family reunification has remained an important reason for migration among Turks.

Polish immigration history to Germany has had a long-standing tradition, and is more complex. From 1900 onwards, Polish-speaking immigrants came to work in industrial areas. By the early 20th century, the Polish population in some regions had grown substantially. Polish political activism led to the establishment of parties that ensured representation in politics. During the Nazi regime, the Nazis persecuted the Polish minority, including mass expulsions and internment of the Polish leaders in concentration camps. After World War II, some regions with Polish minorities were incorporated into Poland. From the 1950s, around 2.5 million people migrated from Poland to West Germany, including ethnic Germans, political refugees, and labor migrants. The peak of Polish immigration was in the 1980s and early 1990s.

In a multicultural country like Germany, it is crucial to include ethnic minorities in sociological research. This is especially important when examining the effects of immigration, as previous immigrants may be affected differently than the German majority.

1.3 Research question

Immigration can affect individuals with a low status more strongly than higher-status individuals. A low socioeconomic status (SES) alone is already a burden, since it has profound negative implications for various aspects of life. Lower SES is associated with higher rates of morbidity and mortality, as individuals with low SES often have reduced access to healthcare, healthy food, and safe living environments (Glymour, Avendano, and Kawachi, 2014). Educational disparities also affect cognitive development and academic achievement, perpetuating cycles of poverty and limited social mobility (Duncan and Murnane, 2011). Low SES can also lead to social exclusion (Burkholder, Elenbaas, and Killen, 2020). Consequently, individuals with low SES experience numerous disadvantages in society. With regard to immigrants, holding a

low social status within an ethnic hierarchy further limits their already disadvantaged socioeconomic position. A low social standing is often expressed in ethnic discrimination, which negatively impacts physical and mental health (Williams, Neighbors, and Jackson, 2003; Szaflarski and Bauldry, 2019). Due to these challenges of groups with low socioeconomic and/or social status, researchers should make sure to include their perspective in their studies. This dissertation explores various aspects of how immigration affects low-status groups.

1.3.1 What does it mean to have low status?

Status is a social construct that encompasses an individual's or group's social and economic position in relation to others. Socioeconomic status is relevant in social stratification research, which describes a social hierarchy based on a person's access to valued resources like wealth or power (Mueller and Parcel, 1981, p. 14). The SES is an individual's relative position within this hierarchies, and reflects their relative access to these resources (ibid.). Whereas some scholars measure status based on objective criteria, social identity theory (SIT) considers social status more broadly as an outcome of intergroup comparisons (Tajfel and Turner, 1986).

Historically, there are different perspectives on which dimensions determine an individual's SES. Karl Marx's conflict theory emphasizes the economic dimension as an essential determinant of social class and power. According to Marx, the economic position of individuals within the capitalist system fundamentally shapes their life chances and social relations (Marx, 1867). Max Weber expanded on Marx's ideas by introducing a multidimensional view of social stratification (Weber, 1922). Weber argued that SES is not solely determined by economic capital but also by social honor and political power, which influence individuals' ability to achieve their goals.

The SES is usually measured by a person's income, education, and occupational status. Income consists in the monetary earnings received by an individual or household from work, investments, or social benefits. It is a primary indicator of SES because it directly affects the ability to access goods and services. Education is another crucial component of SES, as it often determines an individual's job opportunities and earning potential. In addition, occupational status reflects the kind of work an individual does, which is often linked to their level of education and skills. If the SES should be determined by a single indicator, some scholars argue that occupation-based measures of SES are the most reliable and valid indicators because occupation determines salaries and wages, provides individuals with authority and control, and assigns varying levels of status or prestige to different occupations (Blau and Duncan, 1967; Mueller and Parcel, 1981).

Occupations are typically categorized based on occupational status scales, that can be categorized into three types: prestige measures, socioeconomic scales, and nominal class categories (Ganzeboom and Treiman, 1996). Prestige measures are derived from

the public's assessment of occupational standing. For example, the Standard International Occupational Prestige Scale (SIOPS) assigns occupations an empirically determined prestige value, ranging from 12 (e.g. shoe shiners) to 78 (medical practitioners) (ibid.). Socioeconomic scores are calculated by determining a weighted sum of the socioeconomic characteristics of individuals in each occupation, typically considering factors such as education and income. For instance, the International Socioeconomic Index (ISEI) uses empirical data on income and education to create a score from 16 (e.g. unskilled workers and cleaners) to 90 (judges) (ibid.). Finally, nominal class categories usually combine occupational information with employment status, and should be considered as nominal typology. For example, the Erikson-Goldthorpe-Portocarero (class) scheme is a concept used to describe the class situation of employees. The classes are formed on the basis of market situation and work situation, and consist of up to ten categories (Erikson, Goldthorpe, and Portocarero, 1979).

In contrast to these objective measurement criteria, Tajfel and Turner conceptualize status as something only indirectly related to resources, wealth, and power. They define status as "the outcome of intergroup comparison" which "reflects a group's relative position on some evaluative dimensions of comparison" (Tajfel and Turner, 1986, p. 286). Therefore, the reference group and the dimension of comparison are crucial for determining a person's status. I interpret this definition of status as something both ingroup and outgroup members agree upon. Nonetheless, Tajfel and Turner (1986) emphasize the subjective aspect of status, noting that a subjectively low status motivates individuals to improve their social standing (see section 1.4.3).

In addition to objective social status, researchers measure subjective social status using tools like the MacArthur Scale of Subjective Social Status, which utilizes a 10-rung ladder for individuals to rank themselves based on income, education, and occupation relative to others (Adler et al., 2000). While subjective status provides a descriptive account of a person's perceived status, another intriguing aspect is the normative evaluation of this status, which can be assessed through questions about the perceived fairness of one's share.

In this dissertation, I focus on two groups with a low social status. The first group are those with an objectively low SES (low income, low education and/or low occupational status). I also take the subjective evaluation of an individual's status into account (low perception of fairness of one's share).

The second category of low-status groups examined in this dissertation comprises ethnic minorities. These groups frequently occupy lower socioeconomic statuses, often due to lower educational attainment compared to the native population and a higher prevalence of employment in unskilled or low-skilled jobs (Mackie and Blau, 2017). Moreover, ethnic minorities commonly face marginalization, prejudice, and ethnic discrimination (for more details on discrimination, see section 1.4.4). Occupying a low social status within an ethnic hierarchy adds an additional constraint to their already lower socioeconomic status. This is evident in the discrimination against ethnic minorities, even when they signal a high SES (Auspurg, Hinz, and Schmid,

2017): German applicants are favored in the housing market over Turkish applicants, even when both have the same occupational status. This kind of discrimination leads to an unequal access to resources. The disparity in status between a German and a member of an ethnic minority is not adequately captured by objective socioeconomic measures. In contrast, the SIT definition of status better reflects these inter-ethnic status differences, offering an advantage in this context. According to SIT, a low social status due to ethnic background is manifested in a group's relative position, and the relative position of an immigrant is often lower than that of a native individual.

The two groups of interest – those with low socioeconomic status (SES) and ethnic minorities – are likely to overlap significantly, as ethnic minorities often have a low socioeconomic status. In the empirical context of this dissertation, the overlap observed in the first study (Chapter 2), which focuses on individuals from low socioeconomic backgrounds, varies by ethnicity: Respondents with a Polish migration background are overrepresented in the sample (sample: 4.1%, Germany: 2.1%, DESTATIS, 2017), while those with a Turkish migration background are underrepresented (sample: 0.6%, Germany: 3.5%). The underrepresentation of Turkish respondents may be attributed to several factors. First, the study's sample is restricted to voters, thereby excluding ethnic minorities without German citizenship and non-voters. Second, some ethnic minorities tend to participate less frequently in surveys due to language barriers and distrust of institutions (Ahlmark et al., 2015). To effectively study ethnic minorities, targeted minority surveys are valuable, as they specifically address immigrant groups, allowing for a more detailed analysis by ethnic group. For the third study of this dissertation, I use a special immigrant survey integrated in the large-scale German Socioeconomic Panel (SOEP).

1.3.2 How does immigration affect low-status groups?

Migration to another country often results in a lower socioeconomic status in the host country, at least in the short term (Redstone Akresh, 2006). This can be due to a high demand for low-skilled labor in host countries. For instance, during Germany's period of strong economic growth and low unemployment, "guest workers" were required to undertake unskilled and low-skilled jobs that native Germans found undesirable, leading to a high degree of ethnic stratification (Constant and Massey, 2005). Another important factor for a lower socioeconomic status in the host country is discrimination of ethnic minorities in the labor market (Kaas and Manger, 2012). Additionally, educational qualifications and professional certifications obtained abroad are often not recognized in the receiving country (Redstone Akresh, 2006). As a result, immigrants are often faced with the dilemma of pursuing additional degrees or certificates, or accepting employment that requires lower formal qualifications. However, it is important to note that the poorest individuals typically lack the financial means to migrate. This is especially true for refugees, who often resort to illegal immigration, incurring thousands of Euros to pay human traffickers (Auerbach, 2023).

The economic effects of immigration on the native population vary across research design and models (Longhi, Nijkamp, and Poot, 2005). However, several studies show that immigration often affects groups differently. Some studies show reduced wages only for lower status groups. For example, immigration to the US reduced wages of competing workers (Borjas, 2003). In the UK, immigration decreased wages in the lowest quintile, whereas wages at the top increased (Dustmann, Frattini, and Preston, 2013). Immigration can also change the structure of the native labor market, since some individuals adjust to immigration by changing education, labor market participation or occupation (Llull, 2018). Alongside the labor market, the housing market can also be affected by immigration. Rents and housing prices can increase as an effect of immigration (Ottaviano et al., 2006: increased rents in the US; Mussa, Nwaogu, and Pozo, 2017: increased rents and housing prices in the US). Furthermore, immigration can affect public spending in a way that harms the poorest, since often expenditures on social protection and health are reduced (Kim and Lee, 2021). In conclusion, immigration often affects the society unequally. Whereas the high-educated and housing suppliers often profit from immigration, the low-educated, low-paid, workers, and renters can experience disadvantages from immigration. Therefore, research should focus on these disadvantaged groups when analyzing the effects of immigration. In this dissertation, the economic effects of immigration will only play an indirect role: The first study examines whether individuals with a low socioeconomic status, who might be negatively affected by refugee immigration in the long term, are more likely to vote for right-wing populists.

In addition to the impacts on the economic circumstances of low-status groups, the arrival of a new immigrant group may alter inter-group dynamics and shift the social hierarchy. New immigrants often find themselves at the bottom of this hierarchy. As demonstrated by Elias and Scotson (1994), even internal migration can provoke discrimination, as seen when the established members of a suburban community in England discriminated against newcomers solely because they were new. Thus, the arrival of new immigrants could provide an opportunity for members of low-status groups to ascend the social ladder by having a new, lower-status comparison group. Accordingly, ethnic minorities in the host country might benefit from distinguishing themselves from the new immigrant group, potentially achieving a higher social status. However, the opposite could also occur for established ethnic minorities: If natives associate new immigrants with previous immigrants, the latter may face increased discrimination. The second and third studies in this dissertation analyze how inter-group relations changed in response to the refugee crisis and investigate how previous immigrants have been discriminated against as a result of the crisis.

1.4 Theoretical background and state of the art

Figure 1.2 illustrates the fundamental causal structure underlying this dissertation. Central to this structure is the causal link between the immigration of a new group

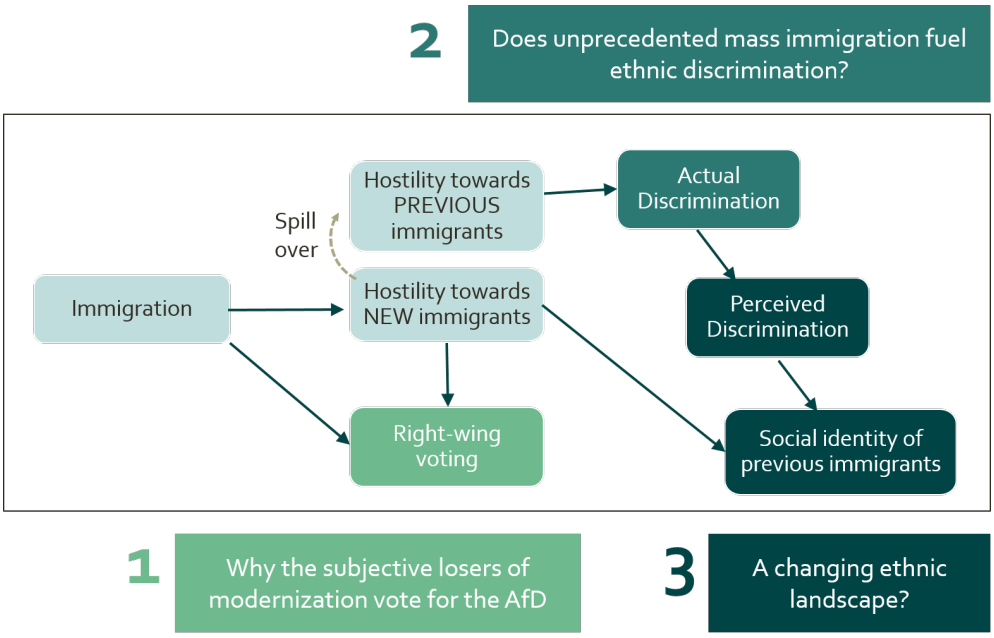

FIGURE 1.2: Main causal paths underlying this dissertation. Study 1 examines how deprivation influences right-wing voting. Study 2 investigates the effect of immigration on actual discrimination against previous immigrants. Study 3 explores the impact of immigration on perceived discrimination and social identity of previous immigrants.

and hostility toward these new immigrants. However, this dissertation focuses on other outcomes for two reasons. First, there is already an extensive body of literature on the impact of immigration on hostile attitudes toward the newly arrived foreigners (see the following section). This research typically examines the attitudes of the native population, whereas the perspective of previous immigrants and the consequences of immigration for them are rarely studied. In contrast, this dissertation shifts the research focus to established immigrants, and investigates whether negative attitudes toward foreigners spill over to previous immigrants and whether previous immigrants develop concerns about immigration in response to new arrivals. Second, measuring attitudes toward foreigners and xenophobia is challenging due to social desirability bias (Janus, 2010). Therefore, it is crucial to also examine how hostility toward foreigners manifests in actual behavior. This dissertation therefore studies actual ethnic discrimination in the housing market.

1.4.1 Immigration and hostility towards foreigners

Since the immigration-hostility link is still central to this dissertation, the theories behind this link need to be explained. Several theories explain how proximity to or contact with immigrants affects hostile attitudes, preferences or behavior (for a detailed overview, see Hainmueller and Hopkins (2014) or Esses (2021)). Figure 1.3 displays

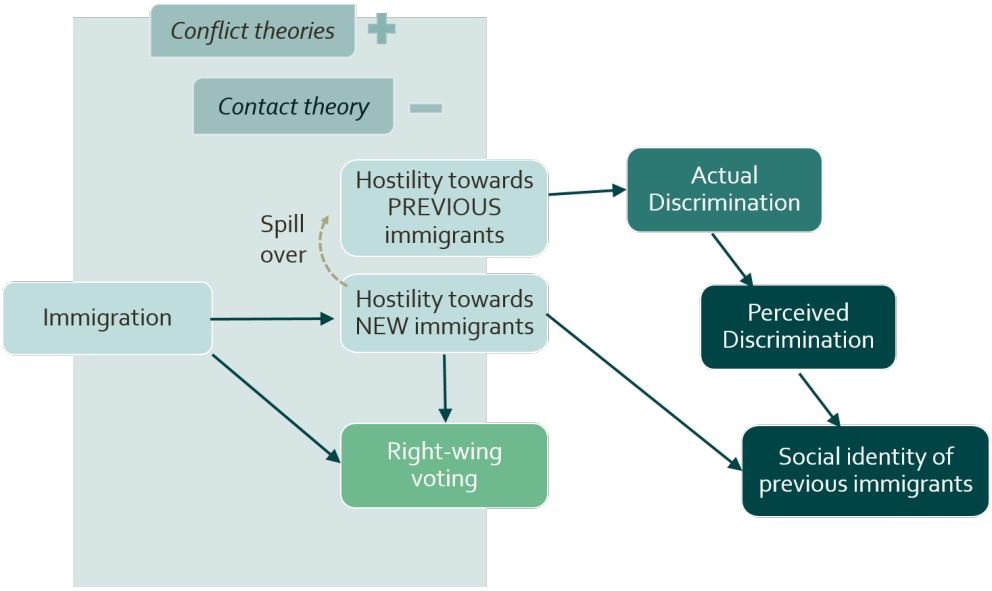

FIGURE 1.3: Conflict theories (economic or cultural) suggest that immigration leads to increased hostility toward immigrants and a rise in right-wing voting, whereas contact theory predicts a decrease in both. The causal relationship between immigration and hostility is central to Study 2 and Study 3.

how the two groups of theories – conflict and contact theories – fit in the causal diagram. The first strand of theories predicts increasing anti-immigrant sentiments due to perceived economic or cultural conflict. According to the group conflict theory, intergroup competition over scarce resources produces negative attitudes towards this group (Blalock, 1967; Olzak, 1994). Perceiving an immigrant group as threatening is determined by the size of that immigrant group and economic context (Blalock, 1967).

In a similar vein, a micro-level conflict theory locates anti-immigrant sentiments in individual economic concerns. More specifically, opposing immigration can be rooted in fearing competition on the labor market among the low-skilled (Mayda, 2006; Scheve and Slaughter, 2001), or in concerns about higher burdens to the welfare state and higher taxes among those with a high income (Facchini and Mayda, 2009). Since refugees in Germany were housed in specific refugee accommodations and were not allowed to work during their asylum process, refugees were not an actual competition on the job or housing market in the short term. However, the uncertain perspective of how long the refugees will stay in Germany may still have triggered concerns about job or housing competition in the long term. Evidence shows that a sudden influx of refugees can negatively impact the labor market opportunities for native workers in the affected destination countries (Borjas and Monras, 2017). The refugees who arrived in 2015/2016 were predominantly low-skilled and therefore posed competition mainly to individuals in lower socioeconomic positions in the labor market.

A further conflict theory is the theory of perceived cultural threat. According to this theory, higher immigration rates fuel fears of compromised morals, norms and

values (Hainmueller and Hopkins, 2014; Kinder and Sears, 1981); especially when immigrants are perceived as culturally different, when they arrive illegally, or when the number of immigrants exceeds the expectations and capacity for integration (Papademetriou and Banulescu-Bogdan, 2016). In case of the refugee crisis, all of these preconditions are fulfilled. First, more than 3/4 of the refugees were Muslims (BAMF, 2016a, p. 25), and are therefore perceived as culturally foreign (Zolberg and Long, 1999). Second, many refugees entered Germany illegally (Zeit Online, 2016). Third, the influx of refugees was unprecedented in its extent and hit Germany unexpectedly (BAMF, 2016a). In addition, many municipalities were overwhelmed with the number of refugees, and had to set up improvised accommodations in sports halls, tents, or community centers (Grote, 2018).

As opposed to the conflict theories, contact theory anticipates that interaction with foreigners reduces prejudice (Allport, Clark, and Pettigrew, 1954; Paluck, Green, and Green, 2019). Four conditions facilitate positive effects of intergroup contact: equal status, common goals, intergroup cooperation and support of authorities, law or custom (Allport, Clark, and Pettigrew, 1954; Pettigrew and Tropp, 2006). Whereas prejudice towards an outgroup tends to remain stable, positive intergroup contact can reduce discriminatory behavior even in the short term (Scacco and Warren, 2018). However, during the refugee crisis, most of these facilitating factors were not met. Refugees did not have the same status as natives or other immigrants in Germany due to their precarious residence status. Additionally, opportunities for common goals and intergroup cooperation were limited, as refugees were often housed separately from the rest of society and were not granted work permits during their asylum process.

To sum up, the theories of immigration suggest that the refugee crisis might have increased xenophobia in European countries. However, the evidence on this topic is mixed. Several studies show increasing support for anti-immigrant parties or a rise in anti-immigrant attitudes in areas with a steep increase of refugees. Thus, larger refugee shares promoted anti-immigration votes in rural Denmark (Dustmann, Vasiljeva, and Piil Damm, 2019) and on Greek islands (Dinas et al., 2019). In addition, direct exposure to refugee arrivals on Greek islands caused a long-lasting hostility towards refugees, economic immigrants and Muslims (Hangartner et al., 2019). In contrast, in Austria, contact and sustained interaction with refugees reduced right-wing populist votes (Steinmayr, 2020).

For the German context, studies on the impact of refugee inflow on voting behavior and public opinion in Germany reveal varied effects across different contexts. A lab experiment showed that local exposure to immigrants in Eastern Germany did not induce hostile attitudes; instead, it served as a "reality check" that pulled right- and left-leaning individuals towards the center (Schaub, Gereke, and Baldassarri, 2020). In contrast, Czymara and Schmidt-Catran (2017) report a decreasing public acceptance of immigrants in general after the refugee crisis. Geographical analyses also show a variation in effects. Fremerey, Hörnig, and Schaffner (2024) found that increased refugee inflow at the county level led to a higher vote share for far-right parties, while

grid cell level data showed a negative effect in West German urban areas. Gallegos Torres (2023) reports that nationally, concerns about immigration rose by 21 percentage points after the refugee crisis, boosting support for extreme right-wing parties by 1.7 percentage points; locally, however, a 1 percentage point increase in the refugee population decreased immigration concerns by 3.4 percentage points. Gehrsitz and Ungerer (2022) note a greater support for anti-immigrant parties at the macro level, but a slight negative effect at the micro level. Tomberg, Smith Stegen, and Vance (2021) indicate that economic conditions influenced voter responses, with economic prosperity increasing support for right-wing parties, while poor economic conditions stabilized the far-right vote share. Lastly, Bredtmann (2022) showed that refugee inflow generally increased the vote share for right-wing parties and decreased support for the ruling party, with the effect driven primarily by centralized refugee accommodations. Overall, the influx of refugees in Germany seems to have increased support for far-right parties and concerns about immigration on a macro level, whereas some studies show opposing effects on a micro level.

Established immigrants often show an ambivalent relationship towards new immigrants, ranging between feelings of threat and solidarity (Meeusen, Abts, and Meuleman, 2019). Economically successful immigrants in the US often oppose immigration due to concerns about unemployment, crime, and terrorist attacks (Kaeser and Tani, 2023). However, this effect does not hold for countries with restrictive immigration policies, since such policies prevent that established immigrants are linked to undocumented or uncontrolled immigration by the ethnic majority (ibid.). In Europe, views about immigration vary by religion: Muslims, especially highly religious Muslims, are more favorable towards immigration compared to other groups (Mustafa and Richards, 2019). For more information on views of immigration among immigrants, please refer to Chapter 4.

1.4.2 Theories explaining the rise of right-wing populism

Conflict and threat theories are general theories to explain xenophobia and right-wing voting. There are two alternative explanations for right-wing voting based on specific historical contexts: the liberalization of Western societies leading to a cultural backlash among certain segments of these societies, and modernization producing both winners and losers (see Figure 1.4). According to the cultural backlash theory (CBT), long-term processes of liberalization and cultural transformation in Western countries have led to societal polarization. Younger cohorts and the highly educated have become more open-minded regarding sexual, ethnic, and religious diversity, while older conservatives – predominantly low-educated males – have felt increasingly threatened by the erosion of traditional values (Inglehart and Norris, 2016). The CBT has been confirmed in numerous European countries (e.g., Inglehart and Norris (2016) and Arzheimer (2008)), including Germany (Berning and Schlueter, 2016). The refugee crisis may have intensified feelings of cultural backlash, as natives might have felt more threatened by a large influx of refugees from culturally distant countries. Additionally,

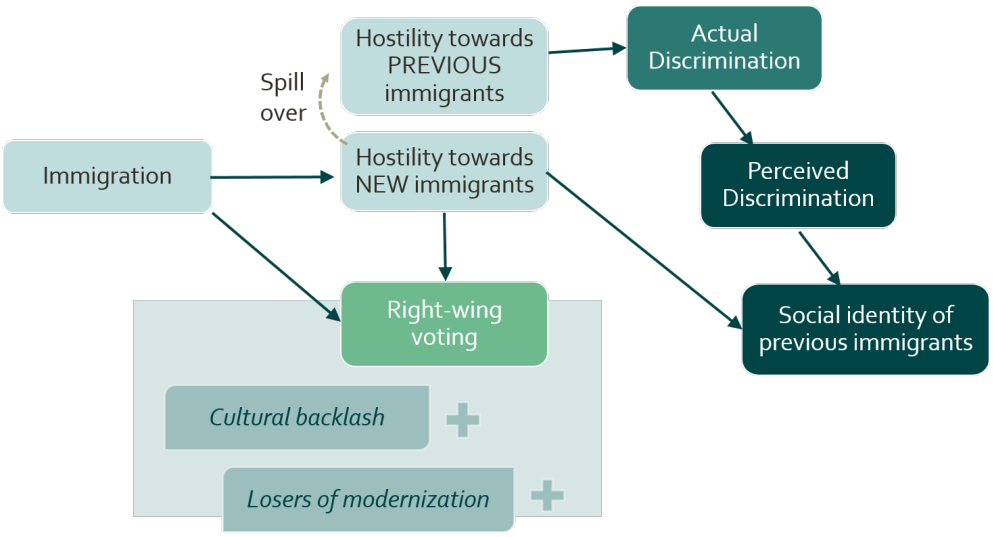

FIGURE 1.4: Cultural backlash theory attributes a rise in right-wing voting to a cultural backlash, while the losers' of modernization theory traces its origins to economic and social disadvantage. Study 1 examines if the losers of modernization are more likely to vote for the AfD.

Germany's welcoming culture may have provoked an even stronger negative reaction among some voters towards the liberal movement. Thus, the perceived cultural threat triggered by the refugee crisis might have amplified the existing cultural backlash.

Whereas the CBT is based on group-related attitudes, the modernization losers' theory (MLT) is rooted in individual circumstances. The individual situation is a result of modernization processes during the last decades, including economic, political, and cultural globalization (Spier, 2006; Perraton et al., 1998; Berking, 2001, pp. 48–49). The benefits of modernization processes, however, have not been distributed evenly. Especially workers with low income have faced higher unemployment rates and financial losses (Giesecke, 2009). These so called "losers of modernization" suffer from objective deprivation, that is an actual lack of resources. Thus, they are individuals with a low SES. Furthermore, the losers of modernization can also suffer from subjective deprivation, that is a feeling of being disadvantaged in comparison to others. Subjective deprivation is tantamount to a low subjective evaluation of one's status since the feeling of disadvantage arises from a comparison with higher status groups. Right-wing populist harness this feeling of disadvantage by appealing to the "man on the street" who has been robbed by the "corrupt elites". They promise to represent the "true will of the people". The CBT and the MLT do not contradict each other and can coexist. For more information on the CBT and the MLT, see Chapter 2.

1.4.3 Social identity theory and ethnic boundaries

The arrival of new immigrants impacts not only the relationship between natives and newcomers but also other inter-ethnic dynamics and ethnic identities. As inter-ethnic relationships evolve, they can reshape ethnic boundaries, which are constantly maintained and redefined through ongoing social interactions. Since ethnic identity is

constructed and reconstructed within the context of these interactions (Barth, 1969), changes in social interactions may also lead to changes in ethnic identities.

Social identity theory (SIT) explains human behavior within the context of groups and inter-group dynamics (Tajfel and Turner, 1986). According to SIT, a group is a collection of individuals who perceive themselves as belonging to the same social category, are emotionally invested in the group, and are recognized by society as a distinct group. Inter-group behavior is based on differences in social categories, which serve as cognitive tools for classification and hierarchy and are used for self-classification. These categories are relational and comparative. The theoretical principles of SIT state that individuals strive for a positive social identity, which is achieved by making favorable comparisons between their ingroup and one or more outgroups. Conversely, a negative social identity motivates individuals to improve their position. This can be done by either joining a higher-status group or by comparing their own group to a lower-status outgroup.

Therefore, the arrival of a new low-status group allows low-status individuals in the host country to distinguish themselves from the newcomers and improve their social standing. According to SIT, this status enhancement at the expense of the new immigrant group coincides with a negative attitude towards immigrants. This is because individuals make favorable comparisons between their ingroup and the lower-status immigrant outgroup. Thus, SIT predicts a negative attitude towards immigrants among low-status group members. In contrast to conflict and threat theories, this negative attitude does not require actual intergroup conflict but can be solely driven by the desire to compare oneself to a lower-status group.

The introduction of a new group could therefore alter existing ethnic hierarchies, even though research on social distance indicates that ethnic hierarchies in Western societies are usually well-established and reflect a common consensus. These hierarchies consist of ingroup preferences and a cumulative pattern of intergroup biases, recognized by both majority and minority groups (Hagendoorn, 1995). Typically, North Europeans are at the top of the hierarchy, followed by South and East Europeans, Asians, and Africans (ibid.). However, in some contexts, the ethno-racial hierarchy does not place Whites at the top. For instance, in a specific area in California, being white is associated with low achievement and laziness, whereas being Asian is linked to high performance, hard work, and success (Jiménez and Horowitz, 2013). This example demonstrates that ethnic hierarchies are not fixed and can change over time.

For ethnic minorities, the arrival of a new immigrant group can result in complex intergroup dynamics and group identification, since they have to navigate relationships with their own ethnic group, the ethnic majority, and the new immigrant group. SIT posits that individuals can simultaneously belong to multiple groups, a concept known as "criss-crossing" (Tajfel, 1982, pp. 29-30). Consequently, immigrants can identify with multiple ethnicities at the same time (Berry, 2006).

With regard to their host country, immigrants have four possible acculturation strategies. First, if immigrants strongly identify with both the host country (national

identification) and their country of origin (ethnic identification), they are considered integrated. Second, a high national and low ethnic identification is referred to as assimilation. Third, the reverse – high ethnic and low national identification – is termed separation. Finally, low identification with both the ethnic group and the host country leads to marginalization.

In the context of a new immigrant group, established immigrants can choose different paths of identification:

1. They could get closer to the majority after recognizing shared commonalities in contrast to the new immigrants.

2. They could reaffirm their connection to their own ethnic minority, returning to traditional values.

3. They might empathize with the new minority group, sharing common experiences of immigration and ethnic discrimination.

Since individuals can belong to multiple groups simultaneously, the established immigrants have the option to pursue several paths of identification at once.

Ethnic boundaries are influenced by these inter-group relations, which are evident in attitudes towards the outgroup and interactions between different groups. To explore the attitudes of earlier immigrants towards new immigrant groups, the third study of this dissertation examines concerns about immigration among the established immigrant population. To investigate the relations of earlier immigrants with the majority group, the study analyzes perceived discrimination and identification with Germany. The connection to their own ethnic group is assessed through their identification with their country of origin. Figure 1.5 displays the causal connection of these variables. Collectively, these analyses allow me to determine how earlier immigrants position themselves in relation to the three groups: the majority, their own ethnic minority, and new immigrants. The findings provide initial evidence of potential shifting of ethnic boundaries from the perspective of ethnic minorities. However, ethnic boundaries can shift only when this new positioning is recognized and validated by the other societal groups.

1.4.4 Immigration and discrimination

If more immigration leads to more xenophobia, this might also translate into higher discrimination rates. However, discrimination is inherently difficult to study. Surveys about discriminatory experience always imply an ambiguity that makes it difficult to prove or recognize discrimination. This can lead to an underestimation of true discrimination, if a person is unaware of discrimination, or an overestimation of true discrimination, if a person wrongly attributes job or housing denials to discrimination (Citro, Dabady, and Blank, 2004, pp. 163-164). Similarly, asking people about their intent to discriminate or support for discriminatory policies is unlikely to accurately reflect the prevalence of racial discrimination. This is due to social desirability bias,

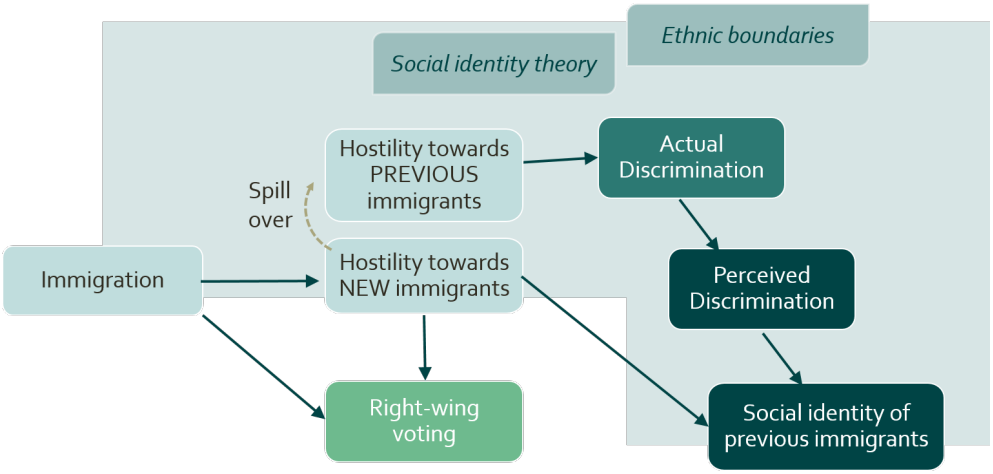

FIGURE 1.5: Social identity theory and ethnic boundaries explain how immigrants react to the arrival of a new group, which is relevant for Study 2 and Study 3.

where respondents underreport socially sanctioned or illegal behaviors to avoid appearing prejudiced (Bonilla-Silva and Forman, 2000). In addition, discrimination can be difficult to assess since it can manifest in subtle behavior such as through nonverbal cues like posture or tone of voice (Citro, Dabady, and Blank, 2004, p. 56). Discriminatory behavior can even occur subconsciously (Kubota, 2024).

This dissertation employs two methodologies to explore different aspects of discrimination. Firstly, the gold standard for measuring actual discrimination are field experiments (refer to section 1.6.2 for details on data and methods). Secondly, another perspective involves examining perceived discrimination from the viewpoint of minorities. This subjective perspective is crucial as it has tangible consequences, including adverse health effects (Williams, Neighbors, and Jackson, 2003). This dissertation integrates both approaches by utilizing data from a field experiment to analyze actual discrimination (Chapter 3) and by utilizing migrant survey data to investigate perceived discrimination (Chapter 4) as a consequence of refugee immigration.

To examine actual discrimination, it is essential to distinguish between two different sources of discriminatory conduct. First, taste-based discrimination refers to the preferences of individuals regarding the people they choose to interact with (Becker, 1957). Second, statistical discrimination involves using assumptions about minority groups to fill gaps in imperfect information. In the context of housing market discrimination, landlords might use assumptions about the average income of minority groups as a proxy for the reliability of rental payments (Arrow, 1971; Phelps, 1972). Figure 1.6 illustrates how the two kinds of discrimination fit into the causal picture.

The level of taste-based ethnic discrimination against previous immigrants may have shifted in response to the refugee crisis, depending on how the majority population's perception of ethnic boundaries has evolved. There are two opposing hypotheses on this issue. The first one suggests spill over effects. The influx of refugees from predominantly Muslim countries may have led the German majority to place

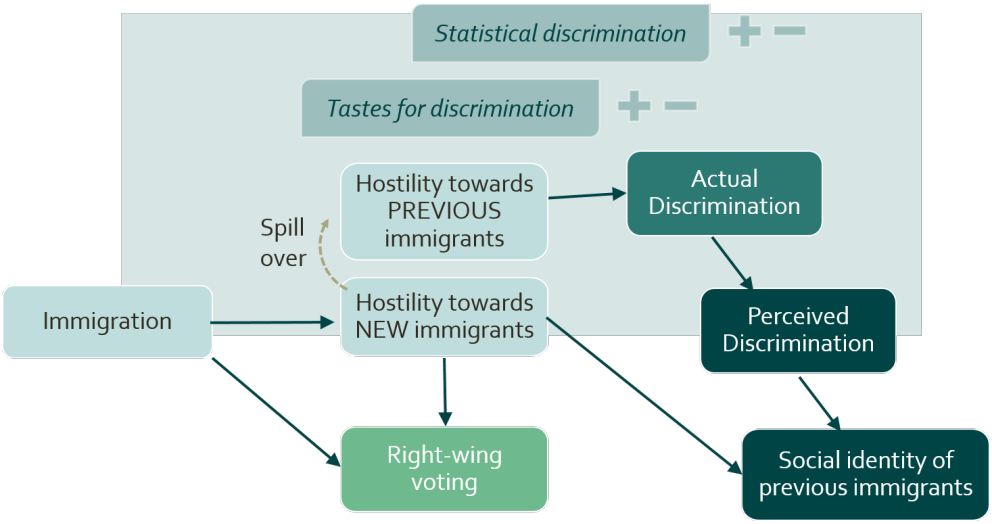

FIGURE 1.6: Both statistical discrimination and tastes for discrimination against previous immigrants could either improve or deteriorate in reaction to immigration, depending of how ethnic boundaries are (re)drawn by potential discriminators. These theories provide the foundation for Study 2, which examines actual discrimination in a field experiment, and Study 3, which explores perceived discrimination.

greater emphasis on religion as an ethnic marker. Consequently, the German majority might view earlier migrants from Muslim countries, such as Turkey, as similarly distant as the refugees, potentially increasing taste-based discrimination against both groups. The second hypothesis posits that the presence of the new immigrant group may highlight commonalities between the majority and earlier minority groups. For instance, earlier migrants often possess better language skills compared to newly arrived refugees (Kosyakova, Kristen, and Spörlein, 2022, p.10). In this scenario, taste-based discrimination against earlier immigrants could decrease, and the new immigrant group might become the new lowest category in the ethnic hierarchy. These mechanisms are further explored in Chapter 3 and Chapter 4.

Similarly, statistical discrimination may shift in two opposing directions depending on developments in the job market. First, in the long term, the entry of the new immigrant group into the job market may lower the wages of low-skilled and unskilled previous immigrants due to higher competition, potentially increasing statistical discrimination against these earlier immigrants. On the other hand, previous immigrants might distinguish themselves from refugees in the labor market though improved language skills or better understanding of the work culture, resulting in higher salaries compared to the refugees. This could reduce statistical discrimination against earlier immigrants. However, these changes are likely to be significant only in the long term when the refugees enter the labor market, while taste-based discrimination may also change in the short term.

Concerning discrimination in the housing market, two central causal mechanisms explain the relation between the share of foreigners and the amount of ethnic discrimination in an area: steering and the prevention of tipping points. Both mechanism rely

on assumptions about the tastes of potential tenants or buyers. First, spatial steering occurs when housing agents sort applicants into neighborhoods with a similar ethnic background. Steering is based on customers' individual preferences concerning the ethnicity of the neighbors. Generally, people prefer neighbors that are racially similar to them (Clark, 1986; Clark, 1991). As a result, applicants with a migration background are often steered into ethnically mixed neighborhoods and white applicants in predominantly white neighborhoods in the USA (Galster, 1990; Ondrich, Ross, and Yinger, 2003; Turner et al., 2002; Yinger, 1986) and Spain (Bosch, Carnero, and Farré, 2015). That prospective buyers also avoid living close to asylum seekers is mirrored in lower growth rates of housing prices in the vicinity of refugee reception centers in Germany (Kürschner Rauck, 2020).

However, housing suppliers can also be interested in preventing tipping points. Tipping occurs when tenants of the ethnic majority start moving away as soon as too many foreigners move into the neighborhood. Accordingly, some field experiments show that Black customers are discriminated against more strongly in racially mixed neighborhoods (Fischer and Massey, 2004; Hanson and Hawley, 2014). Several studies show increased ethnic discrimination in areas with a racial composition near a tipping point (Hanson and Hawley, 2011; Page, 1995). This mechanism is particularly relevant for private proprietors who fear a loss in property value. In fact, the presence of refugees in the neighborhood has had a negative effect on rents (Kürschner Rauck and Kvasnicka, 2018) and property prices (Kürschner Rauck, 2020) in Germany and housing prices in rural areas in the Netherlands (Daams, Proietti, and Veneri, 2019).

Generally, literature on the impact of the refugee crisis on discriminatory actions is still rare. In one of the few studies on this topic, Schaub, Gereke, and Baldassarri (2020) find that participants in dictator games and trust games treated German and Arab partners the same, regardless of the presence of refugees in their municipalities. However, this study suffers from an artificial lab situation that may inhibit the external validity of the finding. Similarly, a qualitative study on the changing perception of discrimination after the refugee crisis (Sadeghi, 2019) does not allow conclusions about the development of actual discrimination. The second study of this dissertation contributes to this line of research with the first field experiment on the impact of refugee exposure on ethnic discrimination. Additionally, the third study of this dissertation analyzes the effect of the refugee crisis on perceived discrimination of earlier immigrants.

1.5 My research contributions

1.5.1 Research gap

Most previous research on the impact of immigration has suffered from three major limitations. First, the target group was mostly the ethnic majority population, neglecting the perspective of previous immigrants and other low-status groups who are often

more affected by immigration than higher status groups. Second, previous research on discrimination and AfD-voting has mostly focused on attitudes and voting intentions rather than actual behavior. Third, studies on the effects of immigration often rely on deficient research designs that do not allow causal conclusions. Especially problematic are cross-sectional designs in combination with circumstances where immigrants can self-select into specific regions.

This dissertation addresses the first limitation, the focus on the majority population, by examining ethnic minorities in two of the studies (Chapters 3 and 4). Previous research has focused primarily on whether the attitudes and opinions of the ethnic majority group became more hostile in reaction to immigration, neglecting the impact of hostility on established ethnic minorities. In contrast, this dissertation considers the effect of immigration on animosity towards previous immigrant groups, thus addressing groups who are more affected by immigration than the ethnic majority group. Firstly, a field experiment in the German housing market analyzes the effects of the refugee crisis on the discrimination of Turkish applicants (Chapter 3). The study addresses whether Turkish immigrants, as a low-status group, face even greater challenges in accessing housing resources in response to refugee immigration, potentially lowering their status further. Additionally, Chapter 4 explores the impact of refugee immigration on the perspective of ethnic minorities, particularly those of Polish or Turkish origin. This study evaluates whether inter-group relations and the self-identification of ethnic minorities shift in response to the refugee crisis. Reduced reported discrimination would suggest an improved subjective social status for earlier immigrants, whereas increased discrimination would indicate a worsened social status.

The second limitation, the lack of analyzing actual behavior, is addressed in two of the studies. Most previous studies examining whether individuals with low status are more likely to vote for the AfD have relied on pre-election data, which only allows for the analysis of voting intentions or party identification. In contrast, this dissertation investigates actual voting behavior by utilizing post-election data (Chapter 2). A similar limitation often occurs in studies on the impact of immigration on hostility toward foreigners and xenophobia: the focus on attitudes or opinions alone. However, reported opinions are often unreliable due to social desirability. Additionally, it is uncertain how they translate into discriminatory actions. To resolve this limitation, this dissertation uses data from a field experiment that studies actual discriminatory behavior of housing providers (Chapter 3).

This dissertation overcomes the third limitation, the deficient research design, by analyzing the refugee crisis as a unique form of immigration and by utilizing longitudinal data. Previous research on the consequences of immigration often compares regions with varying degrees of immigration. This can be problematic since immigrants typically self-select into economically stronger regions or those with existing immigrant communities (Jaeger, 2007). Public housing availability also influences residential choices; with cities offering more public housing, which often attracts more

immigrants (Verdugo, 2015). This self-selection introduces potential confounders affecting both the immigrants' settlement decisions and the respective dependent variables. This dissertation solves this problem by examining the immigration of refugees to Germany, where refugees cannot freely choose their destination during the asylum process. Instead, administrative decisions determine their locations, eliminating immigrant self-selection. Furthermore, previous research on the effects of the refugee crisis predominantly relies on cross-sectional data, which only reveals regional effects but not country-level impacts. In contrast, this dissertation employs a robust research design using longitudinal county-level data, enabling the examination of both regional and country-level effects.

1.5.2 My contributions to the studies

The first and third studies of this dissertation were entirely done on my own (idea, concept, analysis, writing, etc.). Both studies are unpublished working papers. The second study was a collaboration with Katrin Auspurg and Andreas Schneck and was published in Sociological Science in 2023 (Auspurg, Lorenz, and Schneck, 2023). Here is an overview of the three articles:

1. Lorenz, Renate (2019): "Why the subjective losers of modernization vote for the AfD." Unpublished working paper (Chapter 2).

2. Auspurg, Katrin, Renate Lorenz, and Andreas Schneck (2023): "Does unprecedented mass immigration fuel ethnic discrimination? A two-wave field experiment in the German housing market." Sociological Science 10: 640-666 (Chapter 3).

3. Lorenz, Renate (2023): "A changing ethnic landscape? The effect of refugee immigration on inter-ethnic group relations and identities of previous immigrants." Unpublished working paper (Chapter 4).

The idea for the article "Does unprecedented mass immigration fuel ethnic discrimination?" originated from Katrin Auspurg (KA) and myself. I aimed to investigate whether immigration affects the discrimination of previous immigrants, and KA suggested reusing data from a prior field experiment on the German housing market conducted by KA and Andreas Schneck (AS) in 2015. For this study, we needed macro data on refugee numbers per county, which I researched. I also researched the addresses of refugee reception centers, which was very time-consuming due to the confusing responsibilities of various authorities and stringent data protection regulations. The data provided by the federal states were in different formats, requiring me to clean and prepare them for analysis. Using Python, I geocoded the addresses and calculated the geodistances between the housing units in our experiment and the refugee reception centers. Additionally, I calculated walking distances using Python via Google Maps. I had to transfer the Python data set to Stata for data analyses, which

was quite challenging due to the different underlying logic of the programs. KA supervised our project and contributed most to the conceptualization of the article, and selected the methodology. I conducted most of the formal analysis, created all the diagrams, and most of the tables. The literature search was a collaborative effort among all authors. I wrote the initial rough draft of the article, while KA wrote subsequent versions and adapted it to journal requirements. I took over the writing of most of the very detailed and comprehensive appendix. KA, AS, and I reviewed and edited the article and the appendix, with KA and AS responding to the reviewers and managing the revisions based on the reviewers' comments.

The third study, "A changing ethnic landscape", required special efforts to be able to use regional data due to strict data protection regulations. To work with county-level data, I utilized SOEP remote, a service provided by the DIW (Deutsches Institut für Wirtschaftsforschung). This service allows users to send Stata commands as plain text via email and receive plain text output in return. Since SOEP remote restricts access to individual-level information; some commands, like `list` or `tab` for continuous variables, are prohibited. Manipulated datasets can be stored on the SOEP remote server. Matching SOEP data with external data is possible using the `input` command. To produce tables and graphs, the plain text output from SOEP remote had to be transformed into matrices for coefficients, standard errors, p-values, and confidence intervals respectively. These requirements made the analyses for my third study quite complex. In total, I sent 349 emails to the SOEP remote server. [6]

Here is an overview of the articles and their respective weights for this dissertation:

TABLE 1.1: Overview of studies of this dissertation and own contribution

Study	Publication status	Own contribution	Weight	Total
1	unpublished	100%	1.0	100%
2	published	50%	2.0	100%
3	unpublished	100%	1.0	100%
				300%

1.6 Empirical analysis

1.6.1 Estimating the effects of the refugee crisis

When studying the effects of the refugee crisis, we need to ask what this crisis actually consists in, in what ways it might have affected people in Germany, and how these different ways can be analyzed. I argue that the refugee crisis in 2015/2016 was both a nationwide and a local phenomenon. First, political discussion and media coverage about the refugee crisis occurred on a national level. Refugee immigration was

[6] For more information about SOEP remote, please refer to the Job Submission Instructions for the SOEPremote System at DIW Berlin: Update 2014.

a salient topic of federal politics, and the refugee crisis is closely connected to then-chancellor Angela Merkel. In addition, nationwide newspapers extensively covered the topic of the refugee crisis (see subsection 1.2.1). To analyze nationwide effects, we need to compare attitudes or behavior before and after the beginning of the refugee crisis. I realize this comparison in the second article by comparing discrimination rates of Turks before (May 2015) and during the refugee crisis (Nov 2015). In the third article, I analyze the development of the four outcome variables over time (2012-2018) descriptively to interpret nationwide developments.

Second, the refugee crisis also had local effects on people in Germany. Those living near refugee accommodations or in urban areas were more likely to interact with refugees. Refugees might have been identified by their darker skin tones or foreign languages. Besides casual encounters in places like supermarkets or public transport, some people might have experienced neighborhood conflicts (Bergermann and Sander, 2015; WELT, 2019). Conversely, many individuals chose to volunteer and assist refugees, creating intentional contact. Local newspapers also reported on the refugee crisis, adding to the local impact. To detect these local effects, analysis at a local level is necessary. The second study of this dissertation compares discrimination rates across regions with varying levels of refugee immigration. Additionally, I examine discrimination rates at the most granular local level by using the exact geolocations of refugee reception centers in five federal states. The third study compares trends between counties with varying degrees of refugee immigration using Fixed Effects estimations. This approach allows for the consideration of both national and local potential effects.

1.6.2 Data and methods

This dissertation uses datasets from three different sources. Two studies rely on survey data (Chapters 2 and 4), and one study uses data from a field experiment (Chapter 3). Figure 1.7 illustrates how the datasets align with the timeline of the refugee crisis.

The first study, "Why the subjective losers of modernization vote for the AfD" (Chapter 2), utilizes survey data from the German Longitudinal Election Study (GLES) (Roßteutscher et al., 2017). Survey data cover a large population and allow for the investigation of a broad variety of topics. The cross-sectional survey conducted shortly after the 2017 federal election is suitable for studying the impact of voters' socioeconomic backgrounds, as well as the impact of the evaluation of subjective status. The analysis sample comprises approximately 1,200 voters. To estimate the effects of objective and subjective deprivation on the probability of voting for the AfD, I use logit regressions and average marginal effects. Additionally, I conduct a mediation analysis to determine whether the effect of subjective deprivation can be explained by dissatisfaction with politics.

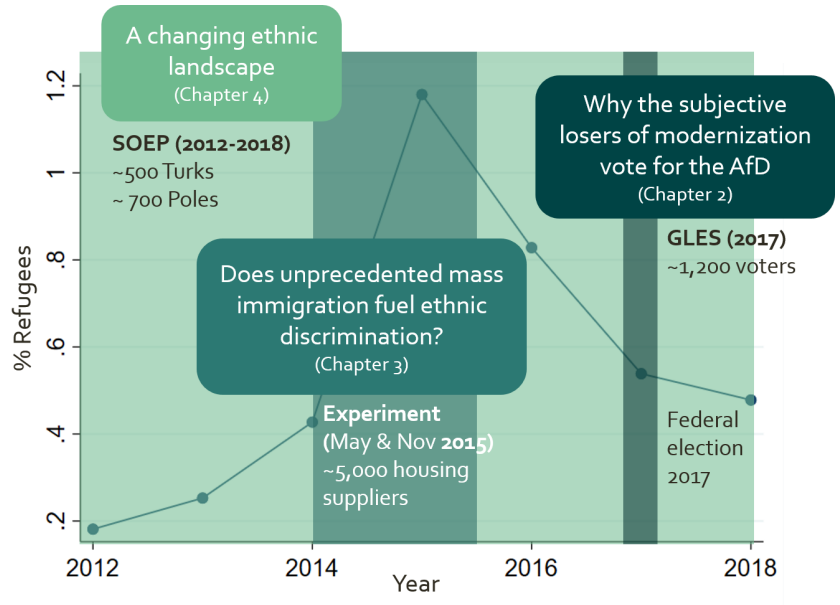

FIGURE 1.7: Timeline of refugee crisis (number of refugee arrivals per 100 inhabitants) and datasets used in this dissertation

The second study, "Does unprecedented mass immigration fuel ethnic discrimination?" (Chapter 3), relies on data from a two-wave field experiment in the German housing market. Field experiments enable researchers to determine causal effects through randomization while observing individuals and groups in their natural environments (Baldassarri and Abascal, 2017; Ross, 2017). Thus, field experiments combine the advantages of randomized treatment (as opposed to survey data) and real-world observation (as opposed to laboratory experiments). They are particularly useful for studying prejudice and discrimination, as they overcome social desirability bias: By using subtle, implicit measures field experimenters can evaluate prejudice and discrimination without disclosing the study's objectives to participants (Baldassarri and Abascal, 2017). Our field experiment was conducted on an online platform to detect ethnic discrimination in the German rental housing market. We used a paired testing design, where two emails – one from a German applicant and one from a Turkish applicant – were sent to the same housing provider, requesting an apartment viewing. The German and Turkish ethnicities were signaled by names and email addresses.

Our study extends the typical field experiment by implementing two waves. Multi-wave field experiments are still rare, and to my knowledge this is the first one on the topic of ethnic discrimination in the housing market. The timing of these waves is ideal for studying the short-term effects of the refugee crisis, with the first wave conducted shortly before the crisis began (May 2015) and the second wave during its peak (November 2015). The email correspondence tests resulted in data from approximately 5,000 housing providers in total. My co-authors and I use a variety of statistical methods to analyze whether ethnic discrimination in the housing market changed over the course of the refugee crisis. The main analysis includes descriptive statistics

on discrimination rates in waves 1 and 2, as well as local polynomial smoothing to detect nonlinear effects. In addition, we use refugee numbers as a metric treatment and employ multinomial logit models along with further robustness checks. A distinctive aspect of our study is the use of exact geolocations of refugee reception centers, which enables fine-grained spatial analysis.

The third study, "A changing ethnic landscape?" (Chapter 4), is based on panel data from the large-scale German household panel SOEP (*Socio-Economic Panel* 2022). This dataset is particularly useful for studying immigrants, as it includes special migrant subsamples that allow for the differentiation of immigrants into various ethnic or religious groups (*IAB-SOEP Migration Samples (M1, M2)* 2022). The analysis in this study focuses on respondents with a Turkish (N $\approx$ 500 respondents, n $\approx$ 2,900 person-years) or Polish background (N $\approx$ 700 respondents, n $\approx$ 2,100 person-years) to examine the perspectives of former immigrants on the 2015 refugee crisis. Whereas studies on the impact of immigration often rely on aggregate data and cross-sectional analyses, the longitudinal design of the SOEP offers the significant advantage of analyzing within-person changes over time. Covering the years 2012 to 2018, it allows me to track both short- and long-term developments. For descriptive analysis, I plot the time trends of several outcome variables over these years. Additionally, I use fixed effects estimations to study how the local inflow of refugees affected the respondents. To work with regional data, I used SOEP remote, as described in the previous chapter.

1.7 Synthesis

In the future, migration flows will continue and most likely intensify due to geopolitical conflicts, wars, economic hardship, and the climate crisis (OECD, 2020). Thus, analyzing the effects of immigration on societies has been an important endeavor and will continue to be crucial in the future.

1.7.1 Key findings

This dissertation contributes to the question how low-status groups are affected by immigration in several ways. First, it shows that individuals with a low SES, who are economically most affected by immigration, are not more likely to vote right-wing populist (Chapter 2). However, those who report a low evaluation of their subjective status, meaning a feeling that they do not get their fair share, show a strong tendency to vote for the AfD. Therefore, the modernization losers' theory only holds for subjective losers. This can be explained to a high degree by the subjective losers' high dissatisfaction with politics.

Second, this dissertation examines the effects on another low-status group: former immigrants and their descendants. The two-wave field experiment finds no change in actual discrimination of Turkish applicants in the German housing market (Chapter 3). That means that in this context the rather low status of former immigrants did

not change in reaction to new immigration. However, the refugee crisis still showed several effects on the perspective of those with a Polish or Turkish immigration background (Chapter 4). Their group relations and self-identification changed in reaction to refugee immigration. The former immigrants were rather dismissive towards the new immigrant group, as they showed rising concerns about immigration. At the same time, their relation to the German majority improved, since they feel less discriminated and closer to Germans. In addition, Turkish immigrants also felt closer to their own ethnic group. Therefore, the subjective status of Polish and Turkish immigrants and their descendants improved in reaction to new immigration.

A further achievement of this dissertation is that it underscores the multidimensionality of social status, showing that social status comprises more than an individual's SES. Firstly, it highlights that objective measures of socioeconomic status are insufficient to fully capture the lower standing of immigrants in our society. Even high-status immigrants experience discrimination, and are disadvantaged compared to natives. Secondly, it demonstrates that objective status can differ from the subjective perception of a person's status and from the evaluation of their status. For example, while an objectively low socioeconomic status did not affect the probability of voting for right-wing populists, a low subjective evaluation of an individual's status had a significant impact (Chapter 2). Furthermore, objective measures of discrimination were not influenced by refugee immigration, at least not in the short term and within the rental housing market (Chapter 3), indicating that the objective status of previous immigrants remained unchanged. In contrast, subjective measures of discrimination decreased in response to refugee immigration (Chapter 4), indicating that the subjective status of previous immigrants improved as inter-ethnic interactions became more positive. Thirdly, the findings show that the evaluation of the subjective status can have crucial real-life impacts, such as influencing right-wing voting. In sum, this dissertation demonstrates that both subjective status and the evaluation of one's status are interesting areas of study and should be considered more often in future research.

Additionally, this dissertation lays a special focus on causality. Examining the impact of being a loser of modernization poses the challenge of finding a good instrumentalization (see Chapter 2). Following previous research, I used educational degree, income, and working status. In contrast to previous research, this dissertation discusses how these three variables are causally related, and how the results of the chosen statistical models can be interpreted. Studying the influence of three variables requires three research designs. For example, when income is the independent variable and populist voting the dependent variable, it is necessary to control for education and working status since they are confounders. Thus, researchers need to be clear about their causal assumptions. Directed acyclic graphs can assist in identifying the necessary control variables.

Another challenge concerning causation is to find a research design that allows for causal conclusions about the impact of immigration (see Chapter 3 and 4). Whereas previous research often relied on regional comparisons that suffer from a self-selection

bias of immigrants, this dissertation offers two major improvements for more valid causal conclusions. First, the object of examination is refugee immigration in Germany, which provides the advantage that refugees are not allowed to self-select in certain areas but show a quasi-random regional distribution. Second, this dissertation combines regional analysis with longitudinal analysis by employing a two-wave field experiment and utilizing panel survey data for multiple years. This allows me to capture both regional and national effects of immigration.

1.7.2 Discussion

This dissertation has several limitations concerning the research question. First of all, I examined whether individuals with a low SES are more likely to vote for the AfD without considering the impact of the refugee crisis. The refugee crisis occurred between the 2013 and 2017 federal elections, coinciding with the AfD's rise. The right-wing populist party had already gained significant popularity by the 2013 federal election, when the party crossed the 5-percent threshold necessary to enter parliament. Between 2013 and 2017, the party shifted from an economically liberal stance to more pronounced right-wing positions (Arzheimer and Berning, 2019). In the 2017 federal election, the AfD received 12.6% of the vote. Whereas it is evident that the AfD profited from the refugee crisis (Arzheimer and Berning, 2019; Hambauer and Mays, 2018), the causal relationship of this benefit is unclear. The increase in refugee immigration might have led to greater hostility, motivating voters to support the AfD. Alternatively, the AfD may have adjusted their party profile to capitalize on existing xenophobia. Additionally, the AfD might have exacerbated hostile sentiments towards foreigners with their anti-immigrant propaganda.

What role did the refugee crisis play in the context of my research results on right-wing voting? The impact of refugee immigration on objective deprivation appears minimal during the first two years. Firstly, refugees were not immediate competitors for low-status individuals, as it took them a considerable amount of time to enter the job market (Brücker, Hauptmann, and Sirries, 2017). It is only in the long term that refugees might compete with low-status individuals for jobs.[7] Secondly, rent prices for low-status individuals were not negatively affected by the refugee crisis. Instead, the crisis actually led to a short-term decrease in rent prices (Kürschner Rauck and Kvasnicka, 2018). However, it is possible that the refugee crisis affected subjective deprivation. The refugees received social benefits, which might have caused social envy among voters in Germany. Additionally, the political handling of the refugee crisis made some voters very dissatisfied. Therefore, the refugee crisis may have acted as a confounder of subjective deprivation, dissatisfaction with politics, and AfD voting. If this confounding effect was based on a national effect, it would not be problematic, as all voters in Germany were affected equally. However, it is possible that there were regional effects of refugee immigration. This dissertation was unable to account for

[7] In the latter half of 2016, only 10 percent of the refugees who arrived in 2015 were employed. Typically, the employment rate reaches around 50 percent five years after arrival.

these regional effects because the GLES dataset did not provide regional information. Nevertheless, a key finding of this dissertation remains unaffected by this limitation: Those with an objectively low SES are not more likely to vote right-wing populist, even though they are the most affected by immigration in the long term. However, future research is necessary to determine if this finding still holds true for current voters, as the AfD has shifted from a right-wing populist party to a radical-right one since 2017 (Biskamp, 2024; Pytlas and Biehler, 2024).

A second limitation of this dissertation is rooted in the difficulty in disentangling several coinciding phenomena surrounding the refugee crisis. It is difficult to differentiate between the impact of media coverage of the refugee crisis and the effect of the actual presence of refugees. Most counties in Germany hosted refugees, and most people in Germany likely consumed some form of media reporting on the crisis. It can be assumed that both phenomena influenced each other. If someone sees images of the refugee crisis on the news, they might pay more attention to people with dark skin and those speaking foreign languages. Conversely, if someone notices an increase in dark-skinned people in their neighborhood, they might be more alert to news about refugees. Due to this potential interaction between physical presence of refugees and media consumption, it is generally very difficult to differentiate these effects. However, it could be possible to create a research design that addresses this question by using the varying number of refugees per county and information about respondents' media consumption. My research design approximates both phenomena. Country-level effects are used to reflect media coverage since many news media outlets are nationwide. Additionally, county-level effects represent the impact of the physical presence of refugees. In Chapter 3, my co-authors and I used even more fine-grained data by including the distance to the locations of refugee accommodations.

A third limitation of this dissertation is the possibility that coinciding events related to Muslim immigrants might distort the effect of refugee immigration. For example, the Paris terrorist attacks on November 13, 2015, or the sexual assaults in Cologne on New Year's Eve 2015 may have influenced ethnic discrimination or concerns about immigration. However, the county-level approach controls for such effects by comparing counties with varying levels of refugee immigration (see Chapters 3 and 4 for more information).

Regarding the key findings of this dissertation, there is an alleged paradox concerning discrimination. While the field experiment finds no change in discrimination against Turks in reaction to refugee immigration (Chapter 3), the survey results show a decrease in self-reported ethnic discrimination among Turks (Chapter 4). These results do not directly contradict each other, since the field experiment examined actual discrimination, whereas the survey reports subjective discrimination. Still, perceived discrimination tends to reflect real-world discrimination (Turner and Turner, 1981). Therefore, the question arises as to why actual discrimination stagnates even though subjective discrimination declines in reaction to the refugee crisis. There are at least two possible explanations for this. First, discrimination in the rental housing

market might have developed differently than in other settings of potential discrimination. From an economic point of view, the rental housing market has been very tense in Germany, especially in urban areas (Mense, 2016). In a context where high demand meets limited supply, discrimination against potential customers is not as costly (Becker, 1957). Thus, when there are many applicants interested in a flat, the supplier can afford to lose some of them. In contrast, the situation in the labor market has been the opposite for many sectors, as employers have been desperately looking for skilled and unskilled workers, and the unemployment rate in 2015 was the lowest in 24 years (Bundesagentur für Arbeit, 2016). In this context, discrimination against job applicants is much more costly, since an employer who discriminates might not be able to fill a position as a result.

A second explanation for the discrepancy between actual and perceived discrimination against Turks is the possibility that the two phenomena evolved differently after all. Actual discrimination may have remained at the same level, while perceived discrimination improved. It is not always apparent whether a hostile reaction is due to ethnic discrimination. If a Turkish job applicant receives a rejection, the reasons could be due to discrimination or other factors. Therefore, the perception of discrimination is often a subjective interpretation. It could be the case that people with a Turkish migration background perceive less discrimination when they compare themselves to the more foreign refugees.

A further point of discussion arising from my results is whether ethnic boundaries have changed in reaction to refugee immigration. For this to occur, two conditions need to be fulfilled (see Chapter 4): First, group interactions must change in a way that alters the self-identification of ingroup members. Second, this new group distinction must be recognized by outsiders. The results of this dissertation provide some evidence for these conditions for changing ethnic boundaries. Chapter 4 shows that from the viewpoint of Polish and Turkish immigrants, discrimination decreased, which implies a status improvement. Additionally, Polish and Turkish immigrants felt a closer connection to Germany. These findings suggest that from their perspective, interactions between ethnic groups have improved, leading to a change in self-identification. Thus, there is some evidence of a slight shift in ethnic boundaries from the immigrants' perspective. However, Chapter 3 indicates that this perception might not be shared by the majority group concerning Turkish immigrants, as actual discrimination (at least in the housing market) did not change. Therefore, while the first condition of changing ethnic boundaries seems to be fulfilled, the second condition does not appear to be met. It is an interesting question why the perception of outgroup members (the immigrants) differs from that of ingroup members (the Germans). In sum, this dissertation shows that ethnic boundaries are fluid and that it is a complex system in which group perspectives can differ. Actual change in ethnic boundaries, confirmed by both sides, likely requires more time.

1.7.3 Future research

This dissertation demonstrates the significance of subjective disadvantage in influencing right-wing populist voting behavior. Further investigation is needed to address the following questions: Why do right-wing voters feel disadvantaged? What reference groups do right-wing voters use for comparison? What types of information contribute to their beliefs of being disadvantaged? Exploring these questions could provide deeper insights into the motivations behind support for right-wing populists. Furthermore, research on right-wing voting should extend their focus to immigrant voters since they are also concerned about immigration. It should be investigated if this concern translates into right-wing votes.

In addition, this dissertation explores the effect of immigration on the subjective experience of former immigrants such as self-reported discrimination and self-identification. Future research should also consider the impacts on actual behavior. Relevant inter-ethnic behavior are for example inter-ethnic friendships and inter-ethnic marriage. A rare article on this topic finds that the arrival of Black Americans during the First Great Migration in the United States between 1915 and 1930 promoted inter-ethnic marriage between natives and European immigrants (Fouka, Mazumder, and Tabellini, 2022). This research could be expanded to other regions and immigration contexts. In addition, in the German context it would be interesting to investigate how the arrival of Ukrainian refugees changed inter-ethnic relations and inter-ethnic behavior, and understand the role of the different cultural background as compared to the majority Muslim refugees who arrived in 2015 and 2016.

Regarding ethnic boundaries, this dissertation reveals differing perspectives between the German majority and the Polish and Turkish minorities. Future research should delve deeper into these perspectives to better understand how the ethnic majority perceives boundaries compared to ethnic minorities. If these perspectives differ, what are the underlying reasons? In a broader perspective, given the prevalence of multi-ethnic societies, sociological research should more frequently consider multi-group contexts. To achieve a better a understanding of ethnic minorities, surveys should generally adapt their sampling methods to include a sufficient number of immigrants, allowing for the separate study of different immigrant groups.

Additionally, researchers should reconsider how to measure the social status of immigrants, as objective measures of socioeconomic status do not fully capture their lower standing in society. For example, incorporating evaluations of ethnic hierarchies by the public, similar to the assessment of occupational status, could provide a more accurate picture. However, evaluating immigrants' standing often involves a social desirability bias, necessitating the development of more indirect and implicit measurement methods. One existing approach involves asking respondents how they would feel about having a person from a specific immigrant group as a neighbor or a family member through marriage. Based on the responses to these questions, an reputation scale for ethnic groups could be calculated. The resulting scale could be used in

future research to more accurately determine inequalities and unfairness experienced by different immigrant groups.

1.7.4 Policy recommendations

Several policy recommendations can be derived from the findings of this dissertation. Since the sense of being disadvantaged appears to increase the likelihood of voting for right-wing populist parties, other political parties need to consider how to alleviate these perceptions of unfair treatment. In Europe, dissatisfaction tends to rise when income inequality is high, partly due to the belief that individual upward mobility is limited (Alesina, Di Tella, and MacCulloch, 2004). Consequently, policy recommendations to reduce right-wing voting in Europe might include reducing income inequality (e.g., through income tax reforms), decreasing wealth inequality (e.g., through inheritance taxes), and enhancing individual mobility (e.g., through improved education).

How might the AfD benefit from the findings of this dissertation? The results indicate that former immigrants share concerns about immigration, which the AfD could exploit to attract immigrant voters. The party has already successfully targeted ethnic Germans from former Soviet countries ("Russlanddeutsche"), who tend to vote conservatively (Goerres, Mayer, and Spies, 2020). Recently, the AfD has been focusing on Turkish-background voters (Foroutan, 2024). Maximilian Krah, the AfD's top candidate for the 2024 European elections, has used TikTok to fuel rivalry between established and new immigrants, claiming that new arrivals take housing and jobs from established immigrants. According to Foroutan, former immigrants often see themselves as the "good migrants" and fear that new immigrants will damage their reputation. They also resent the favorable treatment of Ukrainian refugees. Simultaneously, the AfD has driven a wedge between Turkish immigrants and the German majority, with Krah stating that immigrants are "betrayed and sold out" by the government. TikTok's algorithm allows the AfD to target migrants without alienating its anti-immigration supporters, using hashtags like #türkenindeutschland (Turks in Germany) to attract new voters. In sum, the AfD has already perfected identity politics to turn ethnic groups against each other.

Therefore, it is an important task for the other parties to recognize the immigrants' voter potential as well, and to target them in their election campaign and include them in their politics. After all, almost eight million people with a migration background are eligible to vote in Germany (DESTATIS, 2021). One possibility to win more immigrant votes is to have more candidates with an immigration history for a better representation of immigrant voters. Research shows that even in Germany's party-centered electoral system, immigrant-origin candidates attract immigrant-origin voters (Geese, 2020). In addition, politicians should address immigrants more directly in their campaigns and talk to them directly. Also, politicians should also be more active on social media to target younger immigrants. Besides that, parties should also secure immigrant participation in society by promoting good education and childcare and ensuring political participation. Making politics for immigrants could also signal

open-mindedness and the acceptance of ethnic diversity outside of Germany and help to attract workers from foreign countries that Germany desperately needs.

Chapter 2

Why the subjective losers of modernization vote for the AfD

RENATE LORENZ

Abstract According to the modernization losers' theory (MLT), objective and subjective deprivation resulting from modernization processes increase the probability of voting for a populist party. Lengfeld (2017) claims that this thesis does not apply to voters of the right-wing populist Alternative for Germany (AfD). However, three replications (Lux, 2018; Rippl and Seipel, 2018; Tutić and Hermanni, 2018) challenge Lengfeld's findings and confirm the MLT. These studies, however, are based on data concerning voting intentions. This paper re-examines the MLT with federal post-election data of 2017 from the German Longitudinal Election Study (N= 1,241), relying on actual voting decisions. I use logit regressions and average marginal effects to estimate the effects of objective deprivation (low income, low education, or low job status) and subjective deprivation (fairness of one's own share) on the probability to vote for the AfD. Unlike previous research, my analysis incorporates a discussion of the causal relationships among the indicators to estimate the direct effects of each. Additionally, this study introduces two mediation analyses to explore subjective deprivation and dissatisfaction with politics as explaining mechanism for potential deprivation effects. My results reveal no significant effect of objective deprivation. However, they support the MLT for subjective deprivation, and they confirm the role of increased dissatisfaction with politics as explanatory mediator.

2.1 Introduction

There has been a vivid debate about whether the modernization losers' theory (MLT) holds for the voters of the right-wing populist Alternative for Germany (AfD). According to the MLT, those who suffer from objective or subjective deprivation as a consequence of modernization processes are more likely to vote for a populist party. Whereas Lengfeld (2017) does not find an increased probability of supporting the AfD among the socioeconomically deprived, three replication studies (Lux, 2018; Rippl and Seipel, 2018; Tutić and Hermanni, 2018) report contradicting evidence. In a reply,

Lengfeld (2018) defends his position. The cited studies have two significant shortcomings. First, they focus on voting intentions or party identification rather than actual voting behavior. Second, they are based on questionable causal assumptions, leading to inaccurate conclusions. This paper seeks to resolve the debate about the MLT by using federal post-election data from 2017, which allows for the analysis of voting decision. Moreover, my enhanced causal reasoning provides more accurate causal conclusions. The study also examines the underlying explanatory mechanisms linking deprivation to right-wing populist voting.

To assess the impact of objective deprivation (low income, low education, or low job status) and subjective deprivation (fairness of one's own share) on the probability to vote for the AfD, I estimate logit models and average marginal effects using post-election data from the German Longitudinal Election Study in 2017. In contrast to earlier studies, my article includes a discussion of the causal relationships between the indicators of objective deprivation to assess the direct effects of each. The findings reveal that none of the indicators significantly influences AfD voting. However, subjective deprivation has a substantial effect. Additionally, I demonstrate that dissatisfaction with politics acts as a causal mechanism for the effect of subjective deprivation. Previous studies have typically tested similar concepts as alternative explanations to the modernization losers' theory. However, I argue that dissatisfaction with politics does not compete with objective or subjective deprivation as an explanatory mechanism, but should instead be interpreted as a causal mediator.

2.2 Explaining the success of populism

Two major strands of explanations for the success of populism can be distinguished: Whereas the modernization losers' theory has its roots in individual social and economic deprivation, the cultural backlash theory stresses the importance of group-related attitudes. The *cultural backlash theory* (CBT) interprets the support of populists as a nostalgic reaction of older voters to long-term processes of cultural transformations in Western societies (Inglehart and Norris, 2016). While younger cohorts and the college-educated have become more tolerant and open minded; embracing sexual, ethnic, and religious diversity and supporting international institutions and humanitarian aid, older conservatives – predominantly low-educated males – feel threatened by the erosion of traditional values. Inglehart and Norris (2016) confirm the CBT for 31 European countries, finding a significant impact on populist voting of all five cultural value indicators. Similarly, Arzheimer (2008) discovered that voting for the extreme right is driven by intense feelings of anti-immigrant sentiments in Western Europe (except for Italy). In addition, a longitudinal study by Berning and Schlueter (2016) shows that perceptions of group threats in Germany and the Netherlands are prior to, rather than posterior to, respondents' preferences for radical right-wing populist parties.[1]

[1]Note that for Germany, party preferences for The Republicans (rather than the AfD) were examined.

The CBT has also been largely confirmed in regard to the Alternative for Germany. This political party exploits cultural fears by trying "to portray traditional German values, principles, and beliefs as threatened by refugees and immigrants" (Cincu, 2017, p. 31). Correspondingly, Köppl-Turyna and Grunewald (2017) report that opinions towards asylum seekers and on current refugee policies have been most influential for the decision to vote for the AfD. Further, Schröder (2018) considers xenophobia to be the most important factor in the decision to vote for the AfD. Also, Rippl and Seipel (2018) find that the opinion that diversity threatens society and the seeking of a homogenous culture are strong predictors for the intention to vote for the AfD.

The *modernization losers' theory* (MLT), on the other hand, focuses on economic rather than cultural processes. The MLT states that those who have profited the least from modernization processes are more susceptible to populism. The CBT and the MLT take different perspectives on the same topic, and do not contradict but rather potentially complement each other. In the following sections, I will further elaborate on the relevant causal mechanisms behind the MLT. Modernization processes produce increasing social and economic inequality, leading to objective and subjective deprivation for some individuals. Being disadvantaged induces dissatisfaction with the established parties and politics in general, and increases the susceptibility to populist agitation.

2.2.1 The losers of modernization

In Europe, the modernization processes of recent decades have been closely linked with economic, cultural, and political globalization (Spier, 2006, pp. 48–49).[2] Economic activities have expanded globally, leading to an increase in the international flow of goods and capital (Perraton et al., 1998). Additionally, cultural changes have been influenced by the rise of transnational communication, fostering a global cultural industry, and by increased migration (Berking, 2001). Politically, the growing complexity of economic and environmental challenges with cross-border implications increasingly necessitates the intervention of supranational institutions like the EU (Spier, 2006, p. 49). These profound changes raise concerns about whether the resulting benefits have been fairly distributed across society. Empirical evidence suggests that the gains have not been evenly shared. More specifically, over the course of globalization, the income distribution in the First World, including Germany, has become more unbalanced (Milanovic, 2016). Between 1991 and 2015, the percentage of Germans at risk of poverty rose from 11 to 17 percent (Grabka and Goebel, 2018). Furthermore, globalization has led to more precarious employment, particularly among young people (Blossfeld et al., 2007). Workers with low skills and low income have been particularly vulnerable to new economic uncertainties, higher unemployment, and financial losses (Giesecke, 2009). This group of low-skilled and low-paid workers is often referred to as the "losers of modernization".

[2]Consequently, I will use the terms modernization and globalization interchangeably.

On the individual level, these losers of modernization are characterized by deprivation, meaning a disadvantage or a lack of goods or possibilities for self-realization. Material deprivation comprises joblessness, homelessness, and poverty, whereas immaterial deprivation includes low education levels and a lack of social contacts. Two indicators must be distinguished in this context (Spier, 2006, pp. 52–53): objective and subjective deprivation. *Objective deprivation* is indicated by a low level of education, low job status, or low income (Lengfeld, 2017), resulting in an actual disadvantage or lack of resources. *Subjective deprivation*, on the other hand, arises from disappointment and dissatisfaction rooted in the rift between actual and desired life circumstances. A person may feel disadvantaged if someone else owns a desired good or has more possibilities than herself: "If A, who does not have something but wants it, compares himself to B, who has it, then A is "relatively deprived" with reference to B." (Runciman, 1966, p. 10). Subjective deprivation expresses itself in the evaluation of one's share as "less than". It is therefore plausible to assume that the objectively deprived also feel subjectively deprived.

2.2.2 The AfD as a populist party

The MLT suggests that individuals who feel deprived are more likely to vote for a populist party. In this section, I will explore whether the Alternative for Germany (AfD) can be classified as a populist party. Since its founding in 2013, the AfD has undergone significant ideological shifts (Decker, 2016; Kroh and Fetz, 2016). Bernd Lucke originally established the AfD as a euro-skeptical, right-wing liberal party in response to the euro crisis, strongly criticizing the euro rescue efforts and financial aid to Greece. However, in 2015, the party took a sharp turn toward national conservatism and right-wing populism after its economically liberal faction split from the party (Decker, 2016). Consequently, the profile of the AfD's supporters has evolved over time (Kroh and Fetz, 2016). Initially, AfD support was equally distributed across educational and occupational strata. Over time, however, the party has attracted increasing support from those with low to middle education levels, blue-collar workers, and the unemployed (ibid.). Additionally, more non-voters and far-right extremists have gravitated toward the AfD. The party has gained popularity among individuals dissatisfied with democracy and concerned about the effects of immigration. While the AfD narrowly missed the 5-percent threshold to enter parliament in the 2013 German federal election, the party achieved 12.6% of the vote in 2017, becoming the third-largest party in parliament. This suggests that the AfD's success is not merely a short-term phenomenon. Schwarzboezl and Fatke's (2016) analysis of the party's political potential in 2013 concludes that the AfD successfully mobilized a previously neglected political base rather than simply capitalizing on protest votes. Although the authors find a high level of disillusionment with party politics among AfD voters, they also observe that these voters share common positions on European integration and immigration policies.

Answering whether the AfD is a populist party requires a clear definition of populism. This is not a trivial task, as populism is a "notoriously vague term" (Canovan,

1999, p. 3), characterized by its diverse and mutable nature (Puhle, 1986). Nevertheless, three distinctive features of populism can be identified:

(1) *Assumption of a common will of 'the people'*. Populists assume the existence of 'the people' as a homogeneous group with collective interests (Mudde, 2004, p. 543). They conceptualize the people as "a corporate body with a continuous existence over time, capable of having common interests and a common will" (Canovan, 2002, p. 34).

(2) *Anti-establishment agitation*. Populists create a dichotomy between 'the good people' and 'the bad politicians'. They view society as "ultimately separated into two homogeneous and antagonistic groups, i.e. 'the pure people' versus 'the corrupt elite' "(Mudde, 2004, p. 543). Those who belong to the people are often described as 'the common man'.

(3) *Claim of the only true representation*. A central aspect of populist identity is the claim to uniquely understand and represent the needs and desires of the common man, and to "speak for the forgotten mass of ordinary people" (Canovan, 2004, p. 242). Populists portray themselves as the "rightful source of legitimate power" (Canovan, 2004, p. 242), asserting: "We – and only us – represent the true people" (Müller, 2016, p. 26).

Do these three features apply to the AfD? First, Lewandowsky, Giebler, and Wagner (2016) demonstrate that the party's candidates and parliamentary members strongly emphasize a focus on the people (Volkszentrierung). The authors interpret the party's endorsement for direct democracy and majority decisions as anti-pluralistic, noting that populists seek to directly implement the common will of 'the people' without prior democratic debate (Lewandowsky, Giebler, and Wagner, 2016, pp. 250–251). Thus, it can be concluded that the AfD indeed presumes a common will of the people. Second, the authors also identify anti-establishment rhetoric among AfD members, evident in their criticism of national democracy and the European Union. Third, the party portrays itself as the sole bearer of truth, whereas established parties are depicted as threats to that truth – reflected in campaign slogans such as "Courage for the truth" ("Mut zur Wahrheit") and "Stop gender madness" ("Gender-Wahn stoppen") (Berbuir, Lewandowsky, and Siri, 2015, p. 165). This suggests a claim of being the only true representative of the common man. In conclusion, the AfD as a political party fulfills all three populist characteristics. Correspondingly, Lewandowsky (2016) finds that the AfD scores 0.75 on a populism scale ranging from 0 to 1. While the cited literature is based on data from 2013, the state of the AfD in the election year 2017 was even more populist. The national-conservative wing, led by Alexander Gauland (and formerly by Frauke Petry), advocates for an even "more aggressively populist appeal to voters" (Decker, 2016, p. 6). Accordingly, Arzheimer and Berning (2019) and Lees (2018) observe an ideological shift toward a radical right stance between 2013 and 2017, similar to other radical European parties.

2.2.3 Dissatisfaction with politics

In this section, I will elaborate the causal mechanisms through which populists exploit both the objective and subjective deprivation of their constituents. I will also provide an overview of the current state of research on the MLT and examine the peculiarities of the AfD in this context.

First of all, populists exploit deprivation by engaging in anti-establishment rhetoric. They typically cite the increasing inequality due to modernization as evidence for their postulated dichotomy between the morally pure people and the corrupt elite. The underlying assumption is that the political elites, rather than economic processes are in fact responsible for the growing inequality. This societal situation perfectly suits their narrative of the innocent common man who has been neglected by the corrupt self-centered government. This story amplifies feelings of being disadvantaged or being left behind. By holding the EU accountable for the financial crisis in 2009/2010, the AfD also implicitly addresses the losers of modernization, as they have suffered the most from the crisis. Although the increasing inequality in fact drives a society further apart, the anti-establishment agitation allows populists to depict the people as a united body (Laclau, 2005).

Increasing inequality also benefits the populists' claim to be the sole true representative of the people. Deprivation is interpreted as proof for the neglect of the common man. According to this logic, if the elites had been interested in the welfare of the common man, they would have prevented his deprivation. However, as the common man is in fact objectively and/or subjectively deprived, they conclude that the elites are indifferent to his well-being. Thus, in order to improve his situation, he must vote for the populist party, who claims to understand and prioritize the people's needs. Concerning the AfD, research has shown that dissatisfaction with the state government increases the likelihood of populist voting tendencies (Giebler and Regel, 2018). Also, Rooduijn (2018) demonstrates that political distrust in fact strongly encourages voting for right-wing populist parties in 11 Western European countries. Furthermore, voters of populist parties even exhibit a more stable voting behavior when they are more politically dissatisfied (Voogd and Dassonneville, 2018).

In conclusion, the MLT and the characteristics of populism suggest that dissatisfaction with politics acts as explanatory mechanism for potential deprivation effects.

2.2.4 The AfD's neoliberal orientation

The AfD differs from other populist parties in their neoliberal economic orientation. Thus, as Lengfeld (2017) points out, the AfD does not in fact represent the common man. As the party favors reduced economic state interventions and aims for strong market competition, the common man would profit the least from the AfD's economic politics. Nevertheless, there are two kinds of motivation for the losers of modernization to vote for the AfD (Lengfeld, 2017, pp. 214–215): out of conviction, or as a form of protest.

Although it seems contradictory at first, losers of modernization may still vote for the AfD out of conviction. As a first explanation, someone with a low socioeconomic status might support the AfD due to its anti-European course (Lengfeld, 2017, pp. 214–215). The party advocates for prioritizing national sovereignty over European integration, limiting the powers of European institutions, and holding a referendum on the abolition of the euro. In fact, AfD supporters differ from voters of other parties in that they strongly reject European integration (Schwarzboezl and Fatke, 2016). Moreover, Hooghe and Marks (2005) show that in capital-rich EU member states, unskilled workers are more sceptical of the EU. Thus, if the losers of modernization hold the European integration accountable for their state of deprivation, they might expect the AfD to take action against the EU-related causes of their deprivation.

A second explanation is rooted in the party's anti-refugee agitation (Lengfeld, 2017, pp. 214–215). The AfD aims to reduce the influx of refugees and extend their repatriation. Indeed, favoring the AfD is associated with a strong opposition towards immigration (Schwarzboezl and Fatke, 2016; Hambauer and Mays, 2018). Additionally, Scheve and Slaughter (2001) show that less-skilled workers are more likely to prefer restrictive immigration policies in the United States as a consequence of their interest in reducing labor market competition. Similarly, a low-qualified employee in Germany might fear refugees as potential competitors on the labor market and vote for the AfD due to their anti-refugee course. In fact, over 80 percent of refugees who arrived during the crisis lack professional qualifications (Brücker, Rother, and Schupp, 2016, p. 49), and could eventually become competitors in the labor market for disadvantaged individuals.

Another reason to vote for the AfD as a loser of modernization is an expression of protest against current politics (Lengfeld, 2017, pp. 214–215). AfD supporters are indeed more dissatisfied with the established political parties than voters of other parties (Schwarzboezl and Fatke, 2016). Unlike voting based on conviction, a protest vote is not driven by the belief that the AfD will bring about better politics. A protest voter typically does not support the party or its members as a whole, but rather agrees with certain aspects of its platform. The primary goal of a protest voter is to send a message to the other parties, pushing them to change their policies. Therefore, a protest voter can be defined as "a rational voter whose objective is to demonstrate rejection of all other parties" (Brug, Fennema, and Tillie, 2000). When it comes to the AfD, protest voters may express dissatisfaction with the other parties' position on the EU or the current policies regarding refugees. In this respect, populism can be interpreted as a "symptom of democratic politics", namely as an index of "the reaction against politics as usual" (Arditi, 2003, p. 27).

In conclusion, both kinds of motivations to vote for the AfD as a low-status individual despite the party's neoliberal stance stem from dissatisfaction with current politics.[3] In the empirical analysis, I will therefore investigate whether the likelihood

[3]Hence, dissatisfaction with current politics is not a reliable indicator of a protest vote, as suggested by Schwarzboezl and Fatke (2016, pp. 283–284).

of modernization's losers voting for the AfD can be attributed to their dissatisfaction with current politics.

2.2.5 Previous research on the MLT

Existing empirical evidence concerning the MLT shows mixed results. In support of the MLT, Spier's (2006) analysis of five populist movements in Europe (Vlaams Blok in Belgium, Front National in France, Lega Nord in Italy, Fremskrittspartiet in Norway, and FPÖ in Austria) finds an over-representation of objectively and subjectively deprived individuals among the voter pools of populist European parties, indicating that a large share of these voters are indeed losers of modernization. Similarly, Guth and Nelsen (2019) report that European right-wing populists attract young, working-class, and less educated voters. In contrast, Inglehart and Norris (2016) investigate populist parties in 31 European countries and report mixed results: Whereas the petty bourgeoisie, rather than poor and unskilled manual workers, shows the strongest support for populist parties, unemployment and subjective economic insecurity are still positively associated with populist voting. Contradictory to the MLT, a fixed-effects analysis by Gidron and Mijs (2019) does not find a higher inclination to vote for populist right-wing parties after a decline in net monthly income. Moreover, Margalit (2019) raises general theoretical doubts about the "explanatory significance" of economic insecurity.

Concerning the AfD, there is also a controversial debate regarding the MLT. An analysis by Hambauer and Mays (2018) demonstrates that the AfD attracts more individuals with a lower social background and lower incomes. Yet, Hilmer et al. (2017) argue that the subjective perception of own life circumstances has an effect on the voting preferences for the AfD, whereas the objective social situation is less influential. In contrast, Lengfeld (2017) neither finds evidence for effects of objective nor subjective indicators of deprivation. However, Lengfeld's study has been criticized for its meager database and an inadequate income measure. Three replication studies find contradicting evidence: Using larger data sets and equivalent income instead of household income, Lux (2018), Tutić and Hermanni (2018) and Rippl and Seipel (2018) report significant effects of both objective and subjective deprivation. Lux (2018) finds that workers and low earners are more likely to support the AfD. Similarly, Rippl and Seipel (2018) report significant effects for those without high school or professional degrees and for equivalent incomes below the median. These findings are confirmed by Tutić and Hermanni (2018), who report that respondents with low education or low income, the unemployed, blue-collar workers, and those who feel socially deprived have a greater affinity for the AfD. Lengfeld (2018) replied to his critics with another study on the topic: Although he now confirms the empirical evidence found by the replication studies, he interprets the role of social attitudes as more important.

The Lengfeld studies and the replications are limited by their reliance on pre-election data, that only allow the analysis of voting intentions or party identification rather than actual voting decisions. However, voting behavior is more relevant,

as election outcomes shape the political landscape and influence politics. Although voting intentions generally predict voting behavior, they can differ in some cases (Granberg and Holmberg, 1990). For example, individuals who are uncertain about their voting decision might spontaneously decide to vote for the AfD. This could also apply to protest voters who cast their vote for populists out of a specific mood. Such voters might not be fully captured when examining voting intentions or party identification. Due to social desirabilty bias, AfD voters are commonly underrepresented in surveys (Bergmann and Diermeier, 2017). Additionally, it can be assumed that people underreport their voting intentions for the AfD even more strongly than their actual voting decisions. Lying about specific past behavior is more challenging than concealing a potential future behavior or a general party identification. In fact, regarding the 2017 federal elections, most of the cited studies underestimated the AfD's actual vote share of 12.6%, with some estimates as low as 5.0% (Lengfeld, 2018). This indicates that the pre-election data might be limited in the representation of the AfD's actual electorate.

Using post-election data, another analysis of the AfD voters' profile aligns with Lengfeld's dismissal of the MLT as it finds no significant effects of education, income, or unemployment (Hansen and Olsen, 2019). However, the study is affected by over-control bias, since the model measuring education effects includes several mediating variables, such as political knowledge (Rasmussen, 2016) and party ideology (Meyer, 2017). In conclusion, the mixed findings on the MLT are mostly rooted in different research designs and differing interpretations of the results. Overall, most researchers do not discuss causal relations between indicators of objective deprivation and do not consider causal relationships between different mechanisms.

2.3 Empirical analysis

This chapter presents my empirical testing of the MLT to determine whether the losers of modernization are indeed more likely to vote for the AfD. Building on the work of Lengfeld (2017) and his replications, this analysis uses new post-election data and improved causal models. In addition, this analysis explores whether subjective deprivation and dissatisfaction with current politics function as mediators between objective deprivation and voting behavior.

2.3.1 Data, variables, statistical models

Data The data used in this analysis stem from the German Longitudinal Election Study (GLES); a social survey about the electorate, candidates, and media coverage related to German federal elections. Unlike most previous studies, the post-election dataset used in this analysis allows for the examination of actual voting behavior rather than mere voting intentions or party identification. The following analyses are based on a cross-section of the GLES survey conducted within two months after

the federal election in September of 2017 (Roßteutscher et al., 2017). Participants were randomly selected from official registry data, representing the German population aged 16 and above, who were eligible (or would have been if they were at least 18) to vote in the 2017 Bundestag election. Computer-assisted personal interviews were held with an average duration of 71 minutes. This analysis excludes any observations with missing values for any of the dependent, independent, or control variables (N = 860). Additionally, students and trainees are excluded from the sample as they typically have a low income but should not be categorized as objectively deprived (N = 11). Further, those under 18 at the time of the survey are removed from the sample, as they were not eligible to vote (N = 0). The final sample consists of 1,241 respondents.

Variables The binary target variable is coded as 1 if the respondent voted for the AfD in the federal election of 2017, and 0 if they voted for another party.[4] In this sample, 10.4 percent of all voters reported voting for the AfD. After excluding votes for parties not passing the necessary 5-percent threshold to enter parliament, the share for the AfD increases to 10.5 percent. However, this sample's vote share is still considerably lower than the actual 12.6 percent the AfD received in the federal election. This discrepancy could be due to two factors. First, social desirability may lead respondents to either misreport their actual vote or refuse to answer the question entirely (Bergmann and Diermeier, 2017). Second, unobserved characteristics of AfD voters (or social desirability) might reduce their willingness to participate in an election survey in the first place, which might result in a selection bias.

As indicators of objective and subjective deprivation, I use the same variables as Lengfeld (2017, p. 219): education, profession, and income. However, my coding differs from Lengfeld's approach. First, education is differentiated into four types of school degrees rather than three to provide a more nuanced picture: no degree or a lower secondary school degree (Haupt-/Volksschule, 22%), middle secondary school degree (Mittlere Reife, 33%), professional high school degree (Fachabitur, 9%) and high school degree (Abitur, 36%). The lowest education category characterizes objective deprivation.[5]

Second, profession is divided into seven categories, following Lux (2018): blue-collar worker (9%), white-collar worker (39%), public servant (6%), self-employed (7%), unemployed (3%), retired (31%), and not working (5%). Since blue-collar workers are particularly vulnerable to economic uncertainties resulting from globalization processes (as elaborated in the previous section), being a blue-collar worker is used as indicator of deprivation, alongside joblessness.

[4] In German federal elections, each voter has two votes: the first vote (Erststimme) allows them to choose a direct candidate from their electoral district, who will represent the district in the Bundestag, while the second vote (Zweitstimme) is used to select a political party, which determines the overall proportion of seats each party will receive in the Bundestag. For the target variable, I use only the second vote.

[5] The differentiation into Abitur and Fachabitur is motivated by the differing shares of votes for the AfD (Abitur: 5%, Fachabitur: 12%).

Third, I adopt the approach of Tutić and Hermanni (2018) for selecting and constructing net equivalent income categories to adjust for household size and number of children. The equivalent income is calculated by using the midpoints of the original 13 categories of household income and the OECD scale. Respondents with an equivalent income less than or equal to 70 percent of the median are assigned to the low income category, which signals objective deprivation (23%). Incomes above 70 percent of the median and below or equal to 150 percent of the median are classified as middle income (56%), while the highest category encompasses incomes above 150 percent of the median (20%). According to the German statistical federal office, the median equivalent income in Germany in 2017 was 1,827 euro (Statistisches Bundesamt, 2017).

To address feelings of relative deprivation, I measure the concept of subjective deprivation by whether a respondent believes that they get their fair share compared to other residents of Germany on a five-point scale from "much less than the fair share" to "much more than the fair share".[6] Due to the low number of responses in the highest category, the top two categories have been merged.

The index for dissatisfaction with the current political situation comprises a battery of 10 items about the respondent's opinion on several political issues (see Appendix A.1 for a full list). The items cover opinions on corruption, the policies of the current government, democracy in Germany in general, the integrity of politicians, as well as other topics. As these variables have different numbers of response categories, they are standardized to a 5-point scale from 1 (very satisfied) to 5 (not at all satisfied). The average of these standardized variables forms the index for respondents' dissatisfaction with politics (Cronbach's alpha: 0.82).

Following Lengfeld (2017), this analysis includes age in years, gender, and region (former East/West Germany) as control variables in all models to account for potential confounding factors. For example, income and the probability to vote for the AfD are both influenced by the control variables: Income varies by age (Piopiunik, Kugler, and Wößmann, 2017), there is a significant gender wage gap in Germany (Bach, 2017), and wages are still higher in the former West Germany (Fuest and Immel, 2019). At the same time, younger voters, men, and respondents living in the former East Germany are more likely to vote for the AfD (Kroh and Fetz, 2016). A summary of the descriptive statistics is provided in the appendix (A.2).

Causal and statistical models This section explores the relevant causal relationships behind the decision to vote for the AfD, and derives the statistical models utilized here. Figure 2.1 illustrates the causal relationships between the concepts in question.[7] To select an appropriate statistical model, it is necessary to disentangle the three variables

[6]The original German question: "Im Vergleich dazu, wie andere hier in Deutschland leben: Glauben Sie, dass Sie Ihren gerechten Anteil erhalten oder glauben Sie das nicht? Erhalten Sie viel weniger als den gerechten Anteil, etwas weniger, den gerechten Anteil, etwas mehr oder viel mehr als den gerechten Anteil?"

[7]Note that the causal paths in the directed acyclic graph represent mediation effects, based on the assumption that there are no interaction/moderation effects.

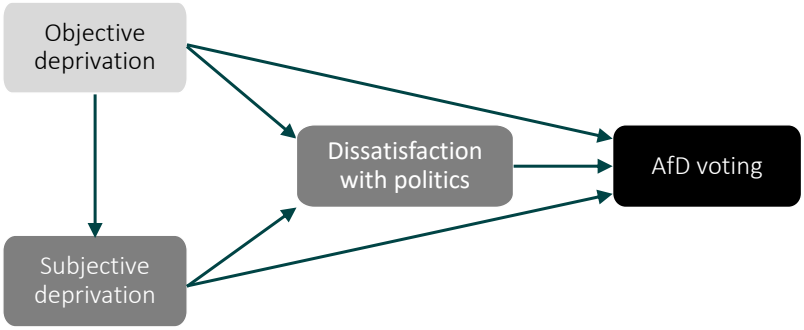

FIGURE 2.1: Causal model: Objective deprivation, mediators, and AfD voting

that measure the abstract concept of objective deprivation (low income, low education, low job status), since they not only influence the probability to vote for the AfD (Lux, 2018; Rippl and Seipel, 2018; Tutić and Hermanni, 2018), but are also causally interrelated: Education influences income, job status, and the probability of joblessness (Hillmert, 2011; Kelley, 1973; Piopiunik, Kugler, and Wößmann, 2017), while job status has an impact on income (Kelley, 1973). To account for these causal relationships, it is essential to control for the other two indicators when assessing the direct effect of each indicator of objective deprivation. First, direct education effects are estimated under the control of the mediating variables income and occupation. Second, income effects are measured by controlling for education and job status as confounding variables. Third, direct effects of job status are assessed by controlling for education as a confounder and income as a mediator.

According to the MLT, all indicators of low status are expected to have a a positive effect on the probability of voting for the AfD. Additionally, the MLT predicts that subjective deprivation will increase support for a populist party. Beyond the MLT's predictions, it is reasonable to assume an influence of objective deprivation on subjective deprivation. For instance, a person with low income is more likely to assess their share as less than fair. Furthermore, feelings of disadvantage are expected to increase dissatisfaction with current policies according to the MLT and the characteristics of populism. As argued above, such dissatisfaction raises the susceptibility to populist agitation.

To test these hypotheses, I estimate logit regression models with average marginal effects and two mediation analyses (also called effect decomposition) using the KHB method (Karlson, Holm, and Breen, 2011). All models include the control variables age, gender, and region. The reduced model in the first mediation analysis examines the total effect of objective deprivation on the probability to vote for the AfD. Specifically, this analysis investigates whether respondents with low education (no degree or Volks-/Hauptschule), low job status (blue-collar worker or unemployed), or low income are more likely to support the right-wing populist AfD. The full model in

this mediation analysis includes subjective deprivation as additional factor to the reduced model to determine if subjective deprivation mediates the effects of objective deprivation. If subjective deprivation acts as a mediator, the effects of education, job status, and income will diminish or become insignificant in this model. The mediation analysis tests whether differences between the reduced model and the full model are significant.[8]

The second mediation analysis takes dissatisfaction with the current politics into account. The reduced model estimates the effects of subjective and objective deprivation, while the full model additionally incorporates the dissatisfaction index. The comparison to the reduced model will reveal whether the potentially increased probability of losers of modernization to vote for the AfD is driven by their dissatisfaction with current politics. If this is the case, the effects of objective and subjective deprivation will become smaller or insignificant in the full model. Again, the mediation analysis will determine whether differences between models are significant.

2.3.2 Results

Mediation 1 Are the losers of modernization more likely to vote for the AfD? The reduced model in mediation 1 estimates the effects of the indicators of objective deprivation within one comprehensive model. This allows the interpretation of the single direct effects of the indicators, because the model controls for the respective other two indicators. For a more intuitive understanding of the logit regressions, I interpret average marginal effects (Auspurg and Hinz, 2011, p. 71), as shown in Table 2.1. First, education does not exhibit the expected direct effects. Surprisingly, holding a middle-secondary (Realschule) or professional high school degree (Fachabitur) does not significantly reduce the probability to vote for the AfD in comparison to the reference group (no degree or a lower secondary school degree (Haupt-/Volksschule)). Only respondents with a high school degree (Abitur) show a 9 percentage points (pp) lower probability of voting for the AfD. Since the MLT predicts a significant difference between the low-educated and those with middle or high education levels, this hypothesis cannot be confirmed in terms of education. Second, the results concerning job status are also not in line with the MLT. Apart from retired respondents, no other occupational group significantly differs from blue-collar workers in their inclination to vote for the right-wing populist party. Third, no statistically significant income effect is observed, again contradicting the MLT's predictions.

Thus far, the results of this analysis do not support the MLT with concern to objective deprivation. Those who benefited the least from modernization – the low-educated, blue-collar workers, the unemployed, and those with low income – do not show statistically significant differences in their probability of voting for the AfD compared to the other respondents. These results suggest that support for the right-wing

[8] Since the KHB program in Stata neither provides standard errors nor p-values for the indirect effects, standard errors are estimated here with bootstrapping methods.

TABLE 2.1: Results of mediation analyses

	MEDIATION 1				MEDIATION 2			
VARIABLES	Red.	Full	Diff.	Ratio	Red.	Full	Diff.	Ratio
Ref.: No degr./Hauptschule								
Mittl. Reife	−0.41	0.12	−0.53	128 %	0.06	0.61	−0.54	−853 %
	(2.25)	(2.26)	(0.37)		(2.04)	(2.04)	(0.67)	
Fachabitur	−0.65	0.14	−0.8	122 %	0.8	2.08	−1.28	−160 %
	(3.08)	(3.1)	(0.5)		(2.73)	(2.73)	(0.9)	
Abitur	−8.64 **	−6.84 *	−1.79 **	21 %	−6.22 *	−2.74	−3.48 ***	56 %
	(2.81)	(2.86)	(0.65)		(2.45)	(2.46)	(0.81)	
Ref.: Blue-collar worker								
White-coll. work.	−4.54	−3.63	−0.92	20 %	−4.64 *	−3.32	−1.32	28 %
	(2.48)	(2.48)	(0.47)		(2.24)	(2.23)	(0.93)	
Public servant	−1.77	−0.3	−1.47	83 %	−1.02	1.42	−2.45 *	239 %
	(4.06)	(4.08)	(0.88)		(3.62)	(3.62)	(1.17)	
Self-employed	−5.45	−3.77	−1.68 *	31 %	−6	−4.9	−1.1	18 %
	(3.9)	(3.92)	(0.77)		(3.66)	(3.65)	(1.31)	
Unemployed	−3.41	−4.03	0.62	−18 %	−4.41	−6.17	1.76	−40 %
	(4.59)	(4.6)	(1.0)		(4.05)	(4.05)	(1.38)	
Retired	−7.27 *	−5.91 *	−1.36	19 %	−6.61 *	−5.04	−1.57	24 %
	(2.97)	(2.97)	(0.72)		(2.64)	(2.63)	(0.96)	
Not working	2.5	3.6	−1.1	−44 %	0.42	−0.33	0.75	178 %
	(3.87)	(3.88)	(0.73)		(3.58)	(3.58)	(1.37)	
Ref.: Low income								
Middle income	−3.33	−2.53	−0.81 *	24 %	−2.78	−1.91	−0.87	31 %
	(1.99)	(2.02)	(0.37)		(1.82)	(1.82)	(0.63)	
High income	−2.48	−1.28	−1.2 *	49 %	−2.23	−1.01	−1.22	55 %
	(2.88)	(2.91)	(0.61)		(2.58)	(2.58)	(0.91)	
Ref.: Much less than fair								
Somewhat less		−9.53 **			−8.63 ***	−3.02	−5.61 ***	65 %
		(2.93)			(2.61)	(2.66)	(1.63)	
Fair share		−12.15 ***			−10.53 ***	−0.43	−10.1 ***	96 %
		(2.94)			(2.6)	(2.76)	(1.8)	
More than fair		−18.21 ***			−14.67 ***	−3.11	−11.56 ***	79 %
		(4.8)			(4.09)	(4.26)	(2)	
Dissatisfaction						14.25***		
						(1.22)		
Age in years	−0.09	−0.1	0.02	−17 %	−0.1	−0.1	0	−3 %
	(0.07)	(0.07)	(0.02)		(0.06)	(0.06)	(0.03)	
Gender: Male	9.47***	9.98***	−0.52	−5 %	8.48***	7.32***	1.17*	14 %
	(1.95)	(1.96)	(0.27)		(1.68)	(1.68)	(0.56)	
Region: East	5.74**	4.51*	1.22**	21 %	3.89*	2.39	1.5**	39 %
	(1.79)	(1.82)	(0.37)		(1.67)	(1.68)	(.53)	
Obs.	1.241	1.241	1.241		1.241	1.241	1.241	
Pseudo-R2		0.13				0.30		
AIC		744				604		

Average marginal effects on the probability to vote for the AfD, data: GLES 2017
Coefficients in percentage points, standard errors*100 in parentheses, * p<0.05, ** p<0.01, *** p<0.001

populist party is not divided along lines of the non-deprived versus the deprived, but rather between the educational elite and the rest of society.

Estimating the full model, which adds subjective deprivation to the reduced model, reveals whether respondents' perception of fairness influences their voting decision for the AfD and whether subjective deprivation explains the education effect. The results indicate that feeling disadvantaged has a substantial and statistically significant positive impact on the probability to vote for the AfD. Compared to those who think that they receive much less than their fair share, judging one's share as somewhat less than fair is associated with a roughly 10 percentage point lower probability of voting for the AfD. Assessing one's share as fair or as somewhat/much more than fair has an even stronger effect, reducing the probability by 12pp/18pp. These findings strongly

support the MLT regarding subjective deprivation: Those who feel most disadvantaged are the most likely to vote for the AfD.

At the same time, when controlling for subjective deprivation, the education effect shrinks significantly by 2pp. The effect of having a high school degree (Abitur) compared to no degree or a lower secondary degree is only –7pp in this model. Thus, 21% of the effect of high education is mediated by the judgment of one's share: Individuals who are not highly educated feel more disadvantaged, which in turn increases their likelihood of voting for a populist party Therefore, subjective deprivation acts as a mediator between education level and the probability to vote for the AfD.

Mediation 2 Can dissatisfaction with current politics or democracy as a whole explain the impact of feeling disadvantaged on voting for the AfD? To answer this question, the full model of mediation 2 includes the index of dissatisfaction with politics in addition to the indicators of both objective and subjective deprivation.[9] As shown in Table 2.1, on a 5-point scale, being one point more dissatisfied with politics increases the probability of voting for the AfD by 14 percentage points. This confirms the hypothesis that populist parties attract voters by appealing to their dissatisfaction with the current state of politics.

When controlling for dissatisfaction, the education effect becomes insignificant. Whether a respondent has a high school degree or not is no longer significant. Here, 56% of the education effect is mediated by dissatisfaction with politics. The non-highly educated therefore do not only feel disadvantaged, but are also more dissatisfied with politics than their better-educated counterparts. As the education effect is no longer significant, discontent with current politics seems to be the crucial difference between the educational elite and the non-highly educated. At the same time, the significant effects of subjective deprivation disappear in the full model of mediation 2. The KHB method confirms that the differences between subjective deprivation in the full and reduced models are vast and highly significant. Between 65 and 96% of the subjective deprivation effects are mediated by dissatisfaction with politics. These findings demonstrate that the impact of feeling disadvantaged on the support of a populist party can be almost perfectly explained in terms of dissatisfaction with current politics. This indicates that voters tend to translate the fairness judgments of their own situation into political discontent. At the same time, the AfD appears to have a successful strategy in gaining their support.

2.4 Discussion

This analysis demonstrates that objective deprivation does not play a relevant role in the decision to vote for a right-wing populist party in Germany as suggested by

[9] Note that even though the full model of mediation 1 and the reduced model of mediation 2 contain the same dependent and independent variables, the estimation results differ due to the rescaling of the KHB method.

the MLT. In their support for the AfD, the underprivileged do not clearly differ from the rest of society. The strongest and highly significant effect was found only for the highly educated, who are much less likely to vote for the populist party. However, not all of those without a high school degree (Abitur) can be categorized as actual losers of modernization. Therefore, my findings align with the conclusions of Lengfeld (2017) and Lengfeld (2018) in the rejection of objective deprivation as an influential factor for supporting the AfD. However, I derive my conclusions from different data, modeling choices, and interpretations. At the same time, my conclusions contradict those of Lux (2018), Rippl and Seipel (2018) and Tutić and Hermanni (2018) due to different modeling approaches. Whereas all three replication studies only interpret the findings of the separate estimation of the three indicators of objective deprivation, my approach employs an inclusive model that incorporates all indicators simultaneously. This comprehensive model is more appropriate, as it yields direct effects of each indicator by controlling for the respective other two indicators. It is especially troublesome to estimate income and occupation effects on voting for the AfD without controlling for education, because education clearly constitutes a confounder. Although Lux's overall model produces very similar empirical results to mine, he ignores these findings by focusing solely on models with individual indicators of deprivation. Similarly, Rippl and Seipel overlook that their income effect disappears when they include education into their models.[10] In contrast, this study discusses the causal relationships between indicators, providing a stronger foundation for interpreting the results.

In addition, this paper enhances previous research by conducting two mediation analyses. The first mediation analysis addresses subjective deprivation. Lux (2018, p. 265) mentions a similar analysis in a footnote, but without providing detailed results. Similar to my analysis, Tutić and Hermanni (2018, pp. 283–84) estimate the indirect effect of objective deprivation – under consideration of subjective deprivation – using the KHB method. However, their effect decomposition has a major deficit: The standard errors of the indirect effects are not estimated.[11] Therefore, it remains uncertain whether the indirect effects are statistically significant. This problem is solved here by estimating standard errors through bootstrapping methods. Additionally, this analysis provides a secondary mediation analysis, which includes dissatisfaction with the current political status as an explanatory mechanism. The results indicate that up to 96% of the subjective deprivation effects can be attributed to dissatisfaction.

The second mediation analysis treats dissatisfaction with current politics as an explanatory mechanism for deprivation effects, rather than an alternative explanation, as suggested by Lengfeld (2018). Feelings of deprivation cannot directly account for an affinity for populist parties. For instance, if an individual who feels disadvantaged does not blame politicians for their lack of resources but instead attributes their situation to other factors, such as the capitalist system, they would be less likely to resonate

[10] Lengfeld (2018) (in his response to the critics) also finds income effects in a model including education, but uses net household income instead of equivalence income as a more adequate measure.

[11] Indirect effects are tantamount to the difference between full and reduced models.

with populists' anti-establishment rhetoric. Thus, disapproval of 'politics as usual' is a crucial explanatory factor in understanding a subjectively deprived voter's motivation to vote for a populist party. Those who feel disadvantaged may believe that politicians have failed to prevent or improve their poor economic and social standing, making them more susceptible to the populist promise of caring for the neglected common people.

These findings are discordant with Lengfeld's (2018) interpretation of his results. Whereas Lengfeld concedes that both objective and subjective deprivation have a significant effect on the support of the AfD, he points out that these effects vanish when including dissatisfaction with democracy and disapproval of refugees into the model. Lengfeld concludes that the motivation for supporting the AfD are cultural rather than economic. However, this argument is not convincing. The fact that deprivation effects vanish with the inclusion of additional variables does not mean these variables are more relevant than deprivation. Instead, dissatisfaction with democracy and disapproval of refugees most likely act as mediating variables that do not negate the deprivation effects but rather explain it.[12] First, it seems plausible that subjectively disadvantaged voters are more likely dissatisfied with democracy, as they may view it as ineffective in addressing their personal needs. My results support this hypothesis, as my dissatisfaction index also includes dissatisfaction with democracy. Second, those who see themselves as losers of modernization might be more fearful of the influx of refugees, fearing competition in the labor market. Guiso et al.'s (2024) analysis of European left- and right-wing populist parties supports this argument, showing that economic insecurity as the key driver of the populist vote is mediated by distrust for traditional politics and negative attitudes towards immigrants.

In conclusion, it is crucial to carefully consider the complex causal relationships between explanatory factors. This complexity requires a thorough discussion and sound arguments to select suitable causal and statistical models and to derive plausible interpretations of the results.

2.5 Conclusion

This article examined whether and why the modernization losers' theory holds for voters of the AfD in the German federal election of 2017. In a first step, the empirical analysis revealed that none of the indicators of objective deprivation (low education, low income, low job status) has a statistically significant effect on AfD voting. Instead, the only significant differences were found between the highly educated and the non-highly educated: Respondents with high school degree (Abitur) were roughly 10 percentage points less likely to vote for the AfD as compared to those without a school degree or with a lower secondary degree. The middle-educated (Realschule or Fachabitur) do not differ from the low-educated in their tendency to vote for the populist

[12] Lengfeld mentions a similar interpretation (p. 304) but still draws the conclusion that cultural factors are more important than economic ones.

party. As those without a high school degree cannot all be categorized as objectively deprived, the modernization losers' theory is not confirmed for objective deprivation.

In a second step, I test whether subjective deprivation increases the probability to vote for the AfD by adding a fairness evaluation of one's share to the original model. I find that evaluating one's share as fair or more than fair (as compared to rather less than fair) is associated with a 10 to 18 percentage point lower probability to support the right-wing populist party. Therefore, the MLT is confirmed for the subjectively deprived. The second step also comprises a mediation analysis. Following the KHB method uncovers that 20% of the high-education effect is mediated by subjective deprivation. More specifically, those without a high school degree are more likely to evaluate their own share as less than fair, encouraging them to vote for the AfD.

In a third step, a further mediation analysis confirms the central role of dissatisfaction with current politics in the decision to vote populist. On a 5-point scale, being one point more dissatisfied with politics increases the probability of voting for the AfD by 14 percentage points. In addition, when the index variable for the degree of dissatisfaction is introduced into the model, the effects of high education and subjective deprivation become statistically insignificant. For those who see themselves as losers of modernization, their dissatisfaction explains up to 96% of the effect of voting for the AfD. Consequently, dissatisfaction with the current political state functions as a causal link between subjective deprivation and support for the AfD.

Future research might delve into the social divide between the highly and the non-highly educated to explain why those without a high school degree (Abitur) are more likely to feel disadvantaged and dissatisfied with politics. It is surprising that only respondents with Abitur differ from the low-educated in the probability of voting for the AfD, whereas those with the second highest degree (Fachabitur) do not show a significant difference, although Abitur and Fachabitur are both higher secondary school qualifications. This questions the common research practice of subsuming Abitur and Fachabitur in one category. A more detailed examination of the general differences between these educational groups would be valuable.

Another key area for future research is to explore the factors contributing to feelings of being left behind among AfD voters. Given that only subjective deprivation, rather than objective deprivation significantly impacted the voting decision for the AfD, feelings of unfairness do not seem to be rooted in actually bad life circumstances. Since subjective deprivation is a relational concept, the sense of unfairness arises from comparisons with others. This raises the intriguing question of whom the AfD voters comparing themselves to and why. Gaining a deeper understanding of this could also benefit politicians from other parties. To regain voters from the AfD, they should consider how to address and alleviate these perceptions of unfairness.

Chapter 3

Does unprecedented mass immigration fuel ethnic discrimination? A two-wave field experiment in the German housing market

KATRIN AUSPURG, RENATE LORENZ, ANDREAS SCHNECK

Abstract Literature suggests that sudden mass immigration can fuel xenophobic attitudes. However, there is a lack of reliable evidence on hostile actions, such as discrimination. In this study, we leverage the unexpected mass immigration of refugees to Germany in 2015 in combination with a two-wave field experiment to study the effect of immigration on ethnic discrimination. In 2015/2016, political and social tensions in the Middle East and North Africa led to a historic mass migration to European countries. We carried out a large-scale field experiment on ethnic housing market discrimination in Germany (paired e-mail correspondence test with 5,000 e-mail applications to rental housing units in each wave) shortly before this "European refugee crisis"(1st wave). We repeated this experiment at the peak of the crisis (2nd wave of our experiment). By taking advantage of the unexpected refugee immigration between the two waves of our experiment and the quasi-random allocation of refugees across regions for causal identification, we find no credible evidence that the large influx of refugees changed the extent of ethnic discrimination of Turks in the rental housing market. This result holds regardless of the extent to which regions within Germany were already accustomed to immigration before the refugee crisis.

3.1 Introduction

In recent years, the number of refugees has continuously increased, with the share of displaced persons accounting for more than 1 percent of the world's population (1 in 88 people in 2021; UNCHR, 2022). Due to violence and conflicts (such as Russia's

war of aggression against Ukraine), human rights violations, political instability, demographic change, or severe impacts of climate change, refugee migration is expected to remain a global mega-trend in the future (Kaczan and Orgill-Meyer, 2020; Koubi, 2019).

In this study, we ask whether unexpected mass immigration of refugees affects the discrimination of immigrants already living in a host country. A common assumption is that the majority population perceives an influx of immigrants with a different ethnic or religious background as culturally threatening (see, e.g., Brady and Finnigan, 2014; Hainmueller and Hopkins, 2014; Newman, 2013). We expect that resulting negative feelings against refugees spill over to Turkish immigrants already living in Germany. There is evidence that boundaries for defining threatening groups in Europe are drawn primarily along religion, not ethnicity (for an overview: Gereke et al., 2022). At the same time, it is to be expected that both immigrating refugees and Turks are predominantly perceived as Muslims. An increase in the relative size of immigrants (out-group) may also increase competition (real or perceived) between immigrants (out-group) and natives (in-group) for social and economic resources. A sense of (competitive) threat is likely to increase hostility and motivation to discriminate (e.g., Blalock, 1967; Hopkins, 2010; Semyonov et al., 2004). All of these mechanisms can jeopardize the integration success of newly arriving refugees, but they can also lead to setbacks for immigrants already living in a country. Although research often shows that immigration can increase anti-migration sentiments and support for anti-immigration policies (e.g., Hopkins, 2010; Semyonov et al., 2004), there is little research on the impact of immigration on discrimination.

In our study, we therefore pursue the following questions: (i) Did the strong immigration during the European refugee crisis increase discrimination in the German rental housing market against Turkish immigrants? (ii) Are there heterogeneous effects depending on regions' prior exposure to immigrant populations?

Our major contribution to the literature is to exploit the unexpected immigration of refugees from predominantly African and Middle Eastern countries in late summer and fall 2015, known as the European "refugee" or "migration crisis," to identify the effect of immigration on discrimination. Discrimination was measured with a paired field-experimental design that ensures high internal validity (Baldassarri and Abascal, 2017; Elwert, Keller, and Kotsadam, 2023). For the first research objective, identifying the average treatment effect of immigration on discrimination, we use the highly salient and unanticipated event of the refugee crisis as a kind of natural experiment. Our repeated field experiment consists of two waves, with the 1^{st} wave conducted in May before the unexpected immigration (control group), and the 2^{nd} wave conducted in December after the unexpected immigration unfolded (treatment group). Repeating the field experiment with the same design and in the same regional housing markets allows for balancing out most covariates. In addition, the mass immigration was unforeseen, thus preventing anticipation effects: Only the treatment group of housing suppliers tested in the 2^{nd} wave was exposed to the refugee crisis. With certain further

assumptions about exogeneity (Muñoz, Falcó-Gimeno, and Hernández, 2020, evaluated later), this design allows identifying the causal effect of refugee immigration on ethnic housing discrimination of Turks.

For our second research goal, identifying treatment effect heterogeneity by regions differentially accustomed to immigration, we also make use of the specific setting of the refugee crisis. Germany's legal regulations ensured a quasi-random allocation of refugees to geographic regions (depending on population size and tax revenues) and at least prevented refugees from self-selecting into regions with lower discrimination or higher proportions of foreigners. This exogeneity (also discussed in more detail later) allows us to identify treatment heterogeneity without confounding or endogeneity bias that occurred in previous (field-experimental) studies (for general threats to identification in experimental research: Montgomery, Nyhan, and Torres, 2018; VanderWeele, 2015).

To preview our results: The discrimination measured with our field experiments was remarkably immune to the influence of the refugee crisis: The level of discrimination observed at the peak of the refugee immigration (2^{nd} wave) did not differ substantially from what we observed shortly before the refugee crisis unfolded (1^{st} wave). Throughout, e-mail applications from Turkish applicants had a 10 percentage points lower chance of receiving a response from housing suppliers than the same e-mail applications from German applicants. This result applies regardless of the extent to which regions were already accustomed to immigration before the refugee crisis.

3.2 Background

3.2.1 Theories on immigration, group threat, and discrimination

Theories on threats and intergroup conflicts predict that prejudice and hostile attitudes against immigrants – which are both seen as predictors for discrimination (Becker, 1957) – increase with the (perceived) number of immigrants relative to the autochthonous population in a geographic region (Blalock, 1967, for evidence on the U.S.: Newman, 2013; Ha, 2010; Hopkins, 2010, for evidence on Europe: Markaki and Longhi, 2013; Semyonov et al., 2004). Supposed reasons are that immigrants are perceived as culturally different (e.g., because they have different values or a different religion) and that an increase in their relative size is perceived as a cultural or economic threat to the majority culture (e.g., because an increased number of immigrants would have more political and cultural influence or could exploit the welfare system to a greater extent; Brady and Finnigan, 2014). Rising feelings of threat could affect real estate agents and private suppliers in the housing market as part of the majority population in Germany.[1] The influx of refugees may also threaten rental income and property values, as a decline in rents has already been recorded in the

[1]Home ownership is much more common among natives than among migrants in Germany. Official statistics for 2014 show, for example, that people without a migration background were much less likely to live in residential property (54.8 percent) than people with a migration background (34.5 percent,

neighborhood of refugee accommodations (for evidence on the European refugee crisis: Hennig, 2021; Kürschner Rauck, 2020). Another possible reason for immigration fueling anti-immigration sentiment is that a growing immigrant population intensifies competition between natives and immigrants over scarce resources, such as labor market opportunities or childcare facilities. Although homeowners generally belong to a wealthier population segment, their social networks may not be fully insulated from perceived competition. In addition, because real estate agents do not require a formal qualification in Germany, agents with low education may feel threatened by increased competition for jobs, housing or social benefits. Natives, including housing suppliers, may also fear greater ethnic mixing and resulting declines in the perceived quality of their children's schools (Betts and Fairlie, 2003).

Regardless of what causes the feelings of threat: We expect that exposure to immigration spurs exclusionary attitudes on the part of the ethnic majority toward their ethnic others (Elwert, Keller, and Kotsadam, 2023). Indeed, there is a large body of literature based on theories of ethnic threat and competition (Blalock, 1967; Blumer, 1958) that shows that increases in immigrant populations enhance anti-immigrant sentiments. In particular, sudden mass immigration is likely to lead to threats and competition, as it limits the time for the population to adapt to cultural change (e.g. by positive contact experiences with immigrants) and for markets to absorb the increasing demand (Cea D'Ancona, 2018; Olzak, 1994). This is consistent with the two necessary conditions identified by Hopkins (2010) for turning native attitudes against immigrants: Mass immigration noticeably shifts the sociodemographic composition at the local level, and at the same time, there is a salient national rhetoric about the threat of immigration. Presumably, a large influx of immigrants is particularly culturally threatening to citizens living in environments with little previous exposure to immigrants (Newman, 2013).

The setting of the European refugee crisis fits these scope conditions very well and thus might be one of the most likely cases of threat and conflict theories to apply. The influx of refugees was unexpected and exceptionally strong, even for a country like Germany, which had been accustomed to immigration (see statistics in later sections). In Eastern Germany, refugees also settled in regions that had previously hardly been exposed to immigration: The share of foreigners (population without German citizenship) at the time of the refugee crisis was below 1 percent in several Eastern German municipalities. The immigrants were hosted mainly in special homes, so-called initial reception facilities after their arrival. However, immigration also intensified competition in the private housing market, as shelters were supposed to be temporary and refugees were supposed to move into (subsidized) private housing when they found such accommodation (Hennig, 2021). At the same time, the refugee crisis became the primary topic of public, political, and media debates in Germany and Europe (Wagner

German Federal Statistical Office - DESTATIS, 2017). Migrants being much more dependent on the rental housing market lends particular importance to studies of ethnic discrimination in this market.

et al., 2020). After initial reports on Germany's exceptional "welcome culture", the media increasingly focused on integration challenges, protests against immigration, and hostile attacks on refugee shelters (Czymara and Schmidt-Catran, 2017; Jäckle and König, 2018; Wagner et al., 2020). Thus, we expect theories on group conflicts (and not opposing contact theories[2]) to apply: The refugee immigration has most likely intensified natives' out-group rejection.

What is more difficult to predict is which immigrant groups will be affected: only newly arrived immigrants or also those who have lived in the host country for some time? To date, there are conflicting ideas about how the arrival of new immigrants can change perceptions and behavior toward immigrants already living in the host country (Fouka and Tabellini, 2021a). Former immigrants may benefit from the arrival of new immigrants by being re-classified as a group less culturally distant from the native population, for example, due to comparatively better language proficiency. Such positive reframing of the perception of one out-group due to the appearance of a new out-group was observed in the U.S., where the arrival of Mexican immigrants lowered prejudice against Black Americans (Fouka and Tabellini, 2021b). In the case of the European refugee crisis, however, we expect that the negative out-group rejection caused by immigrating African and Middle Eastern refugees will spread to other Muslim minority groups, including the Turkish migrants tested in our experiments. Such negative cultural sociotropism was found, for example, in the aftermath of the terror attacks on 9/11, when anti-Muslim rhetoric sparked a backlash against all immigrant groups (Hopkins, 2010). Spillover effects are considered more likely if a minority group is perceived as culturally similar to new immigrants, which may lead the native population to lump this group together with the new immigrants as one socially distant out-group. In Europe, being Muslim or not seems to be an even more important predictor for group boundaries definition, discriminatory attitudes and behavior than race or ethnic origin (Alba, 2005; Auspurg, Schneck, and Hinz, 2019; Di Stasio et al., 2021; Gereke et al., 2022). Many Europeans and Germans perceive a strong incompatibility between Muslim and Western values (Korteweg and Yurdakul, 2009; Zolberg and Long, 1999). Turkish migrants were therefore likely to be perceived as culturally close to refugees who immigrated primarily from Syria, Iraq and Afghanistan, as all these migrants have an origin in a Muslim country (for more detailed arguments: Deole and Huang, 2020).

[2]Contact theories assume that larger immigrant populations may increase the chances of positive contact (e.g. building friendships) under certain conditions. Positive contact reduces hostility and discrimination by promoting empathy and understanding (Allport, Clark, and Pettigrew, 1954; Elwert, Keller, and Kotsadam, 2023; Pettigrew and Tropp, 2006). According to Allport's original specification, intergroup contact reduces prejudice primarily when natives and immigrants have the same status, and when they cooperate and work toward a shared goal. Although later theories suggests that these conditions are facilitative rather than essential (Pettigrew and Tropp, 2006), one scope condition has crystallized as particularly important: Contact must provide opportunities to form friendships (c.f. Bohman and Miklikowska, 2021). However, during the first phase of refugee integration in which our experiment took place, contacts with refugees were mostly fleeting, non-repetitive encounters that lack the depths of contact for empathy to evolve (see e.g. the survey results of Schmidt, Weick, and Gloris, 2019 on contact frequencies).

3.2.2 Research on attitudes

With respect to the European refugee crisis, there is evidence that the large influx of refugees has fostered anti-immigration attitudes and sympathy with far-right-parties opposing immigration (Czymara and Schmidt-Catran, 2017; Dinas et al., 2019; Rudolph and Wagner, 2022; Steinmayr, 2021, for evidence on Germany: Dostal, 2017; Czymara, 2021, for an exception: Schaub, Gereke, and Baldassarri, 2020). Some studies have also reported spillover effects on the Muslim population in Europe. For example, exposure to refugees near reception centers made locals in Greece more hostile to Muslims who had lived on these Greek islands for generations (Hangartner et al., 2019).

Studies on attitudes have justified their focus by arguing that attitudes motivate hostile actions (Dinas et al., 2019; Semyonov et al., 2004). However, this argument misses a crucial point: Ethnic discrimination is arguably not just mapping anti-immigrant attitudes into actions. Instead, discrimination is regulated by responses to perceived norms of appropriate behavior and cost-benefit considerations (Böhm et al., 2018; Scacco and Warren, 2018). In the housing market, higher search costs result when landlords accept only one ethnic group as possible tenants (Auspurg, Schneck, and Thiel, 2020). Lab experiments have shown that even low-cost burdens can prevent anti-immigration sentiments from resulting in corresponding hostile actions (Böhm et al., 2018). Furthermore, widely studied statistical and customer discrimination theories (Arrow, 1971; Phelps, 1972) suggest that, instead of feelings of dislike, seeking stable rental payments in combination with assumptions about prospective tenants' solvency may be the cause of ethnic discrimination. Many natives see housing in or near ethnic enclaves and refugee shelters as a disamenity (Hennig, 2021; Liebe et al., 2018). This could even prompt landlords to favor immigrant applicants over native applicants in multiethnic neighborhoods, as steering migrants to other migrants would reduce the time it takes real estate owners and agencies to rent housing units (Farley et al., 1994).

In sum, it can be expected that unforeseen mass immigration of refugees will fuel prejudices and anti-migration sentiments; this may be especially true in regions that are barely accustomed to immigration. Still, it is unclear if this translates to increased ethnic discrimination against immigrants already living in a country.

3.2.3 Assessing effects of immigration on discrimination

A body of literature shows that discrimination on (housing) markets still constrains housing and neighborhood opportunities for ethnic or religious minorities (for meta-analyses: Auspurg, Schneck, and Hinz, 2019; Flage, 2018; Quillian et al., 2017). Many studies have shown that discrimination in the housing market can have detrimental effects on minority groups' short- and long-term outcomes (e.g. by negatively affecting their education, labor market, and/or health status; for an overview: Krysan and Crowder, 2017). Therefore, it is not surprising that a bulk of studies tried to identify

conditions under which discrimination most likely occurs, including the ethnic composition of neighborhoods and variations in the size of immigrant populations.

To date, nearly all empirical studies on the immigration-discrimination nexus have studied correlations between the actual size or share of immigrant populations in different regions and the level of discrimination observed there.[3] So far, the results from these studies are inconclusive. Although most studies on the U.S. found the level of discrimination to decrease with the share of immigrants living in a region (for an overview: Krysan and Crowder, 2017), the evidence on Europe is mixed. Some studies found no (e.g. Bracht, Coenen, and Putte, 2015), others a positive (e.g. Baldini and Federici, 2011; Auspurg, Hinz, and Schmid, 2017), and some a negative association (e.g. Carlsson and Eriksson, 2014) between the regional size of immigrant populations and discrimination.

This heterogeneous state of research probably results from an empirical research design that does not allow for causal identification. To interpret the statistical effect of the share of immigrants as a causal effect, one must assume that unobserved factors that simultaneously affect immigration and discrimination (such as the tightness of housing and labor markets) are invariant across the compared regional units. Especially when comparing aggregated data, there is a risk of bias due to omitted variables and ecological fallacy. Furthermore, there is the problem of self-selection (Krysan and Crowder, 2017), as individuals can often decide whether or not they want to interact with other groups (as neighbors). It is plausible that individuals with a priori xenophobic attitudes prefer real estate ownership more often in regions with fewer members of other ethnic/religious groups than individuals with openness to multiethnic neighborhoods. At the same time, immigrants may self-select into specific regions (e.g., with higher numbers of co-ethnics) to evade discrimination. In case of such self-selection, the causality would be reversed: discrimination causing low immigration, not vice versa.

Figure 3.1 illustrates these various correlations between immigration and discrimination. Panel (A) shows a causal effect of immigration on discrimination, mediated by increasing cultural threats and competition. In panel (B), the supposed causal effect is only spurious, caused by confounding variables and by self-selection of property owners and immigrants. We contribute to the literature by seeking to identify a causal effect of immigration, as hypothesized in panel (A). This is possible because, unlike previous research, we can draw on exogenous variation in the size of immigrant populations. Even though we cannot infer the mediating variables (we have no information on feelings of threat and competition at the micro level of rental processes), this is an important first step in clarifying the causal structure underlying the frequently observed association between immigration and discrimination.

[3] Regions as units of comparisons reached from neighborhoods within a single city (e.g. Auspurg, Hinz, and Schmid, 2017) over different districts within countries (Bracht, Coenen, and Putte, 2015) up to comparing different countries (Quillian et al., 2019). Some studies also analyzed associations between the level of ethnic/racial segregation or ethnic diversity with the level of ethnic/racial discrimination (for an overview: Krysan and Crowder, 2017, Ch. 9).

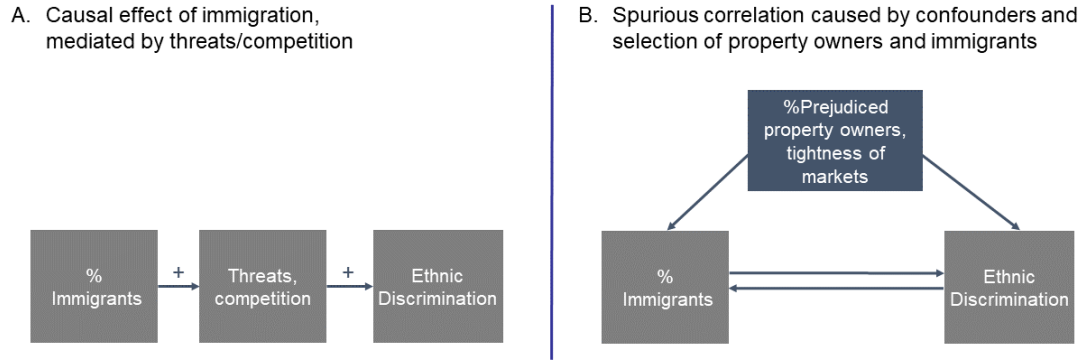

FIGURE 3.1: Possible associations between immigration and discrimination.
Note: In panel (A), one can expect throughout positive associations, if threat or conflict theories apply. In panel (B), we do not show the signs of associations, as confounders might have positive or negative effects on immigration and discrimination. Therefore—if not considered—confounders can lead to an over- or underestimation of the effect of immigration on discrimination.

We are aware of only one study focusing on discrimination in the context of the European refugee crisis. This lab experiment compared regions in Eastern Germany with varying exposure to refugees and concluded that the (strong) influx of refugees did not alter hostile attitudes, voter behavior, or discrimination (Schaub, Gereke, and Baldassarri, 2020). However, lab experiments might show limited external validity due to selective participation and limited internal validity due to the artificiality of lab experimental settings (Shadish, Cook, and Campbell, 2002). In addition, the cross-sectional setting of this study did not allow for observing potential changes in discrimination over time.

3.3 Data and research design

3.3.1 The setting of the refugee crisis

In 2015, around 1.3 million people applied for asylum in Europe – more than in any year since the Second World War. Germany alone took in nearly one million refugees, most of whom were Muslim (BAMF, 2016b). Although there had been a small increase in refugee numbers since 2011, a sudden and unexpected mass influx was triggered by the decision of German authorities in August 2015 to suspend the "Dublin Agreement"[4] for Syrian refugees (and one month later also for refugees from other countries). Refugees were allowed to file their asylum application in Germany from then on, even if the country of arrival would normally have been responsible for processing the application.

[4] According to the Dublin III Regulation, refugees were only eligible to apply for asylum in the country where they had first entered the European Union.

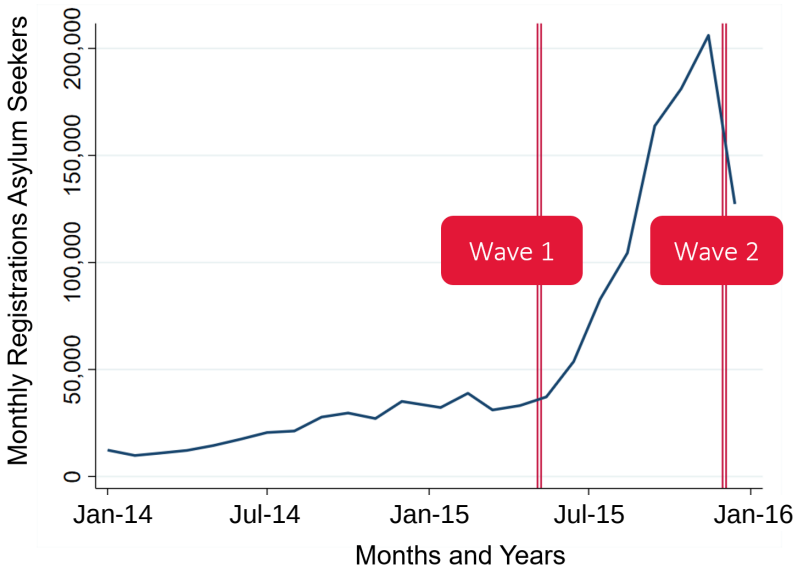

FIGURE 3.2: Monthly number of asylum seekers and timing of the two waves of our field experiment.
Note: This figure shows the number of newly registered asylum seekers in Germany from January 2014 to January 2016 and the timing of the two waves of our repeated field experiment on ethnic discrimination (each lasting one week). On average, about 1 refugee per 100 inhabitants arrived in the 401 counties in Germany between the dates of the two waves. Data: German Federal Ministry of the Interior and Community, own illustration.

Even though Germany has had a long history of receiving refugees, the subsequent uptick in immigration in the second half of 2015 was exceptional.[5] This can be seen in Figure 3.2, which plots the monthly registration of asylum seekers together with the timing of the two waves of our repeated field experiment. The registrations remained relatively stable until they suddenly rose in the summer of 2015, shortly after the 1^{st} wave of our field experiment.

The large and unexpected influx of refugees has put a lot of strain on the German asylum system, which was at that time only designed to accommodate about 150,000 asylum seekers per year (Schaub, Gereke, and Baldassarri, 2020, p. 691). Counties throughout Germany received more asylum seekers than they were prepared to accommodate. In order to equalize the resulting burden on counties and municipalities, the geographical distribution of newly arriving refugees was organized according to a quota system ("Königsteiner Schlüssel"). Each federal state received refugees proportional to its population size (two-third weight), and to a lesser extent (one-third weight) its economic capacity, measured by tax revenues. Within the federal states,

[5] In 2015, immigration to Germany was higher than ever before, according to statistics from the German Federal Statistical Office - Destatis (2016). 2.16 million people moved to Germany, of which about 0.9 million were asylum seekers who fled from (civil) wars and poverty, mainly in Syria, Afghanistan, Iraq, and some south-eastern European countries (German Federal Ministry of the Interior and Community - BMI, 2016). In 2015, about 7.8 Mio inhabitants in Germany (10 percent) did not have a German citizenship, and about 17.1 Mio (21 percent) had a migration background (with the largest immigrant groups being Turks, followed by Poles and immigrants from the Russian Federation).

refugees were initially housed in central reception centers. Within three months, they were then moved to smaller refugee shelters in municipalities all over Germany, mostly based on similar quota systems at the level of counties. During the complete asylum process, all refugees were required by law to remain at their assigned place of residence. In 2015, asylum applications took roughly seven months to process (Schaub, Gereke, and Baldassarri, 2020). This means that almost all refugees were still living in their assigned municipality during the 2^{nd} wave of our field experiment (for more details and statistics on the allocation process: Aksoy, Poutvaara, and Schikora, 2020).[6] Taken together, these administration procedures imply that per capita refugee immigration to counties was exogenous to most county characteristics that might affect housing discrimination, such as the size of previous immigrant populations. (The plausibility of this assumption will be discussed in more detail later.)

3.3.2 Data

We conducted a paired e-mail correspondence test (field experiment) with two waves in 2015. The first wave took place before the start of the increased refugee immigration from May 4 to May 8, and the second wave took place at the peak of the refugee immigration from November 30 to December 4. Correspondence tests are considered the gold standard for measuring discrimination (Baldassarri and Abascal, 2017; Ross, 2017). Two male applicants, one of whom signaled a German, the other a Turkish background, applied for the same rental housing unit.[7] Applicant ethnicity was indicated by 30 different typical Turkish and German names each. We chose a paired testing (within-subject) design with two applications per advertisement to give housing suppliers at least one viable alternative to the potentially disliked applicant and to take advantage of the higher power of a within-testing design (Charness, Gneezy, and Kuhn, 2012): The timing of the experiment, characteristics of the tested housing units/suppliers, and their regional context are constant for the pair of applications, which increases the statistical power to detect effects of ethnicity.

Besides ethnicity, we also varied the (amount of) information on applicants' family and labor market status. All applicant characteristics were fully crossed based on a *D*-efficient design, the gold standard for optimal orthogonal and balanced experimental designs (Auspurg and Hinz, 2015). Although ethnicity was always varied between the two applications to the same housing unit (i.e., one application was always sent by a Turkish, one by a German applicant), the levels of other experimental factors could either be the same or different between the two applications to the housing unit. Such

[6] Even between 2016 and 2018, only 8 percent of the refugees in Germany moved to another federal state (Aksoy, Poutvaara, and Schikora, 2020). These authors, who tested a variety of variables, found that county-level population size was the only statistically significant predictor of the number of asylum seekers assigned per county.

[7] Turks formed the largest ethnic minority in Germany in 2015. We focused on this group in our experiments because there was already evidence that Turkish immigrants in Germany were particularly affected by negative prejudice and discrimination (in the housing market). One reason for this discrimination is probably their presumed Muslim religion (Auspurg, Hinz, and Schmid, 2017; Auspurg, Schneck, and Hinz, 2019).

multifactorial designs prevent the stimulus of ethnicity from being confounded with the composition of the candidate pool applying to the same vacancy (Phillips, 2019). Moreover, they allow for the standardization of key sociodemographic variables between the two groups of Turkish and German applicants, thus providing clearer evidence that ethnicity (and not, e.g., different financial backgrounds) causes potential discrimination. In addition, such designs help to conceal the nature of the experiment to housing suppliers avoiding problems of reactivity. The risk of detection was also minimized by using slightly different versions of salutations and other phrases for the two e-mail applications sent to one housing offer (different phrases were randomly assigned).

The paired e-mails were automatically sent with a time interval of about one hour, and the order of who applied first (the Turkish or the German applicant) was alternated to avoid confounding ethnicity with possible order effects. Following standards in such experiments, we relied on the observation of whether housing suppliers replied to one or both e-mails to identify unequal treatment (discrimination).[8] At the level of the tested housing units, this results in three possible outcomes:

a. Both applicants receive/do not receive a response: = equal treatment;

b. Only the German applicant receives a response: = discrimination against the Turk;

c. Only the Turkish applicant receives a response: = discrimination against the German.

Following standard approaches, we define the gross discrimination rate of Turks (Germans) as the percentage of cases with outcome b (c); and the net discrimination rate of Turks that indicates systematically greater discrimination against Turks compared to Germans as $b - c$. We will use the more "conservative" net discrimination rate (Ondrich, Ross, and Yinger, 2000) as the main outcome and use gross discrimination only in robustness analyses.

In both waves, we sampled 2,500 listings for rental housing units with 2 to 4 rooms to be tested in our experiment. A web-scraping procedure was used to randomly select these housing units from a major online housing platform in Germany. For ethical reasons and to follow standard procedures for field experiments in the housing market (Zschirnt, 2019; Auspurg, Schneck, and Thiel, 2020), we sampled on the level of suppliers and not housing units, meaning we tested each supplier only once. Few housing units (N = 188) were excluded from the analysis sample as they were no longer available on the housing platform at the time the e-mail of the 2^{nd} applicant was planned to be sent. In these cases, a paired test was not feasible. A few more units (N = 13) were excluded as no information on their regional location was available, making it impossible to measure moderator variables (i.e., the share of foreigners living in the region) or control variables (e.g., the federal state in which the housing unit was located). In

[8] Other outcomes (the content of responses and response times) are used in robustness checks.

total, the analysis sample included 4,799 rental units: 2,389 tested in the 1^{st} and 2,410 tested in the 2^{nd} wave.

3.3.3 Identification strategy

The central theoretical estimand (cp. Lundberg, Johnson, and Stewart, 2021) of our study is the effect of refugee immigration in the second half of 2015 on discrimination of Turks in the rental housing market. The empirical estimate we use is the difference in discrimination found before (control group, 1^{st} wave) and at the peak of refugee immigration (treatment group, 2^{nd} wave). A simple estimate of the average treatment effect (ATE) is the mean difference θ between the level of net discrimination found in the 2^{nd} versus 1^{st} wave of our field experiment:

$$\theta = (b - c)_{wave2} - (b - c)_{wave1}$$

The unbiased identification of this ATE requires that differences in the level of discrimination between the two waves (i.e., control and treatment group) must solely be due to the strong influx of refugees during the refugee crisis. A key challenge to this assumption in our study is that we could not test the same housing units/suppliers in both waves but had to rely on different samples for practical and ethical reasons.[9] For a valid identification, it is then crucial that the samples observed in both waves are balanced in terms of (unobserved) covariates that could also influence the level of discrimination (Muñoz, Falcó-Gimeno, and Hernández, 2020). Because we used exactly the same design for the field experiment and sampling of housing units/suppliers for both waves, and the time interval between the two waves was short ($\sim$ 7 months), it seems plausible that most covariates are balanced, which is supported by statistical tests for nearly all observable covariates (see Appendix B.3.2).[10]

We nevertheless account for possible imbalances in two ways. First, we use multivariable regression models where we regress net discrimination on a wave dummy to estimate the treatment effect and a large bunch of covariates to account for possible changes in the composition of tested housing units/suppliers or housing markets (on the apartment level: number of rooms, rent per sqm, private housing supplier yes/no – on the county level: located in a metropolitan area yes/no, Gross Domestic Product (GDP) per person employed, population density, share of foreigners, unemployment rate, vacancy rates and voter share of green-party; see Appendix B.1.2 for details on

[9] Rental housing units are typically advertised only few days or weeks, meaning that most housing units/suppliers tested for discrimination in our field experiment were available only in one of the two waves. Testing only suppliers available at both waves would have strongly impacted the external validity of our study. As mentioned above, we also decided to test each supplier only once for ethical reasons.

[10] The only two exceptions were a small increase in the proportion of private suppliers (that tend to discriminate more likely compared to real-estate agencies, see Flage, 2018) due to a legislative reform, and a slight decrease in the share of housing units located in counties with a high share of voters for a left-wing party (the Green party) supporting immigration in the last federal election (2013). When not accounted for, both imbalances may lead to a slight overestimation of the increase in discrimination across waves.

TABLE 3.1: Total discrimination rates (both waves pooled)

		Turkish applicants	
		Response	*No response*
		Equal treatment	**Gross discrim. Turkish**
	Response	49.20%	14.30%
German applicants		(*N*=2,360)	(*N*=686)
		Gross discrim. German	**Equal treatment**
	No response	4.00%	32.50%
		(*N*=194)	(*N*=1,559)

Notes: Net discrimination of Turkish applicants: 14.3% - 4.0% = 10.3%. McNemar's χ^2 (1) = 275.1, p<0.001. The number of tested housing units was *N* = 4,799. The overall response rate was 58.3%. For the German applicant the response rate was 63.5%, for the Turkish applicant it was 53.2%.

the regression approach). We also included federal state fixed effects that allow to net out all time-constant variables, observed or unobserved, on this level. Second, we repeat our robustness analyses for various subsamples, such as only private versus non-private housing suppliers, ensuring perfect balance of those main covariates (see Appendix B.3.1).

To identify treatment heterogeneity by regions' prior exposure to immigrant populations (our second research goal), we compare differences in changes in discrimination across the two waves between counties with different sizes of foreign populations (measured by official per capita numbers in 2014, the year before the refugee crisis; in contrast to the newly arrived refugees, most of the 2014 foreigners already had a long-term residence permit for Germany, so their population share is a good indicator of the prior contact of residents with immigrants).[11] To estimate the possible moderation by this variable, we extended our multivariable regressions by an interaction term between the wave dummy and the size of foreign populations.

Still, several assumptions must be met for a valid identification (Muñoz, Falcó-Gimeno, and Hernández, 2020). These are evaluated later in the section on threats to identification. More details on the research design, analytical strategy, and robustness of results are provided in Appendix B.

3.4 Results

3.4.1 Main findings

In total, our pairwise-matched applications resulted in data on 9,598 rental requests: ∼2,500 housing units per wave, each contacted by one Turkish and one German applicant. First, we report the overall discrimination rates, then we continue with the

[11] Foreigners are individuals without a German nationality. For regional units (counties) there are official statistics on a yearly basis only for foreigners, not the whole population with a migrant background. However, both variables are strongly correlated (see Appendix B.1.1). Germany is divided into 402 counties (varying in size from 34,260 to 352,0031 inhabitants in 2015), composed of a city and/or a rural region. Overall, the field experiment was run in all federal states and in 328 of the 401 counties in both waves.

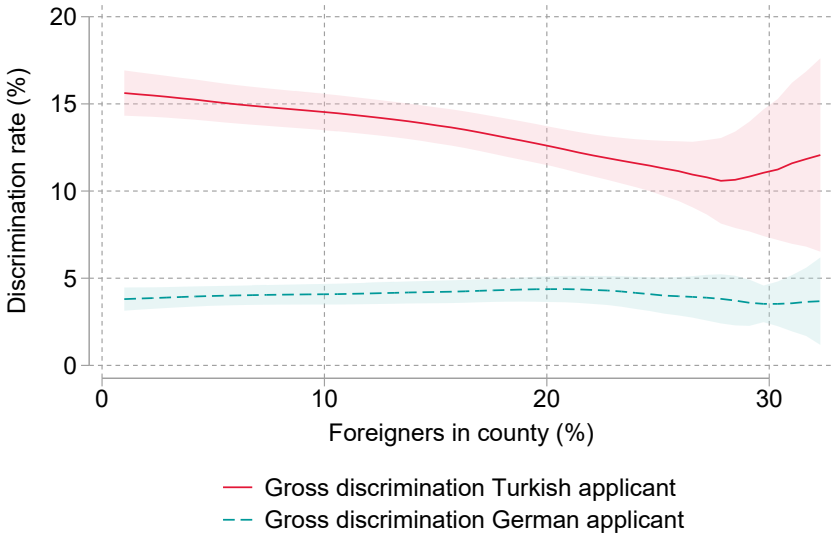

FIGURE 3.3: Overall discrimination rates by share of foreigners in a county

Note: This figure shows a nonparametric polynomial smoothing of the association of the gross discrimination of Turkish (red, solid line) and German (green, dashed line) applicants over counties with different shares of foreigners (population with no German nationality, according to official statistics) together with 95 percent confidence intervals. The gap between both discrimination rates is the net discrimination rate. One can see that the gross discrimination of Turks and accordingly the net discrimination rate decline with increasing shares of foreigners living in a county. The figure is based on N = 4,799 tested apartments in both waves and was produced with the Stata command lpolyci. In order to identify stable trends behind idiosyncratic (outlier) effects, a wide bandwidth was used (6pp).

changes across waves. Averaged over both waves of our experiment, the gross discrimination rates of Turks and Germans were 14.3 and 4.0 percent (see Table 3.1). The statistically significant net discrimination rate (difference between the two gross discrimination rates) of about 10 percentage points matches well with the discrimination rates found in previous correspondence tests in Germany (Auspurg, Schneck, and Hinz, 2019).

Applying the correlative cross-sectional approach used in previous literature, we find that gross and net discrimination against Turks were stronger in counties with a *lower* share of foreigners. This can be shown descriptively (see Figure 3.3) and in multivariate regression analyses that control for other contextual factors such as regional vacancy rates or type of supplier (private supplier vs.commercial agency). Following these results, one might conclude that a larger immigrant population *lowers* the risk of discrimination.

However, to see whether there is a *causal* effect of immigration on discrimination, we have to draw on the exogenous variation in immigration during the refugee crisis. To identify the effect of the main treatment variable (i.e., refugee immigration), we first compare the discrimination rates from the 1^{st} wave of the experiment (left panel in Figure 3.4) with those observed in the 2^{nd} wave (right panel in Figure 3.4). There was a

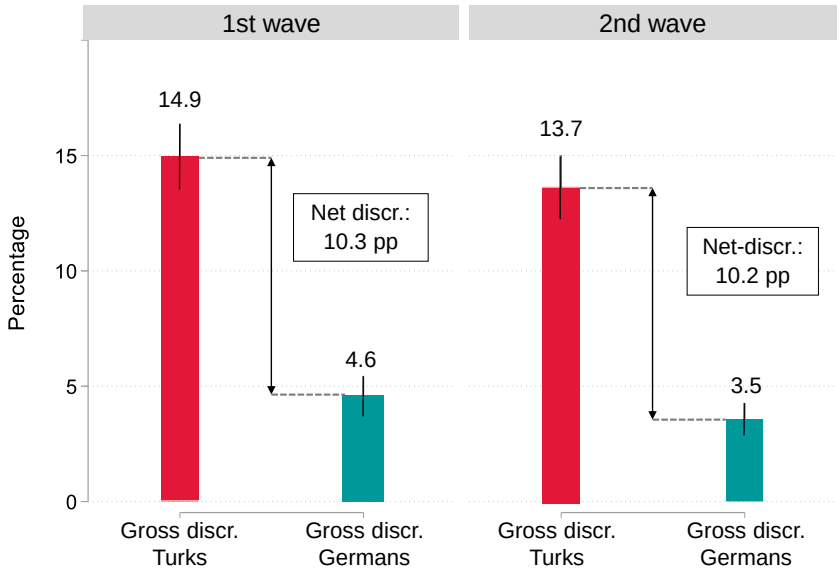

FIGURE 3.4: Gross and net discrimination rates by wave.
Note: The bars show the gross discrimination rates in percent. The net discrimination, which is the difference between the gross discrimination rate of Turks and Germans, is indicated in percentage points (pp). The sample comprises 2,389 tested housing units in the 1^{st} wave and 2,410 housing units in the 2^{nd} wave.

slight decrease in the gross discrimination rates of both Turks and Germans of around 1 percentage point each. This was due to a slight increase in both categories of equal treatment: Both applications received a response or did not receive a response slightly more often in the 2^{nd} wave (details in Appendix B.2.1). This small parallel decrease in gross discrimination rates kept the net discrimination rate relatively stable at roughly 10 percentage points. Second, the finding that there was no credible evidence for a change in the level of net discrimination (and also gross discrimination rates) between waves is confirmed by multivariable regressions where we use a wave dummy (and in robustness analyses metric variables specifying the (relative) magnitude of refugee immigration to different counties) to identify the treatment effect (estimates shown in Appendix B.2.1, in particular Figure B.2). The change in discrimination across waves was throughout very small in size and not statistically significant.

3.4.2 Heterogeneous effects: Regions with varying levels of previous immigration

Some counties in Eastern Germany were not accustomed to foreigners (share of immigrants < 2 percent in 2014, whereas the mean share in Germany was 9.3 percent in this year) until refugees were allocated by law during the refugee crisis. In these regions, the influx of refugees may have been particularly salient and fueled anti-immigrant sentiments and inclinations to discriminate. In contrast, in some urban regions in Western Germany, at least one-third of the residents had foreign citizenship

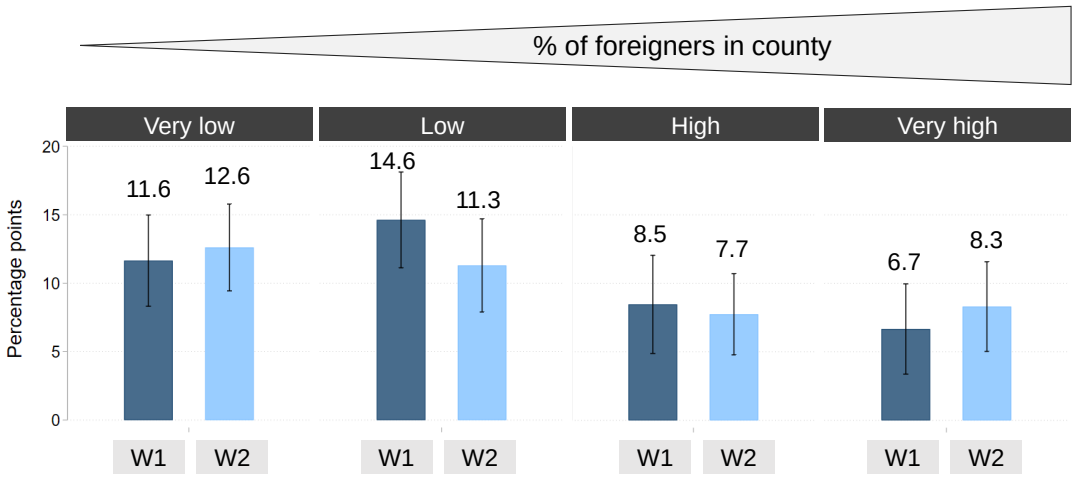

FIGURE 3.5: Net discrimination rate by level of foreigners and by wave. Note: This figure shows discrimination rates in percentage points together with 95 percent confidence intervals. W1 (W2) shows results for the 1^{st} (2^{nd}) wave. The level of foreigners in a county (per 100 inhabitants) is split into quartiles (very low: 1.0%- 6.0 %, low: 6.1%-9.8 %, high: 9.9%-14.3%, very high: 14.4%-32.3%). At least 472 tested housing units per quartile and wave.

prior to the refugee crisis. Further immigration during the refugee crisis has made little quantitative difference in these regions and may therefore have been perceived as less disruptive (Hopkins, 2010).

Figure 3.5 summarizes the net discrimination rates in counties with varying shares of foreigners prior to the refugee crisis: from the lowest (very low: 1 percent - 6 percent) to the highest quartile (very high: 14 percent - 32 percent). For easier interpretation, we only show net discrimination rates (detailed results, including gross discrimination rates, are provided in Appendix B.2.2, Table B.2). Overall, net discrimination was lower in counties with a higher percentage of foreigners (panels on the right). Although there were some changes in net discrimination rates in some quartiles (e.g., the net discrimination in the second quartile decreased from 14 to 11 percentage points across waves), there was no clear pattern that the change in discrimination was moderated by the size of the foreign population. In all panels, there is a large overlap in the confidence intervals for the net discrimination rates observed in both waves. We therefore conclude that the main finding that immigration has no substantial effect on discrimination also appears to hold for different levels of prior exposure to immigration.

3.4.3 Threats to identification and robustness checks

The benefit of our identification strategy is that we rely with the refugee crisis on a kind of exogenous shock. The estimation of an unbiased causal effect using such "unexpected event" (Muñoz, Falcó-Gimeno, and Hernández, 2020) during the field phase

of an individual data collection relies on assumptions about "excludability" and "ignorability," which we shortly discuss in the following (mainly based on Muñoz, Falcó-Gimeno, and Hernández, 2020; Harding and Nwokolo, 2023).[12] The *excludability* assumption is that identified differences in discrimination levels between the two waves (control and treatment group) are solely due to refugee immigration. This assumption could be violated in several ways. Differences in the level of discrimination could also be caused (or counteracted) by simultaneous events happening at the same time as the refugee immigration, by unrelated preexisting time trends, or seasonal effects that may also have impacted the level of ethnic discrimination. Events or trends that *equally* affected housing suppliers' responses to Turkish and German applicants, such as generally responding to e-mail inquiries more frequently in the winter compared to the spring, would not bias the unequal treatment measured by the net discrimination rates. It seems plausible that most trends or seasonal/periodic effects would have such consistent effects on both applicants. However, some intervening shocks or trends might have affected only discrimination against Turkish applicants, such as the Islamist terrorist attacks in Paris that occurred shortly before the 2^{nd} experiment.

To circumvent such confounding factors, we also use a metric measure of refugee immigration: the magnitude of immigration to different counties, which ranged from 0.3 to 1.2 refugees per 100 inhabitants ("outlier" counties with exceptionally large reception centers excluded). We see no reason that this exogenous variation in the size of immigration would be systematically correlated with temporal trends or seasonal/periodic effects, at least when we control for tax revenues (measured by the GDP proxy). This was supported by balance checks (see Appendix B.3.2). We are not aware of any other historical events or trends in the second half of 2015 that may have had an impact on ethnic discrimination in Germany or even remotely similar effects on public attention or population composition. With respect to general time trends, there is evidence that ethnic discrimination in the housing market is decreasing in Europe, but at such a slow pace that no substantial change can be expected within 7 months.[13] Finally, differences in discrimination levels may have been caused by collateral events triggered by the refugee crisis, such as the strong media discussions, and not the refugee immigration in itself. We admit that we cannot separate these joint events; but do not see this as a major problem, because these collateral events are also in the focus of theories on group threats and conflicts.

The second key assumption for identification is *ignorability*: For the tested housing units/suppliers, the assignment to treatment or control group must be independent of the potential outcome of discrimination, that is, the assignment must be as good as random (Muñoz, Falcó-Gimeno, and Hernández, 2020). Again, several threats

[12] Those designs are typically used for events happening during the field phase of a public opinion survey (Muñoz, Falcó-Gimeno, and Hernández, 2020). We transfer the design to field experiments. Compared to the designs relying on surveys, our setup based on a field experiment allows to preclude threats to identification that result when individuals self-select into a survey study.

[13] A particularly good indication of this is that the level of net discrimination measured in our study is about the same as what was measured in similar field experiments in Germany in 2011 and 2012 (Schmid, 2015; Auspurg, Hinz, and Schmid, 2017).

to this assumption exist. First, the samples used in both waves (i.e., the treatment and control groups) could differ due to an imbalance on observables, which may be related to the outcomes of interest. We deal with potential problems arising from the imbalance on observable covariates by controlling for the covariates noted in the method section or splitting the sample by covariates, giving *conditional ignorability*. Another potential threat stems from unobserved confounders. By including fixed effects for federal states, we correct for possible imbalance in the allocation of housing units/suppliers across federal states and achieve balance even in unobserved time-constant confounders on the federal level.

For an unbiased identification of treatment heterogeneity (our second research goal), also the distribution of refugees to counties with different previous exposure to immigration should be as good as random; otherwise, we might confound the interaction of the wave dummy with the size of foreign populations we are interested in with a different strength of treatment (i.e., different size of refugee immigration). The setting of the refugee crisis with a quasi-random distribution of refugees across regions due to the used quota design makes us confident that we could reach at least *conditional ignorability* (see also Aksoy, Poutvaara, and Schikora, 2020 for tests of exogeneity assumptions in the distribution of refugees across counties). In addition, using the size of refugee immigration as an alternative treatment in robustness analyses serves as a further test for the plausibility of this assumption. In further robustness checks, we also used the relative change in refugee immigration.

For the unbiased identification of the ATE or treatment heterogeneity, it is in addition crucial that the event of the refugee crisis was unpredictable for housing suppliers. (Otherwise, suppliers may have already adjusted their behavior in the 1^{st} wave in anticipation of the crisis, which would hinder a clear separation of treatment and control group.) This assumption is certainly met here: In May 2015, the suspension of the Dublin Agreement and accordingly the strong refugee movements were not foreseeable.

Finally, threats to identification might result from an invalid measurement of discrimination. A drawback of experimental within-designs is that housing suppliers might detect them. We have taken all kinds of precautions, for example, varying more information than just ethnicity.[14] Only one out of our 5,000 sampled housing units showed evidence that our experiment was detected.[15] There might have been further cases we did not notice. This would have led to an underestimation of discrimination due to possible demand effects (Charness, Gneezy, and Kuhn, 2012). However, as long as such bias is not tied to one of the two waves of our experiment, this would not have biased the estimation of the effect of refugee immigration. We have no reason to assume that detection was more likely in the 2^{nd} wave, because we did not publish

[14] Detection is also presumably much less likely in experiments on the housing market than in experiments on the labor market (Weichselbaumer, 2015) because a much less formalized application process (e.g., without certificates) is used.

[15] This case was excluded from our sample as one case where the apartment was not actually available to the second applicant.

any information on the field experiment until now. The other known disadvantage of within-designs, order effects, was eliminated by balancing the order in which the two applications were sent.

We also tested the robustness of our results with other statistical models, including instrumental variable approaches (see Appendix B.3.1 for all robustness and Appendix B.3.2 for balance checks). In these robustness analyses, we included nonparametric methods, which do not require assumptions about the functional form and thus allow the identification of possible nonlinear effects or "tipping points" (Galster, 2014). As further alternative treatments, we used the number of male refugees in a county. None of these analyses changed our core conclusion: Refugee immigration in the course of the European refugee crisis in 2015 had no meaningful impact on the level of discrimination of Turks observed in our experiments. The conclusion that discrimination rates did not change significantly across waves was also confirmed by using alternative outcomes to measure discrimination, such as explicit invitations to visit a housing unit or response times to the initial request. To test whether changes in discrimination occur on a more fine-grained spatial level, we conducted additional analysis at the neighborhood level using walking distances to refugee shelters as an alternative treatment variable. Again, we uniformly found no significant change in discrimination rates. Therefore, we are confident that we have not missed more subtle or regional changes in discrimination levels.

3.5 Discussion and conclusion

In this study, we analyzed the effect of a strong and unexpected mass immigration on ethnic discrimination: We studied the effects of immigration of refugees from mostly Muslim countries on the discrimination of Turks in the German rental housing market.

A particular strength of our study is that we could leverage the mostly exogenous assignment of refugees to municipalities in Germany, which helps to overcome confounder and self-selection bias that may have biased previous research. The main result is surprising: Although Germany has experienced increasing concerns about immigration (Torres, 2022) since the refugee crisis, as well as decreasing willingness to host some immigrant groups (Czymara and Schmidt-Catran, 2017), hostile attacks against refugees (Jäckle and König, 2018; Wagner et al., 2020), and increasing supporters of right-wing parties opposing immigration (Dostal, 2017), we have not seen an increase in discrimination against Turks in the rental housing market in Germany. Our results are robust across regions accustomed to varying levels of immigration prior to the crisis. They are in line with Schaub, Gereke, and Baldassarri (2020), who found no evidence for an effect of refugee immigration in Germany on ethnic/religious discrimination measured in a lab experiment in 2018. Our results allow to strengthen the external validity and draw conclusions about a natural setting, the German housing market.

How can we explain this result? A first explanation would be that no spillover effects occur from refugees emigrating from the Middle East or Africa to the Turks tested in our experiment. This could theoretically be the case if natives do not lump all immigrants with a supposed Muslim or Middle Eastern background together but instead draw finer boundary lines between immigrating refugees and Turkish immigrants who have lived in Germany for a longer time. This seems, however, implausible in the light of previous research that reported strong spillover effects in the form of the refugee crisis fueling *general* anti-Muslim sentiments, including negative sentiments against Muslim immigrants that lived in the host countries for generations (Dinas et al., 2019).[16]

A second reason could be that housing providers are less inclined to develop anti-Muslim sentiments, for example, because property owners often have a high level of education and per se wealth, which better protects them from competition with low-status immigrants. Evidence shows that majorities with higher socioeconomic backgrounds displayed less intolerance toward minorities before and after the European refugee crisis (Kromczyk, Khattab, and Abbas, 2021). So far, however, we can only speculate about the extent to which this translates to property owners in the housing market. To date, only cross-sectional evidence relates aggregate measures of anti-immigrant attitudes to regional levels of discrimination (see, e.g., Lacroix, Ruedin, and Zschirnt, 2022). This approach is, however, prone to the risk of ecological fallacy and confounder bias. Future research should attempt to measure attitudes and feelings of threat at the micro level of those involved in the rental processes.

A third explanation would be that – at least in the short run – anti-migration attitudes do not necessarily translate into discrimination. Prejudiced and/or threatened property owners and agencies may be unwilling to bear the costs of animus discrimination. Profit-seeking could be a more important driver of discrimination than negative feelings toward immigrants. This aligns with theories on statistical or customer discrimination (Arrow, 1971; Phelps, 1972, for evidence on the housing market see, e.g., Ewens, Tomlin, and Wang, 2014), but would still require future research that analyzes motives for discrimination in more detail. In any case, our results suggest that researchers interested in hostile acts should also measure behavioral outcomes, not just attitudes.

In contrast to fully randomized experiments, natural experiments always rely on quasi-randomization, which may threaten internal validity. Although we tried to evaluate the underlying assumptions of the design used as well as possible, some threats, such as unobserved confounders, might still exist. It is also important to keep in mind our limited target population, suppliers on the German online rental housing market. Ethnic discrimination in the housing market seems to be more pronounced in Germany than in other European countries, and Turks seem to be particularly affected

[16] Including refugees as another group in our experiments would have allowed for more accurate conclusions about possible spillover effects, as such a design would allow us to compare treatment effects for refugees and Turks. However, as with many natural experiments, we could not anticipate the refugee crisis and therefore did not include refugees as an ethnic group in the 1st wave of our experiments.

(Auspurg, Schneck, and Hinz, 2019, for cross-country evidence on the labor market see Quillian et al., 2019; Flage, 2018). Thus, we examined a "more likely" case in which (an increase in) discrimination could be expected. Nevertheless, we cannot rule out the possibility that scope conditions for discrimination differ by country or market and that there are effects of immigration on discrimination elsewhere. For these reasons, further studies on other countries and markets, such as the labor or consumer market, are desirable, as well as studies on discrimination in "everyday encounters" (Zhang, Gereke, and Baldassarri, 2022).

Our study has implications for immigration policies and points out further fruitful avenues for future research. First, many countries are currently experimenting with refugee allocation procedures. Some, such as Canada, allow refugees to move freely within the country and try to channel them, if at all, to regions with good labor market options (Bansak et al., 2018). Similarly, in the United States, refugees are not required to stay in an assigned place of residence (Bruno, 2017). Studies examining the economic integration of refugees and the economic well-being of host communities have consistently found that both are optimized when refugees are settled in more prosperous regions that offer them better labor market options (Martén, Hainmueller, and Hangartner, 2019). However, these policies lead to a strong regional concentration of refugees in a few metropolitan areas (Rose, 2019). In contrast, several European countries, such as Germany and Switzerland, aim to distribute refugees homogeneously across the country to equalize the burden on the welfare funds of single municipalities and to avoid the formation of ethnic enclaves and housing shortages. Our experiment allowed us to evaluate this policy in Germany regarding potential unintended side effects in the form of increased ethnic housing discrimination of earlier immigrants. Discrimination was found to be *generally* lower in counties with many immigrants and thus higher ethnic diversity. According to our results, this correlation was most likely not caused by the size of immigrant populations. Instead, we suspect that confounding spatial factors and previous immigrants' self-selection into specific regions are responsible for this correlation. Even without diving deeper into the underlying mechanisms (e.g., whether this represents a general composition effect or whether it is caused by more immigrant housing suppliers in these counties) we can now conclude that allowing more refugee migration to these ethnically diverse regions does not seem to have negative side effects in terms of increased ethnic housing discrimination against Turks. On the contrary, our results suggest that migrants can expect less discrimination in ethnically mixed regions, which should improve their chances of integration. However, more research is needed on the long-term trend in discrimination,[17] as well as further insights about additional migrant groups (including possible discrimination against refugees).

Beyond these substantial findings, our combination of field and natural experiment is an interesting case study grasping the essence of discrimination research:

[17] Research on long-term effects would be very valuable because there are also some theoretical arguments that stocks of immigrants may have different effects on attitudes towards immigration and dealing with immigrants than flows that we observed in our study (Brady and Finnigan, 2014).

causal research on the "why," "when," and "where" questions of discrimination. Studies using context (i.e., moderator) variables and other conditions for discrimination that are not randomly assigned suffer from post-treatment bias (Montgomery, Nyhan, and Torres, 2018). Thus, more studies with random variation in such variables are necessary. Natural experiments may help achieve such variation. For example, events that are already known to alter attitudes such as terrorist attacks (see, e.g., Legewie, 2013), may serve as treatment or instrumental variables. One key recommendation is to design more longitudinal field experiments that are "always-on" (i.e., in the field), or at least have several (long) field periods to increase the likelihood of capturing natural experiments by chance.

Chapter 4

A changing ethnic landscape? The effect of refugee immigration on inter-ethnic group relations and identities of previous immigrants

RENATE LORENZ

Abstract How does the arrival of a new immigrant group affect earlier generations of immigrants? Do group relations and self-identification change? Previous research on ethnic boundaries is usually restricted to a two-group paradigm and primarily focuses on the majority group's perspective. In contrast, this study analyzes how the arrival of refugees in Germany influenced previous immigrants of Turkish and Polish origin by exploiting regional and temporal variation in refugee immigration. I combine macro data about refugees with individual longitudinal data of a large-scale German panel survey (SOEP) from 2012 to 2018 based on a random sample. Using fixed effects estimations, this study finds that an increasing proportion of refugees in a county increased concerns about immigration and decreased self-reported discrimination among Turkish (N = 676 respondents, n = 2,914 person-years) and Polish (N = 513 respondents, n = 2,141 person-years) respondents. Moreover, Turkish immigrants showed a tendency to feel more German and felt closer to Turkey at the same time. Poles also felt more German but not closer to Poland. These results are in line with the theoretical assumptions that minority groups tend to distance themselves from new immigrants, and use the opportunity to improve their own social position by strengthening their identification with the majority and/or with their own ethnic group.

4.1 Introduction

In 2015 and 2016, an unprecedented inflow of refugees[1] from North Africa and the Middle East substantially transformed the ethnic landscape in Europe. Whereas the

[1] I use the term "refugees" in a colloquial manner that includes all displaced persons, that is, all foreigners in Germany seeking asylum or with a protected status.

effects of refugee immigration on majority group relations have received a considerable amount of attention (Dinas et al., 2019; Hangartner et al., 2019; Dustmann, Vasiljeva, and Piil Damm, 2019; Schaub, Gereke, and Baldassarri, 2020), researchers have mostly neglected the impact on other minorities. This study fills this research gap by analyzing how the arrival of refugees as a new immigrant group affected group relations and ethnic boundaries of earlier generations of immigrants. The massive inflow of refugees has challenged other ethnic minorities to position themselves in relation to a new outgroup. At the same time, it has offered them the opportunity to redefine their relations to the majority population and to their own ethnic minority group. This implies a chance to improve their position within an ethnic hierarchy.

This study sheds light on how refugee immigration has affected ethnic boundaries from a minority perspective. Ethnic boundaries are defined by social interactions between ethnic groups, by self-identification of group members, and by the confirmation of outgroup members. This study analyzes group relations and self-identification of minority ingroups, whereas the viewpoint of out-group members is not part of this study. More specifically, I focus on the following potential effects of refugee immigration on ethnic minority groups: Have previous immigrants grown more concerned about immigration? Has self-reported ethnic discrimination changed? Do former immigrants feel more German or more connected to their country of origin (or both)? The outcomes examined in this study all have important individual and social consequences. Concern about immigration may affect voting behavior of those with German citizenship, as anti-immigrant sentiments often drive right-wing populist voting (Arzheimer, 2008); and right-wing populism appeals at least to some immigrants in Germany (Goerres, Mayer, and Spies, 2020). In addition, perceived discrimination has negative consequences on a broad range of health outcomes across different minority groups and societies (Williams, Neighbors, and Jackson, 2003). Furthermore, ethnic identification influences both political involvement (Verkuyten and Martinovic, 2012) and educational achievement (Altschul, Oyserman, and Bybee, 2006).

Exploring multi-group contexts is a crucial endeavor in societies with increasing ethnic and cultural diversity. Research shows that once achieved integration can in fact be reversed. For instance, discrimination can lead to a re-ethnicization of immigrants (Skrobanek, 2009). It is yet unclear whether the arrival of new migrant groups stimulates or threatens the integration of former immigrants. This topic will become even more salient in the future as migration flows will most likely continue worldwide due to environmental changes, geopolitical instability and conflicts (OECD, 2020).

This paper exploits the temporal and regional variation of refugee accommodation by using county-level longitudinal data of a large-scale German panel survey (Socioeconomic Panel, SOEP) from 2012 to 2018. The presence of refugees is measured by the proportion of recipients of asylum seeker benefits in relation to the total population of a county. Both the trend graphs and the results of the individual fixed effects estimations show that an increasing proportion of refugees has increased concerns about immigration and decreased self-reported discrimination among respondents with a

Turkish (N = 676, n = 2,914) and Polish (N = 513, n = 2,141) migration background.[2] In addition, Turkish immigrants showed a tendency toward increased identification with the host country. At the same time, they felt more connected to their country of origin. Polish respondents also felt more German in reaction to refugee immigration, but not closer to Poland. These results indicate that earlier generations distance themselves from the new immigrant group, and move closer to the German majority. These results provide first indications of changing ethnic boundaries from a minority perspective.

This article makes two major research contributions, one in terms of content and one in terms of methods. First, it is one of the first studies to investigate the effect of immigration on other minorities' group relations or self-identification in a European context. It thereby joins a very limited number of articles moving from a two-group paradigm to the analyses of three groups. At the same time, it contributes to the literature on the impacts of the European refugee crisis by shifting the focus from the majority to other minorities in the host country. Second, whereas most studies on the impact of immigration relies on a cross-sectional analysis, this article combines longitudinal individual level data with the advantages of an exogenous stimulus of refugee immigration. This setup achieves an advanced research design that allows for reliable causal conclusions.

4.2 Background and literature

4.2.1 Historical background

In 2015 and 2016, a large number of refugees arrived in Europe as a consequence of revolutions and civil wars in North Africa and the Middle East. In Germany, one of the most popular destination countries in Europe, more than 1.2 million asylum applications were filed within these two years (Grote, 2018, pp. 5, 15). Figure 4.1 shows the sharp and unexpected rise in refugee numbers. The arrival of such a large group has substantially transformed the ethnic landscape of a country, which had already been ethnically diverse before the influx. Before the refugee crisis, 21 percent of the residents in Germany already had a migration background, meaning they themselves or at least one of their parents were born without German citizenship (BAMF, 2016b, p. 158). Turks and Poles, who are the subject of this study, had been the two largest ethnic minority groups: 17% of those with a migration background were of Turkish origin, 10% of Polish origin (BAMF, 2016b, p. 163). The Turkish immigration history largely dates back to the recruitment of "guest workers" for low-skilled jobs in the 1960s as part of the rebuilding effort after World War II. After a recruitment stop in 1973, a significant amount of workers stayed in the country and subsequently brought their families to Germany.

[2] For the sake of simplicity, I will hereafter refer to all respondents with a Turkish (Polish) migration background as Turks (Poles).

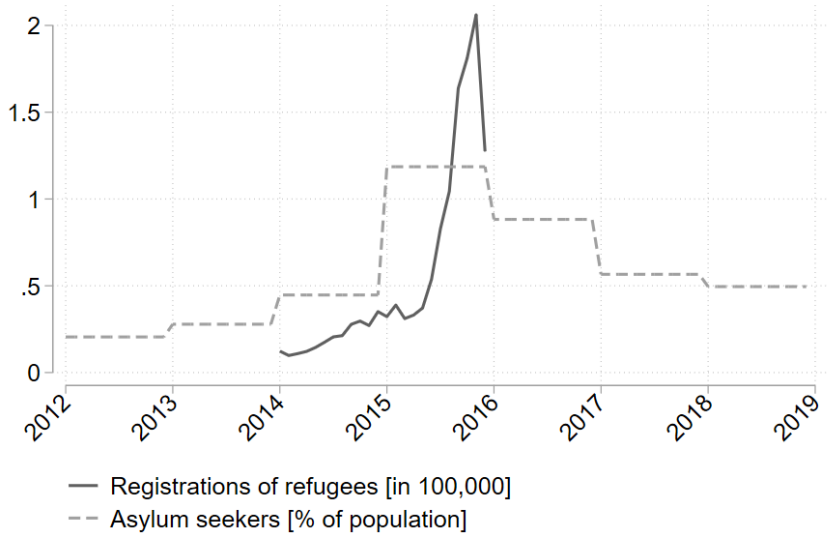

FIGURE 4.1: Refugees in Germany from 2012 to 2018: Monthly number of refugee registrations (solid line, data: Federal Ministries of the Interior) and yearly recipients of asylum seeker benefits per 100 inhabitants (dashed line, data: Federal Statistical Office of Germany).

Polish immigration history to Germany has a longer tradition, and is more complex. Starting in 1900, Polish-speaking immigrants worked in industrial areas, and by the early 20th century, their population grew significantly in some regions. After World War II, some regions with Polish minorities became part of Poland. From the 1950s, about 2.5 million people moved from Poland to West German, including ethnic Germans, political refugees, and labor migrants, with immigration peaking in the 1980s and early 1990s.

4.2.2 Ethnic boundaries

This paper acknowledges the ethnically diverse context of Germany, a much sought-after destination throughout the refugee crisis. Studying ethnic relations in a multi-group context situates this paper in a larger research field on ethnic boundaries.[3] *Ethnic boundaries* can be defined as "patterns of social interaction that give rise to, and subsequently reinforce, in-group members' self-identification and outsiders' confirmation of group distinctions" (Sanders, 2002, p. 327). This definition highlights several distinctive features of ethnic boundaries. First, it points out that both majority and minority groups take part in the procedure of boundary making. Thus, when there is a disagreement about the drawing of boundaries between these groups, ethnic boundaries can be ambiguous. Second, the above definition of ethnic boundaries determines both interactions and group-identifications as constitutive. Therefore, when group interactions or identifications change, ethnic boundaries can change as well.

[3]For an overview of immigration theories and the location of the ethnic boundary paradigm, see Wimmer (2009).

In consequence, one may conceive of ethnic distinctions as "fuzzy" and ethnic boundaries as "soft" (Wimmer, 2008, p. 976) to acknowledge that demarcations are unclear and changeable (Nagel, 1994), and that identities can even switch situationally (Nagata, 1974). Whether boundaries can be blurred depends on the defining features of the boundaries, which vary by cultural context. Whereas in the US racial classifications are central for ethnic boundaries (Davenport, 2020), in Europe Islam is a constitutive characteristic for boundaries (Brubaker, 2013), so that Muslims are perceived as "others" (Alba, 2005; Zolberg and Long, 1999). Being born in Germany, having German parents, and speaking the language fluently is perceived as constitutive for being German (Mäs, Mühler, and Opp, 2005).

The interest of this paper lies in the analysis of group relations and group self-identification as constitutive features of ethnic boundaries. However, I focus solely on the immigrants' perspective as a permanently understudied group. More specifically, this paper pursues the question of how ethnic group relations and self-identification have changed in reaction to refugee immigration. The perception of the new minority group is measured by concern about immigration, while the relation to the majority group is assessed by self-reported discrimination and the identification with the host country. Feelings towards the own ethnic group are measured by the identification with the country of origin. Focusing on the Polish and Turkish populations in Germany has the advantage that their cultural distance to the newly arrived refugees differs. Poles share a closer culutral bond with the German majority in terms of religion, as both groups are predominantly Christian. In contrast, the majority of Turks are Muslim and thus culturally closer to the refugees, many of whom fled from Muslim-majority countries.

4.2.3 Immigration and ethnic boundaries

The shifting and blurring of ethnic boundaries has attracted increasing attention in recent years. However, only a limited number of US-based studies have analyzed how the arrival of a new immigrant group affects existing ethnic boundaries. First, Abascal (2015) found in an experiment about Black-White relations that perceived Hispanic population growth leads to the prioritizing of the privileged identity for both Blacks (American identity) and Whites (White identity) and to an exclusion of the new group. Apparently, the lower status of the Hispanic group motivated Blacks to distinguish themselves from Hispanics and to identify more strongly with the higher-status group. Second, focusing on the majority's perspective, Fouka and Tabellini (2021b) report that Mexican immigrant population growth improved Whites' attitudes and behavior towards Blacks. The authors conclude that a relatively more foreign group (here: Mexicans) brings the less foreign group (here: Blacks) closer to the majority group (here: Whites). A third study on the First Great Migration in the early 20th century found that immigrants were more assimilated in areas with a higher share of Black migrants (Fouka, Mazumder, and Tabellini, 2022). In conclusion, there is some evidence that immigration affects ethnic boundaries, and that it is worth studying

multi-group contexts. However, the previous findings have some limitations. First, the experimental results of Abascal (2015) are restricted to the identification of short-term effects. Second, the repeated cross-sectional designs on group relations in Fouka and Tabellini (2021b) and Fouka, Mazumder, and Tabellini (2022) might be biased by a self-selection of immigrants, since certain immigrants tend to favor certain regions (Waldorf, Florax, and Beckhusen, 2008).

In the European context, research on this topic is still lacking. The European refugee crisis offers a unique opportunity to study the effects of population growth in a multi-group context, as this wave of immigration was a purely exogenous stimulus. First, the timing of the crisis was unexpected, and second, refugees in Germany were not able to self-select into specific regions due to a quota regulation for refugee allocation. This paper additionally benefits from a longitudinal survey design that can track within-person changes over time. This makes it possible to exploit both temporal and regional variation in refugee immigration. In contrast to most previous studies on the European refugee crisis, this paper shifts the focus of interest from the majority to the minorities' view and examines how Turks and Poles, as the largest minority groups in Germany, have responded to the influx of refugees.

4.3 Theories: Reactions to the arrival of refugees

4.3.1 Concern about immigration

To investigate how Turks and Poles position themselves towards the new immigrant group, I investigate their concern about immigration. Several theories explain how proximity to or contact with immigrants affects attitudes, preferences, and behavior (for a detailed overview, see Hainmueller and Hopkins, 2014 or Esses, 2021). Whereas *theories of threat* predict increasing anti-immigrant sentiments due to economic (Blalock, 1967; Olzak, 1994) or cultural fears (Kinder and Sears, 1981; Hainmueller and Hopkins, 2014), *contact theories* anticipate a reduction of prejudice if there are positive meeting opportunities (Allport, Clark, and Pettigrew, 1954; Paluck, Green, and Green, 2019). Research on the refugee crisis shows diverging public reactions. Whereas larger refugee numbers promoted anti-immigration votes in rural Denmark (Dustmann, Vasiljeva, and Piil Damm, 2019) and on Greek islands (Dinas et al., 2019), in Austria, contact and sustained interaction with refugees reduced right-wing populist votes (Steinmayr, 2020). In Eastern Germany, local exposure to immigrants did not affect hostile attitudes or behavior (Schaub, Gereke, and Baldassarri, 2020).

From an immigrant's perspective, group *empathy theory* suggests that immigrants who have suffered from unfair treatment sometimes feel empathy towards another unfairly treated outgroup (Sirin, Villalobos, and Valentino, 2016). However, a low position in the ethnic hierarchy can also intensify intergroup bias (Hagendoorn, 1995). Interethnic conflict also depends on the regional level and is usually higher in metropolitan areas (Oliver and Wong, 2003). Generally, studying anti-immigration

sentiments among immigrants in particular has revealed an ambivalent relationship between feelings of threat and solidarity (Meeusen, Abts, and Meuleman, 2019).

Research about the refugee crisis reports mixed evidence on immigrants' attitudes towards the new outgroup. A study among Turkish immigrants in Berlin finds an ambivalent relationship to Syrian refugees, oscillating between involvement in solidarity activities and a perceived threat to their standing in the city (Koca, 2019). Further studies have revealed rather hostile feelings towards Syrians among Germans of Turkish or Russian descent (Hamidou-Schmidt and Mayer, 2021). In addition, German-Russian immigrants ("resettlers") who were dissatisfied with the handling of the refugee crisis displayed an inclination to vote for the right-wing populist party AfD (Alternative für Deutschland) (Goerres, Mayer, and Spies, 2020).

Given the sudden and sizeable inflow of refugees between 2015 and 2016, most of whom entered Germany illegally, in combination with a lack of positive interaction with refugees, I expect that refugee immigration will have resulted in increased concerns about immigration among Turks and Poles. In addition, I assume that this effect may be larger among Poles, since they may perceive refugees from majority Muslim countries as more distant from their own Christian culture.

4.3.2 Self-reported discrimination

To examine how refugee immigration has affected the relationship of Turks and Poles with the German majority, I investigate self-reported ethnic discrimination. This measure of discrimination might be criticized for its subjectivity, as it relies solely on the perception of the respondents and discrimination often occurs in subtle, inconspicuous ways (Citro, Dabady, and Blank, 2004). In addition, better-integrated immigrants often report higher discrimination rates (Lajevardi et al., 2020). However, this objection is less relevant for this study, since it focuses explicitly on the immigrants' perspective of their relation to the majority group. In this context, the perception of discrimination may be even more important than actual discrimination, as the subjective experience is probably more influential for the perception of ethnic boundaries.

The impact of refugee immigration on self-reported discrimination could be either positive or negative. On the one hand, refugee immigration may lead to a rise in general xenophobia among people in Germany, which might increase the overall level of discrimination. Such spillover effects were observed on Greek islands with a large number of passing refugees (Hangartner et al., 2019). Here, xenophobia increased not only against refugees, but also towards other Muslim immigrants who had lived on the islands for generations. Similarly, earlier generations of Iranian immigrants in Germany reported feeling more threatened and discriminated during the refugee crisis than before (Sadeghi, 2019). On the other hand, the influx of a large group could also have the opposite effect: The large cultural distance of most refugees to the German majority may relativize the majority's perception of the "old" foreigners, as suggested by findings from Fouka and Tabellini (2021b).

Which of these mechanisms is true in this context primarily depends on whether native Germans perceive Polish and Turkish immigrants to be similar to the refugees. Due to their longer residency in Germany, Poles and Turks speak the German language better than the recently arrived refugees. Poles also differ from the refugees in their religion as another salient characteristic, whereas Turks come from a majority Muslim country. Since language is one of the most salient features for being perceived as German, I rather expect a decrease in discrimination for both immigrant groups in reaction to refugee immigration.

4.3.3 National and ethnic identity

In addition to group relations, this study examines how the group identification of previous immigrants has changed in reaction to refugee immigration. The arrival of a large group of new immigrants presents the opportunity for previous immigrants to reposition themselves in a changing ethnic landscape. According to the *social identity theory*, individuals are generically motivated to achieve a better social position (Tajfel, 1982; Tajfel and Turner, 1986). A positive social identity arises from a favorable comparison of one's ingroup to the outgroups. Conversely, negative social identity encourages the pursuit of change, for instance through individual upwards mobility or a more positive standing of the current ingroup by using another outgroup for social comparison. A further development of this theory defines the utility of identifying with a group as dependent on the expected material payoff, the perceived distance to its members, and the group status (Shayo, 2020).

Incoming refugees as a new outgroup may change the previous immigrants' individual utility of group identification. The immigrants have two options for improving their position. First, the perceived social distance to the majority group may shrink in light of the even more culturally distant group of refugees. The underlying principle here is *comparative fit*: When the frame of reference changes, new categorizations emerge if intragroup differences are perceived as smaller than intergroup differences (Turner et al., 1994). Thus, in the presence of a distant group, previous immigrants might realize how much they have in common with the majority group (Shibutani and Kwan, 1965, p. 563). This provides an incentive to more strongly identify with the higher-status majority group. I term this identification with the majority population *national identification*. A similar conceptual framework by Fouka and Tabellini (2021b) predicts that the exposure to one minority leads to the recategorization of other groups when the former is perceived as more distant than the latter. Even though this framework refers to the majority's perspective, the argument can also be applied to minority groups.

A second strategy for immigrants to improve their social position is to use the incoming refugees as a new, lower-status comparison group. In this way, the ethnic group of the previous immigrants experiences a status upgrade. As a result, the *ethnic identification*, which is the bond to the country of origin, may intensify. As immigrants often have a dual identity, a combination of these two status improvement

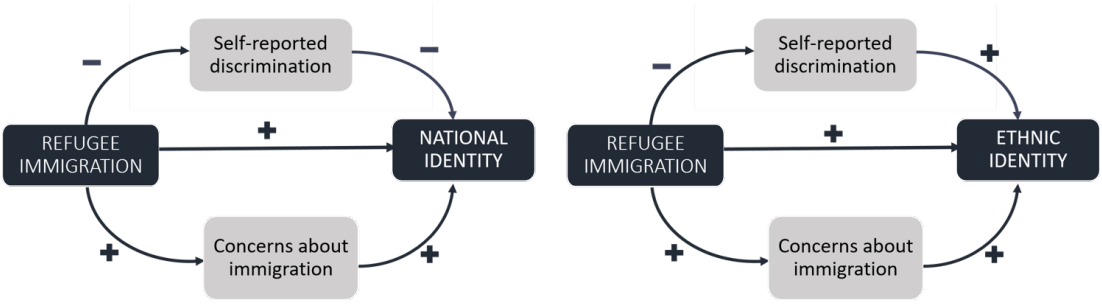

FIGURE 4.2: Causal models: The effect of refugee immigration on national identity (left) and ethnic identity (right). Note: Economic control variables (GDP, UR) are not displayed in the figure.

strategies is also possible (Berry, 2006; Zimmermann, Zimmermann, and Constant, 2007). Both strategies of status improvement may be pursued either consciously or subconsciously.

In addition to examining national and ethnic identity in isolation, I investigate whether there is a direct effect of refugee immigration on national and ethnic identity independent from concern about immigration and self-reported discrimination, since they may be causally related (see Figure 4.2). First, discrimination could mediate the causal relation between refugee immigration and identification. Studies report that perceived discrimination weakens national identity (Jasinskaja-Lahti, Liebkind, and Solheim, 2009; De Vroome, Verkuyten, and Martinovic, 2014), whereas perceived fair treatment fosters feelings of belonging (Georgiadis and Manning, 2013). At the same time, discrimination strengthens ethnic identity (Skrobanek, 2009; Verkuyten and Yildiz, 2007). According to the rejection-identification theory, the perception of being ethnically discriminated can be alleviated to some degree by an increased proximity to the own ethnic group (Schmitt and Branscombe, 2002; Branscombe, Schmitt, and Harvey, 1999). Second, concern about immigration could strengthen both national and ethnic identification. Distancing oneself from the new immigrant group might push previous immigrants either toward the more privileged majority (as reported by Abascal, 2015) or toward their own ethnic group. Including the potential mediators *concern about immigration* and *discrimination* in the models makes it possible to identify the direct effect of refugee immigration on national and ethnic identification.

4.4 Empirical strategy

Analyzing the effects of refugee immigration in Germany has the major advantage that – unlike other forms of immigration – it is a largely exogenous stimulus for two reasons. First, the historical situation ensures a temporal exogeneity, since the rise in refugee numbers in 2015 was sharp and unexpected (see again Figure 4.1). Thus, the residents of Germany could not foresee the exorbitant number of refugees who would be arriving in Germany. Second, refugee immigration is largely regionally exogenous,

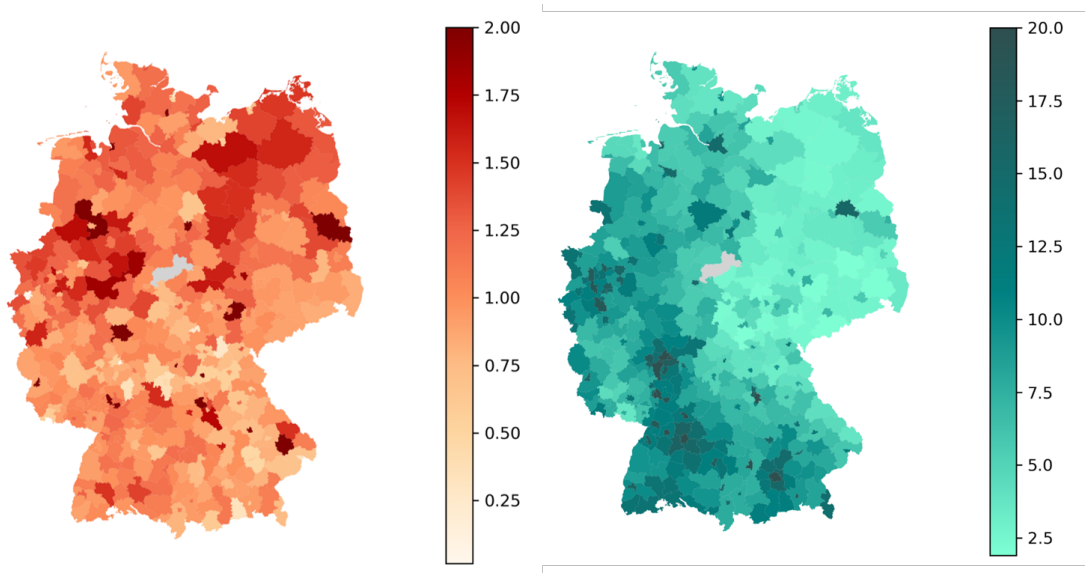

FIGURE 4.3: Map of refugees per county in 2015 (left, outliers >2 recoded to 2) and map of foreigners per county in 2015 (right, outliers >20 recoded to 20). Notes: Both per 100 inhabitants. Foreigners are those without German citizenship. Data: Federal Ministry of Interior. Own illustration.

as refugees are not able to self-select into preferred areas. Typically, immigrants favor regions with better labor market opportunities and areas with larger shares of residents from the same country of origin (Jaeger, 2007). This self-selection complicates the analysis of the causal effects of immigration. In contrast, the distribution of refugees into the sixteen federal states in Germany is regulated by a quota system based on population size and tax revenues (Asylgesetz (AsylG), §45). Within federal states, the allocation of refugees follows individual regulations, most of which are also based on population size and economic capacity. From their initial registration, refugees receive asylum seeker benefits (Asylbewerberleistungsgesetz (AsylbLG), §1) and are obliged to reside in their designated area (AsylG, §56). In consequence, the spatial distribution of refugees is more randomized than the distribution of other migrants. Figure 4.3 contrasts the random regional distribution of refugees in 2015 with the distribution of foreigners living in Germany, who are spatially clustered in Western Germany and larger cities.

A spatial randomization check (see Appendix Table C.3) confirms that the distribution of refugees has a much lower autocorrelation (maximum of Moran's I per year ≈ 0.25) than the distribution of the foreign population (Moran's I ≈ 0.56). During 2014 and 2015, there is even no statistically significant autocorrelation. This spatial dependence test shows that refugee immigration is a largely exogenous stimulus and not driven by self-selection into specific regions. Thus, the distribution of refugees across Germany is quasi-random. In conclusion, the refugee immigration to Germany provides a unique research setting to study the causal impacts of immigration.

4.4.1 Data

This empirical analysis relies on yearly county-level data from 2012 to 2018. I combine macro data about the number of refugees, population size, and economic indicators from official registries[4] with micro panel data concerning ethnic boundaries. The presence of refugees is measured by the proportion of recipients of asylum seeker benefits in relation to the total population of a county. The economic control variables are the unemployment rate (UR) and the Gross Domestic Product (GDP) per capita in a county. I complement the macro data by individual longitudinal data from the *Socio-Economic Panel* (2022), an annual large-scale German household survey based on a random sample. A special focus lies on respondents with a migration background.[5] My analytical sample is comprised of respondents with Turkish or Polish origin who participated in the SOEP both before and after the peak of the refugee crisis in 2015. To determine migration background, I include information on 1st and 2nd nationality, country of birth, and parents' country of birth. If at least one of these variables is Turkish (Polish), the respondent is categorized as of Turkish (Polish) origin. The final sample consists of 676 respondents of Turkish origin and 513 respondents of Polish origin. The majority of both groups are first-generation immigrants (Turkish: 63%, Polish: 90%, see Appendix, Table C.1).

The outcome variables are concern about immigration, self-reported discrimination, and national and ethnic identity. I reverse the original scale of all items for a more intuitive understanding and report only the reversed version here (for the original wording, see Appendix, Table C.2). Concern about immigration to Germany is measured yearly by the question "Are you concerned about immigration to Germany?" with three response categories 1 "Not concerned", 2 "Somewhat concerned", 3 "Very concerned".[6] Self-reported discrimination is assessed in odd-numbered years (2013, 2015, 2017) with the question "How often have you personally had the experience of being discriminated against here in Germany because of your origin within the last two years?" The response categories are 1 "Never", 2 "Rarely", and 3 "Frequently". National identity is measured by the question "How much do you feel like a German?" and ethnic identity by the question "How strongly do you feel connected to your country of origin?". Both identity questions are asked in even-numbered years (2012, 2014, 2016, 2018) and range from 1 "Not at all" to 5 "Fully"/"Very strongly". I impute the missing years of the variables on discrimination and identity by linear interpolation. The final sample consists of n = 2,914 person-years for Turkish and n = 2,141 for Polish immigrants.

[4] Source: Federal and State Statistical Offices, 2021.

[5] My analysis sample also includes two special migrations samples M1 and M2 (*IAB-SOEP Migration Samples (M1, M2)* 2022) drawn from administrative records of the Institute of Employment Research (IAB) (Brücker et al., 2014).

[6] The wording of the question captures both saliency and negativity towards immigration, as Lancee and Pardos-Prado (2013) and Kratz (2021) argue.

4.4.2 Methods

The first part of the analysis consists of the interpretation of descriptive trend graphs. The exogenous nature of the refugee immigration allows for the comparison of group relations before, during, and after the peak of the refugee crisis. The largest influx of newly registered refugees was recorded in the second half of 2015 and the first half of 2016. Person-years from the period before this peak serve as a control group. This analysis aims to capture potential nation-wide trends. It thereby acknowledges that changes may have occurred in response to national political discourse and national media coverage.

In the descriptive analysis, I differentiate not only between ethnicities but also between immigrant groups by generation and time of immigration (i.e., immigration before 1990, immigration during/after 1990) to capture potential heterogeneous effects. Especially with regard to group identification, differences between immigrant generations are likely. Assimilation theory states that immigrants gradually adapt to the host society and take on its identity, sometimes over generations (Gordon, 1964), although research has shown that this process is complex and context-dependent (Esser, 2004; Portes and Zhou, 1993; Alba and Nee, 1997). However, the data used for the current study is somewhat limited with regard to the distinction of immigration generations, since 90 percent of the Polish respondents in the sample are first-generation immigrants. In contrast, the Turkish respondents include more second-generation immigrants (37%).

To support the descriptive analysis, individual fixed effects (FE) regressions compare trends across regions with different levels of refugee immigration. In this framework, counties with high levels of refugee immigration act as a treatment group, while counties with lower levels of refugee immigration serve as the control group. This way, the analysis accounts for potential regional effects, which may arise from direct contact with refugees in the community or from the influence of regional news coverage.

As the descriptive analysis will demonstrate, the levels of certain outcome variables differ between immigrant groups, whereas the trends are relatively similar across these groups. Since FE regressions only consider changes within a variable over time, while ignoring the level, I only distinguish by ethnicity and combine all immigrant generations in the FE analyses. This grouping also has the advantage of achieving higher statistical power. I run separate FE regressions for the four outcome variables to estimate the total causal effect of an increased presence of refugees on each outcome. Due to the research design, only a few control variables are necessary. Since the share of refugees in a county is a purely exogenous treatment, individual characteristics of respondents will not bias the analysis. Among county-specific characteristics, only time-variant confounders are included, because FE models inherently control for all time-constant characteristics.

Regional economic factors are time-variant and possibly confounders in this context, as both the unemployment rate (UR) and gross domestic product (GDP) might

influence both treatment and outcome variables. Since UR and GDP impact anti-immigrant sentiments among natives and immigrants alike (Diaz, Saenz, and Kwan, 2011), this could transfer to both concern about immigration and discrimination. Further, being employed is associated with higher national identification among immigrants (De Vroome, Verkuyten, and Martinovic, 2014). Yet, research on the integration paradox points in the opposite direction: Higher economic position can lower migrants' sense of national belonging (Geurts, Lubbers, and Spierings, 2020). Either way, economic factors may impact identification. At the same time, the allocation of refugees based on the German quota regulations depends on population size and economic factors in a region (AsylG, §45). Therefore, I control for the local unemployment rate and GDP per capita in all models.

Another reason for including controls is a correlation between the composition of individual characteristics in a county and the share of refugees. However, this is very unlikely in Germany due to an external regional allocation of refugees based on population size (for which I account by using the share of refugees rather than absolute numbers) and economic factors (for which I account by controlling unemployment rate and GDP).

Note that the highest number of refugees arrived in Germany in the second half of 2015, but most interviews took place in the first half of 2015. Therefore, the FE-estimations are likely to underestimate the effect of refugee immigration. Since the treatment of refugee immigration is clustered at the county level, I use cluster-robust standard errors (Abadie et al., 2017). The number of counties (Turkish: 143, Polish: 178) is high enough to yield unbiased estimates (see Angrist and Pischke, 2008, Chapter 8). To achieve a higher power for the FE models, I keep respondents in the sample who moved between counties with unnested models for the main analysis. I also use two FE-models for all outcome variables. First, the linear treatment (T1) is a simple and straightforward model, that is easy to interpret. In the second model (T2), the treatment is split into quartiles to make it robust against outliers and to account for potential non-linear effects.

4.5 Results

4.5.1 Main analysis

The trend graphs (Figure 4.4) show a steady increase in concern about immigration from 2012 to 2016 across both ethnicities and all immigrant groups. Among Poles, this trend is even stronger. Concerns peak at the height of the refugee crisis, then decrease again. Both models of the FE regressions confirm these trends at the county level: Refugee immigration increased concerns about immigration substantially (full results in Table C.4 in the Appendix). The linear model T1 shows that a one percentage-point higher share of refugees in a county increased concerns among Turks by 0.1 ($p < 0.1$) and Poles even by 0.2 points on a 3-point-scale ($p < 0.01$). This result is confirmed

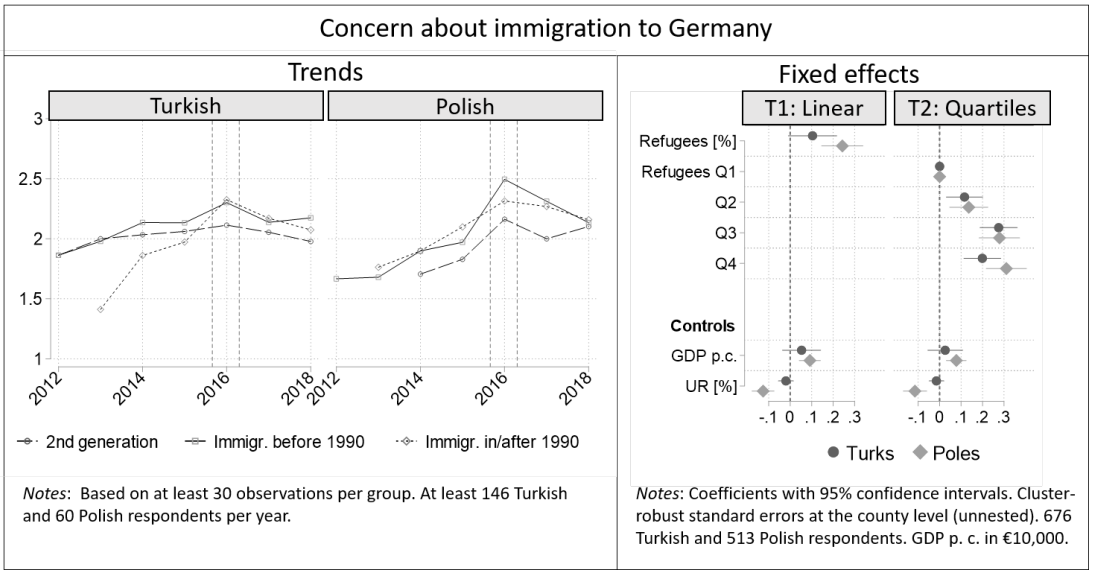

FIGURE 4.4: Left panel: Mean of concern about immigration on a scale from 1 (low) to 3 (high). Right panel: FE regressions of refugees in a county (share of total population) (T1) as linear treatment and (T2) in quartiles on concern about immigration.

by the quartile-model T2, where both immigrant groups show highly statistically significant positive effects. This finding is in line with the threat hypothesis. The fact that Poles grow more concerned than Turks indicates that religion might be a relevant underlying factor. I will analyze the role of religion in a further analysis below.

The second outcome variable is self-reported discrimination. The trend graphs (Figure 4.5) show a decrease in discrimination among Turks from 2013 to 2015, followed by a substantial increase. Apparently, Turks felt less discriminated against shortly before the peak of the refugee crisis. However, this seemed to be rather a short-term effect. In contrast, Poles reported decreasing discrimination over time. The FE models reveal that an increasing presence of refugees in a county lead to a decrease in self-reported discrimination in both immigrant groups (Figure 4.5, Table C.4), and that this effect is stronger for Turks (β_{Turk} = -0.12, $p < 0.05$; β_{Pole} = -0.06, p <0.05). Therefore, earlier generations of immigrants did not seem to perceive a rise in general xenophobia in reaction to refugee immigration. On the contrary, both Turks and Poles feel less discriminated in the short term. This finding is compatible with the hypothesis that Germans perceive refugees as more culturally distant than Turkish and Polish immigrants.

The trend graphs of national identification (Figure 4.6) show substantial level differences between immigrant groups. On average, Polish respondents feel more German than Turkish respondents. Among both ethnicities, second generations identify more strongly as Germans than first generation immigrants, and those who immigrated earlier feel more German than the later immigrants. Turkish 1st generation immigrants show an increase in national identity towards the peak of the refugee crisis. A similar trend is observed among Polish 2nd generation immigrants and later

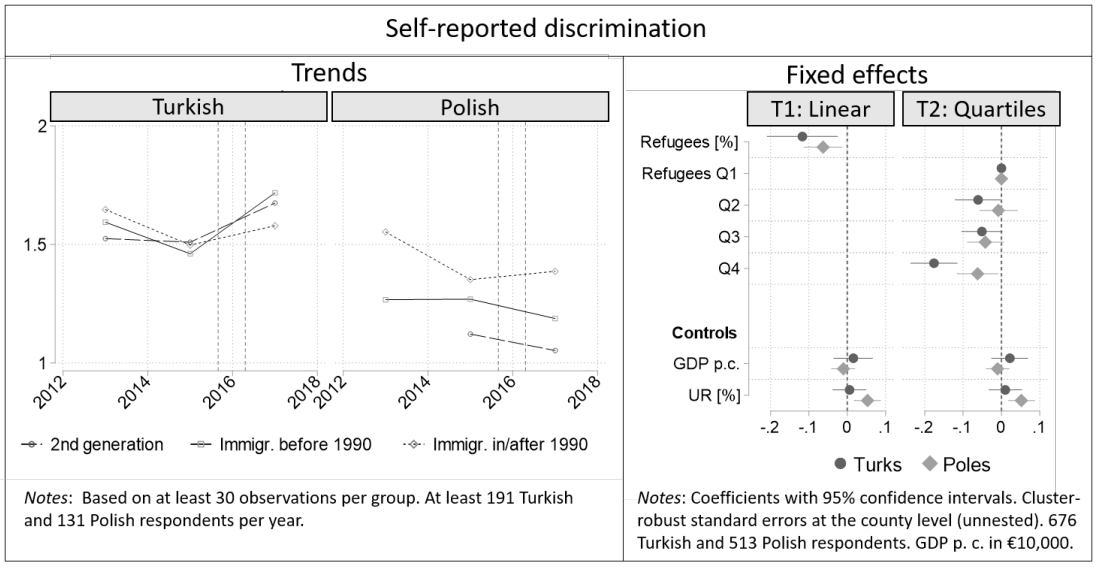

FIGURE 4.5: Left panel: Mean of self-reported discrimination on a scale from 1 (never) to 3 (frequent). Right panel: FE regressions of refugees in a county (share of total population) (T1) as linear treatment and (T2) in quartiles on self-reported discrimination.

immigrants. The FE regressions (M3.1, Figure 4.6, Table C.5) tentatively confirm these findings. Whereas the linear model does not find statistically significant effects of refugee immigration on Turks, the quartile model shows a significant positive effect of the fourth quartile on national identity at the 10%-level ($\beta_{Turk} = 0.1$, $p < 0.1$). In contrast, the linear model finds a significant positive effect for Poles ($\beta_{Pole} = 0.08$, $p < 0.05$), but no significant effects in the quartile model. Thus, the results show a tendency that refugee immigration makes earlier immigrants feel more German. This is in line with the hypothesis that Turks and Poles used the opportunity of the refugee crisis to improve their social position. I will further test the robustness of these effects below.

As the full model shows (M3.2), the direct effects of refugee immigration (net of concern about immigration and discrimination) are only slightly smaller. Since the effect of immigration remains rather stable across the two models, concern about immigration and self-reported discrimination do not seem to be important mediators.

The level of ethnic identification also differs between ethnicities (Figure 4.7). The feeling of belonging to the country of origin is considerably lower among Polish respondents. The pattern observed across immigrant generations for national identification is reversed when it comes to ethnic identification: Second immigrant generations feel the weakest connection to their country of origin, earlier immigrants a somewhat stronger connection, and later immigrants the strongest connection. Turkish 2nd generation immigrants felt increasingly connected to their country of origin towards the peak of refugee immigration, whereas Turkish 1st generation immigrants show a flat trend. After 2016, all Turkish immigrant groups report a decreasing ethnic identity. Pooling all immigrant groups together, the FE-models (Figure 4.7, Table C.6)

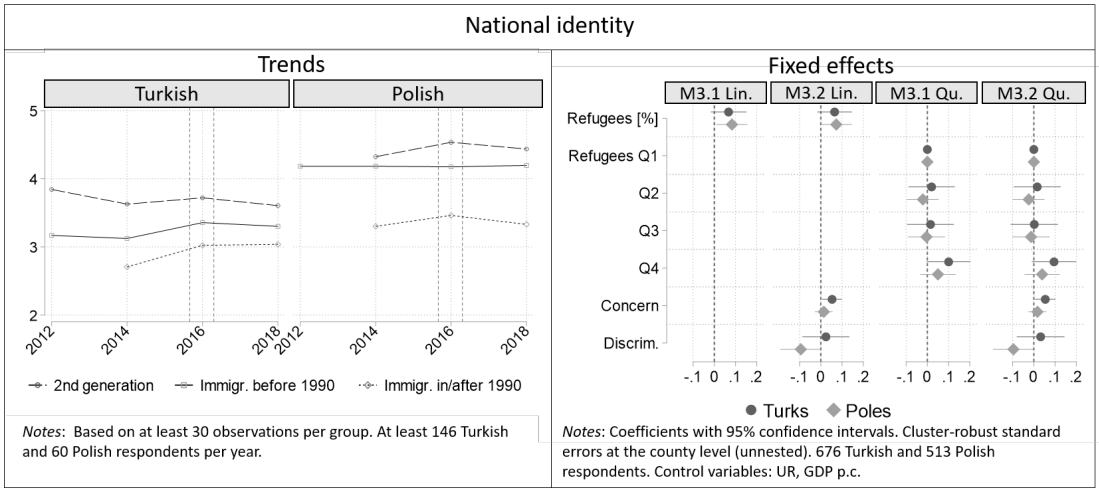

FIGURE 4.6: Left panel: Mean of national identity on a scale from 1 (low) to 5 (high). Right panel: FE regressions of refugees in a county (share of total population) as linear treatment and in quartiles on national identification. M3.1 measures the total effect, M3.2 the direct effect of refugee immigration.

confirm that refugee immigration to a county caused an increase in ethnic identity among Turkish respondents, with the quartile model showing substantial and highly statistically significant effects especially for the third quartile (Q3: $\beta_{Turk} = 0.13$, $p < 0.01$). This supports the assumption that earlier generations of immigrants might use the new outgroup of refugees as a new lower-status comparison group, which allows them to elevate their own ethnicity and strengthen their ethnic ties. The direct effect of refugee immigration (M4.2) has a similar magnitude to the total effect. Again, concern about immigration and discrimination do not seem to be relevant mediators. In contrast to the Turkish respondents, the trend of ethnic identity among Polish individuals remains relatively flat. Furthermore, the fixed-effects models do not reveal any significant impact of refugee immigration on ethnic identity. Therefore, it appears that Poles have not strengthened their ethnic ties in response to refugee immigration.

4.5.2 Robustness checks and panel attrition

To check the robustness of these results, I test several alternative linear FE specifications (Table C.7 and C.8 in the Appendix). The alternative models include variations in clustering (model R1, R3), the inclusion or exclusion of respondents who moved between counties (R2), and clustering at the interviewer level (R4). These variations show how some rather technical choices in model specifications influence the results. In addition, I investigate the roles of outliers by excluding observations with the highest and lowest percentile in the refugee variable (R5). Further, I use a reduced sample including only the years 2014 to 2016 to examine whether the effects are still evident when comparing a short time before and after the peak of refugee immigration.

The robustness checks confirm the direction and magnitude of the effects in most specifications. The estimations on concern about immigration and discrimination are

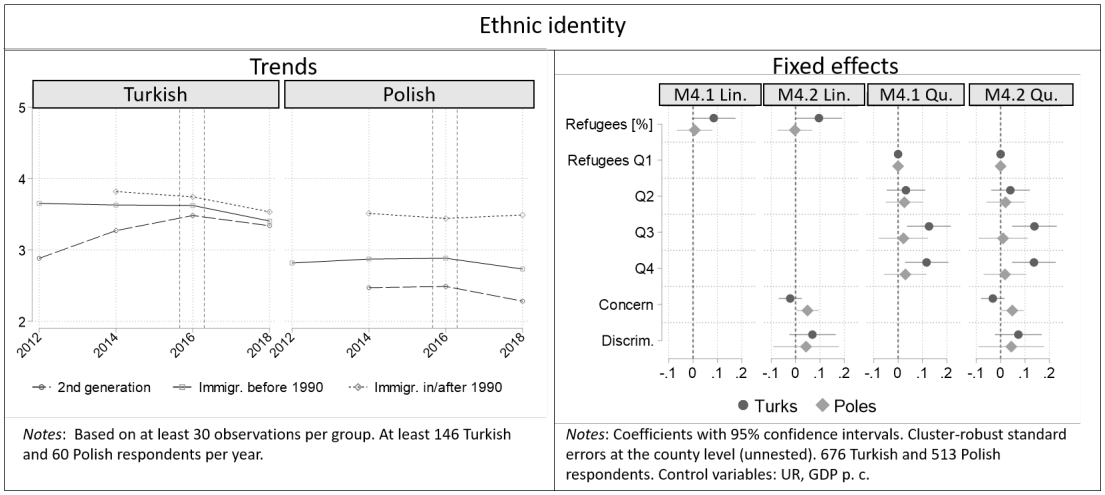

FIGURE 4.7: Left panel: Mean of ethnic identity on a scale from 1 (low) to 5 (high). Right panel: FE regressions of refugees in a county (share of total population) as linear treatment and in quartiles on ethnic identification. M4.1 measures the total effect, M4.2 the direct effect of refugee immigration.

rather robust for both ethnicities. The same holds for national identity among Polish and ethnic identity among Turkish respondents. Only the effect of refugee immigration on the national identification of Turks is slightly unstable and often only statistically significant at the 10%-level. This can be interpreted as a tendency that should be further investigated in future research. Deviations in the magnitude of effects are found in the model in which the outliers are excluded (R5). Since the effect sizes are stronger here than in the other models, this suggests that the outliers may distort the main results to some degree. Therefore, the main models rather underestimate the effect of refugee immigration.

A further potential bias that might threaten longitudinal analyses in general is panel attrition. Panel attrition is problematic only if it results from an endogenous selection bias, that is if both treatment and outcome variable affect response behavior (Elwert and Winship, 2014). To counteract this threat, I restrict my sample to respondents who participated before *and* after the peak of refugee immigration. The continuous observation precludes that respondents with certain values on the outcome variables leave the panel earlier. In addition, the use of fixed effects regressions allows for gaps in the panel.

4.5.3 Additional analyses: Role of religion and acculturation strategies

As mentioned above, religion marks a bright boundary between Christians and Muslims in Europe. Thus, some of the differences between Turkish and Polish respondents might be rooted in their religion. A further analysis (see Table C.9 in the Appendix) suggests that Christians feel indeed more threatened by refugees from majority Muslim countries. In addition, the effects of refugee immigration on national identity are stronger for religious respondents. The reasons for this can only be speculated.

Another additional analysis concerns acculturation strategies. Since Turkish immigrants demonstrated a tendency for increased national *and* ethnic identification in reaction to refugee immigration, one might wonder if these changes occur within the same person. Acculturation strategies combine information on national and ethnic identification (see Berry, 1997). The results show that among Turks, refugee immigration increases the probability of integration (high national and high ethnic identification) and decreases the probability of marginalization (low national and low ethnic identification) (see Table C.10 in the Appendix). In other words, the increase in ethnic and national identification in fact occurs within the same persons. Poles show similar acculturation patterns with a tendency to increased integration and a clear reduction of marginalization.

4.6 Discussion and conclusion

These analyses show that refugee immigration affects group relations and group identification of earlier generations of immigrants in Germany in various ways. The arrival of refugees leads to increasing concern among respondents with Turkish and Polish migration backgrounds. Thus, former immigrants seem to follow an exclusion strategy towards the new outgroup, which confirms the findings from Abascal (2015). Christian respondents apparently feel even more threatened by the new immigrants than Muslims, suggesting that feelings of cultural threat might be crucial in this context. Furthermore, refugee immigration decreases self-reported discrimination for both Turkish and Polish respondents. However, whereas Polish respondents report less discrimination also after the peak of the refugee crisis, this effect seems short-lived for Turks. In addition, Polish respondents feel more German in reaction to refugee immigration, but not closer to Poland. Turkish respondents show a tendency for an increased national identification and also feel more connected to Turkey at the same time. Taken together, decreasing self-reported discrimination and increasing national identification indicate that previous immigrants feel closer to the majority population in reaction to a rising number of refugees. These findings support the hypothesis that previous immigrants use this opportunity to improve their own social position by strengthening the ties to the majority group. In addition, Turks also strengthen their ethnic ties, thus following a dual strategy of improving their position. In terms of acculturation outcomes, this dual process is equivalent to an increase in integration and a decrease in marginalization.

One limitation of this study is that the attitudes towards refugees are measured only indirectly by concern about immigration. It would be interesting to investigate how attitudes and policy preferences of previous migrants towards refugees develop over time in more detail. Furthermore, this study treats refugees as one homogenous group, even though they have fled from various countries and have diverse ethnic

and religious backgrounds (BAMF, 2016a, pp. 24–25). It is possible that previous immigrants have different attitudes toward different countries of origin or towards different religions. However, the outgroup homogeneity effect justifies the assumption that refugees are perceived as more alike than they actually are (Simon, 1992). This tendency to perceive more homogeneity in the outgroup than in the ingroup is even stronger when the outgroup is smaller than the ingroup. Since both Poles and Turks represent larger ethnic groups than the incoming refugees, the outgroup homogeneity effect may play a relevant role in this context.

A further limitation is that events coinciding with the steep increase in refugee migration may also impact some of the outcome variables. One major event was the Paris terrorist attack in November of 2015, which had negative effects on attitudes towards immigrants, at least in the short term (Ferrín, Mancosu, and Cappiali, 2020). This might also have increased concerns among Turks and Poles. As a further possible effect of the terrorist attack, Turks as a majority Muslim group may have experienced more discrimination and subsequently re-oriented more strongly towards their own ethnic group in response. A similar effect was found in the wake of the 9/11 terrorist attacks, when increasing discrimination of Muslim immigrants in the labor market was observed (Rabby and Rodgers, 2011) and "contagious animosity" towards Hispanics occurred in the criminal justice system (McConnell and Rasul, 2021). In the long run, increased discrimination might have contributed to the fact that assimilation to the majority population decreased among Muslims (Gould and Klor, 2014). It is impossible to disentangle the effects of these coinciding events from the effect of refugee immigration. However, my design renders a bias unlikely, as my analysis also inlcudes regional effects. If there was a national effect of the terrorist attacks, this would not have impacted counties differently. Since I analyse counties with varying numbers of refugee arrivals per county, counties with lower refugee immigration function as a control group.

In sum, this study shows that new waves of immigration can affect group relations and the identification of previous immigrants in various ways. These findings therefore highlight the importance of analyzing multi-group contexts. The results of this study can be interpreted as a first indicator of changing ethnic boundaries: Poles more closely identify with Germans and distance themselves from outsiders, while Turks follow a twofold strategy: strengthening ties with both Germans and other Turks. This twofold strategy is equivalent to Berry's concept of integration and has shown the best psychological and sociocultural adaptation outcomes (Berry, 2006).

However, to evaluate whether ethnic boundaries have in fact changed, it is necessary to include the majority's perspective. Only if the ingroup's and outgroup's perception of boundaries coincide, can ethnic boundaries be changed. Thus, this study provides only a first indication from the viewpoint of Turkish and Polish immigrants in Germany. Future research should analyze whether the majority population feels similarly. Fouka and Tabellini (2021b) provide a first indication that corresponding

mechanisms can be found among members of the majority group, since Mexican immigrant population growth in the US improved White Americans' attitudes and behavior towards Blacks. In addition, researchers should study various national and ethnic contexts and explore the specific conditions under which group relations and group identifications change in reaction to immigration.

Appendix A

Why the subjective losers of modernization vote for the AfD

A.1 Battery of items: Dissatisfaction with politics

(1) Wie verbreitet ist Ihrer Ansicht nach Korruption unter deutschen Politikern?
(1) sehr verbreitet – (4) gar nicht verbreitet

(2) Wenn Sie nun an die Arbeit der Bundesregierung in den letzten vier Jahren denken: Hat sie Ihrer Meinung nach sehr gute, gute, schlechte oder sehr schlechte Arbeit geleistet?
(1) sehr gute Arbeit geleistet – (4) sehr schlechte Arbeit geleistet

(3) Wie zufrieden sind Sie alles in allem mit der Art und Weise, wie die Demokratie in der Bundesrepublik Deutschland funktioniert? *(1) sehr zufrieden – (4) überhaupt nicht zufrieden*

(4) Einige Leute meinen, dass es einen großen Unterschied macht, wer in Berlin an der Regierung ist. Andere meinen, dass es keinen Unterschied macht. Wie ist das bei Ihnen? *(1) Es macht keinen Unterschied – (4) Es macht einen großen Unterschied*

(5) Und nun zum Wählen. Einige Leute meinen: Egal, was man wählt, es macht keinen Unterschied für das, was in der Politik passiert. Andere meinen, dass es einen großen Unterschied macht, was man wählt. Wo würden Sie Ihre Meinung einstufen?
(1) Es macht keinen Unterschied – (5) Es macht einen großen Unterschied

(6) Bitte sagen Sie mir nun, was Sie von einigen führenden Politikern halten. Was halten Sie von Angela Merkel? *(-5) Halte überhaupt nichts von diesem Politiker*
– (+5) Halte sehr viel von diesem Politiker

Jetzt möchte ich gerne Ihre Meinung zu einigen allgemeinen Aussagen zur Politik wissen. Bitte geben Sie zu jeder der folgenden Aussagen an, inwieweit Sie dieser zustimmen oder diese ablehnen. *(1) Stimme voll und ganz zu – (5) Lehne voll und ganz ab*

(7) Die Politiker reden zu viel und machen zu wenig.

(8) Die meisten Politiker interessieren sich nicht für die Meinung der Bürger.

(9) Die meisten Politiker sind vertrauenswürdig.

(10) Die meisten Politiker kümmern sich nur um die Interessen der Reichen und Mächtigen.

A.2 Descriptive statistics

TABLE A.1: Descriptive statistics

VARIABLES	(1) mean	(2) sd	(3) min	(4) max
Vote for AfD	0.10	0.30	0	1
Education				
No degree/Hauptschule	0.22	0.41	0	1
Mittlere Reife	0.33	0.47	0	1
Fachabitur	0.10	0.29	0	1
Abitur	0.36	0.48	0	1
Job				
Blue-collar worker	0.09	0.29	0	1
White-collar worker	0.39	0.49	0	1
Public servant	0.06	0.24	0	1
Self-employed	0.07	0.25	0	1
Unemployed	0.03	0.16	0	1
Retired	0.31	0.46	0	1
Not working	0.05	0.22	0	1
Equivalence income				
Low income	0.23	0.42	0	1
Middle income	0.56	0.50	0	1
High income	0.20	0.40	0	1
Fair share				
Much less	0.04	0.20	0	1
Somewhat less	0.26	0.44	0	1
Fair share	0.60	0.49	0	1
Somewhat or much more	0.10	0.30	0	1
Dissatisfaction with politics				
Dissatisfaction with democracy	0.54	0.17	0.25	1
Corruption in politics	0.68	0.19	0.25	1
Bad job government	0.58	0.14	0.25	1
No difference: Government	0.46	0.24	0.20	1
No difference: Vote	0.39	0.22	0.20	1
Politicians talk too much.	0.75	0.21	0.20	1
Citizens' opinion not important	0.63	0.23	0.20	1
Distrust in politicians	0.56	0.18	0.20	1
Only rich important	0.61	0.21	0.20	1
Low opinion of Merkel	0.37	0.26	0.09	1
Index of dissatisfaction with politics	2.78	0.63	1.29	5.00
Controls				
Age in years	53.95	16.28	18	92
Gender: Male	0.55	0.50	0	1
Region: East	0.32	0.47	0	1

Appendix B

Does unprecedented mass immigration fuel ethnic discrimination? A two-wave field experiment in the German housing market

B.1 Materials and methods

B.1.1 Experimental data

Field experiment design (e-mail correspondence test) The main treatment variable of the e-mail correspondence test was applicant ethnicity (Turkish or German). We used a paired testing design: Each housing supplier in the sample received one request for a viewing appointment from a male Turkish applicant and one request from a male German applicant. We used 30 common first and last names to signal each ethnicity. Only male first names were used, as we were only interested in ethnic discrimination, not gender discrimination. One name was randomly selected from the pool of 30 names from each ethnic background. The names were included in the application as well as in corresponding e-mail addresses set up with common providers (such as cem.gülerüz@web.de; carsten.schweiger@gmx.de). Using many different names per ethnicity helps to avoid confounders, such as age or social background (Gaddis, 2017). The absence of such confounding factors was indicated by the high effect homogeneity observed among the various names signaling Turkish (vs. German) ethnicity (Section B.3.2, Figure B.7). All applications were written in correct standard German. To avoid order effects and to achieve a balanced design, the e-mails were sent in alternating order within a time interval of approximately one hour. In addition to ethnic background, we varied some other applicant characteristics as experimental factors. (In the present project, these additional applicant characteristics serve only as control variables to standardize the applicant profiles.)

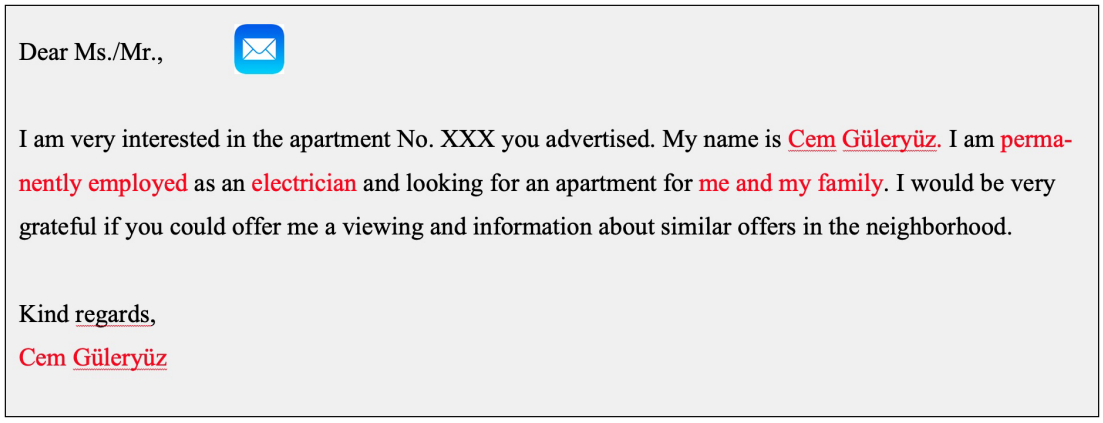

FIGURE B.1: Example of an e-mail request for an apartment viewing, translated from German. The experimentally varied factors are highlighted in red.

All applicant characteristics were fully crossed based on a *D*-efficient experimental design, the gold standard for optimal orthogonal and balanced experimental designs (Auspurg and Hinz, 2015). *D*-efficient designs minimize the correlations (possible confounding) between experimental factors and maximize their variance to obtain maximum statistical power to identify and separate the effects of all experimental factors. While ethnicity was always varied between the two applications to the same housing unit (i.e., one application was always sent by a Turkish, one by a German applicant), the levels of other experimental factors could either be the same or differ between the two applicants applying to the same housing unit. Such a design prevents confounding of the experimental stimuli with the composition of the applicant pool applying to the same unit (Phillips, 2019). At the same time, it conceals the nature of the experiment from housing suppliers while taking advantage of the high internal validity of a paired testing design.

As is common in the German rental housing market, we consistently used brief e-mail queries that included only the most important information about the applicant's background.[1] To minimize the risk of the experiment being recognized by suppliers, a slightly different wording was used for the two applications sent to the same housing unit. These slightly different text versions (e.g., using different salutations or orders of text phrases) were randomly assigned to the applications. Figure B.1 shows an example of an e-mail request with the experimentally varied applicant characteristics highlighted in red. A descriptive overview of all experimental factors and levels, along with balance checks, is provided in Section B.3.2.

The resulting pairs of e-mails were randomly assigned to the sampled housing

[1] We are very confident that we did not miss any key features of standard applications in the German housing market: The housing platform also asked for this core information in a small pilot with tabular application forms. This pilot was implemented by the platform shortly before the 1st wave of our field experiment (while during our field period, we could just apply with unstructured e-mails). To ensure that we used standard applications, we also advertised a (hypothetical) apartment ourselves when preparing the materials for our field experiment. Thereby, we were able to collect many sample e-mails from housing applicants on which to base our text versions.

units. To minimize errors, we used an automatic web-scraping procedure to send the e-mails, with a time gap of approximately one hour between the two applications (with some small random time variation to conceal the nature of the experiment). If a housing supplier responded to an application with an offer to visit the housing unit, we politely declined within a short period (under the pretense of already having found a rental) to minimize the burden on the suppliers. This was in agreement with the Ethics Committee that approved our field experiments on the German housing market.

Sample of tested housing units All housing units tested in this field experiment were sampled from a major online housing platform listing private and corporate advertisements. We exclusively sampled rentals, because discrimination is likely to be more prevalent in the rental housing market than in the real estate market.[2] Another reason for restricting the sample to rental units was that in Germany, especially among migrants, rental housing is far more common than home ownership (German Federal Statistical Office - Destatis, 2021).

The two sampling periods took place in spring and winter 2015 (1st wave: May 4th – May 8th, 2nd wave: November 30th – December 4th). During both waves, a random sample of 2,500 advertised rental housing units with 2 to 4 rooms was drawn (500 units per day), resulting in a total sample size of 5,000 units. For ethical reasons and to follow standard procedures for field experiments in the housing market, we sampled on the level of suppliers and not housing units so that we tested each supplier only once. After concluding the sampling procedures, a few housing units (N = 188) were excluded from the analysis sample as they were no longer available on the housing platform at the time the e-mail of the 2nd applicant was planned to be sent. In these cases, a paired test was not feasible. A few more units (N = 13) were excluded, as no information on their regional location was available, making it impossible to measure moderator variables (i.e., share of foreigners living in the region) or control variables (e.g., the federal state in which the housing unit was located).

The analysis sample included 4,799 tested rental units: 2,389 in the 1st and 2,410 in the 2nd wave. In both waves, the apartments were distributed throughout Germany. Overall, the field experiment was run in all federal states and in 388 of the 401 counties in each of the two waves.

Main treatment variable: Refugee immigration Our main treatment variable for identifying the impact of refugee immigration on discrimination is the timing of our experiment: shortly before the beginning of the refugee crisis (1st wave) or at the peak of the crisis (2nd wave). In robustness checks, we use a metric measure of the refugee immigration to different counties as an alternative treatment: The magnitude of immigration into different counties ranged from 0.3 to 1.2 refugees per 100 inhabitants

[2] In the rental market, providers must be confident that tenants will care for the rental and make reliable rent payments. Economic theories suggest that this setting provides stronger incentives for ethnic discrimination than the real estate market, where there is typically only a one-time financial transaction.

(counties with large reception centers excluded). As a further treatment variable, we were able to calculate the walking distance from the tested housing units to (newly established) refugee shelters for several federal states (see Section B.3.1 on robustness checks).

Moderator and control variables In terms of treatment effect heterogeneity, we examine the moderation of the effect of refugee immigration by the size of the immigrant population that already lived in a county prior to the refugee crisis. We measure the immigrant population size with the share of foreigners per county, i.e., the share of persons without German citizenship in the year before the refugee crisis set in (2014). Note that this share varied strongly among the observed counties (from 1.0% to 32.3%), as non-refugee migrants are allowed to move freely across Germany. The Federal Statistical Office provides the numbers of foreigners on an annual basis. The number of foreigners is strongly correlated with the number of residents with an immigrant background (i.e., residents, who themselves or at least one of their parents were born without German citizenship).[3] We also use official statistics from the German Federal Statistical Office at the county level for other regional context characteristics, such as vacancy rates, which are used as controls in robustness analyses.[4]

B.1.2 Analytical strategy

The aim of this paper is to identify the impact of refugee immigration on discrimination. Therefore, we must first measure discrimination; and second, we must determine whether the extent of discrimination changed as a result of immigration.

Discrimination rates To measure discrimination, we use differences in the suppliers' reactions. The most important difference in their reaction is whether an applicant receives a response, as receiving a response is a precondition for continuing the application process.[5] Differences between paired responses are analyzed to investigate whether Turks were treated differently than Germans. This strategy allows us to draw on the high internal validity of paired testing designs: By contrasting applications to the same rental unit, all housing unit and supplier characteristics are naturally held constant (Vuolo, Uggen, and Lageson, 2018). In total, there are three different outcomes j of interest in a paired design:

[3] According to the 2011 Census, 7.7% of the population in Germany were foreigners and 19.2% had a migration background, with both shares being correlated at the county level with $r = 0.92$.

[4] For such control variables, we can also use characteristics collected on the housing platform itself. During the web-scraping process, we collected information on all advertisements posted on the platform (not only those tested). This information allowed us to measure, for example, the average listing duration in the different counties (an alternative variable to the vacancy rate to measure the supply-demand situation in local housing markets) and also to collect information on the size of the suppliers (number of listings per supplier). These variables can be used to control for possible shifts in the composition of the sample or the housing market situation between waves. Extensive analyses showed that they neither affect the measured gross nor net discrimination in a substantial way (see the methods analyses reported in Auspurg, Schneck, and Thiel, 2020).

[5] All requests that did not receive a response within 14 days were coded as non-response.

$j = 0$: Both receive a response, or both do not receive a response;
$j = 1$: only the German applicant receives a response;
$j = 2$: only the Turkish applicant receives a response.

While the first instance ($j = 0$) represents equal treatment, the two latter instances represent unequal treatment: $j = 1$ (2) indicates an unfavorable treatment of the Turkish (German) applicant.

In standard literature, the proportions or probabilities of unfavorable treatment are defined as the gross discrimination rates of the Turkish and German applicants, respectively:

Gross discrim. rate of Turks:	$P_{j1} = P(j = 1)$	(probability that only the German applicant receives a response)
Gross discrim. rate of Germans:	$P_{j2} = P(j = 2)$	(probability that only the Turkish applicant receives a response)

These discrimination rates allow us also to identify cases in which the majority applicant (here: German) is disadvantaged compared to the minority applicant (here: Turkish).[6] To quantify the extent to which Turks are systematically more often disadvantaged, i.e. "discriminated" compared to Germans, the net discrimination rate is standard:

Net discrim. rate of Turks:	$P_{j1} - P_{j2}$	(difference in the gross discrimination rates)

To test whether the difference between gross discrimination rates is statistically significant, a nonparametric McNemar's (MN) test can be used (Vuolo, Uggen, and Lageson, 2016; Vuolo, Uggen, and Lageson, 2018). This test statistic contrasts the gross discrimination rates of Turkish and German applicants:

$$\text{MN} = \frac{(P_{j1} - P_{j2})^2}{P_{j1} + P_{j2}}.$$

With a sufficient number of cases, this test follows a χ^2 (df = 1)-distribution.

Identification of the effect of refugee immigration on discrimination rates We are interested in the following question: Was the level of discrimination systematically affected by the timing of our experiment (i.e., before/at the peak of the refugee crisis)? To answer this question, we use multinomial logistic regressions with the three individual results j of the experiment as the outcome variable. The main predictor is the timing of the experiment (2^{nd} versus 1^{st} wave). (In robustness checks, we use the magnitude of refugee immigration on the county level as an alternative treatment.)

Equation B.1 shows the regression model (for details on multinomial regression models see Greene, 2012, p. 763). Logit specifies the log-transformed odds of the

[6] Discrimination of the majority applicant may result, for example, from suppliers having an immigrant background combined with an in-group preference. Another possible explanation is discrimination based on assumed customers' preferences: In neighborhoods with many foreigners, suppliers might assume that Turkish migrants more likely rent an appartment.

two discrimination outcomes (j = 1 or j = 2) against the reference category of equal treatment (j = 0). i is an index for the tested housing unit (i = 1, ..., $N_{\text{housing units}}$). I represents refugee immigration, measured either with the timing of the experiment (1st or 2nd wave) or in robustness checks with our alternative metric measurement of immigration. C are control variables that might affect the level of discrimination (e.g., percentage of foreigners in the county; city vs. rural region).

$$\text{Logit}(Y_i = j) = \beta_{0j} + \beta_{Ij} I_i + \beta_{Cj} C_i, \quad j = 0, 1, 2; \quad i = 1, \ldots, N_{\text{housing units}} \tag{B.1}$$

Positive (negative) regression coefficients mean that the odds of the outcome j is increased (decreased) compared to the reference category. For our research goal, the coefficient β_{Ij} in equation B.1 is of most interest: A significant positive coefficient β_{I1} (β_{I2}) would suggest that the level of gross discrimination of Turkish (German) applicants increased across the two waves of our experiment (respectively, due to larger refugee immigration).[7] To simplify interpretation, effects are converted to average marginal effects (using the *margins* command in Stata), which indicate effects on the predicted probability of the respective outcome (gross discrimination rate) in percentage points, averaged across the entire estimation sample.[8]

If both ethnicities showed similar changes in gross discrimination between waves, this would indicate a general trend in the housing market. For instance, a changing relation between supply and demand may affect the response probability similarly for both ethnicities (equal treatment). In contrast, for our purpose, it is particularly interesting whether the gross discrimination rates changed differently for Turkish and German applicants, as this would imply a change in the net discrimination rate of Turks. To identify such disproportional change in gross discrimination rates, we test the following null hypothesis (with standard χ^2-tests for the equivalence of marginal effects using the *test* command in Stata):

$$\beta_{I1} = \beta_{I2} \quad \leftrightarrow \quad \beta_{I1} - \beta_{I2} = 0 \tag{B.2}$$

A positive difference would mean that over the course of the refugee crisis, the gross discrimination of Turks increased more strongly (or decreased less) compared to the gross discrimination rate of Germans, meaning that the gap (the net discrimination rate of Turks) increased.

[7] Multinomial regressions estimate different regression coefficients for each outcome. Here, this allows us to see whether the explanatory factors for the discrimination against the Turkish versus German applicants differ. This is, for example, interesting to see whether housing providers try to steer migrants toward other migrants. In this case, we would observe lower (higher) gross discrimination of Turks (Germans) in regions with a higher share of foreigners.

[8] For example, a reported average marginal effect of 0.05 for the outcome j = 1 (gross discrimination rate of Turks) would mean that the respective variable increased the average predicted probability that only the German applicant received a response (= gross discrimination of Turks) by 5.0 percentage points (implying a decline of 5.0 percentage points in the summarized probability of the two other outcomes, only the Turkish applicant got a response, or equal treatment; we multiply effects by 100 to report effects in percentage points).

In the supplemental analyses, we extend our parsimonious model presented in the main text that does not include any control variables by controlling on the federal state fixed effects, regional (city vs. countryside), advertisement characteristics (private supplier (yes/no), number of rooms, rent per sqm) as well as other variables on the county level (share of foreigners (2014), unemployment rate (2014, 2015), population density (2014, 2015), GDP of employed (2014, 2015), the vacancy rate (2011, census data) as well as the voter share for the green party in the previous federal election (2013)). It is especially important to control on federal states as they differ in population size and tax revenues, the two parameters used to determine the size of refugee immigration by the so-called "Königsteiner Schlüssel". By controlling for federal state and this large bundle of control variables, possible imbalances in the composition of housing suppliers or characteristics of regional units (for federal states: even in stable unobserved characteristics) that might confound our treatment effect are leveled out (achieving "conditional ignorability," see the main text for details on the identification strategy).

We also use nonparametric analyses such as local polynomial smoothing to capture non-linear and threshold effects (e.g., discrimination rates might change more strongly once refugee immigration exceeds a particular threshold).

Identification of treatment effect heterogeneity We are also interested in possible treatment effect heterogeneity across regions accustomed to varying levels of immigration before the refugee crisis started. This treatment effect heterogeneity is identified by including interaction terms between refugee immigration I and the share of foreigners in a county as a regional context characteristic F (interaction term: $I \cdot F$) (see equation B.3). A significant coefficient β_{IFj} would indicate a significant change in how regional characteristics moderate the gross discrimination rate. Depending on the levels of these variables, different changes in gross discrimination rates are estimated:

$$\text{Logit}(Y_{i=j}) = \beta_{0j} + \beta_{Ij} I_i + \beta_{Fj} F_i + \beta_{IFj} I_i \cdot F_i + \beta_{Cj} C_i, \quad j = 0, 1, 2; \quad i = 1, \ldots, N_{\text{hous. units}} \tag{B.3}$$

When testing the moderation by existing immigrant populations, it is important to keep in mind that these immigrants were not exogenously assigned: Previous immigrants could move freely within Germany and presumably self-selected into regions with more favorable conditions, such as a lower risk of discrimination. At this point, a main advantage of this two-wave field experiment comes into play: We use the 1st wave of the experiment to estimate and control the baseline level of discrimination in different federal states (or other regional units). By including federal state dummy variables as fixed effects in multivariable analyses, we intend to net out all time-invariant characteristics of federal states, including the baseline discrimination rates that exist there. Furthermore, we controlled for the same federal, regional, advertisement and county-level variables as laid out before. Possible further threats to our identification strategy are discussed in the main text.

B.2 Main results

B.2.1 Gross and net discrimination rates and change by refugee immigration

Table B.1 reports response rates and gross and net discrimination rates resulting from the paired applicants by wave, underlying Figure 3.4 in the main text.

TABLE B.1: Detailed results for the discrimination rates presented in Figure 3.4

Wave 1
Number of tested housing units: N = 2,389
Overall response rate: 58.3 %
Response rate German applicant: 63.5 %
Response rate Turkish applicant: 53.1 %

		Turkish applicant	
		Response	No response
German applic.	Resp.	***Equal treatm.*** 48.50% (N=1,159)	***Gross discr. T*** 14.90% (N=357)
	No resp.	***Gross discr. G*** 4.60% (N=109)	***Equal treatm.*** 32.00% (N=764)

Net discrimination T: 14.9% - 4.6% = 10.3pp
McNemar's χ^2 (1) = 132.0, p <0.001

Wave 2
Number of tested housing units: N = 2,410
Overall response rate: 58.4 %
Response rate German applicant: 63.5 %
Response rate Turkish applicant: 53.4 %

		Turkish applicant	
		Response	No response
German applic.	Resp.	***Equal treatm.*** 49.80% (N=1,201)	***Gross discr. T*** 13.70% (N=329)
	No resp.	***Gross discr. G*** 3.50% (N=85)	***Equal treatm.*** 33.00% (N=795)

Net discrimination T: 13.7% - 3.5% = 10.2pp
McNemar's χ^2 (1) = 143.8, p <0.001

To see whether there was a significant change in discrimination rates between waves, we estimated multinomial logistic regressions as described in Section B.1.2, netting out possible shifts in the composition of federal states, as well as other control variables. The results are shown in Figure B.2. The left panel shows average marginal effects of the experiment in the 2nd wave (compared to the 1st wave) on the gross discrimination rates of Turks and Germans in percentage points. Both effects are negative and very similar in magnitude, meaning that there was a parallel decline in the gross discrimination rates of both ethnicities. Both effects fail to reach statistical significance ($p > 0.05$, as shown by the 95% confidence intervals intersecting with the null line). This parallel decline in discrimination rates suggests that there was no change in the net discrimination rate. This conclusion is supported by a test for the equivalence of the two regression coefficients: the wave effect on the gross discrimination of Turks, and the wave effect on the gross discrimination of Germans. The null hypothesis of no difference cannot be rejected ($\chi^2(1) = 0.32$; $p = 0.570$).

The result of a stable net discrimination also holds for the metric treatment variable, defined by the number of refugees admitted per 100 inhabitants in a given county. This number ranged from nearly 0 up to 4 immigrating refugees per 100 inhabitants for the two waves of this experiment, when excluding the 1% of counties with the highest refugee immigration to obtain outlier-resistant estimates. (Four counties received between 4 and 8 refugees per 100 inhabitants, probably due to hosting large initial reception centers; we exclude these extreme counties from our analyses.) Whereas in 2014 (i.e., before the refugee crisis) the average refugee immigration was

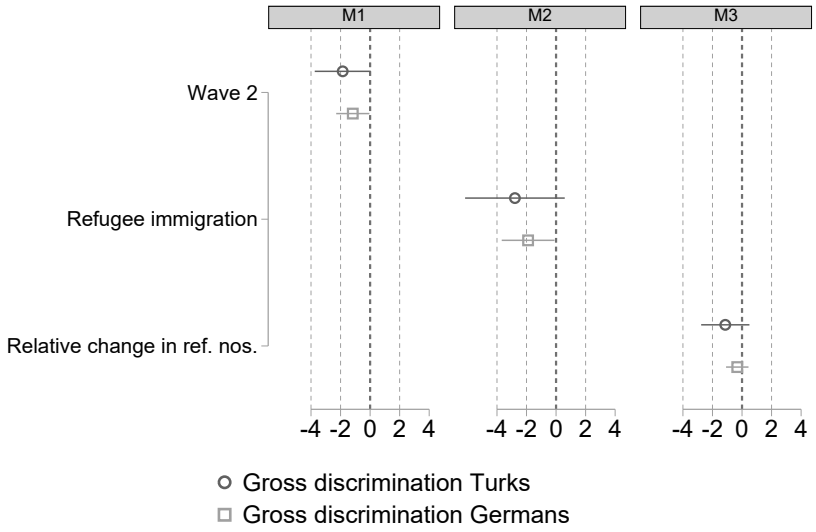

FIGURE B.2: Effects of wave and size of refugee immigration on gross discrimination rates. Results of separate regressions using wave (left panel) as the predictor; the amount of immigration per county (number of newly arrived refugees per 100 inhabitants; middle panel), and the relative size (%-change) of refugee immigration per capita compared to the previous year (right panel: "relative change in refugee numbers"). We report average marginal effects with 95% confidence intervals in percentage points, estimated by multinomial regressions. The sample consists of at least 2,339 tested housing units per wave.

only 0.16 per county, the immigration rate rose to 0.75 in 2015.[9] Figure B.2 shows that neither of the two gross discrimination rates were significantly affected by the magnitude of refugee immigration (see the regression results in the middle panel in Figure B.2). Finally, we also tested the relative increase in refugee numbers per capita compared to the previous year (right panel in Figure B.2; the 4 most extreme counties excluded as well). Again, the fairly parallel decline in the two gross discrimination rates means that net discrimination against Turks remained stable. As a further robustness check, we restricted the analysis sample to the 2nd wave for the two metric treatments. Again, the effects are not statistically significant.

That the decline in gross discrimination rates of Turks and Germans was parallel (i.e., did not significantly differ) was again consistently confirmed by χ^2-tests (testing the null hypothesis that the coefficients for Turks and Germans are equal). For the refugee immigration per capita, the test statistic is: $\chi^2(1) = 0.19$; $p = 0.662$; for the %-change in refugee numbers: $\chi^2(1) = 0.74$; $p = 0.389$. Note that these substantive conclusions remain unchanged when including the four extreme counties with very strong (relative) immigration.

[9] We approximate the amount of immigration to counties for the 1st wave (before the refugee crisis) with data on share of refugee immigration on the total population during 2014; and the amount of immigration for the 2nd wave with data on share of refugee immigration during 2015. As can be seen in Figure 2 in the main text, these numbers should be good proxies for the different amount of immigration before each wave of this experiment. Unfortunately, more fine-grained numbers on a monthly/daily basis about immigration to a county are not available.

B.2.2 Treatment effect heterogeneity: Regions with varying levels of foreigners

Table B.2 reports the net discrimination rates underlying Figure 3.5 in the main text, together with the gross discrimination rates and descriptive statistics on response patterns. The share of foreigners per county in 2015 indicates the size of previous immigrant populations and, thus, the extent to which counties were already accustomed to immigration before the refugee crisis. The table is structured in four panels, sorted by the quartile of the share of foreigners (low to high). The results on the left (right) report the response patterns and discrimination levels observed in the 1st (2nd) wave. Generally, net discrimination of Turks was higher in counties with a low share of foreigners; but this pattern did not change across the timing of the two waves (in all panels, net discrimination is similar across the two waves). This result is supported by multivariable analyses. We run multinomial regressions analogously and use the share of foreigners per county as a predictor for the level of gross discrimination. These analyses confirm that there was no significant change between waves. Therefore, although cross-sectional analyses reveal an association between the share of foreigners and the level of discrimination, this association does not seem to be causal.

TABLE B.2: Detailed results for the net discrimination rates presented in Figure 3.5

Housing units located in counties with lowest share of foreigners (1st quartile: 1.0%-6.0%)

Wave 1
Number of tested housing units: N = 575
Overall response rate: 62.4%
Response rate German applicant: 68.2%
Response rate Turkish applicant: 56.7%

		Turkish applicant	
		Response	No response
German applic.	Resp.	***Equal treatm.*** 53.0% (N=305)	***Gross discr. T*** 15.1% (N=87)
	No resp.	***Gross discr. G*** 3.7% (N=21)	***Equal treatm.*** 28.2% (N=162)

Net discrimination T: 15.1% - 3.7% = 11.4pp
McNemar's χ^2 (1) = 40.3, p <0.001

Wave 2
Number of tested housing units: N = 649
Overall response rate: 60.1%
Response rate German applicant: 66.6%
Response rate Turkish applicant: 53.6%

		Turkish applicant	
		Response	No response
German applic.	Resp.	***Equal treatm.*** 50.1% (N=325)	***Gross discr. T*** 16.5% (N=107)
	No resp.	***Gross discr. G*** 3.5% (N=23)	***Equal treatm.*** 29.9% (N=194)

Net discrimination T: 16.5% - 3.5% = 13.0pp
McNemar's χ^2 (1) = 54.3, p <0.001

Housing units located in counties with second lowest share of foreigners (2nd quartile: 6.1%-9.8%)

Wave 1
Number of tested housing units: N = 592
Overall response rate: 57.7%
Response rate German applicant: 64.9%
Response rate Turkish applicant: 50.5%

		Turkish applicant	
		Response	No response
German applic.	Resp.	***Equal treatm.*** 47.3% (N=280)	***Gross discr. T*** 17.6% (N=104)
	No resp.	***Gross discr. G*** 3.2% (N=19)	***Equal treatm.*** 31.9% (N=189)

Net discrimination T: 17.6% - 3.2% = 14.4pp
McNemar's χ^2 (1) = 58.7, p <0.001

Wave 2
Number of tested housing units: N = 614
Overall response rate: 61.4%
Response rate German applicant: 66.8%
Response rate Turkish applicant: 56.0%

		Turkish applicant	
		Response	No response
German applic.	Resp.	***Equal treatm.*** 52.3% (N=321)	***Gross discr. T*** 14.5% (N=89)
	No resp.	***Gross discr. G*** 3.8% (N=23)	***Equal treatm.*** 29.5% (N=181)

Net discrimination T: 14.5% - 3.8% = 10.7pp
McNemar's χ^2 (1) = 38.9, p <0.001

Housing units located in counties with second highest share of foreigners (3rd quartile: 9.9%-14.3%)

Wave 1
Number of tested housing units: N = 704
Overall response rate: 58.6%
Response rate German applicant: 62.9%
Response rate Turkish applicant: 54.3%

		Turkish applicant	
		Response	No response
	Resp.	***Equal treatm.*** 47.9% (N=337)	***Gross discr. T*** 15.1% (N=106)
German applic.	No resp.	***Gross discr. G*** 6.4% (N=45)	***Equal treatm.*** 30.7% (N=216)

Net discrimination T: 15.1% - 6.4% = 8.7pp
McNemar's χ^2 (1) = 24.6, p <0.001

Wave 2
Number of tested housing units: N = 675
Overall response rate: 56.9%
Response rate German applicant: 60.9%
Response rate Turkish applicant: 52.9%

		Turkish applicant	
		Response	No response
	Resp.	***Equal treatm.*** 49.3% (N=333)	***Gross discr. T*** 11.6% (N=78)
German applic.	No resp.	***Gross discr. G*** 3.6% (N=24)	***Equal treatm.*** 35.6% (N=240)

Net discrimination T: 11.6% - 3.6% = 8.0pp
McNemar's χ^2 (1) = 28.6, p <0.001

Housing units located in counties with highest share of foreigners (4th quartile: 14.4%-32.3%)

Wave 1
Number of tested housing units: N = 518
Overall response rate: 53.9%
Response rate German applicant: 57.3%
Response rate Turkish applicant: 50.4%

		Turkish applicant	
		Response	No response
	Resp.	***Equal treatm.*** 45.8% (N=237)	***Gross discr. T*** 11.6% (N=60)
German applic.	No resp.	***Gross discr. G*** 4.6% (N=24)	***Equal treatm.*** 38.0% (N=197)

Net discrimination T: 11.6% - 4.6% = 7.0pp
McNemar's χ^2 (1) = 15.4, p <0.001

Wave 2
Number of tested housing units: N = 472
Overall response rate: 54.4%
Response rate German applicant: 58.7%
Response rate Turkish applicant: 50.2%

		Turkish applicant	
		Response	No response
	Resp.	***Equal treatm.*** 47.0% (N=222)	***Gross discr. T*** 11.7% (N=55)
German applic.	No resp.	***Gross discr. G*** 3.2% (N=15)	***Equal treatm.*** 38.1% (N=180)

Net discrimination T: 11.7% - 3.2% = 8.5pp
McNemar's χ^2 (1) = 22.9, p <0.001

B.3 Robustness and balance checks

We conducted several checks to validate our results.

B.3.1 Robustness checks

Alternative treatment: Male refugees and registered asylum seekers As alternative treatment variables, we used information on the number of male refugees and on registered asylum seekers. First, a higher share of male refugees may have a stronger impact on a change in discriminatory behavior, as experimental evidence shows that respondents are less likely to trust immigrant men than immigrant women (Gereke, Schaub, and Baldassarri, 2020). However, the multinomial logit estimations show very similar results to the original treatment that includes both genders (Figure B.3). Second, we used the number of newly registered asylum seekers (German: "Schutzsuchende") per 100 inhabitants as a further alternative treatment variable that encompasses not only refugees currently involved in an asylum procedure, but also those with protection status.[10] This treatment variable also shows very similar results (Figure B.3).

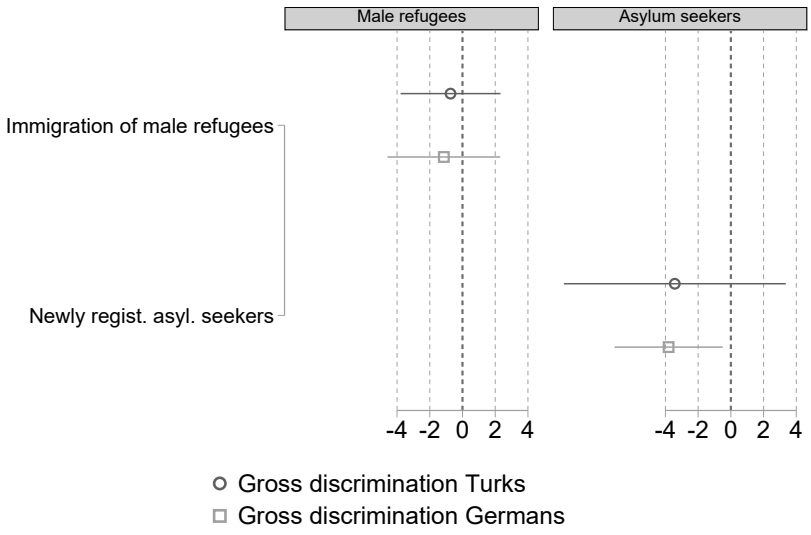

FIGURE B.3: Effects of the immigration of male refugees (per 100 inhabitants) and of newly registered asylum seekers (per 100 inhabitants) on gross discrimination. We report average marginal effects with 95% confidence intervals in percentage points, estimated by multinomial regressions. The sample consists of at least 2,336 tested housing units per wave.

Alternative treatment: Walking distance to refugee reception centers Our main analysis relies on county-level data about the presence of new refugees. To test whether changes in discrimination occurred on a more fine-grained spatial level, we

[10] The data originate from the Central Register of Foreigners (German: "Ausländerzentralregister").

TABLE B.3: Number of refugee reception centers (RRC) per federal state and wave. Note: For the other 11 federal states, the exact geographic locations were not provided by the federal state ministries due to data protection reasons.

	Wave 1	**Wave 2**
Baden-Wuerttemberg	18	43
Berlin	62	80
Hesse	2	50
Lower Saxony	3	32
Saxony	7	38
Total	92	243

conducted an additional analysis at the neighborhood level using multinomial logit regressions. For this, we use the exact geographical location of refugee reception centers (RRC) in five federal states and the walking distance from the sampled housing units as calculated by Google Maps. RRCs are run by the federal states, and data is therefore provided by state officials. RRCs are the first accommodations for refugees where they file their asylum applications. In the second half of 2015, the large number of arrivals made it necessary to install several emergency accommodations, for instance, in high schools, community halls, hotels, and hostels. These alternative accommodation locations are also included in our data. Other types of refugee accommodation, such as community housing, are managed by the municipalities and are thus not included in our data. However, Berlin is an exception – here, we have location data for all types of refugee accommodations.

Only housing units with an exact location (street and house number) are included in the analysis sample. Further, to analyze effects in the immediate neighborhood, the sample is restricted to rental units near an RRC (geodesic distance < 10km). The final sample comprises 604 housing units (1^{st} wave: 233; 2^{nd} wave: 371). When analyzing the effects of the distance to refugee shelters, one must consider that the placement of shelters at the local level within counties was probably not entirely random, as the quota system for refugee distribution applied only to the county or community level. The administrators responsible for installing RRCs within counties or communities certainly considered factors such as the acceptability of refugees in different neighborhoods, available vacancies, and rent levels (Hennig, 2021). These variables could be correlated with tastes for discrimination or economic motives underlying statistical discrimination. However, we can bypass this endogeneity issue by using the 1^{st} wave of the experiment to statistically control for the baseline level of discrimination in different neighborhoods (caused by these or other time-invariant variables). At the time of the 1^{st} wave, the refugee crisis and, thus, the locations of future refugee shelters were not yet foreseeable and could therefore not yet have influenced the level of discrimination. This allows us to identify the net effect of refugee shelter locations. Multinomial logit regression models estimate the effect of the walking distance and wave interaction effects on the discrimination of Turkish and German applicants. Results of the first model show that neither the walking distance nor the interaction of the

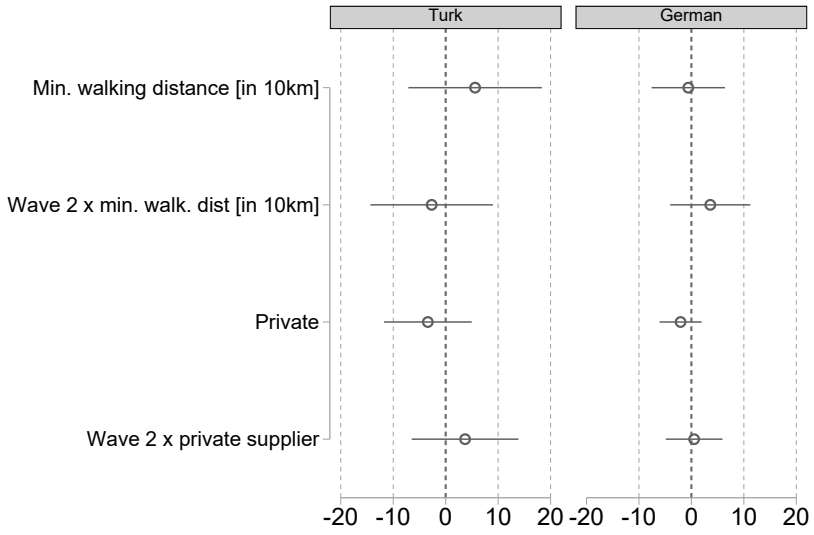

FIGURE B.4: Multinomial logit – Minimum walking distance to closest RRC on gross discrimination. Average marginal effects in percentage points with 95% confidence intervals are shown. The sample consists of at least 233 tested housing units per wave.

walking distance with the 2nd wave significantly affects discrimination (Figure B.4). In other words, even during the refugee crisis, suppliers of rental units in close proximity to RRCs did not discriminate more strongly than before the start of the crisis.

In conclusion, the fine-grained spatial analysis confirms our main results: The close proximity of a rental housing unit to an RRC does not seem to affect the suppliers' tendency to discriminate.

Alternative outcomes: Invitation to viewings and response times Following standard procedures, the main outcome variable measuring discrimination is response vs. non-response. We used the response content and response time as alternative outcomes for robustness analyses. Almost all responses were invitations to view the rental unit; only few responses included offers to view other units (e.g., because the unit was no longer available), and some responses were more difficult to categorize (e.g., requests to call the supplier). We coded all explicit invitations to a viewing as a positive response. All other responses and non-response were coded as a negative response. Discrimination rates based on this variable differed only slightly from our main treatment. For example, the gross discrimination of Turks observed in the 1st wave based on invitations was 14.9 percent, the gross discrimination of Germans 4.6 percent, and the net discrimination 10.3 percentage points, which is the same net discrimination rate as we observed with our main outcome. Time to respond was used as a metric measurement of different treatment, and discrimination was here measured by mean comparisons between applicants of different ethnicity. For analysis, we used Cox regressions that allow to include right-censored response times. Also, the analyses with this alternative outcome, response time, confirmed the conclusion of our

main analysis: The level of discrimination did not change between waves (analyses are available on request).

Non-linear effects For the metric treatment variable (i.e., the magnitude of immigration to different counties), we also analyzed possible non-linear relationships with the levels of gross and net discrimination. Figure B.5 shows a local polynomial smoothing of the levels of discrimination observed in the 2nd wave across different numbers of refugees that counties received per 100 inhabitants. The 5 percent of counties with the lowest and highest immigration rates have been excluded to obtain outlier-resistant estimates. This nonparametric approach does not require any assumptions about the functional form of the effect. Therefore, possible non-linear relationships can be identified. If the theory of tipping points were supported, this would result in non-linear effects (Galster, 2014). However, neither the two gross discrimination rates nor their difference (i.e., net discrimination rate) were affected by the magnitude of refugee immigration. These results also hold when using the relative increase in the proportion of refugees hosted in counties as the treatment variable (analyses available on request). More in-depth analyses with comparisons across waves only show that in counties that received 2 to 8 asylum seekers per 100 residents in 2015, discrimination against Turkish applicants slightly increased compared to 2014. However, due to the small number of cases observed in these extreme counties (N = 46 housing units in the 2nd wave), these results do not reach a statistically significant level and should be interpreted cautiously. Thus, we again conclude that discrimination against Turkish relative to German applicants has not changed substantially during the refugee crisis.

Further robustness analyses for the main identification strategy We also tested whether our results still hold when restricting the analysis sample to housing units located in Western Germany, or advertised by private or commercial suppliers (real estate agencies) only. In addition, we used the extensive information on the housing market collected to ensure that our results do not suffer from "length bias" or other sample restrictions.[11] For detailed analyses of these possible method effects, see Auspurg, Schneck, and Thiel, 2020.

Alternative identification technique: Instrumental variable approach As an alternative identification method for the effect of refugee immigration on discrimination, we used the refugee crisis as an instrumental variable (IV). This variable (indicated with W in equation B.4) equals 0 in the 1st and 1 in the 2nd wave of our field experiment. For a two-stage-least-square estimation, two assumptions have to be met. First, according to the *relevance condition*, the IV must be correlated with the independent variable of interest (registered immigrating refugees, I). Second, the *exclusion restriction* requires that an IV must be uncorrelated with the error terms u_{iG} resp. u_{iT}

[11] A length bias could occur if listings advertised over a longer period are more likely to be included in our sample of tested housing units.

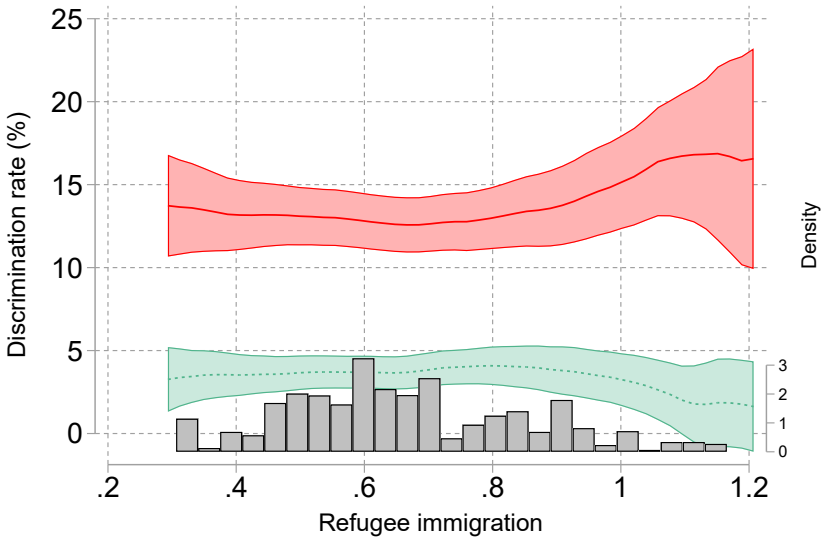

FIGURE B.5: Gross discrimination rates of Turkish (red, solid line) and German (green, dashed line) applicants in the 2nd wave by refugee immigration per county in 2015 (N refugees received per 100 inhabitants). Net discrimination is the gap between these two gross discrimination rates. The graph shows local polynomial smoothing with 95% confidence intervals based on 325 counties (5% of counties with smallest and highest immigration excluded to achieve stable results; for these counties, with only few observations, inflated confidence intervals do not allow for clear results). The histogram at the bottom summarizes the density distribution of counties with different sizes of refugee immigration. The sample consists of 2,248 tested housing units.

(see equations B.5, B.6), which represent the unexplained discrimination rates that remain when netting out the effect of the share of refugees $\hat{I}$. The relevance condition is clearly met, as the first regression estimation based on the Two-Stage-Least-Squares (2SLS) approach (equation B.4) shows a substantial effect, and the Pearson correlation is substantial with $r(N = 4{,}799) = 0.58$, $p < 0.001$. Therefore, our IV is a strong instrument (for more details on the issues of weak instruments, see Andrews, Stock, and Sun, 2019).

$$I_i = \beta_0 + \beta_W W_i + u_i, \quad i = 1, \ldots, N_{\text{housing units}} \tag{B.4}$$

The second step of 2SLS identifies the actual effect of interest (see equation B.5 and B.6). Here, the expected value of the share of immigrating refugees in each county from equation B.4 ($\hat{I}$) is used as an IV on discrimination. Since we use a linear regression model, the multinomial outcome was split into two dichotomous outcomes: the discrimination of the Turkish ($j = 1$, vs. $j = 0$ & $j = 2$, D_T) and German ($j = 2$, vs. $j = 0$ & $j = 1$, D_G) applicant.

$$D_{iT} = \beta_{0T} + \beta_{\hat{I}T}\hat{I}_i + u_{iT} \tag{B.5}$$

$$D_{iG} = \beta_{0G} + \beta_{\hat{I}G}\hat{I}_i + u_{iG} \tag{B.6}$$

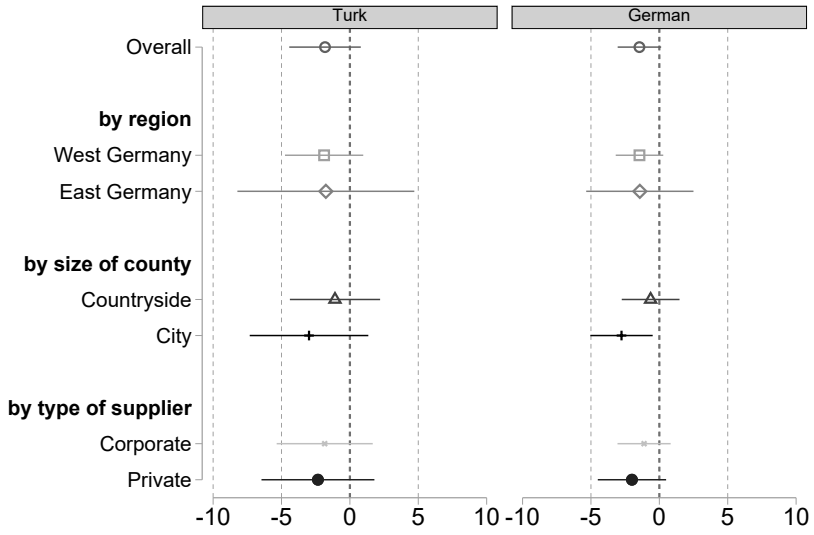

FIGURE B.6: Results of 2SLS estimation (instrumental variable: wave, outcome: gross discrimination) using linear probability models. Coefficients with 95% confidence intervals are shown. Each coefficient represents a separate analysis. The scale shows the difference in percentage points. N = 4,799.

If the exclusion restriction holds, the coefficients $\beta_{\hat{I}T}$ and $\beta_{\hat{I}G}$ are unbiased causal estimates of the effect of the share of refugees in a county on the gross discrimination of Turks or Germans. Since our instrument is exogenous due to a natural experiment setting, one can expect that the exclusion restriction is fulfilled (see the discussion in the main text). To prevent a violation of the heteroskedasticity assumption, which may yield biased standard errors, we used cluster-robust standard errors on the county-level (Rogers, 1993). In order to account for effect heterogeneity across subgroups, we also run the IV models separately for regions (East/West), county size (city/rural), and type of housing supplier (private/corporate).

The results confirm our previous findings. Neither the discrimination of the Turkish applicant nor of the German applicant changed significantly over time (Figure B.6). Similarly, examining potential heterogeneous effects across subgroups showed consistent but non-significant results. This finding shows that there are neither regional differences (East/West) nor between urban and rural areas, nor between private and corporate housing suppliers. Similar to our main findings, there is no decisive heterogeneity for different subgroups.

B.3.2 Balance Checks

Random assignment and balance of field experimental factors We carefully checked whether the randomization of our experiment worked on several important dimensions to achieve maximum internal validity. First, to identify the total effects of ethnicity and thus the level of ethnic discrimination, it is important that ethnicity is not correlated with any of the other applicant characteristics that may affect housing

suppliers' replies. Second, the desired balance in the levels of treatment variables to achieve a maximum (independent) variance in these variables was also successfully realized (i.e., all levels of an applicant characteristic occurred with about the same frequency). Third, it is important that characteristics of the two applicants applying to the same unit are not inter-correlated; otherwise, there might be idiosyncratic effects due to specific (non-random) pairings of applicants. Table B.4 shows that this was also achieved: All correlations across characteristics of applicants show negligible effect sizes close to zero. We also ensured that the different text versions used to conceal the nature of the experiment (i.e., different salutations or orders of text phrases in the e-mails) did not evoke any idiosyncratic response patterns. The maximum correlation of a text version with the observed response pattern (i.e., observed level of discrimination) was $r = 0.025$, $p = 0.17$ (c.f. Auspurg, Schneck, and Thiel, 2020, p.5). This confirms that the randomization of the text versions worked.

TABLE B.4: Descriptive statistics on realized experimental design by ethnicity and χ^2-Test/t-test for statistical group-difference (p-value).

	Turkish applic.	**German applic.**	**χ^2-test**	***t*-test**
Occupational level			$p = 0.750$	
no information	33.9%	33.8%		
low (vocational training)	33.3%	32.7%		
high (university degree)	32.8%	33.5%		
Employment status			$p = 0.108$	
no information	25.6%	24.0%		
employed	24.9%	25.0%		
self-employed	24.3%	26.3%		
public service	25.1%	24.7%		
Family status			$p = 0.553$	
single	38.9%	38.4%		
couple	30.0%	31.0%		
family	31.1%	30.6%		
Mean income (in €)	1,678	1,715		$p = 0.272$

Notes: Applicant income was included in a random subsample of e-mails as additional information. * p < 0.05; ** p < 0.01; *** p < 0.001 (two-tailed test).

We further tested whether any names provoked an idiosyncratic effect (see Figure B.7). In each ethnicity group, only one out of 30 names showed a response rate that significantly differed from the mean (up or down; 5% significance level). This corresponds to a rate that is expected to occur by chance (due to the "alpha error" in significance tests).

Stability (balance) of experimental variables over time We tested whether the means or distributions of the experimental variables differed by wave (see Table B.5). If the randomization and/or repetition of our experiments across waves was successful, there would be no differences. Table B.5 proves that there were no statistically

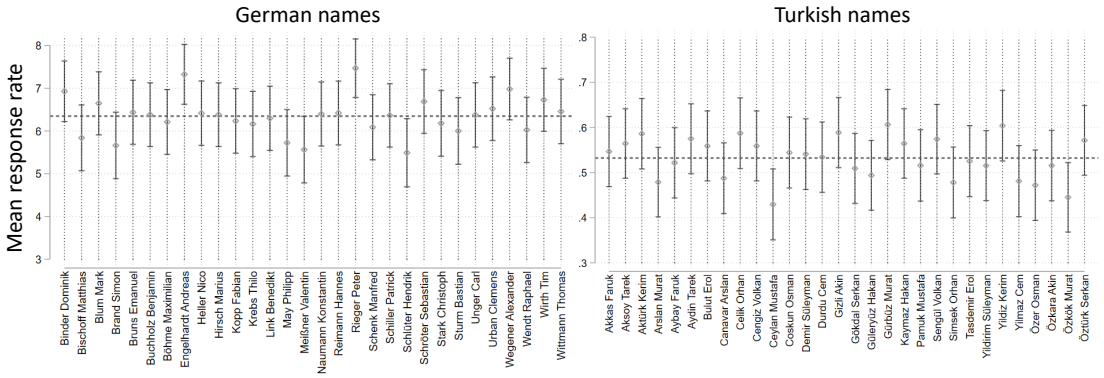

FIGURE B.7: Response rates by ethnicity and names. Coefficients from multivariable regressions including only the names as dummy variables with 95% confidence intervals. Both waves pooled (N = 4,799 for both Turks and Germans).

significant changes between waves ($p > 0.05$). In addition, the variables are rather evenly distributed within each wave, indicating a high level balance.

TABLE B.5: Descriptive statistics on realized experimental design by wave and χ^2-Test/t-test for statistical group-difference (p-value).

	Turkish applicant				**German applicant**			
	Wave 1	**Wave 2**	**χ^2-test**	***t*-test**	**Wave 1**	**Wave 2**	**χ^2-test**	***t*-test**
Occupation. level			$p = 0.74$				$p = 0.71$	
no information	33.5%	34.2%			34.3%	33.6%		
low (voc. train.)	33.2%	32.2%			32.7%	33.8%		
high (uni degree)	33.3%	33.7%			33.0%	32.6%		
Employm. status			$p = 0.73$				$p = 0.76$	
no information	24.2%	23.9%			25.4%	25.9%		
employed	24.9%	25.0%			25.0%	24.9%		
self-employed	26.8%	25.7%			23.9%	24.7%		
public service	24.1%	25.3%			25.7%	24.5%		
Family status			$p = 0.19$				$p = 0.17$	
single	37.7%	39.1%			39.8%	38.0%		
couple	32.2%	29.8%			28.8%	31.2%		
family	30.1%	31.1%			31.4%	30.8%		
Mean inc. (€)	1,780	1,773		$p = 0.89$	1,719	1,763		$p = 0.37$

Notes: Applicant income was included in a random subsample of e-mails as additional information.
* p < 0.05; ** p < 0.01; *** p < 0.001 (two-tailed test).

Maps of refugees and foreigners per county By law, refugees are allocated to the 16 federal states according to a strict quota system. Within a federal state, the allocation to the various counties follows different rules. Therefore, it is necessary to confirm whether the assumption for the identification of treatment heterogeneity, that the resulting distribution at the county level was random, is met. While the distribution of foreigners (i.e., without German citizenship) was highly geographically clustered in 2015, supporting the thesis that there was a strong self-selection into specific regions

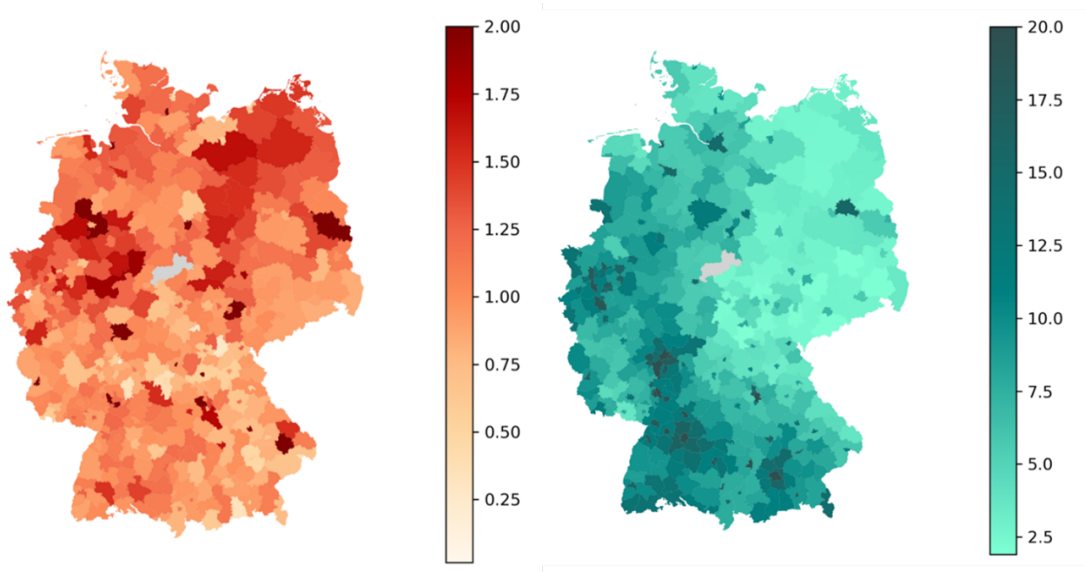

FIGURE B.8: Map of refugees per county in 2015 (left, outliers >2 recoded to 2) and map of foreigners in 2015 (right, outliers >20 recoded to 20). Both per 100 inhabitants. Foreigners are defined as those without a German citizenship. Data: Federal Ministry of Interior. Own illustration.

(Figure B.8, right), the distribution of refugees during the crisis was much more random (see Figure B.8, left). Statistics and spatial regressions verify that the regional influx of refugees was not auto-correlated with any observable state or county characteristic (see Table B.6).

Balance check of control and treatment group This section tests whether our main treatment of interest, the wave and amount of influx of refugees, was exogenous to other variables that might have affected discrimination rates. First and most importantly, there should be no correlation with the ethnicity of the applicants. This is *per se* achieved by our paired experimental design. Second, other applicant characteristics should also be perfectly balanced (randomized) across waves, as tested in the previous section. Finally, for our binary treatment (1^{st} vs. 2^{nd} wave) to show internal validity, it is also important that other characteristics of the housing market that might affect differential treatment of Turkish vs. German applicants did not change over time, and thus did not confound the influx of refugees between waves. Since the latter is out of our experimental control, we might at least identify possible confounders to control in multivariable analyses. As characteristics that are stable over time can be eliminated by regression models with federal-state fixed effects, we included federal-state dummy variables in multivariable analyses.

To test whether there was balance in characteristics of the housing market and contextual variables between the two waves of our experiment (i.e., to test the *ignorability* assumption), we used LPM models of our wave dummy as the dependent variable and apartment characteristics (private supplier (yes/no), number of rooms, rent per

sqm), regional characteristics (county fixed effects, city) as well as county-level variables (share of foreigners (2014), unemployment rate (2014, 2015), population density (2014, 2015), GDP per person employed (2014, 2015), the vacancy rate (2011, census data) as well as the voter share for the green party in the previous federal election (2013) in bivariate models. For the apartment characteristics, we observe a significant increase in the proportion of private suppliers due to a legal change in the German housing market (see Figure B.9).[12] We cover this possible confounding factor by using this type of supplier as a control variable. In addition, we run robustness analyses with this variable as sub-grouping variable in regression models. No statistically significant differences are observed for the number of rooms and the rent per square meter. Also no statistically significant compositional differences could be observed for the regional or county-level characteristics, with the only exception that the apartments tested in the 2nd wave were located in counties with a slightly lower unemployment rate and a slightly lower share of green party voters compared to those tested in the 1st wave. Whereas the decrease in unemployment could imply lower threats by competition and therefore, a lower discrimination of Turks, the decrease of apartments located in regions with a high share of green voters (a party supporting immigration) may point to a slightly less migrant-friendly population in the 2nd wave, which would result in an increase in discrimination of Turks. We therefore include these two variables also in our robustness analyses. The overall test of county fixed-effects shows no imbalances between our two waves: overall, all counties are represented to a similar extent in both waves ($F(387, 4411) = 0.95$, $p = 0.754$, omitted in Figure B.9 due to space constraints). These results were also confirmed in multivariable regressions.

Independence of refugee immigration from changes in housing market Our second research question, examining the treatment heterogeneity of the effect of the refugee crisis in a natural experiment, relies on the assumption that the assignment treatment and control group must be independent of other regional characteristics that may confound the interaction of the treatment with the (observational) share of foreigners in 2014. To test for such a random allocation, we calculated each regional characteristic's Pearson correlation coefficient (r) with the proportion of refugees for both waves on the county level (at least $N = 351$ included in the experiment in both waves). As expected, county GDP before refugee immigration (pretreatment) is positively correlated, but only with a marginally statistically significant effect size ($p < 0.1$). Furthermore, counties with a higher unemployment rate received a larger share of refugees before the refugee crisis. After the onset of the refugee crisis, no distinct pattern of refuge allocation could be observed. Therefore, we are confident that the effect of previous exposure to immigration on discrimination is independent of regional characteristics.

[12] Since June, 1 2015, the so-called "buyer pays principle" has applied to the renting of flats. According to this, the person who has commissioned an agency — usually the housing supplier — pays the agency. This legislative change led to a small increase in flats rented out by private providers (i.e. without using estate agents), as they can no longer shift the costs for this onto the renters.

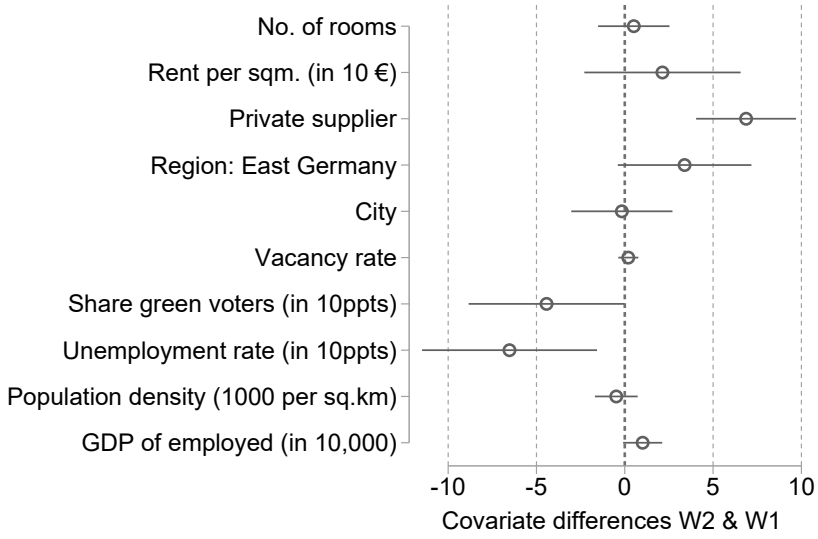

FIGURE B.9: Effects of apartment, regional and context characteristics on the probability that an apartment with these characteristics was tested in the 2nd instead of 1st wave of the field experiment in bivariate regressions. Coefficients with 95% confidence intervals are shown. Each coefficient represents a separate bivariate analysis (LPM-model). The scale shows the effects in percentage points. Non-significant coefficients indicate balance across both waves; while statistically significant coefficients indicate a shift in the sample composition across waves. At least N = 4,725 apartments (discrepancies to the N = 4,799 tested apartments arise from few missing values for variables on the regional level, especially for the vacancy rates).

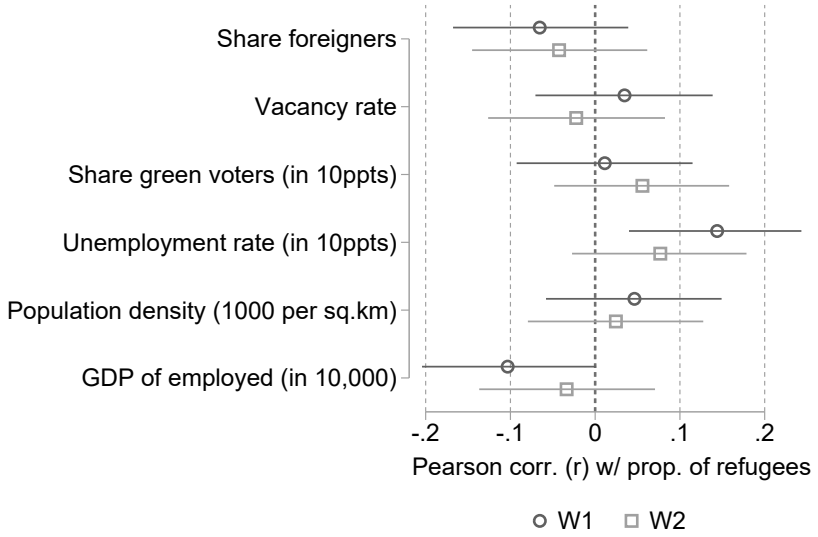

FIGURE B.10: Pearson correlation coefficient (r) of context characteristics with the assigned share of refugees before (1st wave) and after the onset of the refugee crisis (2nd wave). Coefficients with 95% confidence intervals are shown. Each correlation coefficient represents a separate analysis. All analysis on the county level, N $\geq$ 351.

In addition, a check for spatial dependency did not show a statistically significant spatial autocorrelation of the refugee distribution (Table). We determined Moran's I, one of the central indicators for spatial dependence.[13] The indicator ranges from -1 (perfect negative correlation) to 1 (perfect positive correlation). Moran's I is close to zero for the refugee variable and not statistically significant (see Table B.6). This confirms that there is no spatial clustering of refugees at the county level. In contrast, the spatial distribution of foreigners is clearly non-random, as the high value of Moran's I reveals (for more information on spatial analysis, see Darmofal, 2015).

TABLE B.6: Spatial randomization check

	Moran's I	***p*-value**
% Refugees in 2015	0.015	0.198
% New refugees in 2015	0.012	0.197
% Foreigners 2015	0.559	0.001**

* p <0.05; ** p <0.01; *** p <0.001 (two-tailed test).

[13]Moran's I is based on a spatial weights matrix. This matrix specifies for each county-pair if two counties are neighbors. We used the "queen contiguity" as a definition for the weighting matrix, which defines all adjacent counties as neighbors (common edge or common vertex, reflecting the queen's direction of movements in chess).

Appendix C

A changing ethnic landscape? The effect of refugee immigration on inter-ethnic group relations and identities of previous immigrants

C.1 Descriptive statistics

TABLE C.1: Descriptive statistics. 676 Turkish and 513 Polish respondents.

	Turkish				**Polish**			
	mean	SD	Min	Max	Mean	SD	Min	Max
SOEP Data								
Concerns immigr.	2.06	0.76	1	3	2.09	0.74	1	3
Discrimination	1.60	0.62	1	3	1.31	0.50	1	3
National identity	3.29	1.07	1	5	3.81	1.03	1	5
Ethnic identity	3.54	1.07	1	5	3.09	1.11	1	5
Gender: female	0.50	0.50	0	1	0.61	0.49	0	1
Age (years)	40.01	12.77	18	86	43.59	13.08	19	85
Region: East	0.01	0.10	0	1	0.09	0.28	0	1
No religion	0.17	0.38	0	1	0.13	0.33	0	1
Christian	0.03	0.18	0	1	0.87	0.33	0	1
Muslim	0.79	0.41	0	1	0.00	0.00	0	0
Indirect mig. backgr.	0.37	0.48	0	1	0.10	0.30	0	1
Macro Data								
Refugees p. 100 inhab.	0.67	0.43	0.02	7.63	0.68	0.39	0.04	6.34
GDP p.c. in 100,000	0.43	0.20	0.18	1.82	0.38	0.15	0.18	1.82
UR in %	7.05	2.79	1.30	14.70	6.58	2.81	1.7	16.4

C.2 Original survey questions in German

TABLE C.2: GSOEP question wording and response options

Concept	Question	Response options
Concern about immigration	„Wie ist es mit den folgenden Gebieten - machen Sie sich da Sorgen? [...] Über die Zuwanderung nach Deutschland“	1 „Große Sorgen“ 2 „Einige Sorgen“ 3 „Keine Sorgen“
Discrimination	„Wie häufig haben Sie persönlich innerhalb der letzten beiden Jahre die Erfahrung gemacht, hier in Deutschland aufgrund Ihrer Herkunft benachteiligt worden zu sein?“	1 „Häufig“ 2 „Selten“ 3 „Nie“
National identity	„Wie sehr fühlen Sie sich als Deutscher/ Deutsche?“	1 „Voll und ganz“ 2 „Überwiegend“ 3 „In mancher Beziehung“ 4 „Kaum“ 5 „Gar nicht“
Ethnic identity	„Und wie sehr fühlen Sie sich mit Ihrem Herkunftsland verbunden?“	1 „Sehr stark“ 2 „Stark“ 3 „In mancher Beziehung“ 4 „Kaum“ 5 „Gar nicht“

Sources:

- SOEP Group, 2019. SOEP-Core – 2017: Person (PAPI, mit Verweis auf Variablen). SOEP Survey Papers 681: Series A – Survey Instruments (Erhebungsinstrumente). Berlin: DIW Berlin/SOEP
- SOEP Group, 2020. SOEP-Core – 2018: Person (PAPI, mit Verweis auf Variablen). SOEP Survey Papers 791: Series A – Survey Instruments (Erhebungsinstrumente). Berlin: DIW Berlin/SOEP

C.3 Spatial autocorrelation tests

TABLE C.3: Spatial autocorrelation tests among refugees and foreigners. Notes: *p<0.05, **p<0.01, ***p<0.001. Weight matrices based on queen contiguity definition.

	Moran's I	
Years	Refugees in county	Foreigners in county
2012	0.202**	0.507**
2013	0.187**	0.501**
2014	0.051*	0.497**
2015	0.015	0.464**
2016	0.249**	0.443**
2017	0.103**	0.419**
2018	0.082**	0.421**

The first step of this randomization check consists of calculating a spatial weighting matrix that specifies for each county-pair if these two counties are neighbors. I use the "queen contiguity" specification for the weighting matrix, which defines all adjacent counties as neighbors (common edge or common vertex, reflecting the queen's direction of movements in chess). Second, based on the spatial weights matrix, I determined Moran's I, one of the central indicators for spatial dependence. The indicator ranges from -1 (perfect negative correlation) over 0 (no correlation) to 1 (perfect positive correlation). Therefore, values closer to zero indicate lower spatial dependency.

C.4 Regression results

C.4.1 Regression results: Concern about immigration and self-reported discrimination

TABLE C.4: Regression results underlying Fig. 4.4 and Fig. 4.5. Fixed effects regressions of refugees in a county (share of total population) (T1) as a linear treatment and (T2) in quartiles on concern about immigration (M1) and self-reported discrimination (M2). Cluster-robust standard errors at the county level (unnested). 676 Turkish and 513 Polish respondents. Notes: Standard errors in parentheses, *p<0.1, **p<0.05, ***p<0.01.

	Concern		**Discrimination**	
	M1		M2	
	Turk.	*Pol.*	*Turk.*	*Pol.*
(T1) Linear treatment				
Refugees [%]	0.104*	0.243***	−0.117**	−0.063**
	(0.057)	(0.049)	(0.047)	(0.025)
GDP [10,000€]	0.053	0.092***	0.016	−0.01
	(0.045)	(0.025)	(0.026)	(0.015)
Unempl. rate	−0.02	−0.126***	0.006	0.053***
	(0.018)	(0.026)	(0.022)	(0.017)
(T2) Refugees in quartiles (ref. Q1)				
Q2	0.116***	0.136***	−0.061**	−0.008
	(0.043)	(0.045)	(0.03)	(0.025)
Q3	0.275***	0.279***	−0.051*	−0.042*
	(0.044)	(0.048)	(0.027)	(0.024)
Q4	0.199***	0.311***	−0.176***	−0.062**
	(0.043)	(0.048)	(0.031)	(0.028)
GDP [10,000€]	0.026	0.078***	0.022	−0.01
	(0.041)	(0.023)	(0.024)	(0.015)
Unempl. rate	−0.015	−0.115***	0.01	0.052***
	(0.017)	(0.028)	(0.022)	(0.017)

C.4.2 Regression results: National identity and ethnic identity

TABLE C.5: Regression results underlying Fig. 4.6. Fixed effects regressions of refugees in a county (share of total population) (T1) as a linear treatment and (T2) in quartiles on national identity (M3.1, M3.2). Cluster-robust standard errors at the county level (unnested). 676 Turkish and 513 Polish respondents. Notes: Standard errors in parentheses, *p<0.1, **p<0.05, ***p<0.01.

	National identity			
	M3.1		M3.2	
	Turk	*Pole*	*Turk*	*Pole*
(T1) Linear treatment				
Refugees [%]	0.067	0.083**	0.065	0.073**
	(0.042)	(0.037)	(0.041)	(0.037)
GDP [10,000€]	0.042	−0.008	0.039	−0.01
	(0.049)	(0.02)	(0.049)	(0.02)
Unempl. rate	−0.021	−0.006	−0.02	0.001
	(0.032)	(0.018)	(0.032)	(0.018)
Concern immig.			0.053**	0.014
			(0.023)	(0.021)
Discrimination			0.024	−0.094*
			(0.055)	(0.048)
(T2) Refugees in quartiles (ref. Q1)				
Q2	0.02	−0.021	0.016	−0.024
	(0.055)	(0.038)	(0.056)	(0.038)
Q3	0.015	−0.004	0.002	−0.013
	(0.056)	(0.044)	(0.056)	(0.044)
Q4	0.1*	0.05	0.095*	0.039
	(0.052)	(0.042)	(0.053)	(0.042)
GDP [10,000€]	0.041	−0.004	0.039	−0.006
	(0.048)	(0.02)	(0.049)	(0.02)
Unempl. rate	−0.025	−0.009	−0.024	−0.003
	(0.032)	(0.019)	(0.031)	(0.019)
Concern immig.			0.054**	0.017
			(0.024)	(0.021)
Discrimination			0.032	−0.096**
			(0.057)	(0.048)

TABLE C.6: Regression results underlying Fig. 4.7. Fixed effects regressions of refugees in a county (share of total population) (T1) as a linear treatment and (T2) in quartiles on national identity (M4.1, M4.2). Cluster-robust standard errors at the county level (unnested). 676 Turkish and 513 Polish respondents. Notes: Standard errors in parentheses, *p<0.1, **p<0.05, ***p<0.01.

	Ethnic identity			
	M4.1		M4.2	
	Turk	*Pole*	*Turk*	*Pole*
(T1) Linear treatment				
Refugees [%]	0.085*	0.007	0.096**	−0.003
	(0.045)	(0.037)	(0.048)	(0.036)
GDP [10,000€]	−0.007	−0.042*	−0.007	−0.046*
	(0.03)	(0.024)	(0.029)	(0.023)
Unempl. rate	0.045*	0.001	0.045*	0.005
	(0.026)	(0.022)	(0.026)	(0.023)
Concern immig.			−0.022	0.049**
			(0.024)	(0.023)
Discrimination			0.069	0.043
			(0.048)	(0.068)
(T2) Refugees in quartiles (ref. Q1)				
Q2	0.032	0.026	0.04	0.02
	(0.04)	(0.039)	(0.04)	(0.039)
Q3	0.127***	0.022	0.139***	0.01
	(0.045)	(0.051)	(0.046)	(0.051)
Q4	0.117**	0.03	0.137***	0.018
	(0.045)	(0.044)	(0.045)	(0.044)
GDP [10,000€]	−0.016	−0.043*	−0.017	−0.046**
	(0.03)	(0.023)	(0.029)	(0.023)
Unempl. rate	0.046*	0.002	0.045*	0.006
	(0.026)	(0.022)	(0.026)	(0.023)
Concern immig.			−0.032	0.048**
			(0.024)	(0.023)
Discrimination			0.073	0.044
			(0.048)	(0.068)

C.5 Robustness checks

C.5.1 Results of robustness checks

TABLE C.7: Results of robustness checks. Control variables in all models: unemployment rate and GDP. *p<0.1, **p<0.05, ***p<0.01.

		Concern		**Discrimination**		**National ident.**		**Ethnic identity**	
		M1		M2		M3.1		M4.1	
		Turk.	*Pol.*	*Turk.*	*Pol.*	*Turk.*	*Pol.*	*Turk.*	*Pol.*
R1	No clustering	0.10***	0.24***	−0.12 ***	−0.06 ***	0.07**	0.08**	0.09**	0.01
R2	No clustering, no movers	0.09**	0.23***	−0.13 ***	−0.08 ***	0.06*	0.07*	0.08***	0.03
R3	Clustering, nested	0.09	0.23***	−0.13 **	−0.08 ***	−0.06	0.07**	0.08*	0.03
R4	Clustering interviewer	0.10**	0.24***	−0.12 ***	−0.06 ***	0.07*	0.08**	0.09**	0.01
R5	Outliers dropped	0.18***	0.30***	−0.19 ***	−0.08 **	0.10*	0.10**	0.14***	0.02
R6	Years 2014-16	0	0.06	−0.10 **	−0.05 *	0.12*	0.09***	0.05	−0.04

C.5.2 Details on robustness checks

TABLE C.8: Details on robustness checks

				Turks		*Poles*	
	Sample	**Cluster-robust SEs**	**nested**	**n**	**N**	**n**	**N**
R1	full	-	-	2,914	676	2,137	513
R2	movers dropped	-	-	2,721	638	1,951	472
R3	movers dropped	county level	X	2,721	638	1,951	472
R4	full	interviewer level	-	2,914	676	2,137	513
R5	outliers dropped (lowest and highest percentile of refugees)	county level	-	2,900	676	2,124	512
R6	years 2014-2016	county level	-	1,639	650	1,130	491

C.6 Further analyses

C.6.1 Grouped by religion

TABLE C.9: Fixed effects regressions by religion (Muslim/Christian). Cluster-robust standard errors at the level (unnested). 509 Muslim and 468 Christian respondents. Notes: GDP in 10,000€, standard errors in parentheses, *p<0.1, **p<0.05, ***p<0.01.

	Concern		**Discrimination**		**National ident.**		**Ethnic identity**	
	M1		M2		M3.1		M4.1	
	Musl.	*Christ.*	*Musl.*	*Christ.*	*Musl.*	*Christ.*	*Musl.*	*Christ.*
Refug. [%]	0.11*	0.27***	−0.12 *	−0.08 ***	0.11**	0.09**	0.08*	0.02
	(0.06)	(0.05)	(0.06)	(0.03)	(0.05)	(0.04)	(0.04)	(0.04)
GDP	0.06	0.11***	0.04	0.00	0.11**	−0.01	0.06**	−0.04
	(0.05)	(0.02)	(0.03)	(0.02)	(0.05)	(0.02)	(0.03)	(0.03)
UR	−0.02	−0.15 ***	−0.01	0.04*	−0.06 *	−0.01	0.03	−0.01
	(0.02)	(0.03)	(0.03)	(0.02)	(0.03)	(0.02)	(0.03)	(0.03)

Analysis and interpretation: A high percentage of Poles in the sample are Christian (87%, see Table A1), whereas a majority of Turks are Muslim (79%). Some of the differences between Turkish and Polish respondents might therefore be rooted in their religion. In this analysis, I only include Christians (N = 468) and Muslims (N = 509) in the sample. The effects are rather similar in direction and magnitude to the main findings, when comparing Turks with Muslims and Poles with Christians. Nevertheless, some of the effects are stronger in this secondary analysis. First, concern about immigration rises slightly more strongly among Christians ($\beta_{Christian}$ = 0.27, p < 0.01) than among Muslims (β_{Muslim} = 0.11, p < 0.1). Since the difference between Christians and Muslims (Δ_{CM} = 0.16) is larger than between Poles and Turks (Δ_{PT} = 0.14), this highlights the important role of religion in this context. Second, the effects of refugee immigration on national identity are stronger for religious respondents: The effect on Muslims (β_{Muslim} = 0.11, p < 0.05) is stronger than on Turks ($\beta_{Turkish}$ = 0.07, p > 0.1); and the effect on Christians ($\beta_{Christian}$ = 0.09, p < 0.05) is stronger than on Poles (β_{Polish} = 0.08, p < 0.05).

C.6.2 Alternative outcome: Acculturation strategies

TABLE C.10: Fixed effects regressions (linear probability models) on acculturation strategies. Cluster-robust standard errors at the county level (unnested). 676 Turkish and 513 Polish respondents. Notes: Standard errors in parentheses, *p<0.1, **p<0.05, ***p<0.01.

	Assimilation		**Separation**		**Integration**		**Marginalization**	
	Turk.	*Pol.*	*Turk.*	*Pol.*	*Turk.*	*Pol.*	*Turk.*	*Pol.*
Refug. [%]	0.00	0.01	−0.01	0.01	0.07**	0.03*	−0.06 **	−0.05 ***
	(0.02)	(0.02)	(0.02)	(0.01)	(0.03)	(0.02)	(0.03)	(0.02)
GDP	0.01	0.00	−0.02	0.00	0.01	−0.01	0.00	0.00
	(0.01)	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)
UR	−0.01	−0.01	0.02**	0.00	−0.01	0.00	−0.01	0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)

Analysis and interpretation: Acculturation strategies combine information from the variables on national and ethnic identification. First, assimilation corresponds to a high national (>3 on a 5-point scale) and a low ethnic identification (<=3). Second, separation is the opposite outcome: weak national (<=3) and strong ethnic ties (<3). Third, integration combines high national and high ethnic identification (both >3). Fourth, marginalization implies weak ties to both groups (<=3). In this dichotomization, I follow the dummy coding of Esser (2009). The results of the linear probability models with FE show that among Turks, refugee immigration increases the probability of integration by 7 percentage points ($p < 0.05$) and decreases the probability of marginalization by 6 percentage points ($p < 0.05$), whereas the other two outcomes do not show statistically significant effects. Poles show similar acculturation patterns with an increase in integration significant at the 10-percent level ($\beta_{Polish} = 0.032$, $p < 0.1$) and a highly significant reduction of marginalization ($\beta_{Polish} = -0.05$, $p < 0.01$).

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