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Article

No sign of increased ethnic discrimination during a crisis: evidence from the Covid-19 pandemic

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Abstract

When crises hit, social theory predicts increased hostility toward immigrants. We exploit the Covid-19 pandemic as a unique exogenous crisis and examine whether discrimination increased in its wake. Repeating a field experiment in the Swiss housing market in 2018 and 2020, we find no evidence of increased discrimination against the most important immigrant groups in Switzerland. Contrarily, when uncertainty dominates the market, proprietors appear to change their selection behavior by substituting signals of ethnicity for other markers of solvency and reliability and, consequently, invitation rates for immigrants increase relative to native house-hunters. We conclude that crises do not necessarily increase discriminatory behavior in market situations.

Key words: discrimination, housing, crisis, Covid-19, field experiment

JEL classification: F22, J15, O18, R23, R31

1. Introduction

Times of crisis—including the Covid-19 pandemic emerging in spring 2020—are often associated with increased nationalism and the blaming of foreigners as scapegoats for 'bringing disease' and other social problems (Drouhot *et al.*, 2020; Guterres, 2020). If such reactions are universal, minorities require special protection during crises. Anecdotal evidence of increased discrimination against immigrants could be observed at the onset of the Covid-19 pandemic, with widespread concern that hostility toward minorities would rise (Bartoš *et al.*, 2021). Some studies outlined increasing levels of self-reported discrimination, hate-speech and violence, mainly against

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Asians[1] in the USA at the beginning of the pandemic (Ruiz *et al.*, 2020; Levin, 2021; Wu *et al.*, 2021). However, from an economic perspective, it is unclear whether we would expect increased levels of discriminatory behavior against immigrants and ethnic minority groups in moments of crisis: In contrast to negative expressions and attitudes that typically have few consequences for the perpetrators, discrimination in competitive market situations is associated with a cost (Sowell, 2018). Following this perspective, it is unclear whether we would expect increased levels of discrimination in consequential market situations during crises.

Previous research on the relationship between discrimination and crises (as reviewed in Section 2) remains inconclusive. Here, we draw on the Covid-19 pandemic as a truly exogenous shock with a rapid and substantial impact on the economy and society in general and one that was not caused or preceded by economic troubles. This allows us to measure the isolated effect of a crisis on ethnic discrimination, which is otherwise challenging because the onset of crises is typically slower and confounders difficult to address. Drawing on data from two field experiments, Covid-19 cases, actual moves and apartment search volume, we can show that the housing market in Switzerland—where 61% of the households rent—was substantially affected by the pandemic. Contact restrictions made it more difficult to view apartments, leading to increased transaction costs and substantially higher levels of (economic) uncertainty, which in turn affected opportunity structures of discrimination for proprietors.

We provide an empirical answer by conducting a nationwide experiment on discrimination in Switzerland's housing market between March and June 2020—covering the first wave of the Covid-19 pandemic. When comparing our results with an identical experiment conducted in 2018, we do not observe any substantial increase in discrimination against the most important immigrant groups in the country. However, we find evidence of a strategic change in proprietors' invitation behavior. We demonstrate that proprietors reacted to increased numbers of Covid-19 cases by being more selective of whom they invite for a viewing, showing greater preference for highly skilled and naturalized immigrants to the detriment of those applicants among the Swiss natives who may be less solvent. This behavioral change is less driven by objective indicators of a tightening market—the number of moves—but is a result of general (economic) uncertainty. Overall, we conclude that levels of discrimination against the most important immigrant groups in the Swiss housing market did not increase in a consequential market situation during the Covid-19 pandemic, as was feared by some, and show more generally that context matters for discrimination.

2. Housing discrimination and crises

Multiple studies have shown that immigrants and ethnic minorities face discrimination in the housing market in North America (e.g. Carpusor and Loges, 2006; Hanson and Hawley, 2011; Hogan and Berry, 2011; Ewens *et al.*, 2014) and Europe (e.g. Ahmed and Hammarstedt, 2008; Baldini and Federici, 2011; Carlsson and Eriksson, 2014; Auspurg *et al.*, 2017; Sawert, 2020). A recent meta-analysis summarizing the findings of these field experiments concludes that almost all evidence points to statistically significant discrimination, even when accounting for publication bias (Auspurg *et al.*, 2019).

This housing discrimination is concerning: It contributes to racial segregation (McAvay, 2018), leading to lower health outcomes, and worse education and employment

1 Referring to immigrants from China, Japan, Korea, Mongolia and Taiwan, and their descendants.

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opportunities for the discriminated groups (Pager and Shepherd, 2008; Auspurg *et al.*, 2019). Moreover, discrimination is most prominent for individuals with lower social status (Pager and Shepherd, 2008; Auspurg *et al.*, 2017) and for smaller or less expensive apartments (Ahmed and Hammarstedt, 2008; Baldini and Federici, 2011; Carlsson and Eriksson, 2014; Auspurg *et al.*, 2017), meaning it will push lower-income individuals to more expensive housing, which makes it more difficult for them to accumulate wealth (Auspurg *et al.*, 2019). Indeed, proprietors are important gatekeepers in the rental housing market and their discriminatory behavior can have far-reaching consequences (Rosen *et al.*, 2021).

While there is a general agreement over the presence of discrimination in the housing market, less consensus exists on the determinants of this discrimination. Different studies have highlighted key factors shaping the extent of housing discrimination. In terms of those discriminated against, discrimination is worse for individuals with a lower social class background (Pager and Shepherd, 2008) or a lower-skilled occupation (Auspurg *et al.*, 2017). The neighborhood of the rental apartment also plays a role: Most experiments find that discrimination is worse in predominantly White (i.e. majority) neighborhoods (Pager and Shepherd, 2008; Baldini and Federici, 2011; Ghekiere and Verhaeghe, 2022) although Auspurg *et al.* (2017) find the opposite for Germany. Finally, the importance of the type of proprietor has been extensively studied, where private proprietors appear to discriminate more than agencies and are less likely to use signals of solvency other than the minority signal (e.g. occupational status; Auspurg *et al.*, 2017).

Another—substantially less studied—contextual factor that can affect the extent of (housing) discrimination is an exogenous shock or crisis, such as an economic crisis or the Covid-19 pandemic. Given this knowledge gap, the expected sign of the relationship between crises and discrimination is unclear. Indeed, different theoretical perspectives offer contradictory expectations of how crises affect attitudes and discrimination. Most existing studies refer to group threat and social identity to motivate an expectation of increased levels of anti-immigrant attitudes during crises (e.g. Tessler *et al.*, 2020; Dollmann and Kogan, 2021).[2] The implication is that minorities require special protection during crises, even if these do not directly involve the minority group in question. Economic theory, in contrast, assumes that the opportunity structure of discrimination changes when market dynamics change (e.g. Levine *et al.*, 2008; Doleac and Stein, 2013), which need not necessarily lead to increased levels of discrimination. In the following, we briefly reflect on the main arguments of these different strands.

Group threat theory draws a distinction between the ingroup—the majority population—and the outgroup, typically comprising immigrants or ethnic minorities (Blumer, 1958; Blalock, 1967; Pottie-Sherman and Wilkes, 2017). Negative attitudes and stereotypes that encourage discrimination against the outgroup emerge when the ingroup sees its interests threatened, either through an increase in the minority group size, a decrease in available resources leading to higher levels of competition or an increase in the level of general threat due to the unpredictability of a new situation. The perception of threat is central to the argument and uncertainty in times of crisis can heighten these threat perceptions. In the context of the pandemic, threat refers both to the threat from illness and the diffuse threats from

2 Both these studies review incidences of negative attitudes and hate crime during the Covid-19 pandemic. As a result, they cannot make any comparison with the situation before the onset of the pandemic.

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being 'other' (Dollmann and Kogan, 2021). Moreover, crises often reinforce feelings of superiority among ingroup members, linked to a view that privileges are natural and appropriate. In the context of the pandemic, the feeling that members of the ingroup are 'clean' and not carriers of the disease is widespread (Liu *et al.*, 2020). Compared with crises with a clear ethnic component like the 'refugee crisis' of 2015, the Covid-19 pandemic did not directly affect the minority group size. Nevertheless, at the onset of the pandemic, there was a lot of uncertainty surrounding the economic consequences. Therefore, it is likely that the Covid-19 pandemic increased both the general level of perceived threat and fears around limited availability of resources. While not unequivocally, much empirical research supports perceived group threat (e.g. Riek *et al.*, 2006). Similarly, social identity theory (Turner *et al.*, 1979; Berg, 2015) also draws on the distinction between in- and outgroup, although not necessarily between 'natives' and 'immigrants' or 'minorities'. Negative attitudes and behavior are understood as a way to create a positive identity among an arbitrary group. At times of heightened uncertainty during a crisis, we can expect an increased salience of ingroup identity, which can be bolstered by discrimination and related forms of verbal, symbolic or physical exclusion (Berg, 2015). For instance, border closures to fight the pandemic (Piccoli *et al.*, 2021) encouraged a distinction between 'us' and 'them' drawing on the nation-state and highlighted cultural differences. Related to the literature on group threat and social identity, extant work highlights the stability of personality traits and norms over the adult life course, including sentiment and anti-immigrant attitudes (Oswald *et al.*, 2013; Talay and De Coninck, 2020; Igarashi, 2021). However, studies also find that *if* there are changes at the individual level, they tend to occur at times of life events associated with high levels of uncertainty, such as unemployment or divorce (Sears and Valentino, 1997). In that sense, a sudden exogenous shock such as the Covid-19 pandemic could shift individual attitudes along the lines of group threat and thus fuel discrimination.

At the same time, major crises (e.g. natural disasters or a pandemic) directly affect the economy and key markets: Early 2020 was marked by a generally negative economic outlook, and stock markets slid worldwide. A crisis of this magnitude likely affects market dynamics and changes the opportunity structure of discrimination, altering the cost associated with it (Levine *et al.*, 2008; Doleac and Stein, 2013; Sowell, 2018). Economic and sociological theory puts forward two main channels through which crises could impact the cost of discrimination.

First, crises disrupt the equilibrium between supply and demand on a given market. As a result, market agents with a distaste for minority candidates might see the supply of majority candidates increase or decrease, making it easier or more difficult for them to act upon their preferences. For example, in the labor market—which is the typical field for related research—an economic crisis will lead to higher unemployment and a larger pool of—both minority and majority—candidates for a given job opening. As a result, discriminatory employers have a larger choice of majority candidates and their perceived costs of discrimination decrease (Auer, 2022). Indeed, several studies show that labor market discrimination is counter-cyclical (Dustmann *et al.*, 2010; Biddle and Hamermesh, 2013; Baert *et al.*, 2015). Specific to the topic of this article—the housing market—contact restrictions affected the possibilities and efforts required to view apartments for rent, which increased transaction costs and rapidly changed the balance between supply and demand. From the perspective of prospective tenants, we would expect a reluctance toward and postponement of non-essential moves during the height of the pandemic, leading to a decline in the number of

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inquiries a proprietor receives for an advertised apartment. We hypothesize that the tightening of the housing market means that the cost of discrimination increased for proprietors: They risk not renting out the apartment when being selective based on ethnic or racial markers. In other words, proprietors can afford to discriminate against minority tenants much less than before the crisis, even if they hold a preference for ingroup (native) tenants. Nevertheless, not all studies find empirical evidence for a relationship between market tightness and discrimination at the aggregate level (e.g. Carlsson *et al.* (2018); Vuolo *et al.* (2017) and meta-analyses by Quillian *et al.* (2019) and Zschirnt and Ruedin (2016)).

Second, in addition to the objective change in the market tightness, a large exogenous shock—like the Covid-19 pandemic—will also result in increased uncertainty about the future evolution of the market. In this sense, the perceived risks associated with a prospective tenant (e.g. non-payment, delinquency and disregarding house rules) might be considered more important in light of uncertainty (Bjørnshagen, 2021). In other words, changes in the perception about future conditions could change the strength of the minority signal (Carlsson *et al.*, 2018) relative to other cues which proprietors can use to decide whom to rent to under imperfect information.[3] If the value attached to the minority signal increases with uncertainty, we would expect more discrimination when uncertainty is high. Nevertheless, it could also be that the minority status is substituted for other selection criteria. Higher uncertainty about future economic conditions could encourage proprietors to make decisions based on the most reliable signals of solvency—which might not be the minority signal. The skill level of an applicant's job to signal solvency, for instance, may gain relative importance, assuming that higher skilled positions are less threatened by layoffs during economic crises (e.g. Auer, 2022). Higher levels of uncertainty, consequently, make it more costly for proprietors to act upon their preferences for a majority candidate and incite them to use other—more reliable—signals of solvency instead.

The theoretical expectations and empirical evidence can be summarized in the following two competing hypotheses. According to group threat and social identity theory, we would expect that discrimination increases during a major crisis, while the opposite should apply if the cost-of-discrimination channel dominates:

> H1: The Covid-19 pandemic increased levels of threat perceived by the ingroup, leading to more negative attitudes and higher levels of discrimination against members of the outgroup.

and

> H2: The Covid-19 pandemic raised the (perceived) cost of discrimination, and therefore decreased ethnic housing discrimination.

The cost of discrimination, in turn, could increase due to two (not mutually exclusive) mechanisms, as expressed in the following sub-hypotheses:

3 The housing market is generally characterized by an asymmetrical situation where proprietors always have many potential candidates to rent their apartment to, even in times of crisis. Nevertheless, once an apartment is rented out, it is relatively burdensome for proprietors to evict a tenant. The consequences of a bad decision by the proprietor when selecting a tenant are therefore equally asymmetrical.

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H2a: The decreasing demand for rental apartments at the onset of the Covid-19 pandemic increased competition for tenants. As a result, proprietors cannot be as selective as before.

and

H2b: The sharp increase in uncertainty increased the perceived costs of proprietors to make the wrong decision. Consequently, proprietors will use the most reliable signals of solvency to make cognitive shortcuts when inviting candidates for apartment viewings.

The study that is closest to ours was conducted by Verhaeghe and Ghekiere (2021) on the effect of the Covid-19 pandemic on ethnic housing discrimination in Belgium. Verhaeghe and Ghekiere (2021) find that absolute invitation rates decreased for all groups, while the net rate of discrimination increased for candidates from Maghreb origin and decreased for candidates from Congolese origin. Our study differs from this account in several important ways. First, the response to the Covid-19 pandemic was different in Belgium and in Switzerland (as reviewed below). While in Belgium, a strict lockdown was imposed—making the housing market come to an almost complete standstill—internal mobility restrictions were a lot more lenient in Switzerland. Therefore, we argue that our findings do not so much show the effect of a lockdown on housing discrimination, but the effect of a general unexpected exogenous crisis with all the market dynamics and uncertainty associated with such a shock. Second, in Belgium, the popular press paid much attention to people from Maghreb origin not adhering to Covid-19 rules and Maghreb communities being alleged clusters for the spread of the coronavirus. Similar news reporting linking the spread of Covid-19 to specific minority groups was—to the best of our knowledge—absent in the Swiss press. Third, our study covers the entire country of Switzerland, limiting the risk of sample bias for general statements (Auer and Ruedin, 2022; Lacroix *et al.*, 2022). Fourth, we apply a randomization approach in which we not only vary the name in an automatic platform-email as in Verhaeghe and Ghekiere (2021), but also other important dimensions as elaborated in Section 3. This enables us to explore alternative mechanisms explaining our findings, most importantly the value attached to different signals in times of uncertainty.

3. Data and identification

We measure discrimination—and changes thereof—by means of a nationwide field experiment assessing the invitation of applicants to view apartments advertised for rent on one of the largest online platforms for rental objects in the country. We randomly assigned two different indicators of migration background to fake applications (c.f. Neumark, 2012): First, the name of the applicants is typical either for the local Swiss context (native), indicates a neighboring country of origin (Germany, France and Italy)[4] or a more distant origin (Turkish or Kosovo–Albanian name).[5] All origins in our sample represent traditional

4 Whether applicants had a typically German-, French- or Italian-sounding name depended on the advertisement's language. For instance, if we sent an application to an apartment that was located in the Italian-speaking region of Switzerland, the application was sent in Italian.

5 Most ethnic Albanian immigrants in Switzerland are from Kosovo. To pick names, we went through lists of the most common names in the countries under study, which were attributed to official statistics. For the neighboring countries, we removed names that are widely used in Switzerland. Where

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sending countries to Switzerland after World War II and rank among the largest immigrant populations in the country.[6] This ensures that the majority of proprietors can correctly identify the applicants' origin and that applications by these groups are not too uncommon, even in remote areas. We group the immigrant names according to their public perception within the host population into *close migrants* from the neighboring countries and *distant migrants* with a Turkish or Kosovo–Albanian name (for perceptions of immigrant groups in Switzerland, see Ruedin, 2020). This categorization is further motivated by the work of Lazear (1999) on the role of immigrants sharing the two overlapping concepts of culture and language with the host population. The commonality with the Swiss native population exists for the group of close migrants both in terms of shared culture and with respect to language as a narrower concept of culture but is absent for the distant migrants in our sample. Second, for foreign-sounding names, we indicated the existence of a permanent residence permit, naturalization or provided no information on the legal status.

In addition, we randomly varied the content of the application text with six different templates—ranging from a very brief and imperious text to a detailed and friendly version, as well as a predefined default text provided by the online platform.[7] Moreover, we randomly varied the sociodemographic characteristics of the applicants, including family status, occupation and income.[8] The full list of applicant names is shown in Online Appendix Table A.1 and examples of the application text templates are provided in Online Appendix Table A.2. Applicant attributes are presented in Online Appendix Table A.3, in which we also highlight their equal distribution across groups to ensure experimental robustness.

The first phase of the experiment was fielded between March and October 2018, in which we sent $N = 11\,356$ applications for newly advertised apartments, covering apartments in 1308 municipalities across all agglomerations of Switzerland.[9] Agglomerations capture commuting zones defined by a regional urban center, with many inbound commuters to this center (Goebel and Kohler, 2014). In addition to municipalities from all 49

we could obtain data of the age distribution, we consulted these to avoid names that were fashionable at specific times only. Finally, we searched these names in the Swiss phone book to verify that they occur in Switzerland and are not strongly clustered in any specific area, and checked recognition with colleagues, two proprietors and a haphazard sample of students in Switzerland ($N = 242$) to verify name recognition and check for strong stereotypes associated with specific names. The survey confirmed that Swiss and non-Swiss are generally recognized as distinct, and Turkish and Kosovo–Albanian names were systematically classified as non-Swiss and culturally distant. After the initial experiment, we further tested the names among a representative sample of the Swiss population ($N = 1271$) which confirmed the findings of the student sample.

6 Germany (largest immigrant group), France (rank 2), Italy (3), Kosovo (7) and Turkey (9) (c.f. Federal Statistical Office, 2021).

7 We checked our application profiles with proprietors to ensure realism.

8 We randomly assigned an occupation associated either with a high- or low-skill profession, namely accountant, engineer, pharmacist, social worker and veterinarian for high-skill signals and baker, electrician, painter, plumber and sales assistant for low-skill occupations. We chose occupations that are common in both urban and rural areas of the country to avoid unrealistic profiles and provide a credible story in the application (for instance, that someone was looking for a new apartment because she has accepted a job as X in the region). For realism, the generated income was randomly between 2.5 and 3 times the advertised rent—the conventional range in the Swiss housing market—rounded to 10 CHF.

9 To be specific, 63% of all municipalities in Switzerland and 80% of the total population.

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commuting zones, our data also include 24 core municipalities outside of agglomerations and municipalities that are not part of any agglomeration, indicating that our findings are representative of a large variation in local contexts.[10]

Based on newly advertised apartments in 2020, we randomly resampled 390 municipalities across 60 agglomerations between March and June, that is, right at the onset of the Covid-19 pandemic in Europe. The observation period also covers the pandemic's first peak around May 2020, including the introduction of contact restrictions and other anti-Covid-19 policies in Switzerland. Thereby, we obtain an encompassing sample of proprietor responses to apartment viewing applications that is balanced across regions and time. Data from the Oxford Covid-19 Government Response Tracker (Hale *et al.*, 2021) show that—overall—the Swiss policy response to the Covid-19 pandemic in early 2020 was comparable to the response in the rest of Europe in timing and magnitude, albeit slightly more lenient and slower than in neighboring countries. The first measure to prevent the spread of SARS-CoV-2 was introduced in Switzerland on February 15, 2020, and measures remained in place all throughout our observation period (Hale *et al.*, 2021). The restrictions with the most far-reaching impact on the housing market were arguably stay-at-home orders and restrictions on internal movements, as these made visiting apartments virtually impossible. For both these measures, the Swiss government never went beyond a recommendation, as opposed to Belgium, Germany or France where it was forbidden to leave one's house except for 'essential' trips. The Swiss government did restrict public gatherings as of March 17 (Hale *et al.*, 2021), meaning that proprietors who previously organized public viewings with dozens of potential candidates visiting an apartment simultaneously had to adapt to the new situation and organize apartment viewings differently.

In the main specification, we restrict the sample to applications that were sent between March and June only and where the agglomeration has been sampled in both years 2018 and 2020 (total sample $N = 6603$). This encompassing dataset has two distinct advantages over most existing studies on discrimination during the Covid-19 pandemic: First, we can observe changes in anti-immigrant *behavior* instead of attitudes toward immigrants that may not materialize in actual behavior. Second, our data cover the entire Swiss housing market, including both public and private proprietors in urban and rural settings. In Table A.4 in the Online Appendix, we provide the distribution of municipality characteristics for the two sample stages and compare them to the full population.[11] Moreover, in Figure A.2 in the Online Appendix, we demonstrate that neither the rental of objects nor the neighborhood rent (capturing nuclear housing market dynamics) changed between the 2018 and the 2020 sample. In contrast, while the choice to re-use the design of the 2018 study in 2020 gives us a reliable baseline, we do not cover applicants with East-Asian names who arguably were affected most by negative attitudes, name-calling and hate speech—especially in the early weeks of the pandemic, at least in the USA.

10 For definitions of agglomerations and core municipalities outside of agglomerations, see Goebel and Kohler (2014).

11 By construction of the data collection via an online housing platform, we observe a slight over sampling of urban, populated areas, which also show higher foreign shares and turnover on the housing market. However, the differences to all municipalities in the country—including very small and loosely populated regions in the mountainous regions—are small.

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The panel structure of the data allows us to estimate the effect of the Covid-19 pandemic on discrimination in the housing market using the following fixed-effects regression model:

$$Y_{i_{cartf}} = \alpha + \lambda \text{mig}_i + \psi \text{covid}_c + \tau(\text{mig}_i * \text{covid}_c) + \boldsymbol{X}_i'\beta + \boldsymbol{Z}_a' + \delta_f + \delta_r + \delta_t + \delta_{r*t} + \varepsilon_{i_{cartf}} \quad (1)$$

where $Y_{i_{cartf}}$ denotes the individual invitation probability as a function of the migrant signal of the applicant's name mig and whether the application was sent during the Covid-19 pandemic c (which we capture with different indicators). The causal effect of interest is the interaction term τ. We further adjust for the shape of the advertised apartment $\boldsymbol{Z}_a'$ (rent, number of rooms, private or agency proprietor) and applicant characteristics $\boldsymbol{X}_i'$.[12] We account for unobserved variation with an extensive set of fixed effects, capturing the application's randomized text template f, agglomeration r, week of application t and the interaction between the agglomeration and week fixed effects. The binary invitation indicator Y_i equals 1 if an applicant receives a positive reply from the proprietor to view the advertised apartment, and 0 otherwise (this includes both negative and non-responses).

In a second step, we explore what mechanism drives these findings. As discussed in Section 2, the Covid-19 pandemic has led to different changes in the housing market, that could affect discrimination rates. We explore two drivers: (i) the number of moves and (ii) uncertainty. To do this, we adapt Equation (1) to estimate the effect of the decrease in the number of moves:

$$Y_{i_{cartf}} = \alpha + \lambda \text{mig}_i + \psi \text{moves}_c + \tau(\text{mig}_i * \text{moves}_c) + \boldsymbol{X}_i'\beta + \boldsymbol{Z}_a' + \delta_f + \delta_r + \delta_t + \delta_{r*t} + \varepsilon_{i_{cartf}} \quad (2)$$

and the increase in uncertainty:

$$Y_{i_{cartf}} = \alpha + \lambda \text{mig}_i + \psi \text{unc}_c + \tau(\text{mig}_i * \text{unc}_c) + \boldsymbol{X}_i'\beta + \boldsymbol{Z}_a' + \delta_f + \delta_r + \delta_t + \delta_{r*t} + \varepsilon_{i_{cartf}}. \quad (3)$$

Finally, to test hypothesis H2b, we perform a series of heterogeneity analyses. First, we split the sample by education level to investigate whether the effect is similar for the low and highly educated. Second, we replace the minority signal operationalized by the name by a dummy for residence status and citizenship. Third, we divide the sample by proprietor (i.e. private proprietors vs agencies).

4. Results

In Figure 1, we estimate Equation (1) using Ordinary Least Squares (OLS) and plot the predicted 2018 and 2020 invitation probabilities across the three groups, as indicated by their names in the applications. Two patterns emerge: First, in 2018, the group-specific predicted invitation rates follow a hierarchy regularly described in the extant literature (e.g. Ebner and Helbling, 2016; Auer *et al.*, 2019), with Swiss native names being most likely to receive an invitation (invitation rate of approximately 78%), followed by (culturally and linguistically)

12 In the main specification, we adjust for the applicant's gender, to which we add further characteristics, such as residence permit type, to assess heterogeneity. Given the experimental nature of our data, in which applicant i and apartment characteristics a are randomized, we do not expect the migrant coefficient to be affected by adding further covariates.

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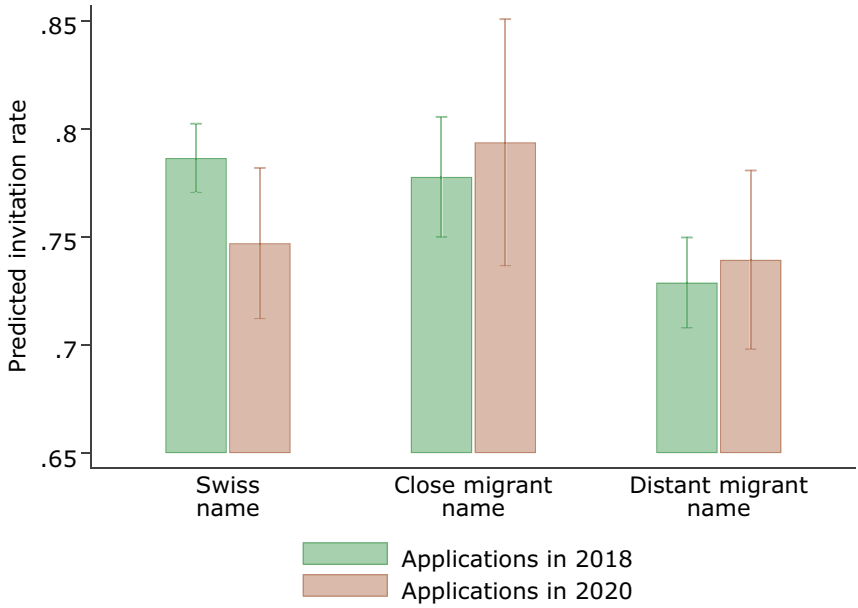

Figure 1 Invitation rates in 2018 and 2020, across name groups, Swiss housing market. This figure shows the group-specific predicted invitation rates for 2018 and 2020 with 95% confidence intervals (robust standard errors clustered at the apartment level, week and agglomeration fixed-effects). The predicted differences between 2018 and 2020 are –0.052 (*P*-value = 0.010) for Swiss names, 0.009 (*P*-value = 0.777) for close migrant names and 0.004 (*P*-value = 0.867) for distant migrant names. Y-axis does not start at zero.

close migrant names from neighboring countries (France, Germany and Italy) and Kosovar and Turkish names as representatives of (culturally and linguistically) more distant migrants being least likely to receive an invitation. Figure 1 also suggests that the intervention is mild: Proprietors in general have little reason not to invite an applicant for a non-committal apartment viewing, and thus send many invitations. Second, invitation rates dropped for Swiss names in 2020, while they remained stable for migrant names. In other words, the previously observed difference in callbacks among the three groups decreased during the first months of the pandemic and it appears that this decline is driven by Swiss applicants being substituted for minority applicants.[13] Our analysis in Section 4.3 indeed indicates that changes in selection behavior in that part of the pool of normally successful Swiss applicants are replaced with (solvent) migrant applicants during the crisis.

Table 1 presents the results of our full regression specification as described in Equation (1). In Panel A, we use a binary indicator for 2020 to capture the Covid-19 pandemic with

13 In Figure A.1 in the Online Appendix, we corroborate this change by showing the change in monthly April-to-June callbacks for the three name groups relative to March 2018. Relative to March 2018, invitation rates for all three groups in the remaining observation period of 2018 are relatively stable, with Swiss names showing a slightly increasing trend and the migrant names a decreasing tendency. These trends are reversed during the pandemic-stricken months of 2020.

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different fixed-effects specifications (agglomeration, agglomeration plus week and agglomeration-by-week fixed effects). This is warranted, as the 2020 observation period ranges from March to June, and thus fully lies within the pandemic. Furthermore, it reflects the most conservative approach that is agnostic about possible heterogeneity during the pandemic period. It is clear from the consistently negative coefficients that—at the baseline—distant migrants have a lower probability of being invited to view an apartment than natives and close migrants. We also observe that invitation rates are significantly higher for more expensive apartments (for which demand might be lower) and for apartments rented out by an agency (i.e. a professional rental company, compared with a person who privately rents out their flat).[14] Comparing 2018 with 2020 in Panel A, we can observe that the invitation probabilities for natives were significantly lower in 2020, while the year–name interaction shows significantly higher invitation probabilities for both close and distant migrants during the pandemic. This indicates that the Covid-19 pandemic has altered the way proprietors invite candidates for apartment viewings, which led to a decrease in the gap between natives and both migrant groups in 2020 compared with 2018.

To determine whether these findings are indeed driven by the Covid-19 pandemic, we replace the dummy for 2020 by the log number of Covid-19 cases in each canton (≈federal state) and week in Panel B. We find a remarkably similar pattern, confirming that the changes in invitation rates are likely driven by the pandemic. The larger the increase in Covid-19 cases for a given canton during a given week is, the lower the invitation rate for natives and the higher the invitation rate for (distant) migrants. That is, the gap in invitation rates between native and migrant applicants decreased to a larger extent in each week in cantons that were more severely hit in terms of Covid-19 infections compared with less affected cantons. This confirms that the pandemic had a strong and measurable impact on invitation behavior, but we cannot confirm that discrimination *increased* during the pandemic. On the contrary, the invitation rates of minority applicants even converged toward the level of natives. In other words, our empirical analysis does not support the theoretical predictions of group threat theory. We thus reject our first hypothesis (H1). On the other hand, we cannot reject hypothesis 2 (H2). Indeed, the cost of discrimination increased, leading to lower discrimination rates.

4.1 Robustness

Before we explore probable mechanisms, we perform several additional analyses to test the robustness of our main results. These are shown in Table A.5 in the Online Appendix. In our main model, we used the logarithm of Covid-19 cases for a given canton in each week. We check the robustness of this measure in two ways. In Column 1, we use the logarithm of Covid-19 cases by canton and month. In Column 2, we use the logarithm of Covid-19 cases by week for the whole of Switzerland. Neither of these alternative measures affects our findings. Next, in Column 3, we replace the logarithm of Covid-19 cases with the logarithm of Covid-19 deaths. The change in deaths did not significantly affect the invitation rates of

14 We measure agency if it was stated in the advert or apparent from the contact email address of the apartment (e.g. name@rental-agency.ch), where the indicator equals 1 for agencies and 0 otherwise. With this approach, we can assign 99% of proprietors to either group. The remaining few ambiguous cases are treated as private proprietors, although the results do not change when considering them to be agencies or when dropping these cases.

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Table 1 Main effect of the Covid-19 pandemic on group-specific callbacks, Swiss housing market

	Panel A				Panel B			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Close migrant	−0.007	−0.007	−0.007	−0.007	−0.006	−0.005	−0.005	−0.006
	(0.014)	(0.014)	(0.013)	(0.014)	(0.014)	(0.013)	(0.013)	(0.014)
Distant migrant	−0.056**	−0.056**	−0.057**	−0.056**	−0.055**	−0.055**	−0.055*	−0.054**
	(0.009)	(0.009)	(0.009)	(0.010)	(0.009)	(0.009)	(0.009)	(0.010)
2020	−0.055**	−0.048**	−0.050**	−0.051**				
	(0.019)	(0.019)	(0.020)	(0.023)				
log(Covid-cases)					−0.007**	−0.006**	−0.006**	−0.006**
					(0.003)	(0.003)	(0.003)	(0.003)
2020*close migrant	0.060*	0.058*	0.059*	0.066*				
	(0.032)	(0.032)	(0.032)	(0.034)				
2020* distant migrant	0.051**	0.052**	0.052**	0.048**				
	(0.023)	(0.023)	(0.023)	(0.024)				
Covid* close migrant					0.007	0.007	0.007	0.009*
					(0.004)	(0.004)	(0.005)	(0.005)
Covid* distant migrant					0.006**	0.007**	0.007**	0.006*
					(0.003)	(0.003)	(0.003)	(0.003)
Female	0.012	0.012	0.012	0.016	0.012	0.012	0.012	0.016
	(0.010)	(0.010)	(0.010)	(0.011)	(0.010)	(0.010)	(0.010)	(0.011)
Agency	0.027*	0.024*	0.024*	0.023	0.027*	0.024*	0.024*	0.023
	(0.014)	(0.014)	(0.014)	(0.015)	(0.014)	(0.014)	(0.014)	(0.015)
Rooms	−0.002	−0.008	−0.007	−0.010	−0.002	−0.008	−0.007	−0.009
	(0.007)	(0.007)	(0.007)	(0.008)	(0.007)	(0.007)	(0.007)	(0.008)
Rent	0.018*	0.029**	0.028**	0.035**	0.018**	0.029**	0.028**	0.035**
	(0.009)	(0.010)	(0.010)	(0.011)	(0.009)	(0.010)	(0.010)	(0.011)
Cons	0.700**	0.702**	0.691**	0.687**	0.700**	0.700**	0.690**	0.686**
	(0.032)	(0.034)	(0.043)	(0.061)	(0.032)	(0.034)	(0.043)	(0.061)
N	6603	6603	6603	6603	6603	6603	6603	6603
R^2	0.009	0.031	0.035	0.134	0.009	0.031	0.035	0.134
Agglom. FE	–	60	60	60	–	60	60	60
Week FE	–	–	14	14	–	–	14	14
Agglom* week FE	–	–	–	523	–	–	–	523

Notes: Outcome variable: individual invitation probability. Results from the estimation of Equation (1) with and without agglomeration and week FE. Robust SE clustered at apartment level in parentheses. Panel A approximates the Covid-crisis by a dummy variable which is one in 2020. Panel B approximates the Covid-crisis by the log number of cases in a given canton and a given week. Rent is measured in thousands of Swiss francs. $^{*}P < 0.10$, $^{**}P < 0.05$.

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either of the native/migrant groups. This is likely due to the small number of deaths for each canton and week (i.e. many zero observations) and the long and variable lag between a Covid-19 infection and the resulting death. The coefficients' signs, however, do not change. Finally, we test the robustness of our sample selection. In Column 4, we include all agglomerations, including those that were only sampled in 2018. Since most agglomerations were sampled both in 2018 and 2020, this does not make a substantial difference. In Column 5, we include only the municipalities that were sampled both in 2018 and 2020. Given that this reduces our sample size by almost half, we lose some precision, but the size and sign of the coefficients remain comparable.

In Table A.6 in the Online Appendix, we re-estimate Equation (1) by month to assess the temporal variation in the proprietors' response. In line with Online Appendix Figure A.1, the change due to the Covid-19 pandemic seems to be concentrated in the months of April and May. Natives saw their invitation rates decrease significantly during April (and to a smaller degree May) before they started to increase again, albeit not significantly. For close migrants, the relative invitation probability increased in March, April and June, and this increase was again the largest and statistically significant for April. For distant migrants, the probability of an invitation was relatively higher in March, April and May, but this difference was only statistically significant in May. This pattern fits with the order of events in 2020: In Switzerland, the first stricter lockdown measures were introduced in mid-March, at the time with the prospect of no more than two weeks of contact restrictions (see Section 3). Hence, we would not expect any significant change compared with the baseline state in the March sample. In April and May 2020, contact restrictions remained largely in place, and uncertainty about future development was greatest (c.f. Figure 2). Moreover, proprietors had enough time to react to the decrease in moves. It is probable that the future perspective improved slightly in June, when restrictions were partly loosened and the first wave started fading out, so that indication of a return to pre-crisis invitation rates (and discrimination) is further plausible.

4.2 Market dynamics and proprietors' responses

While several studies have found an increase in negative attitudes toward foreigners during the Covid-19 pandemic (e.g. Chung and Li, 2020; Tessler *et al.*, 2020), the behavioral outcome from our nationwide field experiment suggests the opposite: a decrease in discrimination in the housing market. In our view, the most plausible explanation is a shift in the proprietors' invitation strategy as a response to (perceived) changes in market dynamics. That is, proprietors may alter their behavior if the cost of discrimination changes due to decreased competition or if uncertainty alters the value of the minority signal relative to other signals of solvency and reliability (see Section 2).

As described above, contact restrictions in Switzerland during the pandemic at no time explicitly prohibited the viewing of apartments. However, proprietors may have still experienced or anticipated that the demand side would collapse, as renters may postpone their moves and potential future clients could attempt to avoid moving during lockdowns. In fact, evidence from historic pandemics has shown a decline in rental prices, especially during the first 6 months of the pandemic (Francke and Korevaar, 2021). We provide several key figures that indicate a major pandemic-driven change in housing market activity. In Figure 2, Panel A, we show the average monthly number of Covid-19 cases per canton in 2018 and during the same period in 2020 (raw data accessed from the Federal Office for Public Health, 2021). In Panels B–D, we contrast the number of Covid-19 cases with the average

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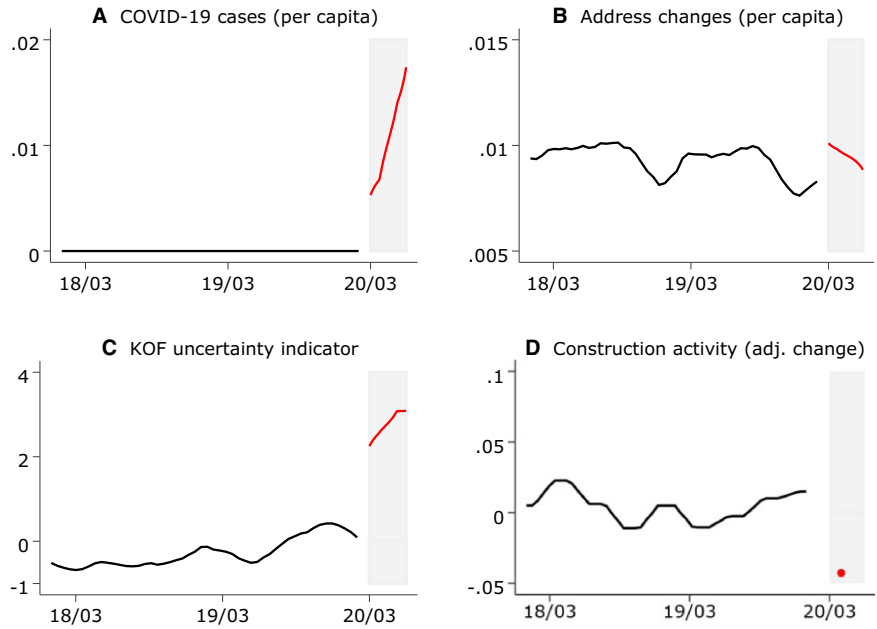

Figure 2 Market dynamics before and during the Covid-19 pandemic, Switzerland. The figure shows the development during the observation months in 2018 and 2020 of Covid-19 cases per capita (Federal Office for Public Health, 2021, own calculations) and two indicators of market activity: the number of moves (address changes) per capita recorded by the Swiss postal service, SwissPost (2021) and the Theil disagreement index as a measure of economic uncertainty. Theil performs an exact matching of two time series and tests for consistency, with higher values meaning stronger disagreement, that is, uncertainty (KOF Swiss Economic Institute, 2021). Construction activity (KOF Swiss Economic Institute, 2021) is a quarterly measure of changes in investments in the dwelling sector relative to the previous year. Local polynomial regressions (bw = 1). In panels B to D, Y-axis does not start at zero.

number of moves per canton (Panel B), measured by the number of officially registered address changes (provided by the national postal service, SwissPost, 2021) per resident, the level of uncertainty in the Swiss economy (Panel C), which is captured by the Theil disagreement index (KOF Swiss Economic Institute, 2021),[15] and the adjusted construction activity in the country compared with the previous year (Panel D), measured by quarterly investments in the dwelling sector (KOF Swiss Economic Institute, 2021).

As shown in Figure 2, address changes follow a seasonal trend, with fewer moves during winter months and a relatively stable pattern over spring and summer. However, in 2020,

15 This index measures the disagreement among survey respondents in the expected evolution of a number of market indicators. If all respondents agree that the indicators will either increase or decrease, the Theil disagreement index will be zero. If, on the other hand, half of the respondents believe that an indicator will increase, while the other half believe it will decrease, the index will be one.

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the moves drop significantly between March and June, highlighting the collapsing housing market in the wake of the pandemic. This decrease in the number of moves could explain why we observe a decrease in discrimination in 2020 as opposed to 2018. Fewer moves are a strong indicator of fewer potential candidates, which increases the cost of discrimination.[16] This hypothesis is tested in Column 1 of Table 2. However, the results suggest that the number of moves did not directly affect the invitation rate of natives or either of the immigrant groups.[17] One likely reason proprietors seem not to be influenced by the actual change in moves could be that there is a significant lag between the onset of the Covid-19 pandemic and actual moves. Indeed, most moves are planned several months in advance. In conclusion, we reject hypothesis 2a (H2a), as the observed decrease in discrimination does not seem to be driven by a smaller pool of—majority—candidates for an apartment viewing.

Furthermore, the Covid-19 pandemic probably influenced the housing market in diverse ways that might have increased the proprietors' overall cost of inviting applicants. First, due to contact restrictions, proprietors effectively could not simultaneously invite multiple candidates for an apartment viewing and the Swiss Real Estate Association explicitly recommended against open house viewings (SVIT, 2020). Moreover, the specific contact restrictions were subject to change on short notice. Rather than reacting directly to a change in actual moves, proprietors could be anticipating a slowing of the housing market and reacting to a general feeling of uncertainty, as indicated by uncertainty about the general economic outlook as shown in Panel C and a massive drop in investments in the housing sector as shown in Panel D of Figure 2. To test this hypothesis, we replace the log moves in Column 2 with the economic uncertainty indicator (KOF Swiss Economic Institute, 2021). Uncertainty is indeed a good predictor of proprietor behavior, as it closely approaches the effect of Covid-19 cases. Together, the results in Table 2 support the assumption that the *decrease in discrimination* is due to the increased uncertainty that accompanied the pandemic as it does in times of crisis: In anticipation of lower demand for apartments, proprietors change their selection criteria to increase the likelihood of renting out their apartments to solvent clients. Overall, the economic channel seems to prevail over foreigners being used as scapegoats for negative events.

4.3 Signals of solvency in times of crisis

We have established that proprietors changed their invitation behavior during the pandemic as a response to greater economic uncertainty. According to the theoretical argument, we would expect this behavioral change to lead to less discrimination if the value of the minority signal loses importance relative to other signals of solvency. To substantiate this theory, we first split the applications sample along different signals of solvency and integration and

16 Figure A.3 in the Online Appendix further shows the development of Google search intensities for the rental housing market over time to highlight the substantial impact of the pandemic's onset on individual search behavior.

17 Panel B in Figure 2 and Column 1 in Table 2 also highlight an inherent caveat of correspondence tests: As real-world field experiments, we cannot observe the entire (real) applicant pool for a specific apartment. For instance, migrants may have responded differently than natives in terms of house-hunting during the pandemic, resulting in a change in the real migrant–native applicant ratio. We address this potential bias with an extensive set of location-specific fixed effects. Moreover, we find no evidence that the migrant share in a community is associated with a differential change in moves between 2018 and 2020—at both the municipality and agglomeration level.

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Table 2 Moves and uncertainty as mechanisms for changes in ethnic discrimination during the Covid-19 pandemic, Swiss housing market

	(1) Moves	(2) Uncertainty
Close migrant	0.097	0.004
	(0.061)	(0.013)
Distant migrant	−0.087**	−0.047**
	(0.044)	(0.009)
log(moves)	0.012	
	(0.010)	
log(moves)*close migrant	−0.018	
	(0.012)	
log(moves)*distant migrant	0.008	
	(0.009)	
Uncertainty		−0.015**
		(0.007)
Uncertainty*close migrant		0.018*
		(0.010)
Uncertainty*distant migrant		0.012*
		(0.007)
Female	0.015	0.016
	(0.011)	(0.011)
Agency	0.021	0.023
	(0.015)	(0.015)
Rooms	−0.010	−0.010
	(0.008)	(0.008)
Rent	0.035**	0.035**
	(0.011)	(0.011)
Cons	0.623**	0.675**
	(0.079)	(0.061)
N	6571	6603
*R*2	0.133	0.134
Agglom. FE	60	60
Week FE	14	14
Agglom*week FE	523	523

Notes: Outcome variable: individual invitation probability. Results from the estimation of Equation (2) (Column 1) and (3) (Column 2) with agglomeration and week FE. Robust SE clustered at apartment level in parentheses. The dummy for 2020 is replaced by the log number of moves in a given canton and a given week in Column 1, and by uncertainty as measured by the Theil's Disagreement Index in Column 2. Rent is measured in thousands of Swiss francs.
$^{*}P < 0.10$, $^{**}P < 0.05$.

second assess heterogeneity across proprietor types in Table 3. In Panel A, we use the randomly assigned occupation that was mentioned in the application text to demonstrate that discriminatory behavior did not change for applicants mentioning a low-skill job, that is, lower callbacks for both migrant name groups, with discrimination against distant migrants

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Table 3 Heterogeneity by skill level and integration of the applicants during the Covid-19 pandemic, Swiss housing market

	Panel A		Panel B	Panel C	
	(1) Low skilled	(2) High skilled	(3) Permit	(4) No agency	(5) Agency
Close migrant	−0.016	0.008		0.030	−0.028
	(0.023)	(0.023)		(0.023)	(0.018)
Distant migrant	−0.048**	−0.058**		−0.064**	−0.051**
	(0.017)	(0.018)		(0.017)	(0.012)
Naturalized			−0.030**		
			(0.012)		
c-Permit			−0.048**		
			(0.011)		
2020	−0.040	−0.073**	−0.051**	−0.055	−0.044
	(0.032)	(0.033)	(0.023)	(0.042)	(0.029)
2020*close migrant	0.010	0.123**		0.072	0.075*
	(0.057)	(0.055)		(0.065)	(0.041)
2020*distant migrant	−0.007	0.115**		0.097**	0.025
	(0.041)	(0.042)		(0.048)	(0.028)
2020*naturalized			0.064**		
			(0.026)		
2020*c-permit			0.035		
			(0.029)		
Female	0.016	0.010	0.016	0.046**	0.003
	(0.016)	(0.016)	(0.011)	(0.018)	(0.013)
Agency	0.041**	0.008	0.023	0.000	0.000
	(0.020)	(0.020)	(0.015)	(.)	(.)
Rooms	−0.006	−0.014	−0.010	−0.009	−0.005
	(0.011)	(0.011)	(0.008)	(0.016)	(0.010)
Rent	0.037**	0.035**	0.035**	0.001	0.042**
	(0.015)	(0.014)	(0.011)	(0.029)	(0.013)
Cons	0.713**	0.668**	0.689**	0.843**	0.645**
	(0.079)	(0.076)	(0.061)	(0.082)	(0.077)
N	3385	3218	6599	2322	4281
R2	0.196	0.176	0.133	0.234	0.170
Agglom. FE	60	60	60	56	60
Week FE	14	14	14	14	14
Agglom*week FE	483	459	523	302	471

Notes: Outcome variable: individual invitation probability. Results from the estimation of Equation (1) with agglomeration and week fixed effects. Robust standard errors clustered at apartment level in parentheses. Panel A splits the sample of candidates in low-skilled (Column 1) and high-skilled (Column 2) individuals. In Panel B (Column 3), the dummies for close and distant migrants are replaced by a dummy for naturalized migrants and migrants with a permanent residency permit (c-permit). Panel C splits the sample of apartments in apartments that are rented out directly (Column 4) and through an agency (Column 5). Rent is measured in thousands of Swiss francs.

$^{*}P < 0.10$, $^{**}P < 0.05$.

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being statistically significant, but no effect of the name–year interaction. In contrast, invitation probabilities changed considerably for high-skilled (distant) migrants. As shown in Column 2 of Table 3, their callback rate improved by 11.5 percentage points, which clearly outweighs the baseline disadvantage of 5.8 percentage points. A similar pattern emerges when replacing the name dummies in Panel B with the indicator for being naturalized or holding a permanent residence permit (C-permit), compared with being Swiss native (no mention of migrant status). Here, we observe a statistically significant pre-crisis disadvantage for migrants. Again, discrimination disappeared during the pandemic, with non-migrants receiving fewer invitations (2020 indicator) to the benefit of migrant applicants, with naturalized migrants experiencing the largest relative improvement. This implies that proprietors may have prioritized people with proven integration effort and—perhaps more important in a time characterized by uncertainty—the perspective of a long-term stay over natives who may be less solvent. Together, the results of Panel A and Panel B indicate that, during the Covid-19 pandemic, proprietors have substituted the minority signal for other signals of solvency.

Finally, in Panel C of Table 3, we split the sample by whether an apartment is rented out by an agency or a private person. In both cases, (some) migrant applicants seem to have benefited to the detriment of Swiss natives, although the change is more pronounced among private proprietors. This is plausible, given that rental agencies are more likely to have standardized invitation strategies in place, which makes them less susceptible to sudden changes in uncertainty perceptions.[18] In sum, we cannot reject hypothesis 2b (H2b). Indeed, we find evidence suggesting that the value attached to the minority signal decreases in favor of other signals of solvency and reliability.

Taken together, the results show that discrimination against the largest immigrant minorities in Switzerland did not increase during the Covid-19 pandemic, independent of the model specification or whether we consider specific subsamples. Thus, we provide robust evidence that the relationship between discrimination and crises is more complex than what was proposed in recent studies, especially when considering crises without a clear ethnic component. We further corroborate our assumption that economic factors play a key role by showing that proprietors discern between applicants according to their (likely) solvency. That is, it seems as if prior to the pandemic, applicants with a native Swiss name were preferred over (most) foreigners by default, whereas proprietors paid close attention to other signals of solvency (i.e. skill level and integration) in the wake of the Covid-19 pandemic.

5. Conclusion

Social theory predicts that crises are moments of increased polarization and negative discourse against immigrants and ethnic minority groups, who serve as scapegoats. Such negative sentiments may lead to corresponding behavior and increased discrimination, implying that minorities require particular protection during crises, even if these crises are unrelated to migration. However, increased discrimination is not a necessary consequence (Pager and Quillian, 2005; Carlsson and Eriksson, 2017). One reason is that economic crises change the opportunity structure of discrimination, which affects discriminatory behavior (Sowell, 2018). Here, we leverage two identical field experiments conducted in 2018 and in 2020

18 Although Verstraete and Verhaeghe (2020) show that many agencies would be willing to discriminate on behalf of proprietors if requested.

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during the first wave of the Covid-19 pandemic to capture ethnic discrimination. The sudden onset of the crisis in the present study and the longitudinal design provide us with a better understanding of the underlying mechanisms.

Overall, in contrast to reports of increasing anti-immigrant attitudes (e.g. Bartoš *et al.*, 2021), and the mixed results Verhaeghe and Ghekiere (2021) report in Belgium, we find no clear evidence of increased discriminatory behavior in consequential market situations. This implies that during crises, minorities do not necessarily require more protection than outside of crises. Nevertheless, we acknowledge a potential exception for minorities that are directly implicated in a crisis' ethnic component. In our case, East-Asians were misused as scapegoats by some political actors ('Chinese virus'). While the foreign-sounding names in our experiments were arguably only affected via an economic channel. East-Asian names may have been directly affected by negative stereotypes and exclusion, especially during the onset of the pandemic. Unfortunately, we cannot test this ethnic component of a crisis with the data at hand, calling for future research to investigate this particular mechanism.

The results we present are in line with economic theory emphasizing the cost of discrimination: Regarding the expression of attitudes, there is almost no cost associated with name-calling, verbal abuse or hate speech, while proprietors and employers discriminating against minority groups pay a price for reducing the pool of candidates. We show that proprietors changed their selection behavior as the number of local Covid-19 cases increased and the market became less active and more uncertain. Defined by this uncertainty over market conditions, the crisis moment is associated with lower invitation rates for (otherwise preferred) native Swiss house-hunters for the benefit of migrants. These results were driven by the highly qualified, well-integrated and thus purportedly more solvent minority candidates. The change in proprietors' invitation strategy results in an overall disappearance of discriminatory behavior in a tight market where proprietors worry about future developments.

We do not argue that (taste for) discrimination *per se* ceased to exist, but that our fictitious candidates with randomly distributed occupations and traits allowed proprietors—on average—to substitute the ethnic marker for alternative solvency signals when discrimination was perceived to being more costly during the pandemic. In other words, contrary to theories emphasizing group differentiation and rejection of 'others' during times of crisis, we find a shift in the relative importance proprietors assign to different signals of solvency, which in principle could reduce prejudiced discrimination against immigrants and minority groups. Indeed, by comparing indicators of uncertainty and objective moving data, we demonstrate that the reactions by the proprietors were to the uncertainty, not to factual supply changes in the market. We conclude that increased ethnic discrimination is not a necessary consequence of crisis moments. Further research is necessary to consider other grounds of discrimination, especially since the shifting signal we identified could result in increased discrimination based on (perceived) solvency and social class.

While every incidence of discrimination is one too many, our aim in this article was to move beyond fleeting everyday interactions to market situations with stronger consequences both for the 'perpetrators' and the 'victims': situations where there is a cost attached to discrimination. Drawing on the Covid-19 pandemic as an exogenous shock without direct link to immigration, we did not find more substantive levels of discrimination against immigrants as prototypical outgroups.

At first sight, this result seems to contradict accounts of discrimination during the Covid-19 pandemic (e.g. Chung and Li, 2020; Liu *et al.*, 2020; Dollmann and Kogan, 2021) or the

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findings by Verhaeghe and Ghekiere (2021) who studied discrimination during Covid-19 in Belgium. With a complete lockdown, the situation in Belgium does not fully compare with the situation in Switzerland. Here, we use Covid-19 as a truly exogenous shock to better understand crises—which is a more generic concern than lockdowns and Covid-19 as such. Our results are entirely compatible with economic considerations because moments of crisis and increased uncertainty are as much characterized by market changes as by nationalism and scapegoating. A more complete consideration of the probable causes of discrimination makes it clear that market and social dynamics during crisis situations may counteract one another. Here, we urge researchers to systematically account for the fact that discriminatory behavior—as opposed to attitudes—is costly, which in future research may lead to a more systematic distinction between name-calling and hate speech on the one hand and discrimination in market situations on the other hand.

Authors' contributions

The authors are listed alphabetically. D.R. and D.A. designed the study. E.V.B. and D.A. performed the analysis. E.V.B., D.R. and D.A. wrote the manuscript.

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Supplementary material

Supplementary material is available at *SOCECO Journal* online.

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