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Discrimination of Ukrainian Citizens in the Czech
Labor Market: A Field Experiment

Bachelor's Thesis

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Declaration

1. I declare that I have compiled this thesis using the listed literature and resources only. Generative AI tools were used when conducting this thesis to improve the writing style and generate inspiration for further research. The results generated by AI were used with respect to principles of academic integrity.
2. I hereby declare that my thesis has not been used to gain any other academic title.
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In Prague on 01.05.2022

Viktorija Pasichnyk

Abstract

This thesis examines the extent of discrimination of Ukrainian citizens in the Czech labor market by analyzing the results of a correspondence experiment that involves sending pre-designed resumes of fictitious applicants to job offers posted online. Each job offer was randomly assigned a Czech or Ukrainian resume, and the responses from recruiters were collected. The interview callback rates were subsequently analyzed, indicating that Czech applicants have by 72.7 % higher callback rate than Ukrainian applicants. Results also show a decrease in the callback rate of Ukrainians over time. This leads to the conclusion that discriminatory practices against Ukrainian citizens exist in the Czech labor market.

Keywords

discrimination, labor market, correspondence experiment, callback rate, response rate, Ukrainian, Czech

Abstrakt

Tato bakalářská práce zkoumá rozsah diskriminace na českém pracovním trhu na základě analýzy výsledků provedeného korespondenčního experimentu. Fiktivní životopisy uchazečů o pracovní pozici byly zasílány jako odpověď na nabídky zveřejněné na internetových portálech. Ke každé nabídce byl náhodně přiřazen český nebo ukrajinský životopis a následné obdržené odpovědi od náborářů firm byly shromážděny a analyzovány. Výsledky ukazují, že čeští uchazeči mají o 72,7 procent vyšší míru úspěšnosti (tj., počet pozvání na pohovor v porovnání s počtem odeslaných životopisů) než ukrajínští uchazeči. Dále je pozorován pokles míry úspěšnosti ukrajinských uchazečů v čase. Výsledky vedou k závěru, že na českém trhu práce existuje jistá míra diskriminace ukrajinských občanů.

Klíčová slova

diskriminace, pracovní trh, korespondenční experiment, míra úspěšnosti, míra odpovědnosti, ukrajinský, český

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References

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Table of contents

Introduction.....	1
1 Theoretical Background	3
1.1 Economic Explanations of Discrimination.....	3
1.1.1 Taste-based Discrimination.....	3
1.1.2 Statistical Discrimination	3
2 Methodology and Bibliographic Review	5
2.1 Laboratory Experiments	5
2.2 Field experiments	7
2.2.1 Audit studies	8
2.2.2 Correspondence studies.....	9
2.2.3 Experimental Studies in the Czech Republic.....	11
3 Experimental Design	12
3.1 Identities of Applicants.....	12
3.2 Structure of Resumes and Complementary Letters	13
3.3 Selection of Job Offers	14
3.4 Data Collection Process	14
3.5 Permission From the Commission for Ethics in Research.....	15
4 Data Analysis.....	16
4.1 Dataset and outcome variables	16
4.1.1 Dataset properties	17
4.1.2 Randomization check.....	18
4.2 Statistical analysis	19
4.3 Econometric analysis	23
4.4 Limitations	29
Conclusion	30
List of References	32
List of Acronyms	35
List of Figures	35
List of Tables	36
List of Appendices	37

Introduction

The ongoing conflict in Ukraine, which began in 2014 when Russia annexed Crimea, is devastatingly impacting the region, resulting in tens of thousands of deaths and significant infrastructure damage. Since the beginning of the conflict, many Ukrainians have been forced to abandon their homes and relocate to other cities in Ukraine. The situation escalated on February 24, 2022, when the president of Russia, Vladimir Putin, declared the beginning of the invasion of Ukraine. The invasion led to more than eight million Ukrainians leaving their homes (UN Refugee Agency, April 2023), causing one of the largest refugee crises in recent history (World Food Program USA, 2022).

More than 500,000 refugees have registered for Temporary Protection in the Czech Republic, and approximately 75 % have reported an unsatisfactory or critical financial situation. Despite ongoing monetary and non-monetary assistance, these refugees seek jobs to provide their families with basic needs as they have been in a foreign country for over a year.

Whether refugees intend to remain in the Czech Republic or return to Ukraine is, among other factors, dependent on the region from which they originate and the location of their families, i.e., whether the father was present in the Czech Republic before the war and remained here, or whether he is in Ukraine (Klimešová et al., 2022).

According to a recent survey conducted by the Faculty of Science at Charles University, 76% of refugees intend to return to Ukraine, whereas 24% of Ukrainians intend to remain in the Czech Republic; however, this depends on whether they will have a job that will provide them with a satisfactory standard of living (Drbohlav, Novotný, 2023).

Multiple studies have demonstrated that discrimination based on gender, ethnicity, and race exists in labor markets, resulting in lower wages or acceptance rates for specific groups. For example, the paper *Attention Discrimination: Theory and Field Experiments with Monitoring Information Acquisition* (Bartoš et al., 2014) shows that a job applicant with a majority-sounding is more likely to be invited for a job interview than a Roma or Asian applicant.

This thesis evaluates the extent of discrimination against Ukrainians in the Czech labor market and compares their position with Czech citizens. The main contribution of this thesis is a determination of the current discrimination rate in the labor market in the Czech Republic and a demonstration of how it changes over time. The study also examines whether university students or high school graduates are more likely to be invited for an interview and how discrimination varies concerning job location and listed requirements.

The data for analysis were collected by conducting a correspondence experiment. Pre-defined CVs of fictitious Czech and Ukrainian applicants were used to respond to selected job offers posted online. Several variables were collected for the subsequent analysis of callback rates.

The percentages of callbacks (i.e., positive responses inviting an applicant for an interview per all resumes sent out) of Ukrainian and Czech applicants were compared to determine the discrimination rate of Ukrainian citizens.

Based on the statistical and econometric analyses, Ukrainian applicants have a 19.52 % probability of receiving a callback, 72.75 % lower than the Czech applicants (which have a 33.72 % probability). Specifically, Ukrainian university students have a 22.71 % likelihood of receiving a callback, and Czech university students have a 40.85 % chance of receiving a callback, which is 79.89 % more. Ukrainian high school graduates have a 16.43 % probability of being invited for an interview, whereas Czech high school graduates have a 26.64 % probability. This results in a difference of 62.10 %. The study also found that university students are more likely to receive a callback than high school graduates.

Moreover, comparing callback rates over time reveals a 64.62 % higher probability of Ukrainian applicants receiving a callback before year-end than after year-end, indicating a possible decrease in solidarity with Ukrainians between the two periods. The likelihood of a Ukrainian applicant receiving a callback is 25.97 % in the first period and 11.64 % in the second period. Czech applicants have a similar callback rate in both periods (36.92 % in the first and 30.52 % in the second, however, statistically not different).

The thesis structure is as follows: Chapter One presents economic explanations and models of discrimination, including taste-based and statistical discrimination. Chapter two focuses on the methodology for detecting discrimination, presents the strengths and limitations of methods, and reviews the well-known correspondence experiments analyzing discrimination in the labor market. Chapter three presents the design of the experiment, a description of the process, and the details of how the data was collected. Chapter four analyzes the collected data using statistical and econometric methods, and the results are presented. The core of the thesis is concluded with a list of possible improvements for further analysis.

1 Theoretical Background

1.1 Economic Explanations of Discrimination

There are two most widely known and used economic explanations of discrimination; Taste-based discrimination, described by Gary S. Becker, and Statistical discrimination, described by Edmund S. Phelps and Kenneth J. Arrow.

1.1.1 Taste-based Discrimination

Gary S. Becker's (1957) article "The Economics of Discrimination" examines the causes and effects of discrimination from an economic standpoint. The central concept of the book is taste-based discrimination. He argues that in contrast to the previously stated assumptions that individuals and organizations behave rationally and try to maximize utility or profit, taste-based discrimination is an irrational behavior not motivated by economic incentives and driven by personal beliefs based on social norms and values.

He further states that this type of discrimination can have serious consequences, as it may occur in various contexts. In the labor market, discrimination may occur against certain workers based on their religion, gender, or nationality. Discrimination arises because the recruiter prefers to work with people similar to himself since his preferences are not based on assumptions that one group is more productive. Such behavior can lead to a misallocation of resources, as specific industries would be unable to hire workers from those groups. However, it is difficult to eradicate this type of discrimination because it is deeply embedded in social and cultural norms. Taste-based discrimination can also impact the housing market, where landlords may discriminate against certain people based on race or religion despite having identical characteristics to non-discriminated individuals.

Becker specifies the circumstances under which discrimination may occur and suggests several potential solutions to mitigate its presence. One proposed solution is promoting education, awareness, and understanding of various social groups, which could provide individuals with the cross-cultural experiences necessary to reduce discrimination. The second, more strict proposal is an anti-discrimination law, which may raise awareness of the adverse effects of discriminatory behavior.

1.1.2 Statistical Discrimination

The revolutionary studies on statistical discrimination are Edmund S. Phelps's "The Statistical Theory of Racism and Sexism (1972)" and Kenneth J. Arrow's "The Theory of Discrimination (1973)." In their publications, they explained the reason behind the different treatment of two

groups of workers with the same productivity. They developed the model of statistical discrimination to explain this phenomenon.

According to them, discrimination against individuals results from imperfect information, as landlords and recruiters frequently have limited knowledge of an applicant's skills. The subject then attributes characteristics of specific groups to individuals, which is often neither applicable nor logical. The projection of group attributes to individuals is the primary distinction between taste-based discrimination and statistical discrimination, as taste-based discrimination results from personal preferences and cultural biases.

In addition, they claim that as long as employers and landlords continue to discriminate against members of certain groups, these individuals will eventually be systematically excluded from specific industries. Exclusion from industries can then lead to the perception that members of these groups are less qualified or skilled, resulting in further discrimination and potentially lasting economic consequences. This may further lead to reduced access of individuals to education and work experience, thereby boosting discrimination.

The proposed solution is to increase the availability of information about the individual's abilities to recruiters and landlords, which could reduce the tendency to project perceived group characteristics onto individuals.

This thesis examines the effect of taste-based and statistical discrimination on the decision-making process of recruiters in the Czech labor market.

2 Methodology and Bibliographic Review

There are several established methods for measuring discrimination. It is possible to compare outcomes across groups using observational data, such as unemployment levels, wages, or other indicators. However, using observational data to estimate causal effects is difficult as there may be a confounding variable not included in the analysis. These are variables associated with both the supposed effect and the supposed cause. They may introduce a bias to the research results, making it uncertain whether the effect is caused by the variable included in the study or by one of the confounding factors. Researchers try to address this issue by implementing randomized experiments (Blank et al., 2004, p.72).

The two most commonly used randomized experiments are Laboratory and Field experiments (i.e., Audit and Correspondence studies). Each approach has advantages and disadvantages; it is necessary to assess them before deciding which method to employ.

Designing an experiment that supports a causal inference is necessary. The result must be valid for stating that the difference observed in the outcome for the treatment and control groups is caused by discrimination, not by any other endogenous variables. A valid result can be achieved by randomly assigning participants to different groups (so-called randomization process). Under randomization, the groups compared are equivalent besides the manipulated characteristics (i.e., nationality, gender, age). Further, it is necessary to control for any endogenous variables (i.e., participants' individual preferences) and minimize bias that may influence the results (Blank et al., 2004, p.77-78).

One drawback of randomized experiments is that the results may only apply to the individuals involved in the study. This issue may be resolved by including a large sample of participants in the research and diversifying the samples selected so that a representative sample is used for further analysis (Blank et al., 2004, p.90-92).

Depending on the type of discrimination studies, participants in the study are, most commonly, recruiters of a firm (labor-market discrimination) or lenders of apartments/houses (house-market discrimination).

2.1 Laboratory Experiments

In laboratory experiments, a controlled environment is created to reduce the undesired impact of irrelevant variables. Variables that may impact the result are kept the same, i.e., education, physical attributes, communication methods, and manners, and other variables are manipulated (e.g., two people who have different race/nationality are trained to act similarly) (Blank et al., 2004, p. 92-93).

Using laboratory experiments for discrimination studies offers several advantages. Primarily, researchers can observe and document discriminatory behavior in a controlled setting, which gives them a high level of control over the collected variables leading to precise measurements. This setting also provides a possible analysis of additional variables, such as participants' facial and verbal expressions and response time data (Blank et al., 2004, p. 93-94).

Since these experiments are done in a controlled setting, the participants may respond in line with the experimenter's expectations due to the environment being too narrow. This so-called experimental demand effect may result in the confirmation of the experimenter's hypotheses only because the data are imprecise. In addition, social desirability bias may be introduced to the outcome. This bias consists of participants acting in a socially acceptable manner because they know that other participants are observing them, despite not knowing that their answers are used for an experiment (Blank et al., 2004, p. 99-102).

A literature review of studies was conducted by Crosby et al. (1980), focusing on the behavior of White Americans toward Black Americans.

According to the review, earlier studies where participants were directly asked to express their racial attitude demonstrated a clear bias against black individuals. However, more recent studies have revealed a trend in which preferences are no longer as discriminatory. Specifically, negative stereotypes have decreased among children and college students. These findings suggest a shift among younger generations toward a more positive and tolerant attitude toward Black individuals.

The review states that the studies where subjects are given the opportunity to help another person show a large gap between the amount of aid given to Whites and Blacks. Seven studies confirm that more aid was given to Whites, and four studies conclude that more help is given to Blacks. Eleven studies show no significant difference between aid given to each group. Additionally, discrimination is more apparent in remote situations when there is no direct contact with the person in need; 6 studies show that more help is given to Whites, and no studies show that more help is given to Blacks. Only two studies show no difference. The outcomes vary in aggression studies where subjects had the option to aggress against an individual (e.g., give electrical shocks when the person answers some question incorrectly). Some studies claim that the aggression level was comparable between Blacks and Whites, while others claim that Black participants received more frequent and intense shocks.

Non-verbal studies are believed to be less influenced by social expectations, as the participants act more naturally when others do not judge their verbal communication. These experiments had the same result as the previous ones: the attitude and expression when communicating with a Black person were significantly more negative and discriminatory than when communicating with a White person.

A laboratory experiment by Darley and Gross (1983) demonstrates that individuals interpret evidence to fit their stereotypical biases. Three videos were prepared for participants; the first depicted a child in a low-income urban area. The second video depicted the child in a middle-class environment. In the third video, the child answered questions that were uninformative regarding the child's abilities. Participants were divided into five groups. The first group viewed the first video; the second group viewed the second video; the third group viewed both the first and the second video, and the fourth group viewed the second and third videos. The fifth group of participants viewed only the performance tape. The child's overall academic skill level was rated by all viewers on a subsequent evaluation form. The first and second groups, who had only seen the first sequence of demographic data, rated her ability at grade level. The third group, viewing a video depicting a low-income area, rated the girl significantly below grade level. In contrast, viewing an additional video showing a middle-class environment, the fourth group placed the girl at grade level. This suggests that even though people viewed a neutral performance tape, they convinced themselves they had evidence to support their biased judgments.

2.2 Field experiments

Field experiments share many common characteristics with laboratory experiments; objects observed are assigned treatment and control conditions, and observations are collected for both these groups. However, there are some key differences to be mentioned.

Laboratory experiments are conducted in a controlled environment, whereas field experiments are conducted in a real-world, natural setting. Thus, researchers do not have such a high control over the conditions. It is then much more important to cover any exogenous variables that may bias the experiment results. Furthermore, from an ethical perspective, laboratory experiments are easier to conduct as the researchers have more control over the environment. In contrast, in field experiments, the subjects do not know they are participating, and it is necessary to ensure anonymization (Blank et al., 2004, p. 103).

Field experiment results are more generalizable (can be easily projected to the whole population) than laboratory experiments since the experiment tests an effect in a real-world setting on real-life decisions, and the participants (decision-makers) create a representative sample of a population. They are used to detect discrimination in the labor, housing, and automobile markets, helping-behavior studies, small favor studies, and studies observing reporting shoplifting, getting a taxi, or obtaining home insurance. Audit and correspondence studies are the two most common types of field experiments. (Blank et al., 2004, p. 103).

2.2.1 Audit studies

An audit study is a research design that involves creating pairs of testers with similar characteristics, such as previous work experience, education, and language knowledge but differs in attributes that may cause discrimination, such as race, age, or gender. Typically, the study is conducted in a real-world setting, with the testers assigned a random arrival order at the testing site to ensure objectivity. After the completion of the study, researchers estimate the level of discrimination based on the differences in treatment experienced by the participants (Blank et al., 2004, p. 104).

Audit studies are very time-consuming and expensive due to the large sample required for the results to be valid. They may not capture all types of discrimination and may be biased by another form of discrimination than the one being studied. (Blank et al., 2004, p. 108-109) The Housing Discrimination Study (Turner et al., 2002) is one of the most extensive audits measuring the discrimination in the housing market of Hispanics and African Americans in the United States. This is overall the third Housing Discrimination Study; the first two were conducted in 1977 and 1989. In total, 4,600 paired tests were done in 23 metropolitan areas. The study also compares results with the previous studies and examines changes in discrimination levels over time.

Samples were selected from the advertised housing units in newspapers. All the areas chosen for testing include a significant Black or Hispanic minority. Selected testers visited advertising agency offices and inquired about the availability of the advertised homes. Applicants' income and debt levels were comparable, making them all equally qualified to purchase or rent the housing unit. The families, occupations, and educational backgrounds were matched, so they had minimal or no differences. Following their visit to the agency, they described the treatment they received as an individual housing seeker.

According to the available evidence, African Americans continue to encounter discrimination when searching for rental housing in metropolitan markets across the nation, so it is evident that discrimination in the housing market persists. Test results indicate that Whites were consistently preferred over Blacks in 21.6 % of cases, although this rate has decreased by 4.8 percentage points since 1989. Non-Hispanic Whites were consistently favored over Hispanic applicants in 25.7 % of cases, the rate has not changed significantly since 1989. On the sales market, White homebuyers were preferred over black homebuyers in 17.0 % of tests, which resulted in a decline of 12 percentage points since 1989. Moreover, non-Hispanic Whites were consistently favored over Hispanics in 19.7 % of tests, resulting in a decrease of 7.1 percentage points since 1989. Despite some positive progress, it is evident that there is still a significant discrimination gap that affects African Americans.

2.2.2 Correspondence studies

Correspondence studies are very similar to audit studies, but they do not require a personal visit of an agency or a recruiter and are carried out via phone or email. The procedure involves sending identical resumes or job applications to prospective employers while varying some characteristics such as name or gender. These studies aim to determine whether a difference in response rates exists based on perceived race or gender.

One of the primary benefits of correspondence studies is that they are simple and inexpensive to carry out. In contrast to audit studies, which require the researcher to interact directly with recruiters, correspondence studies can be conducted remotely. Another benefit is that face-to-face interaction is eliminated. Such interaction may influence recruiters' behavior, who may feel pushed to adhere to social norms during interactions, which leads to biased results. There are also disadvantages necessary to consider. For example, correspondence studies may not accurately reflect the experiences of job applicants. In the real world, job seekers may encounter additional obstacles to employment, such as discrimination during the face-to-face interview process (Verhaeghe, 2022).

Numerous correspondence experiments on hiring discrimination have been conducted, focusing on treatments such as race and origin (Orepoulos, 2011; Bartoš et al., 2016), gender (Baert, 2016; Zhou et al., 2013), religion (Acquisti, 2019; Di Stasio, 2019), disability (Ameri et al., 2017; Busetta et al., 2020), age (Petit, 2007; Ahmed et al., 2011), and also wealth, sexual orientation or physical appearance. Three of the most well-known and cited studies were chosen for a review of methodologies and findings.

Bertrand and Mullainathan (2004) conducted a study, *“Are Emily and Greg More Employable than Lakisha and Jamal? A Field Experiment on Labor Market Discrimination,”* to examine labor market discrimination, whether a job applicant with a White-sounding name is more likely to receive a callback than an applicant with an African-American-sounding name.

The study used a database of fictitious resumes sent to 1,300 job offers posted in newspapers in Boston and Chicago in four job categories: sales, administrative support, clerical services, and customer services. The resumes were split into high and low-quality resumes based on skills and characteristics that enhanced the resume's quality.

Four resumes were selected from the created bank: two high-quality and two low-quality, with one assigned a White-sounding name and another an African-American-sounding name. The responses from recruiters were collected and analyzed. Study shows that white applicants had a 9.65 % callback rate compared to African-American applicants' 6.45 % rate. This means a White applicant may receive one callback for every ten job offers they apply to. In contrast, an African-American applicant has to apply to 15 offers to receive one callback, which makes for a 50% disparity.

The study also discovered disparities in labor market discrimination between the selected cities. The callback rate in Boston was higher than in Chicago for both groups, however, the difference between callback rates remained unchanged. Several disparities between male and female applicants were discovered but were not statistically significant. White and African-American applicants were treated equally by recruiters in 88 % of selected offers (mostly negative responses for both groups). White applicants were favored by 8.4 %, and African-American applicants by only 3.5% of recruiters.

The study also analyzed callback rates based on the quality of the resume, with data indicating that higher quality resumes have significantly higher callback rates for White-sounding names (low quality: 8.5 % callback, high quality: 10.8 % callback, a 2.29 percentage point difference) than for African-American names (low quality: 6.19 % callback, high quality: 6.70 % callback, a 0.51 percentage point difference). The requirements listed in job offers, such as communication and computer skills, had no significant effect on the callback rates. Overall, the study concludes that there is a substantial difference in the callback rates of White and African-American applicants, with African-Americans facing discrimination in the labor market.

Carlsson (2007), in his study *“Evidence of ethnic discrimination in the Swedish labor market using experimental data,”* investigates discrimination against a job applicant with an Arabic-sounding name in Stockholm and Gothenburg. Overall, 1 614 job offers were selected from a Swedish employment agency webpage. For each offer, two resumes were sent with a one-day delay, one with an Arabic name and a second with a Swedish name.

The recruiters who responded positively to at least one applicant (371 in total) were also asked to participate in an interview where they were asked questions about the composition of their employees, their recruitment process, equal rights regulations, and the firm’s size.

The discrimination rate was determined by subtracting the number of minority applicants invited for an interview from the number of majority applicants invited for an interview and then dividing that number by the total number of tests collected. The rate of 40.4 % indicates that applicants with Arabic-sounding names had a significantly lower callback rate.

The third experiment presented is by Oreopoulos (2011): *“Why Do Skilled Immigrants Struggle in the Labor Market? A Field Experiment with Thirteen Thousand Resumes,”* which investigates the discrimination towards applicants with Indian, Pakistani, Chinese, and Greek names. Resumes were created and sent to job postings in Montreal and Toronto.

In total, 12 910 resumes were sent to 3 225 job offers. Each recruiter received four resumes (differing in name, education country, and job experience country). These were sent to recruiters in random order over a period of two to three days.

Multiple resumes were sent to the same recruiter, so the cover letter, file name, and resume layout were randomized. The callback rate for resume with a Swedish name is 16 %. Changing the name to Indian, Pakistani, Greek, or Chinese decreases the callback rate by 4 to 5 percentage points. Overall, resumes with English names have a 39 % greater chance of receiving a callback than those with Indian, Pakistani, or Chinese names. The study also presents that listing language knowledge, previous experience in the field, extracurricular activities, or education from selective schools had no diminishing effect on discrimination. This study differs from others in the section when recruiters are emailed the findings after the process and asked about possible motivations for their behavior (i.e., discrimination). Three hundred employers were contacted, and only 29 responded. The most common responses were that they feared an employee with a foreign-sounding name would have insufficient English skills, a strong accent that coworkers could not understand, or that they had previous negative experiences with workers from particular ethnicities.

2.2.3 Experimental Studies in the Czech Republic

This study analyzes discrimination in the Czech labor market; it is, thus, essential to mention several correspondence studies conducted in the same region.

Bartoš et al. (2016), in the paper “Attention Discrimination: Theory and Field Experiments with Monitoring Information Acquisition,” propose attention discrimination faced by minorities in labor and housing markets. A hyperlink to a resume is sent to recruiters and landlords to monitor the effort they put into opening and reading resumes. The results show that in the labor markets, the attention is more focused on the majority applicants, and in the housing market, the attention is focused on minority applicants. The invitation rate for a job interview for the majority applicants is 14 %, while minority (Roma and Asian) applicants have only a 6.3 % invitation rate. This shows a 7.7 percentage point difference and discrimination of minorities in the Czech labor market. Asian minority applicants have an 8.9 percentage point lower invitation rate than the majority applicants, and Roma minority applicants have a 6.2 percentage point lower invitation rate.

The paper “Residential-Based Discrimination in the Labor Market” by Mikula (2022) analyzes the discrimination of job applicants in the labor market based on the neighborhood they live in and the housing conditions. The results show that applicants living in a lower-quality area have a 20 % lower callback rate than applicants living in standard conditions. This thesis contributes to the existing literature by illustrating discrimination against Ukrainian citizens in the Czech labor market using recently collected data, comparing the rate throughout regions, and showing the development of discrimination in a selected period.

3 Experimental Design

Throughout the correspondence experiment, data were collected by responding to various job offers posted online. Four resumes were used, two for part-time jobs and two for full-time jobs, consisting of one Czech and one Ukrainian resume for each job type. Resumes were identical, except for the applicant's name and a Ukrainian flag featured on the Ukrainian resume. Additionally, the language proficiency section varied slightly between the two resume types, as described in more detail in the following section. Several observations were collected for each job offer. The discrimination rate was determined from variables stating how successful the candidate was (whether he received a positive, negative, or no response) and comparing the outcome for Czech and Ukrainian applicants. The experiment was conducted between September 1, 2022, and March 31, 2023, and 875 applications were sent out.

3.1 Identities of Applicants

The names used in this study are selected from the most prevalent Czech and Ukrainian names. Sources that provided rankings of the most common names and surnames in each country were consulted before selection, such as:

- *The Map of the distribution of surnames in Ukraine (Society of Ukrainian Genealogists)*, selected surname: Bondarenko
- *Nejčastější příjmení v České republice (webpage)*, selected surname: Procházková
- *Nejčastější ženská jména v České republice (webpage)*, selected name: Jana

The final two names selected are Jana Procházková (Czech-sounding name) and Olena Bondarenko (Ukrainian-sounding name). Only female names were selected, as this experiment did not aim to measure any potential discrimination between genders. Four fictional job applicants were created using these names, with one Czech and one Ukrainian applicant applying for a full-time position and another Czech and Ukrainian applying for a part-time position as a university student.

Applicants for the full-time job are given a background as a former receptionist. The position was selected randomly from the jobs available in August on jobs.cz. To avoid potential discrimination based on the length of unemployment and to prevent suspicion or concerns about the applicant's job performance, the previous job's termination date was changed each month so that the gap was no longer than two months. The applicant's education is limited to high school completion since university graduates are expected to look for a job in their specialized area. The offers selected were usually administrative positions such as sales, administrative support, clerical or customer services.

Since grammar school graduates in the Czech Republic typically continue their studies at the university, the chosen high school is the Obchodní akademie Dušín, a well-known business academy. The level of English language knowledge of each applicant is B2 and consistent with that of a high school graduate in the Czech Republic, based on established standards. Applicants for the part-time job are full-time students in a bachelor’s program at a private university in Prague (AMBIS vysoká škola) in their third year. Each applicant has previous work experience as a sale assistant, with the date of termination being changed each month as previously described. The position was selected randomly from the jobs available in August on jobs.cz. The Czech language of each applicant is on level C1 and consistent with that of a university student in the Czech Republic, based on established standards. Finally, all applicants have general computer software (MS Office) knowledge but no specialized skills. The treatment condition is nationality; thus, Czech and Ukrainian students share the same identities, except for their names and language knowledge. The Ukrainian student is fluent in the Ukrainian language, and their level of Czech is stated as C2, whereas the Czech student is indicated as a “native speaker.”

Table 1: Overview of fictitious applicants and their email addresses

Job	Nationality	Name	Email
Full-time	Czech	Jana Procházková	jana.prochazkova02@email.cz
Full-time	Ukrainian	Olena Bondarenko	olena.bondarenko02@email.cz
Part-time	Czech	Jana Procházková	jana.prochazkova01@post.cz
Part-time	Ukrainian	Olena Bondarenko	olena.bondarenko@email.cz

3.2 Structure of Resumes and Complementary Letters

Four resumes were created, as shown in Appendix B. The structure of all resumes is kept almost identical to avoid any influence of the recruiter’s preferences in colors, font, and design. The only difference is that the Ukrainian applicant’s resume includes a Ukrainian flag to emphasize their nationality. No data about the applicant’s location are included as the offers were selected from across the Czech Republic. Phone numbers are not provided, as tracking all numbers and responding to calls is not feasible, and only email was used for communication. No photos are included to avoid any discrimination based on appearance.

Complementary letters were sent along with the resumes. They are, again, identical except for the name. Letters briefly introduce the individuals and their backgrounds, and include a section about their interest in the position and motivation to pursue their careers. Please refer to Appendix C for the Czech (original) version of the letters. All resumes and letters had no grammatical errors and were written fluently in Czech.

3.3 Selection of Job Offers

The process involved carefully selecting job vacancies from two popular job websites in the Czech Republic - jobs.cz and práce.cz. For high school graduates, only full-time jobs were considered. For university students, only part-time offers in Prague or nearby areas were filtered as the university student is not expected to travel to other cities for work. Only job advertisements without specific requirements, such as a photo or additional documents, were selected to ensure that applicants had an equal chance of being invited for an interview. Additionally, offers that required applicants to apply through external websites or demanded special language skills, software knowledge, or previous experience in the field were also excluded. The selected job offers did not require a specific skill set or advanced language knowledge, so both Czech and Ukrainian applicants had a fair chance to receive a callback. Next, samples were randomly assigned to the Czech or Ukrainian applicant. A function in Excel generated a defined array of numbers based on the number of selected job offers. Each cell in the array was assigned either 1 (Czech) or 2 (Ukrainian). To avoid sending multiple resumes to the same job offer, a function was used to detect repeating samples that were excluded from the selection process. Once the job offers were selected and assigned, the applications were sent through pre-designed application forms on the job websites.

3.4 Data Collection Process

Before submitting the applications, various observational data related to the job offer were collected. Not all variables were stored to protect the anonymity of recruiters and ensure that neither they nor their responses could be identified in subsequent analysis.

Variables collected:

1. Date when the CV was sent
2. Name of the offer - serves as an identifier for future correspondence
3. Name of the recruiter or hiring personnel - not retained nor used for analysis and was deleted after receipt of the response, used only for identification during data collection
4. Geographical location of the firm
5. Language requirements - denoting whether the job specifically requires knowledge of the English language (Yes/No)
6. Software requirements - signifying whether the offer explicitly required the knowledge of MS Office or other commonly utilized software (Yes/No)

Once the applications were sent out, the mailbox was checked weekly to collect responses from prospective employers. However, some firms replied with automatically generated answers; these were disregarded as they did not provide relevant information.

In the following few weeks, several data were collected about the sent-out applications:

1. Has the recruiter responded to the application? (Yes/No)
2. Has the recruiter invited the applicant for an interview? (Yes/No)
3. Has the recruiter requested to be contacted via telephone or to provide a phone number due to its absence in the initial application? (Yes/No)
4. Has the recruiter asked for further information about the applicant? (Yes/No)

As going to interviews was not a part of the experiment, an email was sent expressing gratitude and informing that the candidate had already secured an alternative employment opportunity to all emails with an invitation to an interview.

3.5 Permission From the Commission for Ethics in Research

Before data collection, an online application was submitted to the Commission for Ethics in Research at the Faculty of Social Sciences, Charles University, to assess the ethical aspects of the experiment. The Commission approved the application (see Appendix A).

Several concerns needed to be addressed in the application to the Commission as the data collection process includes responses from recruiters and HR staff without their awareness and subsequent compensation for their participation. That is, however, a standardized method for the correspondence studies used to measure discrimination not only in the labor market (as presented in section 2.2). It is crucial for the outcome that recruiters do not know in advance that their response will be used for a study. Despite the experiment addressing a sensitive topic (discrimination of minorities), recruiters were not asked to comment directly on the minority in question. They are not identifiable, their personal data were not collected, and discrimination is subsequently measured in aggregate.

4 Data Analysis

4.1 Dataset and outcome variables

From the variables collected in the data collection process, the following ones are selected and used for further analysis:

Independent variables:

1. “Ukrainian”: 0 for Czech resume sent, 1 for Ukrainian resume sent
2. “Student”: 0 for high-school graduates, 1 for university student
3. “Region”: Geographical location of the firm and job
4. “Language”: denoting whether the job requires knowledge of the English language, 0 = NO, 1= YES
5. “Software” - signifying whether the offer requires the knowledge of commonly utilized software, 0 = NO, 1= YES
6. “Period1” – denoting whether the resume was sent in Period 1 (i.e., between 15.09.2022 and 20.12.2022) or Period 2 (i.e., between 20.12.2022 and 31.03.2023)

Dependent variables:

6. “Response,” i.e., Has the recruiter responded to the application? 0 = NO, 1= YES
7. “Callback_without_phone,” i.e., Has the recruiter invited the applicant for an interview? 0 = NO, 1= YES
8. “Phone,” i.e., Has the recruiter requested to be contacted via telephone or to provide a phone number due to its absence in the initial application? 0 = NO, 1= YES
9. “Callback_with_phone,” i.e., Has the recruiter invited the applicant for an interview or requested to be contacted via telephone or to provide a phone number due to its absence in the initial application? 0 = NO, 1= YES

Explaining the variables n.7, n.8, and n.9 and the rationale for their creation is necessary. In several instances, recruiters have requested applicants to provide their phone numbers or have asked to call them as their phone number was not in their resume or application for better convenience during data collection. This response can be considered positive, as phone conversations are the first round of the recruitment process, besides the review of resumes. Moreover, recruiters who were not interested in the candidate had explicitly stated it in the email, making it unlikely that they would request a number merely to reject the application. However, some may argue that the email did not contain a direct invitation for a meeting, so the response cannot be taken as positive. For this reason, this type of answer is stored in a separate variable from variable number seven and used in two analyses, once as a “positive response” and once as a “negative response.”

4.1.1 Dataset properties

The dataset analyzed in this study initially comprised a total of 875 observations, which are represented by applications submitted in response to various job openings. 28 observations were excluded from further analysis due to recruiters' requests for additional information or the completion of a form. These responses cannot be classified as "positive" or "negative." The remaining 847 observations are used for further analysis and calculations. The number of observations per category varies as applicants were randomly assigned to different job opportunities, summarized in Table 2.

Table 2: Number of observations per type of applicant

<i>Nationality</i>	<i>Education</i>	<i>Number. of observations</i>	<i>Language required</i>	<i>Software required</i>
Czech	University student	213	66.981 %	50.472 %
Ukrainian	University student	207	66.667 %	49.758 %
Czech	High school graduate	214	64.019 %	46.262 %
Ukrainian	High school graduate	213	63.850 %	46.009 %

It can be assumed from Table 2 that the selected part-time jobs have slightly stricter requirements than full-time positions. This can be attributed to the fact that administrative job offers are often tailored directly for university students. Further, the requirements from university students are higher than those from high school graduates (generally, higher expectations from university students are often compensated by higher wages).

In addition, a higher number of jobs require language proficiency than software expertise. This could be attributed to the fact that many companies use proprietary software instead of widely used applications such as Microsoft Office. However, a basic level of computer knowledge was required in 48.11 % of the selected job offers, highlighting the importance of understanding commonly used software.

The full-time positions selected for high school graduates were dispersed throughout the Czech Republic. A new dummy variable, "Prague," was constructed, denoting whether the job offer is located in Prague or another region since most of the job offers are located in Prague.

Table 3: Distribution of full-time jobs selected for analysis per region

<i>Region</i>	<i>Observ.</i>	<i>Region</i>	<i>Observ.</i>	<i>Region</i>	<i>Observ.</i>
Praha	274	Zlínský	9	Liberecký	6
Jihomoravský	40	Jihočeský	9	Karlovarský	6
Středočeský	28	Pardubický	8	Královehradecký	4
Plzeňský	14	Olomoucký	8	Vysočina	3
Moravskoslezský	11	Ústecký	7		

4.1.2 Randomization check

As described at the beginning of Section 2, it is necessary to design such an experiment so that it can be confirmed that the observed difference between the treatment and control groups is due to discrimination, not other endogenous variables.

The validity can be achieved through randomization, i.e., a process in which participants (Czech or Ukrainian job applicants) are assigned randomly to each job offer.

As described in Section 3.3, a function in Excel was used to generate a pre-defined array of numbers based on the number of selected job opportunities. Each cell in the matrix was assigned number 1 (Czech) or 2 (Ukrainian). It should be sufficient to ensure randomization; however, to ensure validity, the characteristics of the observations (parameters of the job offers collected during the data collection process) are compared to determine if the offers assigned to Czech and Ukrainian applicants are statistically similar.

Variables “Language,” “Software,” and “Prague” are used to compare the four subsets and their combined results (Czech university students and high-school graduates, Ukrainian university students and high-school graduates). The proportion z-test and chi-squared test of independence are used to determine whether the differences are statistically significant.

Tables 4 and 5 suggest that the job offers allocated to Czech and Ukrainian applicants exhibit statistical similarity (p-values of proportion z-test and chi-squared test of independence are above 0.05). It may be concluded that the randomization was successful.

Table 4: Percentage of observations requiring knowledge of English / commonly used software / located in Prague among all observations per nationality

<i>Variables</i>	<i>Czech</i>	<i>Ukrainian</i>	<i>Difference</i>	<i>p-value</i>
Language	65.34 %	65.24 %	0.10 p.p.	1.00
Software	48.24 %	47.86 %	0.39 p.p.	0.97
Prague	81.50 %	82.38 %	0.88 p.p.	0.81

Table 5: Percentage of observations requiring knowledge of English / commonly used software / located in Prague among all observations per group of applicants

<i>Variables</i>	<i>Czech university</i>	<i>Ukrainian university</i>	<i>p-value</i>	<i>Czech high-school</i>	<i>Ukrainian high-school</i>	<i>p-value</i>
Language	66.67 %	66.67 %	1.000	64.02 %	63.85 %	0.999
Software	50.24 %	49.76 %	0.996	46.26 %	46.01%	0.998
Prague	100.00 %	100.00 %	1.000	63.08 %	65.26 %	0.985

4.2 Statistical analysis

The primary indicators used in this study for detecting discriminatory hiring practices are the callback and response rates. The callback rate represents the percentage of positive responses from all resumes sent. The response rate reflects the percentage of all responses (regardless of the response being positive or negative) from all resumes sent.

A proportion z-test is used to determine the statistical significance of the observed differences in callback rates and response rates between the two groups.

Figure 1: Response rates per each group analyzed and calculated confidence intervals

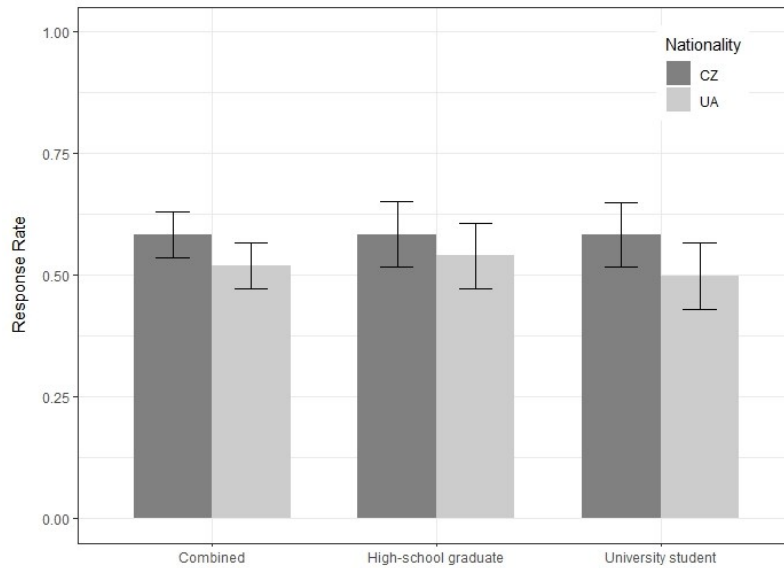


Table 6: Response rates per each group analyzed, differences among groups, and significance

<i>Group</i>	<i>CZ</i>	<i>UA</i>	<i>Difference</i>	<i>p-value</i>
Combined	58.31 %	51.90 %	6.41 p.p	0.07092
University student	58.22 %	49.76 %	8.46 p.p	0.10080
High-school graduate	58.41 %	53.99 %	4.42 p.p	0.41050

According to the statistical analysis, the observed differences in response rates between Czech and Ukrainian applicants are significant only for the combined measure for both university students and high-school graduates. Czech applicants receive 6.41 p.p. more responses than Ukrainian applicants. The breakdown of measurements shows the same phenomenon; however, the differences are not statistically significant, mostly due to a smaller sample size. A two-part analysis of callback rates is conducted. In the first analysis, responses from recruiters requesting a phone number or a call are considered positive (labeled “with phone”). In the second section, responses from recruiters requesting a phone number or a call are deemed negative (labeled “no phone”).

Figure 2: Callback rates per each group analyzed with calculated confidence intervals

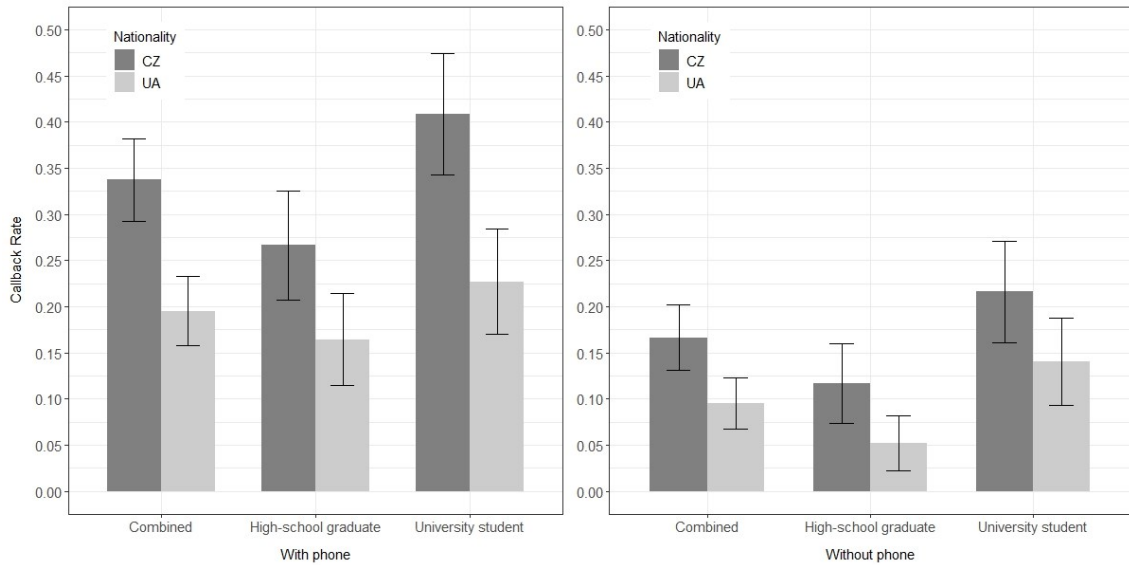


Table 7: Callback rates per each group analyzed, differences among groups, and significance

	Group	CZ	UA	Diff. in p.p.	Diff. in %	p-value
<i>with phone</i>	Combined	33.72 %	19.52 %	14.20 p.p.	72.75 %	< 0.001
	University student	40.85 %	22.71 %	18.14 p.p.	79.88 %	< 0.001
	High-school graduate	26.64 %	16.43 %	10.20 p.p.	62.08 %	0.014
<i>no phone</i>	Combined	16.63 %	9.52 %	7.10 p.p.	74.58 %	0.003
	University student	21.60 %	14.00 %	7.59 p.p.	54.21 %	0.057
	High-school graduate	11.68 %	5.16 %	6.52 p.p.	126.36 %	0.024

The results show a substantial difference between the treatment of Czech and Ukrainian applicants, with a significantly higher callback rate for Czech applicants. Firstly, the results “with phone” are presented.

The callback rate for Czech applicants is 33.72 %, while the callback rate for Ukrainian applicants is 19.52 %, indicating a difference of 14.2 p.p (72,75 %) between the two groups. A Czech applicant must submit about three resumes to receive one callback, while a Ukrainian applicant must submit about five resumes.

The rate for university applicants from the Czech Republic is approximately 40.85 %, while it is only 22.7 % for university students from Ukraine, indicating a difference of 18.14 p.p. (79.88 %). A Czech university student must send about three resumes to receive one callback, while a Ukrainian university student must send approximately four resumes. The callback rate for high-school graduates is about 26.64 % for Czech graduates, while for Ukrainian, 16.43 %. This shows a difference of 10.2 p.p (62.08 %), again, a difference in treatment.

The Czech high school graduate must submit approximately four resumes to receive one callback, while a Ukrainian high school graduate must submit about six resumes to receive one callback.

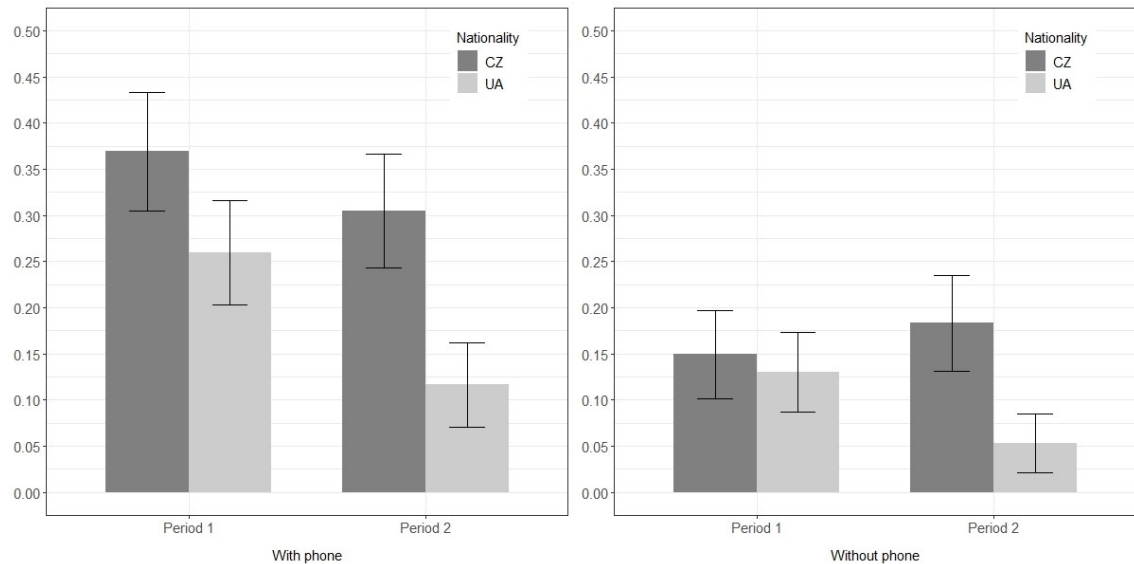
When the responses that request a phone number or a call are considered negative, the results still indicate discriminatory behavior towards Ukrainian applicants.

Data reveal that the callback rate for Czech applicants is approximately 16.63 %, while it is 9.52 % for Ukrainian applicants, showing a 7.1 p.p. (74.58 %) difference. Czech applicants must submit nearly six resumes to receive a callback, whereas Ukrainian must submit approximately eleven resumes. This shows a significant difference in treatment.

When comparing university student applicants from the Czech Republic and Ukraine, data indicate a 7.59 p.p. (54.21 %) difference but only on a 10 % significance level. Similarly, the difference in callback rates for Czech and Ukrainian high school graduates is 6.52 p.p. (126.36 %). Czech high school graduates receive callbacks after submitting approximately eight resumes, whereas Ukrainian high school graduates must submit nearly nineteen resumes to receive a single callback.

Another analysis compares callback rates of Czech and Ukrainian applicants in period one (i.e., 15.09.2022 - 20.12.2022) and period two (i.e., 20.12.2022 and 31.03.2023).

Figure 3: Callback rates of CZ and UA applicants in two periods, with calculated confidence intervals



Both Figure 3 and Table 8 show that the results differ in the case that an answer requiring a phone number is taken as a positive response (“with phone”) from the case when this answer is taken as a negative response (“without phone”). The difference is observable mainly for the Czech applicant, where the analysis “with phone” shows a decrease in the callback rate between periods one and two. The other analysis shows an opposite trend, i.e., an increase.

This might be caused by a low sample size since when taking an answer requiring a phone number as negative, there are only 30 observations in which Ukrainians get a callback in the first period and only 10 in the second period. The results “with phone” are thus further commented on since they are more valuable for the results than the results “without phone.”

Table 8: Callback rates of CZ and UA applicants in two compared periods, differences and significance

	<i>Group</i>	<i>CZ</i>	<i>UA</i>	<i>Change</i>	<i>p-value</i>
<i>with phone</i>	Period 1	36.92 %	25.97 %	- 10.94 p.p.	0.017
	Period 2	30.52 %	11.64 %	- 18.88 p.p.	< 0.001
	Difference	- 6.40 p.p.	- 14.33 p.p.	-	-
	p-value	0.195	< 0.001	-	-
<i>with phone</i>	Period 1	14.95 %	12.99 %	- 1.97 p.p.	0.645
	Period 2	18.31 %	5.29 %	- 13.02 p.p.	< 0.001
	Difference	3.36 p.p.	- 7.70 p.p.	-	-
	p-value	0.423	0.012	-	-

Results show that both Czech and Ukrainian applicants experienced a drop in callback rates between the two compared periods. However, in the case of the Czech applicant, the decrease is not statistically significant. In the case of the Ukrainian applicant, the callback rate change is from 25.97 % in the first period to 11.64 % in the second period (i.e., a drop of 14.33 p.p.). It may be attributed to decreasing solidarity with Ukrainians over time projected onto the Ukrainian minority in the Czech Republic. Both periods confirm the previously stated differences between the callback rates of Czech and Ukrainian citizens (the callback rate differences in the first and the second period are 10.94 p.p. and 18.88 p.p., respectively).

4.3 Econometric analysis

One of the models widely used in empirical studies to investigate discrimination is the Logit model. The Logit model is highly flexible regarding predictor variables; interaction terms may also be used, and it is, to a certain degree, tolerant of outliers and missing data. This model is appropriate for analyzing binary outcomes in which the response variable (in our case, callback) has only two possible values (yes/no or 0/1). Additionally, the model overcomes the limitations of linear probability models (LPMs). The fitted probabilities always lie between zero and one, whereas, in LPM, this is uncertain. The estimated parameters represent the change in the log-odds of the dependent variable related to a one-unit increase in the independent variable. This eliminates the problem of the constant partial effect of explanatory variables. However, the coefficients cannot be interpreted directly. To address this issue, the Average Partial Effects (APEs) are calculated to measure the change in the probability of the outcome in response to a one-unit increase in the independent variable (holding all other variables constant). (Wooldridge, 2019)

The assumptions necessary for the estimation were tested before executing all models. A linear relationship is confirmed between the independent variables and the outcome variable. From the definition of the variable (callback/no callback), it is evident that the outcome variable has only two possible values. Predicting variables are independent of each other, so there is no multicollinearity. No autocorrelation is present (the residuals are not correlated across observations), and no heteroskedasticity is present (the variance of residuals is constant).

For response rate analysis, the following model is created:

$$P(\text{Response} = 1 | \text{Ukrainian}, \text{Student}) = \Lambda(\beta_0 + \beta_1 * \text{Ukrainian} + \beta_2 * \text{Student})$$

where Λ is the logistic function taking values between 0 and 1, β_0 is the intercept, β_1, β_2 , are the slope parameters.

Table 9 Estimated values for Response rate, without the interaction term (p-values in brackets)

<i>Variable</i>	<i>Estimated value</i>	<i>APE</i>
Ukrainian	-0.260 (0.060)	-0.064 (0.058)
Student	-0.089 (0.520)	-0.022 (0.519)
Intercept	0.038 ** (0.002)	-
Number of observations	847	847

***p <0.001, **p <0.01, *p <0.05

Results show that response rates for Czech and Ukrainian applicants differ by approximately 6.4 p.p. Ukrainian applicants have thus a 6.4 percentage point lower probability of receiving a response (regardless of whether it is positive or negative). The difference is statistically significant on a 10 % level.

Four models are created to analyze the callback rates, each executed twice. Specifically, the response variable of the first model executed is `Callback_with_phone`, while for the second model, it is `Callback_without_phone`. The reason for this division is explained further in section 4.1. Heteroskedasticity is present in all models, meaning the variance of residuals is not constant. Heteroskedasticity-robust standard errors were thus calculated to avoid biased estimates. The models are the following:

1. The effect of being Ukrainian and being a student on the probability of getting a callback:

$$P(\text{Callback} = 1 | \text{Ukrainian}, \text{Student}) = \Lambda(\beta_0 + \beta_1 \cdot \text{Ukrainian} + \beta_2 \cdot \text{Student})$$

A is the logistic function taking values between 0 and 1, β_0 is the intercept, β_i , are the slope parameters.

This model 1 is also used to analyze the same effect separately in periods one and two. It is thus executed additionally two times, once with first-period data only and a second time with second-period data only.

2. Similar model to the first one, but an interaction term `Ukrainian*Student` is added to understand better the effect of a person being a Ukrainian and being a university student on the probability of receiving a callback:

$$\begin{aligned} P(\text{Callback} = 1 | \text{Ukrainian}, \text{Student}, \text{Ukrainian} \cdot \text{Student}) = \\ = \Lambda(\beta_0 + \beta_1 \cdot \text{Ukrainian} + \beta_2 \cdot \text{Student} + \beta_3 \cdot \text{Ukrainian} \cdot \text{Student}) \end{aligned}$$

A is the logistic function taking values between 0 and 1, β_0 is the intercept, β_i , are the slope parameters.

3. Similar model to the first one, but variables “Language,” “Software,” and “Prague” are added to understand better the effect of other variables on the callback rate:

$$\begin{aligned} P(\text{Callback} = 1 | \text{Ukrainian}, \text{Student}, \text{Language}, \text{Software}, \text{Prague}) = \\ = \Lambda(\beta_0 + \beta_1 \cdot \text{Ukrainian} + \beta_2 \cdot \text{Student} + \beta_3 \cdot \text{Language} + \beta_4 \cdot \text{Software} + \beta_5 \cdot \text{Prague}) \end{aligned}$$

A is the logistic function taking values between 0 and 1, β_0 is the intercept, β_i , are the slope parameters.

4. Model analyzing whether conditions in the labor market changed over time and whether the callback rate for Ukrainian citizens is changing over time.

$$\begin{aligned} P(\text{Callback} = 1 | \text{Ukrainian}, \text{Student}, \text{Period1}, \text{Ukrainian} \cdot \text{Period1}) = \\ = \Lambda(\beta_0 + \beta_1 \cdot \text{Ukrainian} + \beta_2 \cdot \text{Student} + \beta_3 \cdot \text{Period1} + \beta_4 \cdot \text{Ukrainian} \cdot \text{Period1}) \end{aligned}$$

A is the logistic function taking values between 0 and 1, β_0 is the intercept, β_i , are the slope parameters.

The first presented results are the estimates of the first model; results of estimations with the response variable being `Callback_with_phone` and `Callback_without_phone` are presented in one table.

Table 10: Estimated values of parameters in Logit model for Callback rate (p-values in brackets)

Variable	<i>with phone</i>		<i>without phone</i>	
	Estimated value	APE	Estimated value	APE
Ukrainian	- 0.748 *** (< 0.001)	- 0.141 *** (< 0.001)	- 0.647 ** (0.002)	- 0.071 ** (< 0.002)
Student	0.544 *** (< 0.001)	0.102 *** (< 0.001)	0.865 *** (< 0.001)	0.095 *** (< 0.001)
Intercept	- 0.959 *** (< 0.001)	-	- 2.106 *** (< 0.001)	-
Nr. of observ.	847	847	847	847

***p <0.001, **p <0.01, *p <0.05

The first model estimates are consistent with the results obtained in the statistical analysis. Being Ukrainian decreases the likelihood of receiving a callback by 14.05 % if a response requiring a mobile phone is considered a callback and by 7.13 % if it is considered a negative response, indicating that Ukrainians are subject to discrimination during the hiring process. Student status (or an application to a part-time job) increases the likelihood of receiving a callback by 10.22 p.p. (respectively by 9.54 p.p.).

The following table summarizes the estimates of the second model:

Table 11: Estimated values of parameters in the Logit model, with an interaction term (p-values in brackets)

Variable	<i>with phone</i>		<i>without phone</i>	
	Estimated value	APE	Estimated value	APE
Ukrainian	- 0.613 * (< 0.011)	- 0.140 *** (< 0.001)	- 0.888 *** (0.044)	- 0.072 *** (0.003)
Student	0.643 ** (0.002)	0.102 *** (< 0.001)	0.734 *** (0.007)	0.096 *** (< 0.001)
Interaction term	- 0.241 (0.456)	-	0.362 (0.428)	-
Intercept	- 1.013 *** (0.008)	-	- 2.023 *** (< 0.001)	-
Nr. of observ.	847	847	847	847

***p <0.001, **p <0.01, *p <0.05

According to the results, the interaction term `Student*Ukrainian` is insignificant; we thus cannot draw any other conclusions from the collected data.

Estimates for the third model are presented in Table 12. The slight change in the estimates for the Ukrainian and Student variables is caused by introducing the “Software” variable. There is an 8.77 p.p. lower chance of receiving a callback in case the job offer requires software knowledge, but only when the dependent variable in the model is `Callback_with phone`. Otherwise, the effect of these variables on the callback rate is not statistically significant. Variables “Prague” and “Language” are not statistically significant.

Table 12: Estimated values of parameters in the Logit model with additional variables (p-values in brackets)

Variable	<i>with phone</i>		<i>without phone</i>	
	Estimated value	APE	Estimated value	APE
Ukrainian	- 0.759 *** (< 0.001)	- 0.141 *** (< 0.001)	- 0.651 ** (0.002)	- 0.072 ** (0.002)
Student	0.532 ** (0.004)	0.099 ** (0.003)	0.869 *** (< 0.001)	0.095 *** (< 0.001)
Software	- 0.472 ** (0.005)	- 0.088 ** (0.004)	- 0.298 (0.168)	- 0.033 (0.166)
Language	0.205 (0.242)	0.038 (0.239)	0.322 (0.169)	0.035 (0.165)
Prague	0.084 (0.740)	0.016 (0.737)	0.004 (0.991)	< 0.001 (0.991)
Intercept	- 0.936 *** (< 0.001)	-	- 2.188 *** (< 0.001)	-
Nr. of observ.	847	847	847	847

***p < 0.001, **p < 0.01, *p < 0.05

Table 13 and 14 contain results of the first model executed separately for the first and second period data. Table 13 presents estimates with dependent variable “`Callback_with_phone`”. Table 14 presents estimates with dependent variable “`Callback_without_phone`”. The estimates of parameters of the fourth model created are presented in Table 15.

Table 13: Estimates of parameters in two separate periods, dependent variable “`Callback_with_phone`” (p-values in brackets)

Variable	<i>Period 1</i>		<i>Period 2</i>	
	Estimated value	APE	Estimated value	APE
Ukrainian	- 0.543 ** (0.009)	- 0.113 ** (0.008)	- 1.187 *** (< 0.001)	- 0.190 *** (< 0.001)
Student	0.591 ** (0.006)	0.123 ** (0.005)	0.308 (0.2146)	0.049 (0.2161)
Intercept	- 0.868 *** (< 0.001)	-	- 0.967 *** (< 0.001)	-
Nr. of obser.	445	445	402	402

***p < 0.001, **p < 0.01, *p < 0.05

Table 14: Estimates of parameters in two separate periods, dependent variable “Callback_without_phone” (p-values in brackets)

Variable	<i>Period 1</i>		<i>Period 2</i>	
	Estimated value	APE	Estimated value	APE
Ukrainian	- 0.209 (0.452)	- 0.024 (0.454)	- 1.361 *** (< 0.001)	- 0.1387 *** (< 0.001)
Student	1.132 *** (< 0.001)	0.132 *** (< 0.001)	0.525 (0.092)	0.0535 (0.0934)
Intercept	- 2.460 *** (< 0.001)	-	- 1.756 *** (< 0.001)	-
Nr. of obser.	445	445	402	402

***p <0.001, **p <0.01, *p <0.05

Table 15: Estimated values of parameters in the Logit model with time aspect (p-values in brackets)

Variable	<i>with phone</i>		<i>without phone</i>	
	Estim. value	APE	Estim. value	APE
Ukrainian	- 1.181 *** (< 0.001)	- 0.148 *** (< 0.001)	- 1.353 *** (< 0.001)	- 0.077 ** (0.002)
Student	0.472 ** (0.003)	0.088 ** (0.003)	0.833 *** (< 0.001)	0.091 *** (< 0.001)
Ukrainian*Period1	0.646 (0.059)	-	1.156 * (0.013)	-
Period1	0.249 (0.226)	0.095 ** (0.002)	-0.320 (0.227)	0.013 (0.600)
Intercept	- 1.048 *** (< 0.001)	-	- 1.929 *** (< 0.001)	-
Nr. of obser.	847	847	847	847

***p <0.001, **p <0.01, *p <0.05

No further comment is provided in Table 14, i.e., results of the model with dependent variable “Callback_without_phone” due to a low number of samples that have a positive response. (Further reasoning and callback rates are in section “4.2 Statistical Analysis”, p.22).

Table 13 shows that in the both first and second periods, Ukrainian applicants have a lower callback rate of 11.3 and 19.0 p.p., respectively. Being a student increases the probability of receiving a callback in the first period by 12.3 percentage points. In the second period, the effect is not significant. Results are overall consistent with previous analysis.

The results in Table 15 show that adding the variable “Period1” and an interaction term changes the estimates for variables “Ukrainian” and “Student” slightly compared to previous models; the discrimination of Ukrainians is still present.

The model taking a phone request as a positive response shows that all applicants had a higher chance of receiving a callback in the first period by approximately 9.46 percentage points compared to the second period. This means that conditions in the labor market have changed between the two periods.

The estimates further show that Ukrainians had a higher chance of receiving a callback in the first period by 64.62 %, showing a significant decrease in the probability of getting a callback in period two. This measure is, however, significant only on a 10 % level.

Estimates in Table 13 are consistent with these results. The probability of a Ukrainian applicant receiving a callback in the first period is 11.3 percentage points lower than the probability of a Czech applicant. In the second period, the probability of the Ukrainians receiving a callback even decreases, 19.0 percentage points lower than the probability of the Czech applicant. The drop might be due to decreasing solidarity with Ukrainian refugees projected to the Ukrainian minority in the Czech Republic.

The model shows slightly different results when a phone request is taken as a negative response. However, there are only 30 observations in which Ukrainians get a callback in the first period and only 10 in the second period. The sample size is small, and the results are not as significant. The model shows no change in the conditions in the labor market between the periods and a 115.6 % higher probability of a Ukrainian receiving a callback in period 1.

4.4 Limitations

The limitations of the thesis mostly coincide with the overall limitations of the correspondence experiments. One of the limitations of correspondence experiments is that it is not possible to project results precisely to the whole population. Although the observations were selected from available job offers on the website, the sample may not adequately represent the whole population. We cannot assert that the responding recruiters constitute a representative sample of recruiters in the Czech Republic).

Only four resumes were created and sent out. The profiles behind these resumes do not represent the entire Czech and Ukrainian population of applicants in the Czech Republic, so the results cannot be generalized to other groups with precision.

This experiment's primary limitation is that despite it not being intentional, most chosen job openings are in Prague. It is the capital city of the Czech Republic. Thus, it is reasonable that there are many job openings in the selected field. However, the location of the jobs thus limits the generalization to the Czech Republic as a whole.

For simplification purposes, the resume omitted the phone number, resulting in recruiters requesting a phone number or calling back. This response was then included in a separate variable, which was used once as a negative response and once as a positive response. Recruiters may call to invite the applicant to an interview; however, they may also call just to request additional information. Creating a new phone number could solve the problem, but this solution may be impractical for many researchers.

Conclusion

This thesis's main goal and contribution are to illustrate the position of Ukrainians in the Czech labor market compared to the position of Czech citizens. The thesis provides an understanding of and extent of discrimination in the Czech labor market revealed by conducted correspondence experiment. The secondary outcome is whether receiving a callback as a student applying for a part-time job or as a high-school graduate applying for a full-time job is easier.

Before conducting the experiment, four CVs of fictitious applicants (Czech high school graduate, Ukrainian high school graduate, Czech university student, and Ukrainian university student) were created, and the experiment design was prepared.

Data were collected by responding to various job offers posted online. For each job opening, one CV was chosen from four prepared resumes (depending on the time requirements, either a high school student or a university student, followed by a random selection between Czech and Ukrainian CVs). Then, the responses from recruiters were collected, and differences in callback rates (percentage of invitations to interviews out of all resumes sent) were observed and analyzed.

Results of both statistical and econometrical analysis suggest that being Ukrainian decreases the overall likelihood of receiving a callback by 14.05 p.p. (if a response requiring a mobile phone is considered a callback) or by 7.13 p.p. (if it is considered a negative response), indicating that Ukrainians are subject to discrimination during the hiring process.

Ukrainian university students have an 18.14 p.p. (or 7.59 p.p., respectively) lower probability of receiving a callback than the Czech university student, and Ukrainian high-school graduates have a 10.2 p.p. (or 6.52 p.p., respectively) lower likelihood of receiving a callback than Czech high-school graduate. University students have an overall higher callback rate, and the probability of receiving a callback is 10.22 p.p. higher than for high-school graduates. Estimates further show that there has been some development in the callback rates of Ukrainian citizens over time. Ukrainian citizens had a higher probability of receiving a callback before year-end than after year-end, by 64.62 %. The decrease may be related to a decreased solidarity with Ukrainian citizens in time which may be projected to the Ukrainian minority in the Czech Republic.

Overall, it may be concluded that discriminatory practices against Ukrainian citizens exist in the Czech labor market. It is easier to be invited for an interview for students applying for a part-time job than for graduates applying for a full-time job.

This experiment may raise awareness of discrimination in the Czech labor market and spark conversations about the significance of treating all groups of individuals equally.

This may help support the need for policies and interventions that promote equality and reduce the adverse societal effects of discrimination.

For a follow-up study, it is proposed to collect additional observations on job openings outside Prague. Collecting more independent variables, such as industry, firm size, and additional job offer characteristics (salary, or requirements), is recommended. Even the number of fictitious applicants could be increased so that more job offers could be selected for the study, i.e., graduates of specific universities who would expand the dataset with job offers requiring experience or education in a particular field. Also, variables such as age and gender could be varied, and discrimination against individuals of a particular gender or different ages could be analyzed. The experiment could also be conducted on a different minority group, such as the Vietnamese, Slovak, or Roma.

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List of Acronyms

CZ Czech/Czech Republic
UA Ukrainian/Ukraine
CV Curriculum Vitae
LPM Linear Probability Model
APE Average Partial Effect

List of Figures

Figure 1: Response rates per each group analyzed and calculated confidence intervals.....19
Figure 2: Callback rates per each group analyzed with calculated confidence intervals.....20
Figure 3: Callback rates of CZ and UA applicants in two periods, with calculated
confidence intervals21

List of Tables

Table 1: Overview of fictitious applicants and their email addresses	13
Table 2: Number of observations per type of applicant	17
Table 3: Distribution of full-time jobs selected for analysis per region.....	17
Table 4: Percentage of observations requiring knowledge of English / commonly used software / located in Prague among all observations per nationality.....	18
Table 5: Percentage of observations requiring knowledge of English / commonly used software / located in Prague among all observations per group of applicants.....	18
Table 6: Response rates per each group analyzed, differences among groups, and significance	19
Table 7: Callback rates per each group analyzed, differences among groups, and significance	20
Table 8: Callback rates of CZ and UA applicants in two compared periods, differences and significance	22
Table 9 Estimated values for Response rate, without the interaction term (p-values in brackets)	23
Table 10: Estimated values of parameters in Logit model for Callback rate (p-values in brackets)	25
Table 11: Estimated values of parameters in the Logit model, with an interaction term (p-values in brackets)	25
Table 12: Estimated values of parameters in the Logit model with additional variables (p-values in brackets)	26
Table 13: Estimates of parameters in two separate periods, dependent variable “Callback_with_phone” (p-values in brackets).....	26
Table 14: Estimates of parameters in two separate periods, dependent variable “Callback_without_phone” (p-values in brackets)	27
Table 15: Estimated values of parameters in the Logit model with time aspect (p-values in brackets)	27

List of Appendices

Appendix A: Statement of the Commission for Ethics in Research (pdf)

Appendix B: Curriculum Vitae of all fictitious applicants (pdf)

Appendix C: Motivation letters in Czech language (text)

Appendix A



**FAKULTA
SOCIÁLNÍCH VĚD**
Univerzita Karlova

Prague, 2nd September 2022

Subject: The Statement of the Commission for Ethics in Research

In line with its task, i.e. “to assess the ethical aspects of the objectives, methodology and potential impacts of research projects, or their parts, which are carried out or attended to by the researchers who are staff members of Charles University employed at the faculty and faculty students “, the Commission for Ethics in Research discussed the application number 49 “Discrimination of Ukrainian citizens in the Czech labor market: A field experiment “, submitted by Viktorija Pasichnyk. The Commission for Ethics in Research has no reservations to the application and approves of the applicants’ intentions.

The Commission for Ethics in Research approves of the application without reservations.

Yours sincerely,

A handwritten signature in black ink, appearing to read "Petr Janský".

Petr Janský

Member of the Commission for Ethics in Research

Faculty of Social Sciences Charles University

Appendix B

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01.12.2021 – 31.12.2022

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- Anglický jazyk – B2
- Německý jazyk – A2

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- Anglický jazyk – C1
- Německý jazyk – B1

DALŠÍ

- Řidičský průkaz B
- Word, Excel, Powerpoint – uživatelská znalost

Appendix C

High-school graduates:

Vážená paní, vážený pane,

Reaguji na nabídku pozice X zveřejněnou na portálu jobs.cz.

Jsem absolventkou Obchodní akademie Dušní a po dlouhodobé praxi na pozici recepční hledám novou pozici, která mi nabídne další zkušenosti. Vaše nabídka mě velice zaujala a věřím, že se na Vámi nabízenou pozici hodím.

Více o mně se dozvíte v příloženém životopisu. Těším se na případné setkání.

S pozdravem

Jana Procházková / Olena Bondarenko

University students:

Vážená paní, vážený pane,

Reaguji na nabídku pozice X zveřejněnou na portálu jobs.cz.

Jsem studentkou druhého ročníku vysoké školy Ambis, obor ekonomika a management podniku a v tuto chvíli hledám pracovní zkušenost, která mě bude rozvíjet. Vaše nabídka mě zaujala a věřím, že se na Vámi nabízenou pozici hodím.

Více o mně se dozvíte v příloženém životopisu. Těším se na případné setkání.

S pozdravem

Jana Procházková / Olena Bondarenko