


Breaking barriers: a field experiment to explore discrimination in housing for people with moving disabilities

Evangelos Mourelatos^{1,2,*} and Elias Oikarinen ^{1,3,4}

¹Department of Economics, Accounting and Finance, Oulu Business School, University of Oulu, Erkki Koiso-Kanttilan katu 1, Oulu FI-90570, Finland

²Global Labour Organization, Essen D-45141, Germany

³Department of Built Environment, Aalto University, P.O.Box 15200, Espoo FI-00076, Finland

⁴Department of Economics, University of Turku, Rehtorinpellonkatu 3, Turku FI-20500, Finland

*Corresponding author. Department of Economics, Accounting and Finance, Oulu Business School, University of Oulu, Erkki Koiso-Kanttilan katu 1, Oulu FI-90570, Finland. E-mail: evangelos.mourelatos@oulu.fi.

Abstract

This study investigates discrimination against tenants with moving disabilities in the rental housing market using a correspondence test and fake application letters. A field experiment with two scenarios was conducted in the Finnish market, and five fictitious household tenants were compared. The findings reveal a clear association between the presence of disabilities in the household and increased discrimination. This discriminatory behaviour persists irrespective of whether the necessary refurbishments to accommodate the disabled tenant's needs would be covered by the tenant or the landlord. Male landlords are the primary contributors to this discriminatory behaviour, especially regarding direct discrimination. The results obtained from our study are clear, indicating a pressing need to address and mitigate discrimination against tenants with moving disabilities in the rental housing market.

Keywords: disabilities; discrimination; field experiments; rental housing market; internet; behaviour

JEL classifications: C93, J15, J16, R31

1. Introduction

Although legal protections exist for individuals with disabilities in both the labour and housing markets, discrimination remains a widespread concern, necessitating attention through both legal enforcement and societal change (Bohren et al., 2019). While previous research provides evidence that disabled people are discriminated against in the labour market (Lippens et al., 2023), regrettably the academic literature has not given extensive focus to the issue of disability discrimination in the housing market. Given the importance of this matter, it deserves more scholarly attention, as the ability to secure appropriate housing is a fundamental necessity that plays a crucial role in determining one's level of social inclusion, access to employment opportunities, and enjoyment of public services. The pioneering work of Fumarco (2017) represents the first significant attempt to shed light on discriminatory practices against blind tenants by landlords, and further research is necessary to fully grasp the extent of this problem and to develop effective policy solutions.

© The Author(s) [2025]. Published by Oxford University Press.

This is an Open Access article distributed under the terms of the Creative Commons Attribution-NonCommercial License (<https://creativecommons.org/licenses/by-nc/4.0/>), which permits non-commercial re-use, distribution, and reproduction in any medium, provided the original work is properly cited. For commercial re-use, please contact reprints@oup.com for reprints and translation rights for reprints. All other permissions can be obtained through our RightsLink service via the Permissions link on the article page on our site—for further information please contact journals.permissions@oup.com.

In this study, we contribute to filling the gap in knowledge regarding the discrimination of households with disabled individuals in rental markets: (1) we provide the first examination comparing the extent of discrimination depending on the number of disabled individuals in the household; (2) we investigate discrimination related to required modifications in the apartment due to a disabled tenant, which also enables us to bring evidence on indirect discrimination and indirect statistical discrimination; (3) the present study appears to be the first one to analyse disability discrimination in rental housing markets within the Nordic countries.

Our analysis adds knowledge on two strands of the economics of discrimination literature. First, we contribute to the broader literature on whether private information should be disclosed when seeking employment or housing. Prior studies have shown that revealing personal attributes such as sex (Neumark et al., 1996), motherhood status (Correll et al., 2007), age (Lahey, 2008), religiosity (Adida et al., 2010), address (Bunel et al., 2016), ethnicity (Bertrand and Mullainathan 2004), immigration status (Oreopoulos 2011), sexual orientation (Drydakis 2009), and past unemployment spells (Baert et al., 2016) may negatively impact callback rates in both the labour and housing markets. Our study extends this discussion with respect to disability disclosure in rental applications. Second, we contribute to the growing field-based experimental literature on discrimination against individuals with disabilities. Corresponding studies have found lower callback rates in both the labour and housing markets for people with various disabilities, including motor impairments (Ravaud et al., 1992; Stone and Wright 2013; Ameri et al., 2018; Flage and Le Gallo 2025), Asperger's syndrome (Ameri et al., 2018), and hearing impairments (Baert 2016; l'Horty et al., 2022). A meta-analysis of labour market discrimination by Lippens et al. (2023) found an average callback ratio of 1.5 across 130 studies on race and national origin discrimination and an average of 1.9 across nine studies on physical disabilities, indicating that discrimination against individuals with disabilities may be particularly severe. Moreover, Finland remains an underexplored context for discrimination research. While Mourelatos and Oikarinen (2023) documented ethnic discrimination by landlords against Russian apartment applicants, our experiment is the first to examine discrimination on the basis of physical disability in Finland's rental market. We focus on the Finnish urban rental housing markets in particular.

With respect to mobility impairments, prior audit, and correspondence studies have demonstrated that individuals with such disabilities experience significantly lower callback rates, with reductions of up to 25% age points in labour markets (Bellemare et al., 2023) and up to 14% age points in rental markets, compared to nondisabled applicants (Levy et al., 2015; Flage and Le Gallo 2025). Our findings reinforce the evidence that discrimination against individuals with disabilities remains a critical barrier to equal access in housing markets.

In our study, we build on the proposed field experiment by Fumarco (2017) and investigate disability discrimination in the rental housing market by focusing on people with moving disabilities.¹ To explore possible discriminatory patterns in the housing market, we carried out a field experiment utilizing the correspondence testing technique. This methodology is widely employed in both the housing and labour market contexts and has proven instrumental in uncovering instances of discriminatory behaviour against minority populations (Gneezy et al., 2012).

The technique involves sending applications from fictitious applicants, also known as pseudoseekers, in response to advertised job vacancies or apartment rental opportunities. Our field experiment was conducted in Finland, a country with one of the highest (recorded) prevalence rates of disability among its population in the European Union. According to the Finnish Institute for Health and Welfare (THL), in 2018, approximately

¹ In total, an estimated 87 million people in Europe live with a disability (WHO report 2022).

339,000 individuals between the ages of 15 and 64 were affected by a mobility-limiting disability, accounting for approximately 11.6% of the population in this age bracket.² Furthermore, we leveraged the framework provided by the Finnish Nondiscrimination Act to examine possible sources of discrimination in our study. This legislative framework provides a robust basis for investigating and combating discriminatory behaviour in various settings, including the housing market (see [Supplementary Appendix B](#) for details).

Our baseline scenario revealed a disconcerting pattern of discrimination against households with members who experience mobility impairments. Furthermore, our findings indicate that the discriminatory behaviour exhibited by landlords escalates as the number of disabled individuals within a household increases. Unlike previous studies, this investigation also incorporates a twin follow-up experimental scenario to investigate the sources of potential discriminatory factors. Specifically, building upon the initial findings of our baseline scenario, our research explores in more depth the underlying factors that contribute to discriminatory practices. In this context, we examine a set of cases where the husband, having a disabled wife, submitted a request for the necessary modifications in the dwelling to accommodate the couple.

As the European Union population becomes older and at an increased risk of developing chronic conditions due to noncommunicable diseases and injuries, the number of people with a disability in the EU is only set to increase. That is, our findings are of increasing importance, and the contributions to the relevant literature have direct relevance in terms of public policy by highlighting the urgent need for increased education and awareness-raising initiatives to promote inclusive housing practices and combat discriminatory attitudes towards individuals with disabilities. Thus, our results unequivocally underline the pressing need for policy interventions and awareness campaigns to address and rectify the observed discriminatory practices effectively.

2. Theoretical framework and literature review

The literature on housing discrimination has identified two primary causes of discriminatory behaviour: the presence of prejudices and the lack of relevant information. In the case of prejudices, discrimination stems from the preferences of either the agent (e.g. landlord) or the customer (e.g. tenant). This means that individuals engaging in discrimination may act on the basis of hostile personal attitudes or conform to the prejudiced beliefs of their social group ([Becker 1957](#); [Yinger 1986](#)). In this context, the discriminatory behaviour is not influenced by the amount or quality of information provided by the applicants. The person who discriminates is willing to forego profitable opportunities solely to avoid any form of interaction with the targeted group.

Discrimination within housing markets can also manifest in various subgroups of the population, including individuals with disabilities. Previous studies in this area have focused mostly on blind tenants. These studies have employed both in-person audit tests (referred to as ATs) and correspondence tests (CTs).³ The findings indicate that blind tenants face discrimination in both the American housing market ([Turner et al., 2005](#)) and the European housing markets ([Fumarco 2017](#); [Flage and Le Gallo 2025](#)). Furthermore, blind tenants often encounter refusals to waive restrictions or fees associated with their guide dogs ([Murphy 2007](#); [Flage and Le Gallo 2025](#)). Additionally, [Van Den Broeck and Heylen \(2015\)](#) and [Verhaeghe et al. \(2016\)](#) conducted controlled trials in the Belgian rental housing market, both of which demonstrated that blind tenants are less likely to receive invitations to view the housing units they applied for than tenants without visual impairments.

² National FinSote Survey 2018.

³ The research using ATs can be divided into two groups based on whether disabled actors who visit apartments are matched to nondisabled counterparts ([Turner et al., 2005](#); [Heylen and Van den Broeck 2016](#)) or are unmatched ([Murphy 2007](#)).

Prior studies have also examined discrimination against deaf individuals (Levy et al., 2015) and those with mental and physical disabilities (Flage and Le Gallo 2025).

However, there remains a gap in research specifically addressing discrimination against households with members who have mobility impairments and require disability-specific apartment modifications. Although previous work has analysed both the presence and extent of discrimination based on motor impairments (Levy et al., 2015; Flage and Le Gallo 2025), our study extends the literature in several keyways. First, it examines how discrimination varies depending on the number of disabled individuals in a household. Second, it investigates discrimination related to required accessibility renovations, offering insights into whether landlords' responses are influenced by the necessity of modifications and who bears the associated costs. Third, it presents the first experimental analysis of disability-based discrimination in the rental housing market in Finland, a country that has received limited attention in discrimination research. Indeed, to our best knowledge this is the first such analysis in any of the Nordic countries. Additionally, we explore the sources of discrimination and propose relevant public policy actions.

In general, researchers have traditionally measured discrimination in the housing market through field experiments that rely on personal interactions (see, e.g. Yinger 1986; Page 1995; Ondrich et al., 1999).⁴ However, these AT methods involve significant costs in terms of time and resources and have notable limitations, as highlighted by Heckman and Siegelman (1993) and Heckman (1998). Therefore, CTs have gained traction as a research method in recent years, driven by the increasing digitalization of housing markets. This approach allows researchers to create truly identical applications that differ only in the characteristics under investigation, such as sex or ethnicity.

As the rental market increasingly moves online, CTs offer several advantages over traditional ATs. Unlike in-person audits, CTs rely on written communication rather than live actors, mitigating concerns related to unobservable characteristics and the experimenter effect (Pager 2007; Bertrand and Duflo 2017). Furthermore, digital platforms enable researchers to reach a larger pool of landlords within the same budget, as there is no need for physical visits or trained actors (Bertrand and Duflo 2017). Another advantage is that CTs allow researchers to examine discrimination beyond real estate agents, capturing landlord behaviour across different market segments. As a result, CTs have become the gold standard for investigating discriminatory practices (Baert 2015). Despite these strengths, CTs also have limitations. One key drawback is that they assess discrimination only at the initial stage of the process – whether an inquiry receives a response – without capturing biases that may emerge in later stages, such as face–face interactions, lease negotiations, or contract terms (Cahuc et al., 2019). Additionally, CTs can test for discrimination only on the basis of observable characteristics (e.g. name, sex, and address), overlooking factors that become apparent later, such as personality traits or soft skills. Ethical concerns have also been raised regarding the use of fictitious applications, as some argue that deception in experimental research could undermine credibility.

Despite these limitations, CTs are widely used for studying discrimination, particularly in relation to ethnicity (Carpusor and Loges 2006; Ahmed and Hammarstedt 2008; Baldini and Federici 2011; Andersson et al., 2012; Auspurg et al., 2017; Drydakis 2017; Mourelatos and Oikarinen 2023) and sex (Ahmed et al., 2008; Hellyer 2021) in the housing market. Their methodological strengths, coupled with their adaptability to digital platforms, make them powerful and versatile tools for uncovering biases in rental markets. In line with this, we conducted a CT experiment in the Finnish rental housing market via two scenarios.

⁴ In these experiments, a group of testers, varying in terms of sex or ethnic origin, undergo training to inquire about apartments or job opportunities while engaging in similar conversations with potential counterparts. Subsequently, direct contact is established either through phone or in-person interactions.

3. Experimental design

3.1 Institutional setting

Finland comprises approximately 2.8 million households, nearly half of which reside in blocks of flats, making it the most common housing type. Additionally, Finland is among the first EU countries to experience a continuous decline in fertility rates, coupled with an ageing population (Statistics Finland).⁵ In response, the Ministry of Environment launched a program in 2013 to enhance housing conditions for elderly and disabled individuals by introducing a nationwide lift subsidy. This initiative aimed to increase the supply of accessible housing as part of broader policy interventions. The lift subsidy programme specifically targeted private housing condominiums, promoting the installation of lifts in blocks of flats previously lacking them. Finnish legislation enacted in 2005 already mandated the inclusion of lifts in newly constructed blocks of flats (Kotilainen et al., 2016). These efforts have positioned Finland as a leader in housing accessibility within the European Union (OECD 2021).

This context provides an ideal setting for our experimental investigation into landlords' discriminatory practices against disabled tenants by isolating instances of direct discrimination. Previous studies have explored similar topics in other countries (e.g. the USA and France) and highlighted that nearly 80% of the housing stock remains inaccessible to individuals with mobility impairments, reflecting indirect discrimination in addition to direct discrimination within the limited accessible housing stock (e.g. Levy et al., 2015; Flage and Le Gallo 2025). During our investigation, we identified that approximately 74% of vacant apartments listed during the study period offered a lift. To isolate direct discrimination, we excluded apartments located on higher floors without lift access. The website we used facilitated this process by clearly highlighting lift availability. A paired *t* test revealed no statistically significant differences (at the 5% significance level) in key characteristics – such as the number of bedrooms, apartment size, and location (e.g. city centre or neighbourhood) – between apartments with and without lift facilities.

3.2 Scenarios

Our experimental approach incorporates two scenarios aimed at substantiating the presence of discrimination against disabled tenants and delving deeper into the underlying factors driving this behaviour among landlords. First, we categorized households into three groups: married tenants (our baseline control group), married tenants with a disabled individual, and married tenants where both partners have mobility impairments. Second, we varied the circumstances by presenting a scenario with two treatments, where a husband, whose wife has a disability, requests the installation of grab bars in the bathroom. In one treatment, the husband explicitly expressed his willingness to cover the associated costs independently, whereas in another treatment, he politely reminded the landlord of their legal obligation to bear the expenses for reasonable modifications to accommodate individuals with disabilities.⁶

The study design in both scenarios followed a two-step procedure aimed at accurately capturing real-world dynamics. Initially, in collaboration with Kumppanuuskeskus in Oulu, an organization encompassing over 40 health and safety organizations, we tracked national organizations for disabled individuals, such as the Finnish Neuromuscular Disorders Association, Finnish Movement Disorders Association, and Finnish Neuro Society, to conduct a preexperiment survey among individuals with mobility disabilities. This survey was randomly distributed to 134 participants, with 103 providing their responses. The feedback garnered from the survey offered invaluable insights into the

⁵ The share of individuals over 65 years in the population will increase from the current 22% to 26% by 2030 and to 29 percent by 2060.

⁶ By screening the landlords involved in the first scenario, we ensured that no applications were sent to any of the same landlords in the second scenario.

preferred style, wording, and length of email responses to vacant apartment advertisements. The participants were given an open box to articulate their responses within our vignette scenarios that mirrored our two experimental conditions.

To collect the responses, we subsequently utilized text mining AI tools to process the responses from the survey and formulate a proposed email response. To ensure the credibility of our email text, a follow-up survey was administered to participants, who were asked to evaluate our proposed email scenarios. Notably, 97% of the participants identified the email related to the first scenario, and 96% identified it related to the second scenario, as authentic responses to inquiries about vacant apartments.

Furthermore, the survey participants highlighted grab bars in the bathroom as their top priority when adjustments to an apartment were considered (81% preferred grab bars, 8% opted for an apartment ramp, 6% favoured accessible light switches, and 5% selected non-slip flooring). These findings underscore the importance of bathroom accessibility features in meeting the needs of individuals with mobility disabilities.

3.3 Procedure

The experimental methodology closely resembles the approach used by [Ahmed and Hammarstedt \(2008\)](#), [Ahmed et al. \(2010\)](#) and [Fumarco \(2017\)](#). As the utilization of the internet for finding housing continues to grow in popularity in Finland, our initial step was to search for the most widely used online platform for rental properties ([Hasu 2018](#)). Thus, during March 2023, we applied this procedure for the first scenario and during April 2023 for the follow-up scenario overall to more than 2000 advertised apartments, on the largest website advertising rental dwellings in Finland, called [vuokraovi.com](#),⁷ employing an identical methodology and using the same control group in both scenarios. We responded to ads from the 15 largest Finnish cities that are spread all over the country. Some 63% of all rental dwellings in the country are located in these cities, and the cities account for the great majority of the Finnish urban rental market.

To investigate potential discrimination on the basis of an individual's moving disability status, we fabricated three male applicants for use in both scenarios, which differed only in terms of their household health situation. Thus, each application was randomly assigned two characteristics. First, the applicant's name,⁸ Mikko Korhonen, Jaakko Nieminen, or Tapio Virtanen,⁹ and an email account according to the pattern 'namesurname@gmail.com' was created. Second, the household status was classified into three groups: Scenario 1: married tenants where no disability was mentioned (the control group), married tenants with a disabled wife, and married tenants with both partners having moving disabilities. Scenario 2: married tenants in which no disability was mentioned (the control group), married tenants in which the husband has a disabled wife and necessitates the installation of grab bars in the bathroom by expressing his willingness to independently cover the costs associated with the grab bars, and married tenants in which the husband has a disabled wife and necessitates the installation of grab bars in the bathroom by politely reminding the landlord of their legal obligation, as stipulated in the Nondiscrimination Act (for further

⁷ Vuokraovi.com reaches 500,000 rental seekers per month from all over Finland. The website does not display the initial posting date of an advertisement. However, the advertisements include the date from which the dwelling is vacant. To ensure our data reflects only recent listings, we included in the study only rental units for which the date of vacancy started after the date of sending the respective inquiry emails. Additionally, to eliminate any risk of duplicate advertisements between March and April, we cross-checked listings from both months using AI. By comparing key advertisement characteristics, we confirmed that our samples from the two scenario periods were entirely distinct.

⁸ We followed this strategy because, as pointed out by [Ahmed and Hammarstedt \(2008\)](#), rental advertisers may post multiple housing vacancies under different name.

⁹ Names and surnames were selected based on their frequency in the Finnish population and were randomly matched. Only male names were used. This was done to keep the analysis simple in terms of not allowing the applicant's gender to influence the landlord responses, as the study aims to focus specifically on the influence of disability, but not the sex. Also, this allowed us to keep the number of name variations smaller.

elaboration, please refer to [Supplementary Appendix B](#)). The housing inquiry email was written in Finnish (the texts, translated into English, are presented in [Table A1](#), see [online supplementary data](#) for a colour version of this table).¹⁰

We used a random assignment procedure to submit a single randomized application to each online advertisement. This approach has been employed in numerous studies investigating discrimination on the basis of various factors [e.g. age and employment status by [Carlsson and Eriksson \(2014\)](#); ethnicity by [Baldini and Federici \(2011\)](#) and [Carpusor and Loges \(2006\)](#); men's sexual orientation by [Ahmed and Hammarstedt \(2008\)](#); single parenting by [Lauster and Easterbrook \(2011\)](#); women's sexual orientation by [Ahmed et al. \(2008\)](#); and ethnic discrimination during wartime by [Mourelatos and Oikarinen \(2023\)](#)].

In our case, there are several reasons to use this approach instead of the matched application technique. First, the single-inquiry method enables better control, as all the emails within each treatment group are identical. This eliminates the need to randomize the message structure or content, which can help isolate the treatment effect with greater precision. Second, this approach minimizes detection risk by ensuring that each advertisement receives only one application, unlike the matched design, where multiple applications for the same listing might alert advertisers. [Ahmed and Hammarstedt \(2008\)](#) explain how advertisers may post multiple listings under different names and that receiving similar applications could lead to suspicions of deception. Moreover, the reluctance of pseudoapplicants to attend apartment viewings in matched designs can further increase detection risk.

The single-inquiry method also has practical advantages. While a larger sample size is needed to achieve the same statistical power as in the matched design, it avoids the risk of advertisers dismissing applications perceived as duplicates. This risk is particularly relevant in the Finnish rental market, as it is relatively small ([Mourelatos and Oikarinen 2023](#)). In our study, we randomly assigned each candidate to apply to vacant apartments meeting our criteria, cycling through identities systematically to ensure even distribution across applicants. Nevertheless, we acknowledge the trade-offs of the single-inquiry method. It requires contacting more landlords overall, which could be seen as more intrusive than sending paired inquiries. However, this is offset by the method's ability to maintain identical message content across treatments and reduce the detection risk associated with matched inquiries. To mitigate concerns about nonrandomness introduced by the cyclical assignment, we controlled for temporal effects by including dummy variables for the week and day of the inquiry in our regressions ([Baldini and Federici 2011](#)). We also conducted a Kolmogorov–Smirnov test to ensure that the distribution of application days was similar across groups and found no significant correlations between applicant identities and observable variables.

In addition to random assignment, we implemented other strategies to reduce detection risk and ensure the validity of our findings. For example, the target characteristic (mobility disability) was naturally disclosed in the application message to avoid appearing contrived, following [Ahmed and Hammarstedt's \(2008\)](#) guidelines. Moreover, household tenants, rather than individual tenants, applied to vacant apartments. While this approach is standard in studies on sexual orientation discrimination ([Ahmed and Hammarstedt 2009](#)) to signal the target characteristic, we adapted it here to study discrimination against multiple individuals within a household, which would not have been achieved through individual applications. The household structure was disclosed by the nondisabled husband in the application message, providing a clear and unobtrusive way to convey the relevant information. This was probably the only feasible way to study discrimination against multiple individuals in our case.

¹⁰ Our research is not affected by the so-called disclosure problem, as it is in line with the Finnish Nondiscrimination Act, which suggests applicants to disclose any disabilities they may have as part of the housing inquiry process.

To avoid contacting the same landlord more than once, all the landlords were carefully tracked throughout the experiment. If a landlord posted multiple ads for different apartments, only one application was sent in response to one of the ads to minimize the risk of detection. For the same reason, we excluded advertisements posted by real estate agencies (Andersson et al., 2012)¹¹ and removed ads explicitly requesting responses from a specific sex (Ahmed and Hammarstedt 2008). However, we cannot completely rule out the possibility that a landlord might have posted multiple ads under different names. Although we focused exclusively on privately-owned apartments, this limitation should be considered when interpreting the results.

When the experiment started, each invitation to view the apartment was promptly declined to minimize any inconvenience to the landlord. In accordance with previous similar experimental studies in rental housing markets, any answer by landlords received more than 15 days after the email inquiry was not registered.¹²

4. Descriptive statistics

4.1 Sample characteristics

Table 1 presents descriptive statistics of the apartments for which we sent rental applications in both scenarios (i.e. baseline and follow-up) of our field experiment. The pooled sample includes a total of 2,177 cases, with an average apartment size of 60 m², typically two-bedroom units, mostly located in the city centre (67.5%), and an average rent of approximately 12.4 euros per m². Among the units, 39.4% are rented out by female landlords. The unit characteristics are similar across the two experimental scenarios, and there are not any statistically significant differences based on paired *t* tests.

4.2 Invitation rates

The outcome of interest is the frequency with which applicants received invitations to visit the apartments to which they applied. The number of invitations is exactly the same as the number of received responses from the landlords, since there were no negative responses. This is typical in the Finnish market, where landlords tend to refrain from responding negatively to emails. That is, landlords generally respond only if they are interested in the applicant and wish to invite them to view the apartment. Hence, we use ‘invitations’ and ‘responses’ interchangeably.

The invitation rates for each group are shown in Fig. 1. The response rates were as follows: 60.0% for the control group,¹³ 52.1% for the group with a disabled wife, 48.9% for tenants where both partners have mobility impairments, 36.0% for self-financed home changes for a disabled wife, and 33.9% for landlord-mandated changes for a disabled wife. Notably, the invitation rates for all treatment groups are statistically significantly smaller than those of the control group, which consists of couples who did not disclose information about their physical health status when they applied for an apartment (Fig. 1 and Table C4, see online supplementary data for a colour version of this table).

For positive responses in the baseline scenario, the distribution of response rates was as follows: 38.1% for tenants with no information included, 31.9% for tenants with a disabled individual, and 29.6% for tenants where both partners have mobility impairments.

¹¹ While this could in principle bias the sample towards landlords with fewer units, previous research has shown that this is unlikely to bias the results (Auspurg et al., 2020).

¹² In similar studies, the accepted invitation period typically ranges from 12 to 31 days (Baldini and Federici 2011; Fumarco 2017; Mourelatos and Oikarinen 2023). In our experiment, replies were received within 10 days in 97.5% of cases. The remaining replies had no impact on the results presented below. Comparisons of the response time between the three groups of household tenants in each scenario, suggest that there is no differential treatment in terms of landlords’ response time (paired *t* tests).

¹³ The response rates for the control group were 62% and 57% in Scenario 1 and Scenario 2, respectively. The difference between the scenarios is statistically insignificant.

Table 1. Sample characteristics.

Variable	Mean	SD	Min	Max	N
<i>Pooled sample</i>					
<i>Landlord characteristics</i>					
Female	0.394	0.488	0	1	2,177
<i>Apartment characteristics</i>					
Number of bedrooms	2.127	1.095	1	8	2,177
Apartment size (m ²)	60.446	32.818	12	256	2,177
City centre	0.675	0.468	0	1	2,177
Rent per square metre (€)	12.397	7.007	2.154	46.652	2,177
<i>Scenario 1 – Baseline</i>					
<i>Landlord characteristics</i>					
Female	0.403	0.490	0	1	1,058
<i>Apartment characteristics</i>					
Number of bedrooms	2.120	1.076	1	5	1,058
Apartment size (m ²)	60.710	33.744	20	256	1,058
City centre	0.669	0.471	0	1	1,058
Rent per square metre (€)	11.698	4.806	2.156	46.652	1,058
<i>Scenario 2 – Follow up</i>					
<i>Landlord characteristics</i>					
Female	0.388	0.487	0	1	1,119
<i>Apartment characteristics</i>					
Number of bedrooms	2.134	1.110	1	8	1,119
Apartment size (m ²)	60.193	32.001	12	256	1,119
City centre	0.681	0.466	0	1	1,119
Rent per square metre (€)	13.066	4.554	2.154	44.923	1,119

Source: Authors' calculations. Data drawn from vuokraovi.com.

In the follow-up scenario, the corresponding distribution of responses was 45.2% for tenants with no information included, 28.3% for tenants with a self-financed home change required for a disabled wife, and 26.5% for tenants with a landlord-mandated home change required for a disabled wife.

In sum, the comparison of the response rates (invitations) for all treatment groups compared with those for the control group suggests the presence of disability discrimination. However, more detailed analysis is needed to confirm this preliminary finding.

5. Empirical methodology

To investigate the extent of discriminatory behaviour against individuals with mobility disabilities, we use a straightforward approach by estimating a linear probability model to predict the probability of receiving a positive response to email inquiries. As explained above, the experiment consisted of two scenarios, with the control group being households where the applicant did not mention any details about their physical status (e.g. disability) or any needed changes in the apartment. With a control group and altogether four treatments, we estimate the following model:

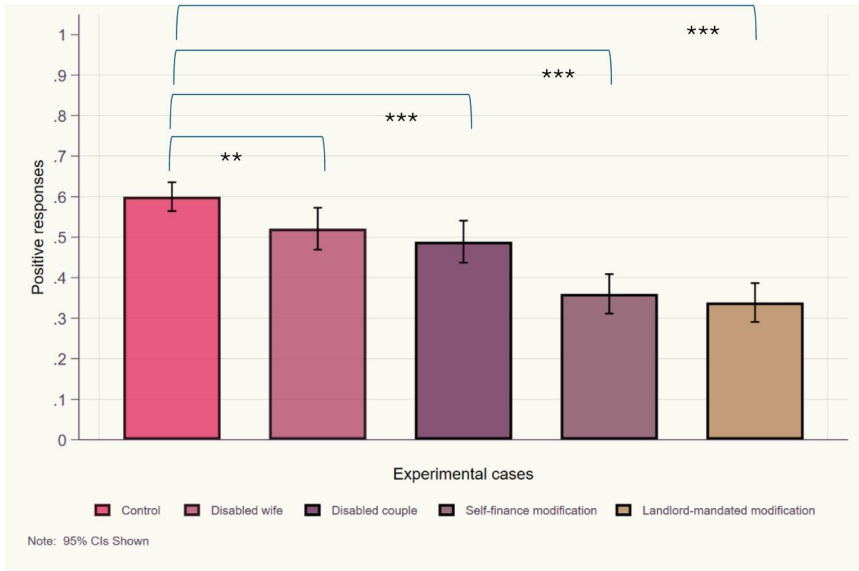


Figure 1. Response rates per experimental case (pooled sample, statistical significance: *** $P < .01$, ** $P < .05$, * $P < .10$).

$$Y_i = \alpha + \beta_1 T_1 + \beta_2 T_2 + \beta_3 T_3 + \beta_4 T_4 + \beta_5 X_i + \gamma_d + \delta_c + \xi_s + e_i \quad (1)$$

where Y is the latent variable taking a value of 1 if the applicant received a positive invitation and 0 otherwise. α is a constant, T_1 is a dummy variable for treatment one (indicator for ‘Disabled Wife’, 1 if Treatment 1, 0 otherwise), T_2 is a dummy variable for treatment two (indicator for ‘Disabled Couple’, 1 if Treatment 2, 0 otherwise), T_3 is a dummy variable for treatment three (indicator for ‘Disabled Wife plus a Self-Financed Modification’, 1 if Treatment 3, 0 otherwise) and T_4 is a dummy variable for treatment four (indicator for ‘Disabled Wife plus a Landlord-Financed Modification’, 1 if Treatment 4, 0 otherwise). X is a vector of control variables including the apartment-specific characteristics (i.e. whether the unit is in a neighbourhood or city centre, the apartment size in m^2 , the number of bedrooms, and the sex of the landlord). We also control for the email inquiry date by embedding in the model γ_d , which includes the six dummy variables for different weekdays, δ_c includes the city fixed effects, ξ_s the experimental scenario fixed effects and e is the idiosyncratic error term.¹⁴ With respect to the coefficients of interest, β_1 measures direct discrimination based solely on the wife’s disability, whereas $\beta_3 - \beta_1$ capture indirect discrimination due to the need for apartment modifications (Treatment 3 compared with Treatment 1), and $\beta_4 - \beta_3$ captures indirect statistical discrimination due to the need for landlord-financed modifications (Treatment 4 compared with Treatment 3). For Equation (1), we present the estimates from a linear probability model, while the corresponding average marginal effects (AMEs) based on a probit model are reported in the [Supplementary Appendix](#) as a robustness check.

Following [Auspurg et al. \(2017\)](#), we also estimate a hedonic model for rental prices, using apartment characteristics by city¹⁵ to predict the relative price level of each unit. This approach allows us to account for variations in rental prices across different locations and

¹⁴ We also control for the randomized name being used in the experiment.

¹⁵ We utilize the forecasted prices generated by the hedonic model, wherein the rent is elucidated by the specific characteristics of each unit. Then, we compute the difference between the observed and predicted rents to establish a continuous variable representing the relative rental price for each apartment as in [Auspurg et al. \(2017\)](#).

property attributes. Within this framework, we use both the absolute and relative rent values to construct interactions with our four treatments, enabling an examination of potential sources of statistical discrimination. For example, landlords might perceive couples with one disabled person as having a lower ability to pay and couples with two disabled individuals as even less capable, even if this perception does not reflect their actual financial situation. This suggests that discriminatory behaviour may be driven by biased assumptions rather than factual evidence.

6. Results

6.1 Baseline estimations

Table 2 presents results from linear probability models estimating the likelihood of receiving a positive invitation response to email inquiries about vacant apartments, based on our merged experimental scenarios. The reference group in all models [1] through [4] is applicants without any mentioned mobility disability, drawn from both Scenario 1 and Scenario 2. This design enables us to identify different forms of discrimination – direct, indirect, and statistical.

The four model specifications presented in Table 2 differ from each other regarding the extent of control variables included in each model. Model [1] does not include any control variables, whereas specification [4] incorporates the full set of controls. This staged approach allows for a robustness check of the randomization of our design.¹⁶

To begin, we assess direct discrimination by comparing Treatment Groups 1 and 2 with the control group. Model [4] shows that households with a disabled wife (Treatment 1) face an 8.2% age point lower probability of receiving a response relative to applications where no disability was mentioned. This discriminatory effect is even more pronounced when both partners in the household have a mobility impairment (Treatment 2), resulting in an 11.2% age point decline in the response likelihood.

Next, we consider indirect discrimination by evaluating Treatment groups 3 and 4, where the applicant requests a minor apartment modification (installation of grab bars). In Treatment 3, where the husband explicitly states that he will finance the modification, the probability of receiving an invitation drops sharply – by 20% age points – compared to the control group. This indicates strong discriminatory attitudes even when there is no financial burden placed on the landlord. As anticipated, this probability drops even further when the modification is requested to be landlord-funded (Treatment 4). These estimates reflect the combined effects of direct and indirect discrimination.

Our design allows us to investigate indirect discrimination by comparing the positive response rate for households with a disabled wife (Treatment 1) to that for households with a disabled wife who also requests a self-financed grab bar installation (Treatment 3). The difference in response rates – 11.8% age points lower for Treatment 3 – is statistically significant at the 5% level (post-estimation Wald test $P = .033$). This provides robust evidence of indirect discrimination triggered merely by the mention of a disability-related housing adjustment, even when the applicant assumes full financial responsibility.

We further test for statistical discrimination by comparing Treatment 3 (self-financed grab bars) with Treatment 4 (landlord-financed grab bars). This contrast isolates the role of who bears the cost of modification – an important signal for landlords when assessing financial or legal risks. However, the estimated difference between these two groups is only small and statistically insignificant across all model specifications based on Wald test. Thus, we find no compelling evidence of (indirect) statistical discrimination in this case. This suggests that landlords' decisions may be more strongly driven by general prejudice or

¹⁶ We are thankful for an anonymous referee for pointing this out.

Table 2. Baseline results (LPM estimations).

	Access to housing: main effects (pooled sample)			
	[1]	[2]	[3]	[4]
Disabled wife	-0.102*** (0.036)	-0.097*** (0.036)	-0.100*** (0.037)	-0.082** (0.036)
Disabled couple	-0.135*** (0.036)	-0.119*** (0.036)	-0.123*** (0.037)	-0.112*** (0.036)
Self-financed home change for a disabled wife	-0.217*** (0.035)	-0.231*** (0.035)	-0.224*** (0.041)	-0.200*** (0.042)
Landlord-mandated change for a disabled wife	-0.239*** (0.035)	-0.223*** (0.035)	-0.221*** (0.035)	-0.205*** (0.034)
Apartment controls		✓	✓	✓
Experimental controls			✓	✓
Landlord controls				✓
<i>F</i> -Stat	21.05	11.00	8.80	15.77
<i>R</i> ²	0.045	0.091	0.093	0.152

Source: Authors' calculations. Data drawn from vuokraovi.com.

Note: $N = 2,177$. The specifications control for the sending weekday of the apartment inquiry email, the apartment's city fixed effects, the randomized name of the applicant, the scenario fixed effects and landlords' sex. Apartment controls include the number of bedrooms, the size, and location area (i.e. city centre, or neighbourhood). Robust standard errors in parentheses.

Statistical significance: $P < .10$, $^* P < .05$, $^{***} P < .01$.

negative stereotypes associated with disability, rather than by economic considerations about costs or risk – even when tenants offer to cover the expense themselves.

In sum, our findings reveal substantial discriminatory behaviour in the Finnish rental housing market. Landlords exhibit bias not only against applicants with disabilities, but also against households requesting even modest accessibility-related modifications, regardless of who pays for them.

Our results are consistent across all model specifications and remain robust when introducing additional control variables. The stepwise inclusion of controls strengthens confidence in the internal validity of our randomization and supports the robustness of our experimental design.

6.2 Sex heterogeneity

Table 3 presents the sex-specific linear probability estimations. The estimated models reveal notable differences in discriminatory behaviour between male and female landlords. Among male landlords, the effects are large and statistically highly significant. Households with a disabled wife experience up to 14.6% age point reduction in the probability of receiving an invitation, which intensifies to a 16.8% age point reduction for disabled couples. For households requesting self-financed modifications, the estimated reduction is 26.3% age points, whereas landlord-mandated modifications show an even greater decline of 27.9% age points compared with the reference category, where no disability was mentioned. These effects also hold across all specifications (Columns [1]–[4]), and we observe similar patterns of indirect discrimination consistent with our baseline findings.

In contrast, the effects for female landlords are generally weaker and less consistent across the four treatments. While direct discrimination is not observed, significant effects emerge when disability-related housing adjustment indirect effects of discrimination are examined. For self-financed modifications, the probability decreases by 20.6% age points, and for landlord-mandated modifications, it results in a significant reduction of 9% age

Table 3. Baseline results by landlords' sex (LPM estimations).

	Access to housing: main effects (pooled sample)			
	[1]	[2]	[3]	[4]
	Male landlords			
Disabled wife	-0.139*** (0.048)	-0.145*** (0.047)	-0.146*** (0.048)	-0.146*** (0.048)
Disabled couple	-0.182*** (0.047)	-0.171*** (0.047)	-0.168*** (0.048)	-0.168*** (0.048)
Self-financed home change for a disabled wife	-0.207*** (0.045)	-0.251*** (0.046)	-0.263*** (0.052)	-0.263*** (0.052)
Landlord-mandated change for a disabled wife	-0.284*** (0.042)	-0.281*** (0.043)	-0.279*** (0.043)	-0.279*** (0.043)
F-Stat	16.31	7.26	6.04	6.04
R ²	0.055	0.099	0.102	0.102
N	1,322			
	Female landlords			
Disabled wife	-0.003 (0.051)	0.012 (0.053)	0.002 (0.053)	0.002 (0.053)
Disabled couple	-0.027 (0.051)	-0.015 (0.052)	-0.032 (0.054)	-0.032 (0.054)
Self-financed home change for a disabled wife	-0.207*** (0.055)	-0.241*** (0.058)	-0.206*** (0.059)	-0.206*** (0.059)
Landlord-mandated change for a disabled wife	-0.113** (0.056)	-0.098* (0.057)	-0.090* (0.055)	-0.090* (0.055)
F-Stat	6.11	3.01	3.36	3.36
R ²	0.037	0.072	0.080	0.080
N	855			
Apartment controls		✓	✓	✓
Experimental controls			✓	✓
Landlord controls				✓

Source: Authors' calculations. Data drawn from vuokraovi.com.

Note: The specifications control for the sending weekday of the apartment inquiry email, the apartment's city fixed effects, the randomized name of the applicant, the scenario fixed effects and landlords' sex. Apartment controls include the number of bedrooms, the size, and location area (i.e. city centre, or neighbourhood). Robust standard errors in parentheses.

Statistical significance: * $P < .10$, ** $P < .05$, *** $P < .01$.

points compared to the reference group. The difference between self-mandated and landlord-mandated modifications is statistically insignificant at the 5% level.

Our findings indicate that male landlords exhibit stronger and more consistent discriminatory behaviour, especially in terms of direct discrimination, than female landlords do. This sex difference in response to applicants with disabilities aligns with broader patterns observed in the labour and housing markets. One potential explanation is that male landlords may have different risk perceptions and biases than female landlords do. Research suggests that men, on average, exhibit higher levels of statistical discrimination and are more likely to prioritize economic self-interest over social considerations (Bertrand et al., 2005). If male landlords perceive renting to tenants with disabilities as involving higher financial or maintenance risks, they may be more inclined to reject such applicants even if there are no requirements for apartment modifications. Another explanation may stem from sex differences in social preferences. Studies in behavioural economics suggest that women tend to exhibit greater social empathy and fairness concerns than men do (Croson

and Gneezy 2009). Owing to a stronger inclination towards prosocial behaviour, female landlords might be more willing to accommodate tenants with disabilities. This finding is consistent with evidence that women, in general, are more likely to engage in caregiving roles and exhibit higher levels of altruism in economic decision-making (Eckel and Grossman 2008). Finally, male landlords may be more embedded in traditional sex norms that associate disabilities with lower economic productivity or increased dependency, reinforcing exclusionary attitudes. Given that women with disabilities already face a double burden of discrimination in the labour market (Baldwin and Johnson 1995), it is possible that these biases extend to the rental market as well, leading to compounded disadvantages.

6.3 Interaction effects

The interaction effects between treatments and rent may provide insights into the role of statistical discrimination. If the landlords are worried about the financial capability of households with disabled individuals, we would expect the interaction effects between absolute rent level and treatment dummies to be negative: the higher is rent, the more likely it is that a household with notable financial restrictions has trouble paying the rent.

Nevertheless, none of the interaction coefficients between treatments and absolute rent, reported in Table 4, are negative. In contrast, these coefficients are positive. These results do not provide support for statistical discrimination of the disabled households. A potential explanation for the positive signs is that the owners of the more expensive units – who may be wealthier and higher-educated – are possibly more enlightened in terms of discrimination issues. In addition, the landlords may actually perceive those households with disabilities that apply for higher-priced units as less ‘risky’. That is, applying for a high-rent dwelling may be taken as a signal of solid financial position of the household. On the other hand, the more expensive dwellings may be somewhat more accessible than the lower-priced ones. Therefore, we cannot reliably argue based on these results that statistical discrimination does not exist at all.

Table 4 also provides estimates of the interaction effects between relative rents and all the treatments. Even if the relative rent level is high (low), the absolute rent can be low (high). The units with high relative prices are ones that may have some valuable unobserved features that are not captured by our control variables, or ones for which the respective landlord wishes to receive a particularly high relative return. Hypothetically, in the latter case, the landlord may be more willing to accept a household with a disabled individual as long as the tenants are willing to pay relatively high rent. However, the signs of the estimated interaction coefficients vary across treatments, and only one is statistically significant. In the self-financed grab bar requirement case, the positive interaction effect is significant at the 5% level, potentially implying the landlords generally do not worry that much about the modification, if that is offset by relatively high rent.

6.4 Limitations

Our experimental design presents some potential limitations that necessitate careful consideration. A key concern is the strong disability signal, which might raise objections about requiring disabled tenants to disclose their condition. However, individuals with mobility impairments have a legitimate interest in assessing landlords’ willingness to accommodate minor disability-related modifications before visiting. Disclosing these needs later exposes them to rejection, wasting time and effort. Moreover, tenants without disabilities may also evaluate landlords on similar grounds.

Households with two mobility-impaired members are likely uncommon in Finland, and in the absence of official statistics, it is reasonable to assume a prevalence similar to that in other European countries. Assuming that the size of this population is indeed small in Finland, it is reasonable to argue that the additional time spent by individuals with mobility

Table 4. Interaction effects: LPM estimates.

	Interaction effects with rent (pooled sample)							
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Disabled wife	-0.283** (0.149)	-0.076** (0.037)	-0.083** (0.036)	-0.083** (0.036)	-0.085** (0.036)	-0.084** (0.036)	-0.085** (0.036)	-0.083** (0.036)
Disabled couple	-0.112*** (0.036)	-0.112*** (0.036)	-0.058 (0.163)	-0.109*** (0.036)	-0.117*** (0.036)	-0.117*** (0.036)	-0.116*** (0.036)	-0.113*** (0.036)
Disabled wife × Absolute rent	0.084* (0.060)							
Disabled couple × Absolute rent		-0.023 (0.026)	0.025 (0.068)					
Disabled wife × Relative rent								
Disabled couple × Relative rent				-0.019 (0.034)				
Self-financed home change	-0.196*** (0.036)	-0.200*** (0.036)	-0.198*** (0.042)	-0.201*** (0.042)	-0.418*** (0.163)	-0.234*** (0.044)	-0.195*** (0.042)	-0.199*** (0.042)
Landlord-mandated change	-0.211*** (0.034)	-0.205*** (0.042)	-0.208*** (0.034)	-0.205*** (0.034)	-0.210*** (0.034)	-0.209*** (0.034)	-0.344*** (0.142)	-0.206*** (0.034)
Self-financed home change × Absolute rent					0.085* (0.061)			
Landlord-mandated change × Absolute rent							0.082 (0.062)	
Self-financed home change × Relative rent						0.054** (0.023)		
Landlord-mandated change × Relative rent								0.015 (0.034)
Apartment Controls	✓	✓	✓	✓	✓	✓	✓	✓
Experimental Controls	✓	✓	✓	✓	✓	✓	✓	✓
Landlord Controls	✓	✓	✓	✓	✓	✓	✓	✓
F-stat	15.79	14.89	15.68	14.85	15.93	15.19	15.39	14.82
R ²	0.154	0.153	0.154	0.152	0.155	0.154	0.154	0.152

Source: Authors' calculations. Data drawn from [vuokraovi.com](https://www.vuokraovi.com).

Note: N = 2,177. The reference category for Columns [1]–[8] is a household where no disability was mentioned (full sample). The specifications control for the absolute and relative rent in each case, the sending weekday of the apartment inquiry email, the apartment's city fixed effects, the randomized name of the applicant, the scenario fixed effects and landlords' sex. Apartment controls include the number of bedrooms, the size, and location area (i.e. city centre, or neighbourhood). Robust standard errors in parentheses. Statistical significance: * P < .10, ** P < .05, *** P < .01.

impairments in submitting a few extra housing applications to find a suitable apartment would incur an extra social cost. Beyond the time spent searching, individuals with mobility impairments may face higher rental prices and be pushed towards less central areas where there is less competition for vacant rental dwellings but access to employment, transportation, and social networks is more limited. These factors can contribute to financial instability, social isolation, and additional challenges in maintaining employment, ultimately reinforcing a cycle of disadvantage. Therefore, studying this population remains critical not only from a societal fairness and equity perspective but also in understanding the full extent of the barriers they encounter.

We also excluded apartment ads managed explicitly by real estate agents from our experiment. We acknowledge that individual landlords may, to some extent, collaborate with rental agents during the application process. Unfortunately, our study could not differentiate between landlords who independently handle applications and those who work in collaboration with agents. This limitation may have introduced variability in the responses, which we were unable to account for in our analysis. Finally, as a limitation, we acknowledge that the responses received after a significant delay (e.g. 6–14 days) may indicate that landlords were waiting for inquiries from other profiles before responding to our treatment profiles. While we followed the practices of previous experimental studies, this delay could reflect a bias in response behaviour. Although our comparisons of response times among the three groups of household tenants revealed no differential treatment, the possibility that delayed responses were influenced by the profile of the applicant may remain.

6.5 Robustness analyses

In this subsection, we introduce alternative model specifications as robustness checks. First, we re-estimate only the follow-up scenario using a linear probability model and with a logit model. The results, presented in [Table 5](#) (Column [1]) and [Supplementary Appendix C](#) ([Table C1](#), see [online supplementary data](#) for a colour version of this table), remain consistent with those in [Table 2](#), supporting the robustness of our findings.¹⁷

Moreover, discrimination based on disability status can manifest in two forms: taste-based discrimination ([Becker 1957](#)) and statistical discrimination ([Phelps 1972](#); [Arrow 1973](#); [Aigner and Cain 1977](#)). Landlords may prefer to avoid interactions with individuals who have mobility impairments, even if it means forfeiting potential business opportunities. This type of discrimination falls under taste-based discrimination. Alternatively, landlords might discriminate against households with a disabled tenant on the basis of the perception that, on average, they possess lower financial stability. In these cases, discrimination on the basis of disability status itself would be statistically significant. Consequently, our experiment includes a scenario where the husband is willing to finance the necessary home modifications for his disabled wife, thereby signalling favourable socioeconomic status. Remarkably, our findings indicate that discrimination still persists even under such circumstances, suggesting that statistical discrimination may be less dominant in these cases. However, this does not entirely rule out the presence of statistical discrimination, as landlords may still be unwilling to install grab bars or make modifications, even if the tenant offers to cover the costs.

Thus, we investigate whether the discrimination patterns are influenced by the presence of landlords' prejudices due to disability status. In the presence of taste-based discrimination, one could expect the invitation rate of households with a disabled wife requiring minor changes to vary with the intensity of contact between disabled and nondisabled individuals on the basis of the intergroup contact theory ([Allport 1954](#); [Pettigrew 1998](#)). Previous research has suggested the existence of a negative relationship between the quantity of contacts and prejudices ([Pettigrew and Tropp 2006](#)). By following the same

¹⁷ The results in this table are based exclusively on observations from Scenario 2.

Table 5. Interaction effects: LPM estimates.

	Pooled	Disabled mobility rate		Housing assistance rate	
	[1]	[2]	[3]	[4]	[5]
Self-financed home change	-0.127*** (0.024)	-0.134*** (0.030)	-0.152** (0.054)	-0.135*** (0.046)	-0.142** (0.040)
Landlord-mandated change	-0.190*** (0.025)	-0.192*** (0.023)	-0.205*** (0.040)	-0.192*** (0.035)	-0.219*** (0.045)
City disabled mobility index		0.002* (0.001)	0.002** (0.001)		
City housing assistance index				0.001 (0.001)	0.001** (0.001)
Self-financed home change × city disabled mobility rate			-0.002 (0.001)		
Landlord-mandated change × city disabled mobility rate			-0.001 (0.001)		
Self-financed home change × city housing assistance rate					-0.001 (0.001)
Landlord-mandated change × city housing assistance rate					0.001 (0.001)
Apartment controls		✓	✓	✓	✓
R ²	0.142	0.144	0.139	0.144	0.139

Source: Authors' calculations. Data drawn from vuokraovi.com and Labour Force Survey 2018. Statistics Finland.

Note: Dependent variable is the positive housing invitation. $N = 1,119$. Model [3] includes interaction effects with the number of individuals with moving disabilities per 1,000 inhabitants, by city. Model [5] includes interaction effects with the number of individuals with housing with part-time assistance per 1,000 inhabitants, by city. The reference category is a tenant who does not require apartment changes. Robust standard errors corrected for the weekday of inquiry are in parentheses.

Statistical significance: * $P < .1$, ** $P < .05$, *** $P < .01$.

approach as Fumarco (2017), we included a proxy for the intensity of contacts, that is, the number of individuals with moving disabilities per 1,000 inhabitants in the city where the apartment is located. Table 5 reports the estimated models where this variable is added alone (Column [2]) and the interactions with our experimental scenarios (Column [3]). The estimated interaction effects are close to zero and statistically insignificant, suggesting that disability discrimination does not vary with the intensity of contacts. This finding subtly indicates the potential minimal presence of taste-based discrimination in our experiment.

Finally, since municipalities in Finland organize serviced housing and supported housing for disabled persons who need help and support in housing, we conduct the same analysis by including an alternative city-specific proxy index: the housing assistance rate per 1,000 inhabitants. Table 5, column [5], shows that the estimated interaction effects are statistically insignificant and close to zero, further proposing that our results are not driven by the level of engagement and awareness of each city with respect to individuals with moving disabilities.

7. Discussion and conclusions

This study provides one of the first examinations on discrimination against individuals with mobility disabilities, who are legally protected against discrimination, in the housing market. Utilizing a standard field experiment, namely the CT, we contribute to the economics of discrimination literature in several important ways, in addition to being apparently the first ones to investigate disability discrimination in rental markets within the Nordic countries.

First, our experiment provides the first examination comparing the extent of discrimination depending on the number of disabled individuals in the household. The results imply that discriminatory behaviour increases with the number of household members with mobility impairments. Second, this article separates discrimination into two categories: direct discrimination, which is based on disability status (moving impairment), and more subtle discrimination, which is based on a specific condition related to the disability (required apartment's bathroom modification). The discrimination intensifies when bathroom modification is requested. Somewhat surprisingly, we do not observe a notable difference in the rate of discrimination towards households volunteering vs. not volunteering to cover the costs of necessary minor apartment modifications due to moving disability. Moreover, the study underscores the importance of considering landlords' characteristics. The findings indicate that discrimination is propelled primarily by male landlords, especially concerning direct discrimination.

In summary, our findings provide robust evidence of discrimination against individuals with disabilities in the housing market. Understanding the mechanisms underlying this discrimination is paramount for policymakers, and fostering awareness through information campaigns could mitigate discrimination against households who have mobility disabilities. Interestingly, the significantly lower positive response rate observed in the scenarios where the husband had a disabled wife and made a modification request, regardless of the funding source, underscores the urgent need for policy interventions and awareness campaigns to address these discriminatory practices. These campaigns should emphasize the importance of recognizing the rights of these individuals to request minor modifications within their apartments. Furthermore, it is essential to conduct information campaigns aimed at educating landlords about the relevant laws, as some of them may not be fully aware of what constitutes discriminatory behaviour. By enhancing understanding and knowledge in these areas, we can foster a more inclusive society.

As this is one of the first studies on disability discrimination in the housing market, several dimensions still need to be explored. Future studies could extend these findings by also including a female applying for an apartment with and without a disabled spouse. This would allow researchers to examine how the explicit signal of a necessary housing adaptation interacts with other sources of discrimination, such as gender discrimination, potentially exacerbating the already disadvantaged position of tenants in the rental housing market. To our knowledge, no correspondence study has yet demonstrated robust direct sex-based discrimination in housing access when applying as a couple.¹⁸

Further research should aim to identify the specific mechanisms underlying discrimination against disabled individuals in the rental market. One approach could be to employ methodologies that disentangle statistical discrimination from taste-based discrimination. For example, leveraging audit studies with paired applicants who differ only in their disclosed disability status – while maintaining identical financial and professional profiles – could provide clearer evidence on whether discrimination stems from concerns about potential costs to landlords (e.g. property modifications) or from personal biases against disabled tenants. Additionally, experimental designs could incorporate randomized variation in the stated need for adaptations to assess whether landlords respond differently when the financial burden of modifications is explicitly covered by the tenant or by external funding sources.

From a policy perspective, our findings also underscore the need for stronger legal protections and enforcement mechanisms to ensure equitable housing access for individuals with disabilities. Policies mandating clearer anti-discrimination enforcement, landlord

¹⁸ However, such discrimination could also emerge in the proposed rent. Recent findings by Goldsmith-Pinkham and Shue (2023) suggest that women tend to pay more when purchasing a home and receive less when selling it. This could imply that women may face greater rent demands in certain circumstances, potentially due to perceptions of lower bargaining power or other sex-based factors.

education programs, and incentives for accessible housing improvements could help mitigate discriminatory practices. In addition, greater transparency in rental transactions – such as requiring landlords to disclose criteria for applicant selection and rent negotiations – might reduce biases that disproportionately disadvantage disabled individuals. Recent policy discussions have also suggested the potential benefits of financial incentives or tax breaks for landlords who offer accessible housing. Incorporating such measures into national housing policies could be a viable strategy to reduce barriers for disabled renters and address intersectional discrimination in the housing market.

Supplementary material

[Supplementary material](#) is available at *Oxford Economic Papers Journal* online website. These are the [Supplementary Appendix A](#) (experimental design), [Supplementary Appendix B](#) (Additional information), [Supplementary Appendix C](#) (Additional robustness checks), STATA Data Set, and STATA Do File.

Funding

This work was supported by the Strategic Research Council at the Research Council of Finland [352451]; and the West-Finland Housing Association of Public Utility.

Conflicts of interest statement. The authors declare that they do not have any conflict of interest.

Acknowledgements

The authors thank the Journal's Editor Francis Teal, the Editors' Meeting Panel, the Journal Office Kate Mooney, and two anonymous referees whose constructive comments notably improved the article.

References

- Adida, C. L., Laitin, D. D., and Valfort, M. A. (2010) 'Identifying Barriers to Muslim Integration in France', *Proceedings of the National Academy of Sciences of the United States of America*, 107: 22384–90.
- Ahmed, A. M., and Hammarstedt, M. (2008) 'Discrimination in the Rental Housing Market: A Field Experiment on the Internet', *Journal of Urban Economics*, 64: 362–72.
- Ahmed, A. M., Andersson, L., and Hammarstedt, M. (2008) 'Are Lesbians Discriminated against in the Rental Housing Market? Evidence from a Correspondence Testing Experiment', *Journal of Housing Economics*, 17: 234–8.
- Ahmed, A. M., and Hammarstedt, M. (2009) 'Detecting Discrimination against Homosexuals: Evidence from a Field Experiment on the Internet', *Economica*, 76: 588–97.
- Ahmed, A. M., Andersson, L., and Hammarstedt, M. (2010) 'Can Discrimination in the Housing Market Be Reduced by Increasing the Information about the Applicants?', *Land Economics*, 86: 79–90.
- Aigner, D. J., and Cain, G. G. (1977) 'Statistical Theories of Discrimination in Labor Markets', *ILR Review*, 30: 175–87.
- Allport, G. W. (1954). *The Nature of Prejudice*. New York, NY: Addison.
- Ameri, M. et al. (2018) 'The Disability Employment Puzzle: A Field Experiment on Employer Hiring Behavior', *ILR Review*, 71: 329–64.
- Andersson, L., Jakobsson, N., and Kotsadam, A. (2012) 'A Field Experiment of Discrimination in the Norwegian Housing Market: Gender, Class, and Ethnicity', *Land Economics*, 88: 233–40.
- Arrow, K. (1973). 'The Theory of Discrimination', in Ashenfelter O., and Rees A. (eds) *Discrimination in Labor Markets*, pp. 3–33. Princeton, NJ: Princeton University Press.

- Auspurg, K., Hinz, T., and Schmid, L. (2017) 'Contexts and Conditions of Ethnic Discrimination: Evidence from a Field Experiment in a German Housing Market', *Journal of Housing Economics*, 35: 26–36.
- Auspurg, K., Schneck, A., and Thiel, F. (2020) 'Different Samples, Different Results? How Sampling Techniques Affect the Results of Field Experiments on Ethnic Discrimination', *Research in Social Stratification and Mobility*, 65: 100444.
- Baert, S. et al. (2016) 'First Depressed, Then Discriminated Against?', *Social Science & Medicine* (1982), 170: 247–54.
- Baert, S. (2015) 'Field Experimental Evidence on Gender Discrimination in Hiring: Biased as Heckman and Siegelman predicted?', *Economics*, 9: 20150025.
- Baldini, M., and Federici, M. (2011) 'Ethnic Discrimination in the Italian Rental Housing Market', *Journal of Housing Economics*, 20: 1–14.
- Baldwin, M. L., and Johnson, W. G. (1995) 'Labor Market Discrimination Against Women with Disabilities', *Industrial Relations: A Journal of Economy and Society*, 34: 555–77.
- Becker, G. S. (1957). *The Economics of Discrimination*. University of Chicago Press, Chicago, IL.
- Bellemare, C. et al. (2023) 'Physical Disability and Labor Market Discrimination: Evidence from a Video Résumé Field Experiment', *American Economic Journal: Applied Economics*, 15: 452–76.
- Bertrand, M., and Duflo, E. (2017) 'Field experiments on discrimination', *Handbook of Economic Field Experiments*, 1: 309–93.
- Bertrand, M., Chugh, D., and Mullainathan, S. (2005) 'Implicit Discrimination', *American Economic Review*, 95: 94–8.
- Bertrand, M., and Mullainathan, S. (2004) 'Are Emily and Greg More Employable than Lakisha and Jamal? A field experiment on Labor Market Discrimination', *American Economic Review*, 94: 991–1013.
- Bohren, J. A., Imas, A., and Rosenberg, M. (2019) 'The Dynamics of Discrimination: Theory and Evidence', *American Economic Review*, 109: 3395–436.
- Bunel, M., L'horty, Y., and Petit, P. (2016) 'Discrimination Based on Place of Residence and Access to Employment', *Urban Studies*, 53: 267–86.
- Cahuc, P. et al. (2019) 'When correspondence studies fail to detect hiring discrimination', *IZA Discussion Paper* 12653
- Carlsson, M., and Eriksson, S. (2014) 'Discrimination in the Rental Market for Apartments', *Journal of Housing Economics*, 23: 41–54.
- Carpusor, A. G., and Loges, W. E. (2006) 'Rental Discrimination and Ethnicity in Names 1', *Journal of Applied Social Psychology*, 36: 934–52.
- Correll, S. J., Benard, S., and Paik, I. (2007) 'Getting a Job: Is There a Motherhood Penalty?', *American Journal of Sociology*, 112: 1297–339.
- Crosen, R., and Gneezy, U. (2009) 'Gender Differences in Preferences', *Journal of Economic Literature*, 47: 448–74.
- Drydakis, N. (2009) 'Sexual Orientation Discrimination in the Labour Market', *Labour Economics*, 16: 364–72.
- Drydakis, N. (2017) 'Measuring Labour Differences between Natives, Non-natives, and Natives with an Ethnic-minority Background', *Economics Letters*, 161: 27–30.
- Eckel, C. C., and Grossman, P. J. (2008) 'Differences in the Economic Decisions of Men and Women: Experimental evidence', *Handbook of Experimental Economics Results*, 1: 509–19.
- Flage, A., and Le Gallo, J. (2025) 'Discrimination Against People with Mental, Physical or Visual Disabilities in the French Rental Housing Market: Field Experiment', *Housing Studies*, 40: 116–38.
- Flage, A. (2018) 'Ethnic and Gender Discrimination in the Rental Housing Market: Evidence from a Meta-analysis of Correspondence Tests, 2006–2017', *Journal of Housing Economics*, 41: 251–73.
- Fumarco, L. (2017) 'Disability Discrimination in the Italian Rental Housing Market: A Field Experiment with Blind Tenants', *Land Economics*, 93: 567–84.
- Gneezy, U., List, J., and Price, M. K. (2012). *Toward an Understanding of Why People Discriminate: Evidence from a Series of Natural Field Experiments (No. w17855)*. Cambridge, Massachusetts, United States: National Bureau of Economic Research.
- Goldsmith-Pinkham, P., and Shue, K. (2023) 'The Gender Gap in Housing Returns', *The Journal of Finance*, 78: 1097–145.
- Hasu, E. (2018) 'Housing Decision-making Process Explained by Third Agers, Finland: We didn't want this, but we chose It', *Housing Studies*, 33: 837–54.

- Heckman, J. (1998) 'Detecting Discrimination', *Journal of Economic Perspectives*, 12: 101–16.
- Heckman, J., and Siegelman, P. (1993). 'The Urban Institute Audit Studies: Their methods and Findings', In: Fix, M., Struyk, R. (Eds.), *Clear and Convincing Evidence: Measurement of Discrimination in America*. Urban Institute Press, Washington, DC.
- Hellyer, J. (2021) 'Homophobia and the Home Search: Rental Market Discrimination Against Same-Sex Couples in Rural and Urban Housing Markets', *Journal of Housing Economics*, 51: 101744.
- Heylen, K., and Van den Broeck, K. (2016) 'Discrimination and Selection in the Belgian Private Rental Market', *Housing Studies*, 31: 223–36.
- Kotilainen, A., Shemeikka, P., and Helminen, V. (2016). Hissit kartalle?: Rakennustietoaineistojen kartointus ja yhdistäminen.
- Lahey, J. N. (2008) 'Age, Women, And Hiring: An Experimental Study', *Journal of Human Resources*, 43: 30–56.
- Lauster, N., and Easterbrook, A. (2011) 'No Room for New Families? A Field Experiment Measuring Rental Discrimination Against Same-Sex Couples and Single Parents', *Social Problems*, 58: 389–409.
- Levy, D. K., et al. (2015). *Discrimination in the Rental Housing Market against People Who Are Deaf and People Who Use Wheelchairs: National Study Findings*. Washington, D.C, USA: The Urban Institute.
- l'Horty, Y. et al. (2022) 'Is Disability More Discriminatory in Hiring than Ethnicity, Address or gender? Evidence From a Multi-Criteria Correspondence Experiment', *Social Science and Medicine*, 303: 114990.
- Lippens, L., Vermeiren, S., and Baert, S. (2023) 'The State of Hiring Discrimination: A Meta-Analysis of (Almost) All Recent Correspondence Experiments', *European Economic Review*, 151: 104315.
- Mourelatos, E., and Oikarinen, E. (2023) 'Ethnic Discrimination During Wartime: Evidence from a Field Experiment in the Finnish Housing Market', *Journal of Behavioral and Experimental Economics*, 107: 102079.
- Murphy, T. P. (2007). *Disability Discrimination Audit of the Housing Market of Newton, Massachusetts*. Boston, MA: Disability Law Center.
- Neumark, D., Bank, R. J., and Van Nort, K. D. (1996) 'Sex discrimination In Restaurant Hiring: An Audit Study', *The Quarterly Journal of Economics*, 111: 915–41.
- OECD (2021) 'A Crisis on the Horizon: Ensuring Affordable, Accessible Housing for People with Disabilities', *Employment, Labour and Social Affairs Policy Briefs*, OECD, Paris. [oe.cd/il/housing-disability-2021](https://doi.org/10.1787/889693114332)
- Ondrich, J., Stricker, A., and Yinger, J. (1999) 'Do Landlords Discriminate? The Incidence and Causes of Racial Discrimination in Rental Housing Markets', *Journal of Housing Economics*, 8: 185–204.
- Oreopoulos, P. (2011) 'Why Do Skilled Immigrants Struggle in the Labor Market? A field Experiment with Thirteen Thousand Resumes', *American Economic Journal: Economic Policy*, 3: 148–71.
- Page, M. (1995) 'Racial and Ethnic Discrimination in Urban Housing Markets: Evidence from a Recent Audit Study', *Journal of Urban Economics*, 38: 183–206.
- Pager, D. (2007) 'The use of Field Experiments for Studies of Employment Discrimination: Contributions, Critiques, and Directions for the Future', *The ANNALS of the American Academy of Political and Social Science*, 609: 104–33.
- Pettigrew, T. F. (1998) 'Intergroup Contact Theory', *Annual Review of Psychology*, 49: 65–85.
- Pettigrew, T. F., and Tropp, L. R. (2006) 'A Meta-Analytic Test of Intergroup Contact Theory', *Journal of Personality and Social Psychology*, 90: 751–83.
- Phelps, E. S. (1972) 'The Statistical Theory of Racism and Sexism', *American Economic Review*, 62: 659–61.
- Ravaud, J. F., Madiot, B., and Ville, I. (1992) 'Discrimination Towards Disabled People Seeking Employment', *Social Science & Medicine (1982)*, 35: 951–8.
- Stone, A., and Wright, T. (2013) 'When Your Face Doesn't fit: Employment Discrimination Against People with Facial Disfigurements', *Journal of Applied Social Psychology*, 43: 515–26.
- Turner, M. A. et al. (2005). 'Against Persons with Disabilities', *Barriers at Every Step*, The Urban Institute, Washington, DC.
- Van Den Broeck, K., and Heylen, K. (2015) 'Differential treatment of rental home seekers according to their sociodemographic and economic status by real estate agencies in Belgium', *European Journal of Homelessness*, 9: 39–62.
- Verhaeghe, P. P., Van der Bracht, K., and Van de Putte, B. (2016) 'Discrimination of Tenants with a Visual Impairment on the Housing Market: Empirical Evidence from Correspondence Tests', *Disability and Health Journal*, 9: 234–8.

- Wooldridge, J. M. (2010). *Econometric Analysis of Cross Section and Panel Data*. Cambridge, Massachusetts, USA: MIT Press.
- Yinger, J. (1986) 'Measuring Racial Discrimination with Fair Housing Audits: Caught in the Act', *American Economic Review*, 76: 881–93.

© The Author(s) [2025]. Published by Oxford University Press.

This is an Open Access article distributed under the terms of the Creative Commons Attribution-NonCommercial License (<https://creativecommons.org/licenses/by-nc/4.0/>), which permits non-commercial re-use, distribution, and reproduction in any medium, provided the original work is properly cited. For commercial re-use, please contact reprints@oup.com for reprints and translation rights for reprints. All other permissions can be obtained through our RightsLink service via the Permissions link on the article page on our site—for further information please contact journals.permissions@oup.com.

Oxford Economic Papers, 2025, 00, 1–22

<https://doi.org/10.1093/oep/gpaf027>

Article