Dec 19th, 3:00 PM - 3:30 PM

Parallel Session: Rent Discrimination in Sarajevo

Recai Aydin
International University of Sarajevo

Sejma Aydin
International University of Sarajevo

Rent Discrimination in Sarajevo

Aydin, Recai[1]; Aydin, Sejma[1]

[1]Turkish Police Academy, International University of Sarajevo
raydin@ius.edu.ba; s.sejma@gmail.com

Abstract: *Following the relative stabilization of the country after Dayton Peace agreement, B&H has been attracting growing number of foreigners who come to Bosnia for work or education. In recent years, Ilidza area of Sarajevo city has faced with an influx of such foreigners due to recently established university campuses in the area. This development caused large number of foreign students and professors, mostly from Turkey, to reside in and around Ilidza. This study investigates if these foreign students and professors face with discrimination in the rental market, using Oaxaca-Blinder decomposition method as a statistical tool. Ordinary least square (OLS) regressions under different specifications were applied and all of them revealed a significant coefficient for "foreign" dummy, indicating a significant difference between what locals pay and foreigners pay for the rent among IUS students and staff members. Further analysis with Oaxaca-Blinder decomposition method indicated that foreigners pay higher amount of rent in the area as they generally reside in better quality apartments. However, the difference in rent cannot be completely explained with the characteristics of the rental unit. Hence, this study finds an evidence of rental discrimination. The results are found to be similar when only student sample is used by excluding the staff members.*

Keywords: *Rental Discrimination, Oaxaca-Blinder Decomposition.*

1. Introduction

A place of residence has a tremendous effect on a people's quality of life, their social activities, children's education quality, safety, health, well-being and many other aspects of their life are directly correlated with the neighborhood the housing unit is located in. Every individual should be provided with the opportunity to rent the property that they like and want to live in. There should be no unfair treatment in their attempt to maximize their utility as tenants. On the other hand, landlords do have a right to set certain criteria for selecting the tenant that they see as the best fit to live in their property. However, they do not have a right to engage in any kind of discriminatory behavior in handling or selecting the applicants. Substantial number of studies, over the past two decades, presents undeniable evidence proving that ethnic minorities are being discriminated against when engaging in different transactions across many markets, from labor and product market to housing market.

Discrimination in housing market is most widely studied in the United States. Interestingly these studies on the issue are conducted by the U.S. government regularly on national scale. As a result, large pool of data was generated by the government-led studies and this inspired many individuals and community organizations to conduct their own lower scale studies in the area as well. In addition, substantial number of recent studies in housing market discrimination suggests that discriminatory behavior occurs frequently in the European housing markets as well and that it has been one of the biggest obstacles for immigrants living in EU (Harrison et al. 2005).

Even though adverse treatment towards minorities is illegal in most of the countries today (De Prins, Sottiaux, and Vrielink 2005), the research shows that various types of discrimination are still present in U.S., Australia and countries of Europe (Kuebler and Rugh, 2013; TNS Opinion & Social, 2012). Audit studies were conducted in Italy, Spain and Norway and all of them confirmed the existence of discriminatory behavior towards the minority groups living in those countries. So, due to discrimination,

the act of searching for housing unit itself is more costly and time-consuming for minority group members (Roscigno, Karafin, and Tester 2009).

As we can see there are many cases of discriminatory behavior in housing markets even in some of the most developed countries in the world. Then, based on this we can assume that the door for housing discrimination discussion must be wide open in Bosnia and Herzegovina (B&H) as well. Housing market in B&H is one of the least organized and controlled markets in the country. There are very few licensed real-estate agents in the country and they operate only in the biggest cities. This leaves a lot of space for various types of discrimination. Currently, B&H has a relatively low standard of living and prices of many goods and services are much lower than what most foreigners would pay in their country of origin for the same product or for a service. According to information available on the web, average monthly disposable salary after taxes in B&H is reported to be around 828.30 KM[1]. Of course, landlords and agents are well aware of the perception of most foreigners on prices in B&H and their relatively higher levels of income as well as their higher willingness to pay. This probably motivates landlords and agents to engage in discriminatory behavior towards the foreigners.

Following relative stabilization of B&H, number of foreigners who come to B&H for work, education or leisure has significantly increased. This is more evident in Ilidza suburb of Sarajevo where three private university campuses are located and also thermal water resources are abundant. In last decade, the area attract many foreign students and professors, especially from Turkey, and also many tourists from Gulf countries who come for beautiful nature of Ilidza and its thermal waters with healing power. The second group also consists of tourists who come to the area not only for a short-term visit but also they tend to revisit Bosnia often with their families and even stay in the area for longer periods which, in some cases, cover warmer half of the year. As a result, demand for housing units, both for sale and rent, increased dramatically in the last decade across Ilidza and the rest of Sarajevo. However, this study does not focus on discrimination in housing sales but only focus on discrimination in rental properties. It should be noted that this study analyzes the data collected only from the students and staff members of International University of Sarajevo (IUS). Therefore, the findings of this study should only be interpreted as a probable rent discrimination faced by IUS students and staff members.

According to information available on same webpage, renting one bedroom apartment in the city center of Sarajevo can cost anywhere from 300 KM to 500 KM with average rent being 423.68 KM per month while price of renting similar apartment outside the city center costs between 200 KM and 350 KM with the average of 281.58 KM. Renting three bedroom apartment in the city center is reported to cost between 600 KM and 1000 KM, averaging 778.12 KM and outside the city center, it costs between 450 KM and 650 KM, averaging 523.33 KM. However, these figures are not based on official data or scientific research. In addition, it is possible that these figures maybe outdated as the information source does not state the time period in which these estimates were calculated.

According to the last published data in 2014 by Service for Foreigners' Affairs of B&H, 4,725 of new temporary stays were granted and 6,297 extended totaling 11,022. Largest number of new permits was granted to citizens of Serbia followed by Turkey, China and Croatia while largest number of extended permits was granted to citizens of Turkey followed by Serbia, Croatia and China. In recent years, number of residential permits granted and extended to citizens of Turkey has increased dramatically, and for several consecutive years it constitutes one of the largest portions of total number of permits. Over the course of 2014, 693 temporary residence permits were issued and 1.266 has been extended meaning that the total number of Turkish residents in B&H was 1.959. This means that 18 percent of all foreigners living in B&H are of Turkish origin which makes them second largest minority group in

[1]http://www.numbeo.com/property-investment/city_result.jsp?country=Bosnia+And+Herzegovina&city=Sarajevo

B&H after Serbians. However, if we take into consideration that people from Serbia are coming from the country of the region and that they speak local language and often possess almost no distinctive marks that differentiate them from locals, we can freely say that largest minority group in Bosnia and Herzegovina is Turks. According to last available statistics, from 2014, the number of foreign students in Bosnia and Herzegovina is 2,176 and almost half of which are Turkish students (1,055). This number is expected to be significantly higher today, considering the fact that the number of registered students at IUS alone in Spring semester of 2016 was 1,000.Combined with the Turkish students in International Burch University, University of Travnik and University of Sarajevo, this number is expected to be well over 1,500 students.

It is often told among the students and staff members that there has been a surge in the rental rates, especially in Ilidza area, in recent years. As explained above, this is not surprising due to the influx of people, not only foreigners but also Bosnians, to the area as a result of increasing education and job opportunities because of newly opened university campuses and newly built hotels in the area. Many foreign students and staff members of IUS have complained about high rental rates that they claim to face with. Therefore, this study is important to find out if these claims are substantiated. Discrimination in any form has never been studied or even addressed in B&H before. This is true for the case of local as well as foreign students, even though ensuring equal right treatment for the foreigners in B&H could have significant and large financial benefits for the country. However, it is important to state that any form of discrimination in B&H is illegal and there are authorities responsible for collecting and reviewing the complaints regarding any form of discrimination and providing basic advice on what to do next.

2. Literature Review

The problem of discrimination that foreign students face when searching for accommodation has not received a lot of attention in the literature. Studies that do mention this issue are directed at other issues relatable to this one. U.S. Office of Equal Opportunity issued reports regarding the discrimination foreign exchange students face in U.S however, they mostly focused on the discrimination experienced during social interaction with other students or professors. Small-scale individual studies focused on discrimination caused by stereotypes (Greenwald, 2001) and professors' adverse treatment in classes and grading (Hanassah, 2006). UK council of International Student Affairs constructed a handbook for practitioners regarding managing the accommodation for international students; however there is no mention of housing discrimination in it. Australian Human Rights Commission and New Zealand Human Rights Commission documented the cases of rental housing discrimination against foreign students in 2009.

The students filed a complaint but it did not receive a lot of media attention or policy response. Even though it is expected for this to motivate an empirical research on the issue, it did not.

Racial and ethnic discrimination in labor market was studied in various social contexts and using several different methods. The findings reveal consistent adverse treatment of protected groups and have been used for several purposes such as evidence in court cases, influencing the policies regarding protecting the rights of minorities and informing and influencing the public about the quality of life of minority groups in the society.

The results of the research conducted for U.S housing market show that (Wienk et al.1979) African-American auditors experience 17% net discrimination in when engaged in sales transfers and 16% net discrimination in renting transfers. Further research of discriminatory behavior (Yinger 1993) found evidence of 30% net discrimination against Africa-American applicants in sales and 28% in rental transfers combined with 23% net discrimination against Hispanic applicants in both sales and rental transfers in housing market. All of the cited findings were statistically significant.

Yinger (1986) found evidence of both, rental and sales housing market discrimination in U.S by examining Fair Housing Audits. Discriminatory behavior can appear in forms of providing fewer number of housing unit options to minority than majority group member, setting different prices based on group membership and less favorable lease specifications for the minority group members.

Audit studies conducted in England showed that members of protected ethnical groups suffer 12% net discrimination in trying to buy property and 30% in trying to rent it (Daniel, 1968; Mcintosh & Smith, 1974). Few years later audit study with more than two auditors has been conducted in France as well. Bovenkerk et al. (1979) included French, Portuguese and Antillean auditors in his search for discrimination in rental housing market. According to the reported results the auditor of Portuguese origin did not suffer any discrimination while Antillean auditor suffered 30% of net discrimination.

Some other studies (Roychoudhury & Goodman, 1992; Yinger, 1995) present the evidence of minority group member agents displaying less discriminatory behavior than the majority groups members. Yinger (1995) finds evidence that there is 25% less chance that certain property will be reserved for the white tenants when the agent is black or Hispanic. On the other hand, several studies reached the results that suggest agents who are protected group members do not discriminate any less than other agents (Ondrich, Stricker & Yinger, 1986; Ondrich, Ross, and Yinger, 1997). Large number of studies noted that discriminatory behavior in housing market may be systematically different across different neighborhoods and areas in the city Yinger 1986; Massey & Lundy 2001; Ondrich et al).

Studies in a form of correspondence audits tested for ethnic/racial discrimination in Italy, Spain, Norway and U.S. Studies on sexual orientation based discrimination were done as correspondence audits for the housing market of Sweden. Seven of the correspondence studies sent single randomly chosen inquiry to each landlord and remaining five sent matched-applications. Many studies also tested for the statistical discrimination. In-person audit for ethnic/racial discrimination has been conducted in Greece and U.S, discrimination based on sexual orientation and disability both in U.S.

3. Methodology and Data

For the purpose of this study, survey method was used as data collection method and therefore this study uses quantitative method of data analysis. Quantitative studies of housing discrimination used regression exclusively as a method of data analysis; however, the models vary in their form and content. This study uses lnprice (rent) as the dependent variable and set of different variables that can be grouped into sum of hedonic characteristics of each house unit and sum of demographic information about owners (tenants). Hence, semi-log model can be expressed for rental units as:

$$\square\square\square\square\square\square=\square_0+\sum\square_{\square\square\square=1}+\sum\square_{\square\square\square=1} \quad (1)$$

where Di denotes different characteristics of dwellings that their tenants participated in the survey, such as size of the dwelling, location, type of heating, if the dwelling has balcony, the floor of the dwelling, type of the dwelling (house or apartment), if there is a private parking, distance from the nearest public transportation, level to which the dwelling is furnished, existence of elevator and whether the dwelling has been updated or not and how long ago. On the other hand, Tj denotes the characteristic of the tenants themselves such as family income, number of roommates, if they live single, with friends or with spouse, monthly spending, nationality and gender.

Understanding and measuring the discrimination in the field of economics originate mainly from the labor market discrimination studies. Most of the models that are widely used today to analyze various types of discrimination in economics were originally designed to measure wage differentials. One of the most popular wage decomposition methods was developed by Blinder (1973) and Oaxaca (1973) which consists of decomposing the wage differentials based on the race. The method aims to define

how much of differences in mean outcomes between two groups can be explained by the explanatory variables and how much of it accounts for differences in regression coefficients. Therefore, this technique actually breaks down the average wage gap present across two different groups into two parts: first one consists of differences in qualifications, the ones explained by the explanatory variables included in the model; second one consists of differences that are not explained by the model. The unexplained part is used to measure discrimination.

The model was first used by Blinder (1973) in studying the wage differentials between black and white men and between white man and woman. Blinder based his study on assumption that each differential is composed of differences in objective characteristics of employees, such as education and productivity and remaining part that cannot be explained by the objective characteristics. Hence, the main points of interests in Blinder's study were to determine how much of a wage differential between white and black employees can be explained by white men's easier access to education and how much of a wage differential between white man and woman can be explained by man's easier access to better jobs.

This study is based on the assumption that the Oaxaca-Blinder decomposition technique could be easily applied on studying discrimination in the rental housing market as well, where it would allow grouping the factors that influence the magnitude of the rent of dwelling on one side and the discriminatory factors on the other side. One of the main critiques of Oaxaca- Blinder decomposition when studying labor discrimination is that there are numerous factors that influence the employer when deciding whom to employ and that it is not possible to include all of them in the model, which necessarily results in overestimation of discrimination level. However, in studying the rental housing discrimination the factors that influence the rent are mostly tangible and much easier to enlist which significantly decreases the chances of overestimating the discrimination.

Main variable of interest of this study is the level of rent, mainly whether the rent for the dwellings of same or similar characteristics is different for the Bosnian and non-Bosnian tenants who same or similar characteristics other than their ethnicity. Therefore, the dependent variable of the study or lnrent (lnR), and the characteristics of the dwelling and tenants are independent variables (Xs), where two given disparate groups are defined as local (L) and foreign (F).

After applying Oaxaca-Blinder decomposition to the model, it can be expressed as follows:

$$\bar{R}_F - \bar{R}_L = (\bar{X}_F - \bar{X}_L)\beta_F + (\beta_F - \beta_L)\bar{X}_L \quad (2)$$

where $\bar{X}_F$ and $\bar{X}_L$ represent vectors containing means of the variables for foreign and local participant, and β_F and β_L represent coefficient estimates for variables of foreign and local survey participant. First part of the equations on the right-hand side is considered to be the "explained" part of Oaxaca-Blinder decomposition since it captures the differences in the level of rent based on the differences in the characteristics of the dwelling and demographic characteristics of the tenants. Second part of the equation represents the "unexplained" part of the equation and it captures the differences in the coefficients for the foreign and local tenants.

As it can be seen from the equation, the differences in $\bar{X}$s are weigted by the coefficients of the foreign group while the differences in the coefficients are weigted by the $\bar{X}$s of the local group. Therefore, the decomposition is constructed from the viewpoint of the foreign group, meaning that the model estimates the differences in $\bar{X}$s of the foreign group if the characteristics of the foreign group were equal to that of the local group. It follows the assumption that the foreigner's rent equation is the dominant or base equation to determine the rent for both sub-groups.

To summarize, Oaxaca-Blinder decomposition will differentiate between two different components. First component measures the differences in rent paid by the local and foreign tenants as a result of

differences in characteristics of the dwelling or characteristics of the tenants. This component is labeled as "explained" part of the decomposition since it results from naturally occurring differences. The second component is referred to as "unexplained" component of the decomposition since it results from the differences in rent for foreign and local tenants that otherwise have the same characteristics. The differences in rent cannot be explained only by the variables included in the model and this part is captured by the second component of the equation. This component is often referred to as discrimination, since the differences in rent do not result from the naturally occurring factors; it is assumed that the difference must be motivated by discrimination.

Data set used for this study comes from a project entitled "Economic Impact of IUS on Local Economy of Ilidza and Sarajevo" implemented at the International University of Sarajevo in March 2016. This projected aimed at analyzing direct and indirect income and employment impact of investment spending by SEDEF foundation and personal spending of IUS staff and students on the local economy over the last 12 years period. In order to obtain data on student and staff spending, two seperate surveys were conducted ın April and May 2016. Student survey was conducted online and also through direct interviews with students while their responses were recorded in the online survey tool by the researchers. Staff survey was conducted on paper and the content of the survey was very similar to the student survey. A sample of staff survey is provided in Appendix II.

The student survey was conducted both online and on paper while the staff survey was conducted only on paper. The student survey was conducted on randomly selected 498 students out of 1,765 total registered students of IUS for the Spring semester of 2016. Therefore, the overall participation ratio is 28.2 percent. Following the student survey, a slightly differentiated survey for obvious reasons were conducted on the IUS and SEDEF foundation staff by distributing questionairs to all available employees. 161 of the surveys were collected back as complete out of 231 employees working at IUS or SEDEF foundation (201 was working at IUS while 30 was employed by SEDEF foundation as of May 2016). Therefore, the participation rate is 69.7 percent and participation from both organization was not significantly different. It should be noted that SEDEF foundation employees essentially work and serve at IUS premises and most of their task is directly related with the university students and staff. Therefore, it is considered to be reasonable to include SEDEF foundation employees within the IUS staff despite the legal speration between two organizations.

Since this study has a different purpose than the project mentioned above, only the data on students and staff who paid rent for their accommodation were relevant for this study. Therefore, the main data set for this study only includes 235 students and 53 staff members and their information on their relevant variables analyzed in this study such as monthly rent, family income, monthly personal spending, car ownership, whether the person is Bosnian or foreigner, number of roommates, apartment/house characteristics like size, number of rooms, floor, type of heating, location, walking distance to the nearest tram station/bus stop, age of the apartment/house and if the apartment is furnished.

Due to natural differences between students and staff in their questions and responses, small modifications were done in some variables to harmonize the data. Also, some variables like "familyincome" and "monthlyspending" had to be augmented even though their nature was different. "familyincome" is the total income of the students' family and it does not necessarily reflect the amount of money that student is able to control while the same value for staff is the overall household income of the staff member and it is usually available fully to the use of staff member. Similarly, "monthlyspending" is the personal monthly expenditure of the student while it is the combined expenditure of the staff member, his or her spouse and children. Therefore, merging data sets may possibly create some question marks on the result. However, these variables are included in the regressions for the sake of a higher explanatory power. Regression results without these variables did not alter the main results significantly but only the R-squre was found to be relatively lower.

Table 1 below provides the descriptive statistics of dependent and independent variables used in this study. Based on the survey results, there were over 20 independent variables which could be used in the study. However, some of them were taken out of the model due to missing information in few of these variables as some of them did not apply to either students or staff members. In the study, "renttotal" is the main dependent variable and it is calculated by multiplying the sum of "rentshare" and utilityshare[2] of each roommate with the number of roommates, if there is any. Table 2 provides descriptive statistics of student sample and staff sample for comparison. As it can be seen in Table 2, mean values of most variables differ between student and staff sample. Staff members turn out to live in larger homes while students live in smaller apartments. Not surprisingly, staff members pay higher amount of rent and incur higher amount monthly spending compared to students. Majority of the staff members are married or divorced and they live with their children while students mostly share their apartments with other students. Only a fraction of staff members are single and some share their apartments with other people.

Also, Table 3 provides descriptive statistics of local (Bosnian srudents and staff members) sample and foreigners (Turks and other foreigners, students and staff combined) sample for comparison. As it can be seen in Table 3, mean values of certain variables differ between local tenants and foreign tenants. Foreign tenants turn out to live in larger apartments/homes while local tenants live in smaller apartments/homes. Again, not surprisingly, foreign tenants pay higher amount of rent and incur higher amount of monthly spending compared to local tenants. Finally, according to data collected, local IUS students and staff members turn out to rent relatively older apartments/homes when compared to their foreign counterparts.

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Variables used in the regressions were checked for a possible multicollinearity and the results for selected variables can be seen in correlation matrix in Appendix Table 1. As it can be seen in the table, majority of the variables does not have a significant correlation which may result in multicollinearity. Multicollinearity, which is the situation of independent variables in a regression to be highly correlated with each other, becomes a potential problem when the correlation value between two variables exceed 0.50 (Mason et. al. 1991). In this study, only the correlation between size and room of the apartment/home for the overall sample, which is 0.7430, seems rather high and this might create a multicollinearity. In order to solve these problem, one possible solution is to drop one of these variables. However, the results did not change significantly when "room" or "size" variable used alone in the regressions and decomposition calculations.

[2]In the region, rental rate for most apartments/homes do not include the utilities. However, in the sample, some observations were either all utilities paid apartment/home or some basic utilities like apartment maintenance fee were included in the rent. OLS regressions and Oaxaca-Blinder decompositions were calculated for different cases in terms of pure rent (after some adjustment) or utility included rent and found no significant difference (large enough to alter the findings of study) in the results.

Table 1: Descriptive Statistics of the Combined Sample

Variable	Mean	Standard Deviation	Minimum	Maximum
Renttotal	480.76	213.27	150	1200
Rentshare	244.96	121.40	110	800
utilityshare	98.53	81.18	0	390
Local	0.24	0.43	0	1
Foreign	0.76	0.43	0	1
Male	0.73	0.45	0	1
familyincome	4291.04	4949.09	310	40000
monthlyspending	1189.60	826.24	250	5500
Owncar	0.27	0.42	0	1
apartment	0.75	0.42	0	1
Roommate	0.72	0.69	0	4
Size	59.22	20.87	30	150
room	2.42	0.85	1	5
heating	2.26	0.86	0	3
age	15.26	12.67	0	70
updated	0.45	0.50	0	1
location	4.30	2.24	1	7
walkdistance	9.88	7.53	0	45
floor	4.73	3.22	0	15
elevator	0.80	0.77	0	3
furnished	3.14	0.99	1	4
Parking	0.22	0.44	0	3
Number of observations				**288**

Table 2: Descriptive Statistics for Comparison between Students and Staff

	STUDENTS		STAFF	
Variable	Mean	Std. Dev.	Mean	Std. Dev.
renttotal*	462.58	219.46	561.35	185.81
rentshare*	201.09	113.88	439.48	154.77
utilityshare*	85.27	77.23	157.31	98.69
local*	0.20	0.40	0.45	0.50
foreign*	0.80	0.40	0.55	0.50
Male	0.72	0.45	0.75	0.43
familyincome*	4579.44	5258.73	3012.26	2949.29
monthlyspending*	948.00	547.60	2260.83	992.48
owncar*	0.21	0.41	0.57	0.50
apartment*	0.80	0.40	0.55	0.50
roommate*	0.85	0.77	0.12	0.32
size*	57.52	20.91	66.74	20.71
room*	2.32	0.85	2.86	0.84
Heating	2.29	0.85	2.13	0.90
Age	15.63	13.44	13.60	9.24
Updated	0.46	0.50	0.42	0.50
Location	4.34	2.22	4.13	2.30
walkdistance*	9.27	7.95	12.58	5.69
floor*	5.13	3.35	2.94	2.67
elevator*	0.92	0.85	0.31	0.42
Furnished	3.12	1.00	3.19	0.94
Parking	0.21	0.45	0.23	0.42
Number of observations		**235**		**53**

* Significantly different at 5 percent significance level

Table 3: Descriptive Statistics for Comparison between Local and Foreign Tenants

	Locals		Foreigners	
Variable	Mean	Std. Dev.	Mean	Std. Dev.
renttotal*	357.46	168.75	520.35	227.56
rentshare*	181.10	101.09	265.47	127.92
kutilityshare*	76.70	62.07	105.54	87.31
male*	0.69	0.49	0.74	0.43
familyincome*	2094.02	2736.58	4996.51	5544.64
monthlyspending*	886.89	622.03	1286.80	892.09
Owncar	0.27	0.45	0.28	0.45
Apartment	0.71	0.47	0.76	0.42
Roommate	0.69	0.96	0.73	0.85
size*	48.06	18.96	62.81	20.47
room*	2.07	0.84	2.53	0.83
Heating	2.23	1.00	2.27	0.82
age*	22.13	16.08	13.06	10.67
Updated	0.36	0.48	0.48	0.50
Location	3.96	2.09	4.41	2.27
Walkdistance	9.93	6.42	9.86	8.06
Floor	4.40	3.91	4.84	3.27
Elevator	0.74	0.94	0.82	0.90
Furnished	3.01	1.08	3.17	0.96
parking	0.26	0.44	0.20	0.45
Number of Observations		**70**		**218**

* Significantly different at 5 percent significance level

4. Empirical Results

As explained earlier, this study aims to test if there is an rental discrimination towards the IUS students and staff members who are not Bosnian. According to the Table 3, it is obvious from the mean values of “renttotal” and “rentshare” variables that there is a significant difference between what locals pay and foreigners pay for rent in Ilidza and other parts of Sarajevo. However, one can argue that this difference may not be that significant when other variables are included in the regression along with either “local” or “foreign” dummy. In order to prove that this dummy is significant, an OLS regression with “foreign” dummy was estimated using “lnrenttotal” as a dependent variable. As explained above, “foreign” dummy is significant as expected and desired for the purpose of this study.

In housing literature, it is often argued that the linear regression may not be the best to capture the non-linear nature of the relationship between dependent variables and some independent variables. For that reason, Table 4 presents the same regression for semi-log form of rent equation. The regression equation has a higher R-square than the ordinary regression compared to linear one. Also, more explanatory variables turn out to be significant, which are; monthlyspending, apartment, roommate, room, size, foreign, age, heating and furnished (they are displayed in bold font as they are significant at 5 percent significance level).

Based on the results of Table 4, it is clear that "foreign" coefficient is positive and highly significant, implying that foreign tenants are paying more than what locals pay for rent according to the sample of this study. However, this study aims to investigate this evident difference in more detail in order to find out if there is a "real" difference. More explicitly, this study aims to find out if the foreign tenants are paying more for rent when the housing and locational characteristics are kept constant. In other words, the study analyzes if the foreign tenants would be paying more for rent if their apartments/homes were priced based on locals' rent equation or formula. Similarly, the same calculations can be made by using foreign tenants' rent equation for the locals in order to check if the locals are chargedsimilar to the foreign tenants. As explained in the methodolgy section, this analyzes was conducted using Oaxaca-Blinder Decomposition method. Decomposition calculations were done using "oaxaca" module of Stata, which can be found in open-source research websites.

Table 4: OLS regression for Combined Sample (Semi-log model)

Source	SS	df	MS	Number of obs	=	288
				F(18, 269)	=	34.23
Model	41.5113885	18	2.30618825	Prob > F	=	0.0000
Residual	18.123295	269	.067372844	**R-squared**	**=**	**0.6961**
				Adj R-squared	**=**	**0.6758**
Total	59.6346834	287	.207786353	Root MSE	=	.25956

lnrenttotal	Coef.	Std. Err.	T	P>|t|	[95% Conf. Interval]	
familyincome	4.45e-06	3.47e-06	1.28	0.201	-2.38e-06	.0000113
monthlyspending	**.0000816**	**.0000234**	**3.48**	**0.001**	**.0000355**	**.0001277**
apartment	**.1127772**	**.0410777**	**2.75**	**0.006**	**.0319025**	**.1936519**
owncar	.010479	.0384316	0.27	0.785	-.065186	.0861439
roommate	**.2880988**	**.0221399**	**13.01**	**0.000**	**.2445093**	**.3316882**
room	**.0634106**	**.0287113**	**2.21**	**0.028**	**.0068831**	**.1199381+-**
size	**.0023531**	**.0011673**	**2.02**	**0.045**	**.000055**	**.0046513**
foreign	**.2860776**	**.0400975**	**7.13**	**0.000**	**.2071327**	**.3650224**
male	.0257228	.0358301	0.72	0.473	-.0448202	.0962658
age	**-.0030865**	**.0014189**	**-2.18**	**0.030**	**-.00588**	**-.000293**
location	.015276	.0094517	1.62	0.107	-.0033326	.0338846
parking	.0272892	.0371098	0.74	0.463	-.0457734	.1003518
heating	**.0449838**	**.0202427**	**2.22**	**0.027**	**.0051296**	**.0848381**
walkdistance	-.0024145	.0024512	-0.99	0.326	-.0072405	.0024115
floor	-.0034269	.0057674	-0.59	0.553	-.0147819	.0079281
furnished	**.0581679**	**.0184611**	**3.15**	**0.002**	**.0218213**	**.0945146**
elevator	-.0032098	.0290513	-0.11	0.912	-.0604067	.053987
updated	.0035077	.0352976	0.10	0.921	-.065987	.0730023
_cons	5.079983	.1041211	48.79	0.000	4.874987	5.284979

In order to apply Oaxaca-Blinder decomposition technique, first relevant sub-group regressions, hence coefficients, are calculated by using linear regression method. Then, above mentioned program employs matrix calculations using the coefficients and mean values of each sub-group. Finally, the program

module calculates “explained” and “unexplained” difference and also check the significance of these differences using z-test. In all cases, the hypothesis that we are testing will be as follows:

H0 = The difference is equal to 0

H1 = The difference is not equal to 0.

Oaxaca-Blinder decomposition results are given in Table 5 for semi log model. As it is known, semi-log form allows to calculate the change in dependent variable in percentage terms. Therefore, the results indicate that foreign tenants pay 37.5 percent more compared to their local counterparts. But 13.8 percent of this difference can be explained with better or higher characteristics of the apartment/home. Remaining 23.7 percent difference is the unexplained difference or simply the difference due to “discrimination”. As it can be seen from the table, coefficients related with difference; overall difference, explained difference and unexplained difference all are significant as z-value for each coeffecient is greater than 1.96 (or p-value is less than 5 percent). Therefore, all null hypotheses for the differences are rejected in both models. Hence, it can be concluded that 1) income, housing and locational characteristics of the foreigners are significantly higher than locals and 2) however, there is still a considerable and significant difference in the rent paid by foreigners even after taking these higher characteristics into account.

Table 5: Oaxaca-Blinder Decomposition Results (Semi-log model)

Blinder-Oaxaca decomposition Number of obs = 288

1: local = 0 or foreign = 1
2: local = 1 or foreign = 0

lnrenttotal	Coef.	Robust Std. Err.	Z	P>|z|	[95% Conf. Interval]	
Differential						
Prediction_1	6.254499	.0262012	238.71	0.000	6.203145	6.305852
Prediction_2	5.879020	.0554363	106.05	0.000	5.857304	5.987673
Difference	**.3754792**	.0532595	**7.05**	0.000	.2710926	.4798658
Decomposition						
Explained	**.13789313**	.0510661	**3.16**	0.002	.0612281	.2614034
Unexplained	**.23758609**	.034786	**6.83**	0.000	.169408	.3057647

As mentioned earlier, main dataset of this study contains rental data on IUS students as well IUS staff members. However, as explained in the motivation section of the study, initial goal of this study was to find out if foreign students in the region faced with rental discrimination. Student rental dataset included 235 observation but only 46 of these observations belonged to Bosnian students. Since relatively low number of local students could make the calculations of decomposition values, it was decided to enlarge the dataset by adding staff data despite potential heteroskedasticity problem. In order to detect if the combined dataset suffers from heteroskedasticity problem, Breusch-Pagan and the White tests were conducted in Stata and the results indicate the possibility of heteroskedasticity. The results indicate the existence of heteroskedasticity problem in the combined dataset. On the other hand, no evidence of

heteroskedasticity was found when the initial student dataset was checked with the same tests. In order to deal with the consequence of heteroskedasticity, regressions and Oaxaca-Blinder decompositions were recalculated using "robust" option of stata and, even though the final results did not change significantly.

5. Conclusions

Any form of discrimination is disliked and has a negative connotation. With increasing public awareness, legal authorities generally aims pass laws and regulations in order to fight agains such practices in different aspects of life. However, most of the time, discrimination is not clearly visible or obvious. Therfore, it is a difficult notion to eradicate just by passing laws and regulations. Economists and statisticians developed models which can identify the existence and quantify the magnitude of discrimination, especially the types involve monetary values such as price discrimination or wage discrimination.

Rental discrimination also is an example of such discrimination which can be proven by using statistical methods. Field experiments including audit method are ideal for studying discrimination perceived or faced by the people. However, due to its high cost, this study employed survey method. This study analyzes the rental discrimination against foreigners in and around Ilidza area of Sarajevo city using a sample selected from the students and staff members of International University of Sarajevo. Even though the sample is not representative of the city of Sarajevo, it can still be useful to get clues about the existence and degree of rental discrimination in the region.

After employing various model specifications, this study finds that foreigners do pay for rent significantly higher than locals. However, this alone is not a provoking result as one may expect that foreign members of the sample of this study are mostly foreign students and professors from Turkey with higher level of income and monthly spending compared to their Bosnian counterparts. It is widely known that, due to difference between economic levels of Turkey and B&H as well as large difference between the per capita income of Turks and Bosnians, Turks as well as most other foreigners coming from more developed or wealthier countries are expected to rent larger and newer apartments and homes. Therefore, one can easily assume that this difference in rental rates could be a result of mere quality difference.

However, this study also investigates this situation further by using Oaxaca-Blinder decomposition method and finds that, regardless of the sample selected and models specified, this difference can be divided into two parts and both of them are statistically significant, meaning that they are unlikely to be zero or non-existent. Oaxaca-Blinder decomposition simply finds that the total difference in the rents paid by foreigners and locals can be broken into two parts; the first part is called "explained" difference as it occurs due to quality differences of rental units and also due to difference in personal attributes of the foreigners and locals. The second part is called "unexplained" difference and it is classified as the difference which cannot be explained with personal attributes or quality differences between the groups. Therfore, this difference is simply called as "discrimination" component of the decomposition.

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