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Track #6 Ökonomische Pluralität in Forschung, Lehre und Praxis

The Migrant Wage Gap in Austria

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Contents

1 Introduction

In the years 2016 and 2017, several important political events took place on a geopolitical scale, as well as in Austrian politics. The British EU-Referendum, the presidential elections in the United States of America and the elections in France were all dominated by the topic of migration, with far right positions becoming more and more widespread in the political landscape. In Austrian politics, the presidential election of 2016 and the upcoming election of the National Council in 2017 were also characterised by discussions about migration. A negative view of migrants seems to be on the rise, with discrimination being a possible outcome of this rising animosity. With this background, an empirical examination of the situation of migrants working in Austria should yield interesting results.

As the following literature review shows, discrimination against migrants exists in the Austrian labor market. It is shown that migrants face several kinds of disadvantages, ranging from a smaller likelihood of being invited to a job interview [Weichselbaumer, 2015], to difficulties in properly converting one's education to an adequate job position [Biffl et al., 2012]. With Hofer et al (2017) and Grandner and Gstach (2015) only two papers exist which discuss the wage gap between migrants and natives in Austria. A shortcoming of these papers is that they do not bother to further breakdown the found discrimination into its components.

This paper aims to examine the wages of migrants and Austrians, in order to find out if there is a significant wage gap between these two groups and to analyze the components of this gap. As only two other papers exist that deal with this topic, a third examination should prove helpful in solidifying the already found results. After consulting other papers which address the subject at hand, the research questions are formulated and the further procedure is determined by specifying the approach for the examination of the wages as well as defining important variables to include in the examination. With this done, the included variables are extracted from the data and prepared for further processing. Afterwards, the used methods, a wage regression and an Oaxaca-Blinder Wage Decomposition, are presented and explained in Section 6. By adding the weighting concept of Neumark (1988), the results of the decomposition can be further broken down, yielding new results on the situation of migrants in the Austrian labor market. At the end of the paper a discussion summarizes the results and findings of the literature review and the empirical part and tries to analyze if these results fit into the neoclassical paradigm.

2 Literature

The phenomenon of wage gaps has been a topic of discussion and research for decades. A large body of research shows the existence of a gender wage gap in numerous countries, including Austria. A worrying sign for the Austrian people should be that the gender wage gap in Austria has been one of the largest of the European Union for several years [EUROSTAT, 2017b].

The existence of a gender wage gap has prompted numerous researchers to examine this gap and to determine the causes of the gap. Weichselbaumer and Winter-Ebmer (2005) analyze a large number of papers committed to this cause, comparing the approaches and results of several hundred papers. As they point out, the most standard procedure is the one developed by Blinder (1973) and Oaxaca (1973), which decomposes the wage differences into explained and unexplained parts, with the unexplained part commonly seen as discrimination [Weichselbaumer and Winter-Ebmer, 2005].

This approach can be used to study different kinds of discrimination, as long as there are wage differences between distinct groups. Blinder (1973) himself uses it to decompose the wage differences between white and black males, using it to measure racial discrimination in Michigan in the USA. Blinder finds that whites, for example, gain more from having more work experience than blacks, showing that the returns to characteristics are different for whites and blacks. Altogether, 70% of the wage differentials between blacks and whites can be attributed to various sorts of discrimination [Blinder, 1973]

This aim of this research paper is to examine if there is a wage gap between migrants and natives in Austria and, if so, to decompose this difference using the Oaxaca-Blinder decomposition.

Comparable work has been done by Aldashev and Thomsen (2008) in Germany. The authors analyze the migrant wage gap by using a variant of the Oaxaca-Blinder decomposition. They base their analysis on the 2005 German Socio-Economic Panel (GSOEP), whereat they limit themselves to only considering first generation migrants in West-Germany, ranging from 16 to 65 years of age. The authors find a substantial wage gap between migrants and natives, especially for women. Whilst the difference in endowments can explain 49% of the gap for men, 88% of the gap is unexplained for the female sample. This unexplained part can be interpreted as discrimination. Some of this gap could be explained by insufficient recognition of educational degrees attained outside of Germany, showing the problems that immigrants have in transferring their human capital into a foreign labor market [Aldashev et al., 2008].

For Austria, there are two papers that examine the migrant wage gap. Hofer et al (2017) analyze the wage differentials between natives and immigrants following the Oaxaca-Blinder approach. The authors use data from the Labor Force Survey (LFS) combined with data from social security records. They analyze the mean of the whole sample, as well as the wage differentials across the wage distribution, using quantile regressions for every percentile of the wage distribution. Their findings are that migrants of the first generation earn approximately 17% less than their native counterparts. The wage differences between natives and migrants of the second generation are not significant for males, but at 10.6% for females. By including differences in human capital, occupation and job position the unexplained part of the differences can be reduced to very low levels. Looking at the entire wage distribution, Hofer et al find that the wage gap increases over the wage distribution, whilst not finding evidence of wage assimilation in Austria [Hofer et al., 2017].

In their 2015 research paper, Grandner and Gstach use the Machado-Mata approach to estimate the wage discrimination for gender, sector of employment and, for this paper of the highest interest, country of origin. The data used by the authors is the EU Statistics on Income and Living Conditions (EU-SILC) for 2008, including variables on income, job experience, firm size, education, consensual union status, job position and job sector, as well as dummies for sex and being born abroad. The differences in wages between migrants and natives follow a U-shape, reaching around 15% at both ends of the distribution, with 25% as the maximum at the 7th decile. The pure discrimination follows a similar pattern and reaches its maximum with 20% at the 8th decile, what implies a stronger discrimination against foreign professionals than against blue collar workers [Grandner and Gstach, 2015].

These papers show that there is evidence of a migrant wage gap in Austria, which is only partly explained by better endowments of Austrians. A considerable part of these differences cannot be explained and, therefore, can be seen as discrimination. A more detailed explanation of this conclusion is offered in Section 6 of this paper.

A major role in how high one can rise in the wage distribution is played by the education of oneself. However, migrants have a harder time to convert their attained education into higher wages and/or better jobs, as research has found. Alcobendas, Rodriguez-Planas and Vegas (2014) have found massive differences in appreciation of educational levels between migrants and natives in Spain. The authors analyze immigrant's assimilation processes into the Spanish labor market. Using data of the Labour Force Survey (LFS), they come to the result that immigrants generally, even when in possession of a

college degree, are over-represented in the 'non-qualified' category of jobs. Whilst immigrants begin to shift towards more qualified jobs after 3-4 years, the authors come to find that having a high-school degree does not benefit immigrants in finding an occupation fitting their degree. In terms of wage differences, it is found that the wage assimilation is largest for migrants with a college degree, whilst there is no difference between occupations that require a high-school degree and those that do not [Rodriguez-Planas et al., 2014].

Looking at Austria and Germany, Gächter and Smoliner (2010) find a low value of foreign-acquired education in both countries. Using data from the Labour Force Survey (LFS), the authors analyzed the occupational returns to education for migrants. The analysis shows that the returns to education vary with the persons origin, with the portability of education from Serbia or Turkey to Austria/Germany being exceptionally poor. The explanatory power of the education and experience of migrants from Serbia or Turkey is surprisingly poor, what indicates that other factors are at play that work against the appropriate occupational realization of the educational attainments of migrants in Austria and Germany. This low value of foreign-acquired education could reflect discrimination, but also differences in quality in the attained education, wrong evaluation of the worth of the educational degrees by the employer, or a low compatibility of the attained education with the requirements of the Austrian/German job market [Gächter and Smoliner, 2010].

But even if attained domestically, education does not have the same value for people with migration background as it has for natives in Austria. As Biffl (2012) shows, migrants with an Austrian high-school diploma are with 7% less likely to be in a leading position than Austrians with the same degree of education with 21%. University educated migrants are less disadvantaged than their less educated counterparts, with 21% of university graduates occupying a leading position, in contrast to 26% of Austrians with a university degree. The principle of seniority does not seem to work as well for migrants as it does for Austrians, as only 15% of migrants above the age of 45 with a high-school diploma or university degree hold a leading position, while 30% of Austrians in the same age group and with the same qualifications occupy such a position [Biffl et al., 2012].

These difficulties in converting ones education into appropriate occupations point to the existence of discrimination in the Austrian job market. In an experimental study, Weichselbaumer (2015) examined the Austrian job market for discrimination against migrants. The author did this by creating several profiles of fake job applicants who hold the same amount of human capital and forwarding these to job openings. Some of these exactly equally

qualified had a migration background, while some of them had not. All applicants were born in Austria and received their education in Austria, ruling out the previously mentioned 'low value' of foreign education in the eyes of Austrian employers. There were several indicators for a migration background in these profiles, as pictures of the candidates and stereotypical (last-)names, fitting their background, were included in the applications. By varying the educational levels of the migrant/non-migrant applicants between the profiles sent to the same firm, the author tried to minimize the risk of detection. The experiment revealed substantial discrimination against applicants with a migrant background, especially against those with an African background. In an effort to explain why and when discrimination occurs, Weichselbaumer examined a battery of firms and different job specific characteristics (such as if costumer contact is required in the job). These situational variables, however, had no impact on the treatment of the applicants, implicating a general dislike of migrants by employers in Austria [Weichselbaumer, 2015].

In a similar experiment to the one conducted by Weichselbaumer, Kaas and Manger (2012) tested for discrimination in the German labor market. The approach of the authors was to send two similar applications for internship openings for students of economics and business in Germany. Both applicants have received an identical education in Germany, are speaking the same languages and have the same skills. On of the two applicants has a Turkish sounding name, whilst one has a German sounding name. The results show that there is a significant difference in callback rates, with the German-sounding applicants being preferred over the Turkish sounding ones. Large firms are less likely to discriminate, what is traced back by the authors to the often standardized recruitment processes in larger firms [Kaas and Manger, 2012].

As the previously discussed papers suggest, a crucial factor in the differences between migrants and natives seems to be the inability of migrants to properly convert their human capital into appropriate jobs. Constant and Massey (2005) examine these difficulties of migrants in the German labor market. They base their study on data from the German Socio-Economic Panel (GSOEP) and conceptualize the process of earning attainments in three stages: the first occupation, the final occupation and the final earnings. The authors measure the human capital of the applicants by their education, if they have received additional vocational training, their work experience in Germany and an indicator if the respondents were fluent in German. Their findings signify problems for migrants to transfer their human capital into their first job, often working in jobs of lower status than their German counterparts and, therefore, earning less than equally qualified natives. They also find evidence that migrants have less job mobility over time than na-

tives, with evidence of a widening gap between migrants and natives over the time spent in the labor market. However, the returns to experience were high enough that migrants reach the same level of earning as natives after 23 years in the job market [Constant and Massey, 2005].

3 Motivation and Research Questions

The main interest of this paper is to discover whether there are unfounded wage differentials between migrants and natives in Austria. As the literature review shows, various sorts of discrimination against migrants exist in Austria. But are the wages of migrants affected by this discrimination? The discussed variables, such as the received education or the job position, will amongst others be included in a wage regression, to determine, what effects these variables have on the expected wages of migrants and natives. Another point of interest is whether the wage differential varies between the different income levels.

To conclude, the research questions of this paper are:

- Is there a wage gap between migrants and natives in Austria?
- If so, is this migrant wage gap fully explained by the differing endowments between the two groups or is it based on discrimination?

4 Data

4.1 EU-SILC 2013

This research project is based on the European Union Statistics on Income and Living Conditions (EU-SILC). The EU-SILC is an instrument that provides two types of data for the European Union Member states, as well as Turkey, Switzerland, Iceland and Norway: cross-sectional data that measure income and living conditions at a given point in time, as well as panel data, which show changes over time and are observed over 4 years. For this research project, the cross section data of the 2013 EU-SILC is used [EUROSTAT, 2017a].

As Austria is the focus of this examination, only the data pertaining to it will be used. In the 2013 EU-SILC Cross Sectional Dataset, 5977 households and 10940 individuals are interviewed. Key variables for filtering are the employment status of the individuals, as only employees were subject of the research project, and a positive gross year income. After filtering (the exact

methods of filtering will be explained in the 'Variables' section) the amount of valid observations is down to 4520.

5 Variables

The first mention of the variable will include the variable label (eg. Year of the Survey), as well as the variable name (eg. pb010) in the EU-SILC 2013 dataset. Afterwards only the variable label will be used.

5.1 Dependent Variable

5.1.1 Hourly Wage

The dependent variable for the research project is the hourly wage of employees. As there is no such variable in the EU-SILC 2013 dataset, it must be constructed by other means. We follow the approach of Grandner and Gstach (2015) in constructing the hourly wages. The 'Employee Cash or near cash income (gross)' (py010g) forms the basis for the construction of the hourly wages. After filtering it to be greater than zero, the next step is to derive the total hours worked per week for each individual, by adding the 'Number of hours usually worked per week in main job' (pl060) and the 'Total number of hours usually worked in second, third jobs' (pl100). This new variable of 'total hours worked per week' is then filtered to be above 0, as to avoid dividing through zero. In the next step, the total amount of months worked per year is found out by adding the 'Number of months spent at full-time work as employee' (pl073) and the 'Number of months spent at part-time work as employee' (pl074). This 'total amount of months worked' variable is then again filtered to be above zero. By multiplying the total hours worked per by week by 4 (amount of weeks in a month) and then by the total amount of months worked by year, the amount of total hours worked per year is constructed. Finally, the 'employee cash or near cash income (gross)' is divided by the total hours worked per year and results in the hourly wages of the individuals.

5.2 Independent Variables

5.2.1 Sex

The sex (pb150) of each individual is added as an independent variable, to control for the effects one's gender has on their wage. For example, modern empirical research shows that women earn less money for the same amount

of work as men do [Böheim et al., 2013]. Excluding sex as a variable would therefore distort the effects of other variables on the dependent variable. In the EU-SILC dataset of 2013, sex is a binary variable with the values 1 for 'male' and the value 2 for 'female'. In order to properly use the variable as a dummy variable, these values are transformed to 0 for 'male' and to 1 for 'female'.

Table 1: Sex Ratio

Sex	Quantity
Male	2431
Female	2089
In total	4520

5.2.2 Experience

In the EU-SILC 2013 dataset the variable 'number of years spent in paid work' (pl200) is collected, which ranges from 0 to 75 years. As its name suggests, the variable denotes how many years the individual had already spent in paid work when the survey interviewed them. As it is assumed that the benefit of having another year of work experience is bigger when one has a lower amount of experience than when one has already worked a fair amount of time, the variable is also included as a quadratic function.

5.2.3 Education

The years of schooling an individual has received are not directly recorded in the EU-SILC 2013 dataset. Instead, the variable 'Highest ISCED level attained' (pe040) is collected. The International Standard Classification of Education (ISCED) is a classification system that was developed by the UNESCO, in order to have the possibility to properly compare educational data between countries. In the EU-SILC 2013 dataset, the variable 'Highest ISCED level attained' has values from 0 to 5. Following the method of aggregation used by EUROSTAT on its online tables, the values have been aggregated as seen in Table 2 [EUROSTAT, 2017c].

5.2.4 Leading Position

A major part of one's salary is dictated by the job position one is in. As Weichselbaumer (2015) has shown, migrants are less likely to be given a

Table 2: Educational Levels

Value	Aggregated
0 - pre-primary education 1 - primary education 2 - lower secondary education	low education
3 - (upper) secondary education 4 - post secondary education	medium education
5 - 1st & 2nd stage of tertiary education	high education

job interview for qualified jobs such as accountants and secretaries. Solely looking at statistics, migrants are underrepresented in leading positions, as only 9% of the managerial positions in Austria are filled by migrants, in contrast to the 13% of non-leading managerial filled by migrants. Migrants with a university degree are less likely to be in a managerial position than Austrians with the same education (21% to 26%) [Biffl et al., 2012]. The EU-SILC 2013 datasets records the job position one is in, specifically if one is in a managerial position or not. The variable managerial position (pl150) has the values 'supervisory' and 'non-supervisory', which will be re-coded into the value '0' for 'non-supervisory' and '1' for 'supervisory', to properly use it as a dummy variable.

5.2.5 Health

The subjective health of the interviewees of the EU-SILC survey is recorded as the variable 'General health' (ph010). Its values range from 'very good', 'good' and 'fair', to 'bad' and 'very bad'. These values will be aggregated into two groups, one including 'very good, good and fair', as these people do not experience anything extraordinary bad considering their health, and the other group including 'bad and very bad'. The assumption is that individuals who consider their own health at least 'fair' are not hampered in practicing their profession, whilst individuals who consider themselves at 'bad' or 'very bad' health, are.

5.2.6 Degree of Urbanization

Research shows that the degree of urbanization of the region one works in influences the level of the earned wage [Hirsch et al., 2009]. The EU-SILC dataset of 2013 provides the variable 'Degree of Urbanisation' (DB100), which

has the three values 'densely populated area', 'intermediate area' and 'thinly populated area'. To include this variable as a dummy variable in this thesis, 'densely populated area' will be coded as 0 and the remaining two values will be coded as 1.

5.2.7 Migrant Status

There are two variables in the EU-SILC survey that can be used as an indicator for having a migrant background. The first variable is 'Citizenship1' (PB220A), which indicates the citizenship of the interviewee and has three values: LOC, which indicates a local, in this case an Austrian citizen; EU, which indicates a citizen of the European Union; and OTH, which indicates a third-country national. However, research has shown that holding an Austrian passport does not protect one from discrimination (Weichselbaumer 2015). One could have been born in a third-country, moved to Austria at a young age and have become an Austrian citizen, yet would still be seen as a migrant by the locals. To control for this, interviewees who were born abroad (in a third-country, to be specific), should also be viewed as migrants. The variable 'Country of Birth' (PB210) indicates the birthplace of the individuals and has the same three values (LOC, EU and OTH) as 'Citizenship1'. Hence, the migrant status of the individuals will be put together of the two variables 'Country of Birth' and 'Citizenship1'. If one of these variables is OTH, the value of the new Variable 'Migrant' will be 1.

The problem of Austrians being born abroad, but living all their life in Austria and having Austrian parents could be controlled for by matching those individuals to the citizenship of their parents. If their parents were Austrian citizens, but the individual itself was born abroad, it would be classified as a migrant. Controlling for this would be possible, if enough data on the characteristics of the parents of the individuals is provided. Unfortunately, this attempt is thwarted by the very small sample size of individuals which provide data on their parents in the data set.

Table 3: Migrant Status

Migrant Status	Quantity
AT + EU	4105
Migrants	415
In total	4520

6 Methodology

6.1 Wage Regression

In this part of the paper, the effects of the aforementioned independent variables on the dependent variable are measured. The method used to do this is the method of Ordinary Least Squares (OLS). In short, OLS tries to obtain the best estimates by minimizing the sum of squared residuals, ergo the differences between predictions and the actual data [Wooldridge, 2012]. The dependent variable y is the hourly wage of the interviewed individuals. To better analyze the effects of the independent variables x_i on the dependent variable y, the natural logarithm of the hourly wage is used, which is called a log-level model. In a log-level model, the effects of each independent variable x on $log(y)$ can be interpreted as follows: the estimated parameter β of each x shows the effect of x on y if x is increased by 1 unit. By using the log-level model, the direct effect on y can be shown in percent, by multiplying the parameter β of x by 100. The final regression, including the natural logarithm of the hourly wage as the dependent variable, as well as the independent variables, is as follows:

$$\begin{aligned}\text{Log of Hourly Wage} = \alpha &+ \beta_1 \text{Experience} \\ &+ \beta_2 \text{Experience}^2 \\ &+ \beta_3 \text{Education} \\ &+ \beta_4 \text{Migrant} \\ &+ \beta_5 \text{Health} \\ &+ \beta_6 \text{LeadingPosition} \\ &+ \beta_7 \text{Degree of Urbanisation} \\ &+ \epsilon\end{aligned}$$

The results of the regression are displayed in Table 4.

All of the included variables are strongly significant, holding p-values below the 1 percent level. The only exception is the variable Bad Health, which is only significant at the 10 percent level. The effects of the different variables are mostly in line with the current research. In the examined sample, being a woman has a significantly negative effect on one's expected wage, lowering it by 13%, if all the other variables are held constant.

The accrued experience of an individual has an important positive effect on the expected wage, with the first year of experience having a positive effect of 5% on the wage. Although, this effect is diminishing year by year,

Table 4: Wage Regression

	Effect on hourly Wage
Sex	-0.130^{***} (0.017)
Experience	0.051^{***} (0.003)
Experience Squared	-0.001^{***} (0.0001)
Migrant	-0.121^{***} (0.029)
Bad Health	-0.092^{*} (0.051)
Leading Position	0.186^{***} (0.017)
Medium Education	0.346^{***} (0.026)
High Education	0.671^{***} (0.031)
Intermediate or rural Area	0.060^{***} (0.019)
Constant	1.805^{***} (0.033)
N	4,520
R^2	0.302
Adjusted R^2	0.300
Residual Std. Error	0.540 (df = 4510)
F Statistic	216.685^{***} (df = 9; 4510)
Notes:	***Significant at the 1 percent level.
	**Significant at the 5 percent level.
	*Significant at the 10 percent level.

losing its positive effect by the 26th year of work experience. A variable of great interest is the Migrant variable. If one is not an Austrian or EU-citizen, one is expected to earn around 12% less. Whilst this is a shocking result, it does not mean that migrants are discriminated against by their employers, as migrants could on average just be less qualified than natives. To measure the discrimination migrants face, we must further decompose this wage regression, as will be done in the next section of this paper. One's health does have an effect on the expected wage, although it is only slightly significant at the 10% level. People who subjectively rate their own health as bad or very bad, seem to earn less wage than (subjectively) healthy people.

Occupying a leading position in one's job has a strongly significant positive impact on the expected wage, raising it by approximately 18.6%. This could negatively influence the wages of migrants, as they are severely underrepresented in leading positions, even if their education and experience would justify such a position [Biffl et al., 2012].

The strongest positive effect on the wage has the highest level of education

attained. If one has attained a medium education, one is expected to earn 34.6% more than someone who has just attended compulsory schooling in Austria. An even stronger effect has high education: if someone has at least completed the first stage of tertiary education, they are going to earn a 67.1% higher wage than someone who has completed the compulsory schooling. Interestingly enough, living outside of a city seems to have a lightly positive, but strongly significant effect on one's wage. This clashes with the available research, as it is usually suggested that wages in densely populated areas are higher [Hirsch et al., 2009].

6.2 Wage Decomposition following Oaxaca's and Blinder's approach

The main research topic of this paper is the difference in wages between EU-citizens (including Austrians) and migrants. After reviewing the estimates of the wage regression above, one can conclude that migrants do not have the same returns to their human capital as Austrians/EU-citizens do. This would lead to differences in the mean wages between the two groups, which could not be justified by differences in characteristics, but could be lead back to discrimination of migrants.

The approach by Oaxaca (1973) and Blinder (1973) analyzes the wage differentials between natives and migrants, decomposing the difference in mean wages into two parts. The first part is composed of the differences in productivity related characteristics and human capital of the individuals and therefore the explained part of the wage differences [Oaxaca, 1973, Blinder, 1973]. The second part is unexplained, it is not based on measurable characteristics and is commonly described as the 'discrimination component' [Hofer et al., 2017].

Following Blinders (1973) approach, the decomposition of wage differentials is done as follows:

A common way to display the effects of endowments on wages, e.g. the return on education, is to estimate a regression in which the Wage W_i is explained through the intercept β_0, observable characteristics X_i and the error term u_i.

$$W_i = \beta_0 + \beta_i X_i + u_i$$

As the focus of this thesis is to compare the wages of two groups, two wage regressions are estimated. The superscript N indicates the Native-Group, ie. Austrians and EU-Citizens, whilst the superscript M indicates the Migrant group, i.e. third country citizens.

$$W_i^N = \beta_0^N + \beta_i^N X_i^N + u_i$$

$$W_i^M = \beta_0^M + \beta_i^M X_i^M + u_i$$

The explained part of the differential of the two wages can be broken down into the differences in characteristics X_i^N and X_i^M, as well as the differences in coefficients, β_i^N and β_i^M. The unexplained part of it is depicted by the shift coefficient β_0^N - β_0^M, which is often attributed to discrimination.

To further break down the differences, Blinder (1973) constructs following equation:

$$\beta_i^N \bar{X}_i{}^N - \beta_i^M \bar{X}_i{}^M = \beta_i^N (\bar{X}_i{}^N - \bar{X}_i{}^M) + \bar{X}_i{}^M (\beta_i^N - \beta_i^M)$$

As Blinder (1973) elucidates, the first part of the right term describes the value of the advantage the native group possesses in endowments, evaluated by the coefficient of the native group's wage equation. The second part of the right term describes the difference between how the migrant group's wage equation values its own characteristics and how the native group's equation would value them.

Blinder describes these as respectively as attributable to endowments and attributable to the coefficients. It is to note that the latter one only exists because the identical traits of the two groups are evaluated differently by the market. This is, just as the shift coefficient, a reflection of discrimination [Blinder, 1973].

Blinder summarizes the decomposition above as follows:

R is the raw differential

$$R = \beta_0^N + \beta_i^N \bar{X}_i{}^N - (\beta_0^M + \beta_i^M \bar{X}_i{}^M)$$

E is the portion of the differential attributable to differing endowments

$$E = \beta_i^N (\bar{X}_i{}^N - \bar{X}_i{}^M)$$

C is the portion of the differential attributable to differing coefficients

$$C = \bar{X}_i{}^M (\beta_i^N - \beta_i^M)$$

U is the unexplained portion of the differential

$$U = \beta_0^N - \beta_0^M$$

And thus, the discrimination D is the portion attributed to C and U.

A flaw in this type of decomposition is the use of the native-groups coefficient $beta_i^N$ as the reference coefficient. In academic literature, the reference coefficient is supposed to be non-discriminatory. It is assumed that only one group suffers from discrimination, hence, the wages of natives would be equal in a market with or without discrimination. Following this approach, only discrimination against the migrant group can be measured. Therefore, it assumes that all of the unexplained difference comes from discrimination,

the existence of nepotism towards the native group is not considered. If discrimination was suddenly eliminated, the wages of the privileged group (i.e. natives) would not change at all, whilst the wages of the discriminated against group (i.e. migrants) would rise to the level of the former [Neumark, 1988].

As suggested by Hlavac (2014), Neumark's weighting concept is used for the further procedure [Hlavac, 2014]. To tackle these discussed issues, Neumark (1988) developed a weighting concept, which allows to construct a reference coefficient that takes the composition of the two examined groups into account. Neumark's approach adds a restriction to the utility function of the employers. This restriction says that the utility function is homogeneous of degree zero with respects to native and migrant labor inputs. This mean that as long as the ratio of natives to migrants does not change, the employer's utility function does not change either. Neumark then constructs the marginal product of each worker of either group, which will be used as the reference coefficient.

$$\beta_{iR} = \frac{\beta_i^N N_i + \beta_i^M M_i}{N_i + M_i}$$

This β_{iR} is the marginal product of a type i worker and is equal to the non-discriminatory wage. Therefore, Neumark shows that the non-discriminatory wage can be expressed as the weighted average of the wages for native and migrant workers, even in presence of discrimination [Neumark, 1988].

7 Results

7.1 Full Sample

First, the Oaxaca-Blinder Decomposition method will be performed on the full sample of migrants and natives.

Table 5: Wage Gap

Wages	Natives	Migrants	Difference
	20.83	15.81	5.019
Difference	Total	Explained	Unexplained
	5.02	2.57	2.45
Unexplained	Total	In favor of Natives	Against Migrants
	2.45	0.23	2.22

The results of the Oaxaca-Blinder Decomposition show the wages of the two groups at the mean of the income distribution. The native-group, consisting of Austrians and other EU-Citizens, has an average houly wage of 20.83 €. On the contrary, the migrant group has a mean hourly wage of 15.81 €, amounting only to around 76% of the native's wage. Therefore, the difference in hourly wages between natives and migrants is 5.02 €.

This difference of 5.02 € can be further broken down into an explained and unexplained part. The explained part consists of the advantages the natives possess in their endowments (e.g. higher education, better job positions, higher job experience,...), whilst the unexplained part is interpreted as discrimination. With 2.57 € of the total difference, 51% of the wage gap can be explained by the difference in endowments between the two groups. The remaining 49% (2.45 €) cannot be explained by the variables that have been included in the estimation of the hourly wages. At this point it shall be noted that the unexplained part does not simply consist of discrimination. Variables that were not included in the wage regression, but actually affect one's wage, are also part of the unexplained part of the wage difference. This part, which stems from omitted variables, should be as small as possible, but can not be completely erased.

By applying the weighting concept of Neumark (1988), we are able to additionally split up the unexplained difference into two parts: nepotism and discrimination. The former shows how much of the difference is made up by employers preferring natives. This makes out 0.23 € of the unexplained part. The major part of the unexplained difference is made up by discrimination against migrants, with a 2.22 € difference resulting out of a dislike of migrants by employers, amounting to 44% of the 5.02 € wage difference.

For further examination, the explained and unexplained components of each variable can be examined. This is done by plotting the variables, splitting them into graphs showing the estimation results for each variable and a 95% confidence interval error bar. The results can be viewed in Figure 1.

In the Explained part, several statistically significant variables can be found. The highest significance and strongest effects have the variables Experience, Leading Position and High Education. All these variables are positive characterstics of workers and have shown positive effects in the wage regression. Therefore, it is logical that these variables make out a significant portion of the explained part of any wage difference, as long as there differences between the examined groups in the composition of these variables. An example would be Biffl (2012), who showed in his paper that migrants are less likely to occupy a Leading Position, leading to a much higher share

of natives in the Leading Position variable than migrants. The principle of seniority, which is according to Biffl (2012) not working for migrants, could explain part of the difference in experience. Whilst natives profit from experience and are more likely to rise into higher positions in their jobs over time, migrants are less likely to do so.

A further breakdown can be done with the stastically significant variables of the unexplained part, as well as the variable Experience, as it is by far the strongest effect. The included variables are Sex, Experience, Bad Health, Area, and High Education. The further breakdown can be viewed in Figure 2.

The experience variable surprisingly shows a statistically significant nepotism of natives, whilst the discrimination against migrants is not significant. Being a woman has a negative effect on one's wage, with a small, but significant, part stemming from nepotism towards natives. The discrimination against migrant women has a stronger effect and seems to be exactly at the border of the 95% interval. A very small, but ,again, significant, part of the Intermediate/Rural dummy's unexplained part stems from employers favoring natives, whilst the discrimination part is not significant. The p-value of the High Education variable is not below the 5% value, with no strong effect showing either.

8 Discussion

The aim of this paper was to analyze the wages of migrants and natives in Austria, in order to find out if a wage gap exists between these two groups. The literature review showed that migrants face significant hardships in Europe and Austria, making it harder for them to rise in the wage distribution. As Biffl (2012) shows, migrants are severely under-represented in leading positions, especially if one takes their education and experience into consideration. It is harder for migrants to properly turn their human capital into higher paying jobs, leading to over-qualified migrants in underpaying jobs, as shown by Constant and Massey (2005).

These findings are in line with the results of the wage regression in Section 6 Methodology. The strongest positive effect on the expected wage are "Leading Position", "Medium Education" and "High Education". These are exactly the characteristics, which are harder for migrants to convert into higher paying jobs, than for Austrian natives or EU-citizens. It is also of interest that the characteristic "Migrant" has a significantly negative effect on one's expected wage, implicating a worse position for migrants in the wage

distribution. The individual's sex also effects the expected wage negatively, showing the worse position of women in the job market.

The main part of the paper, the Oaxaca-Blinder Decomposition, shows a significant gap between the wages of migrants and Austrian/EU citizens. Looking at the whole wage distribution, migrants earn on average 15.81 €, whilst Austrians earn 20.83 €, leaving a wage gap of 5.02 € or of 24% of the Austrians wage. Of this gap, 49% remain unexplained by the included variables, implying discrimination. A further breakdown of the unexplained part into nepotism and discrimination, mainly shows that employers favor experience won by Austrians, but not by migrants.

But how do these results play into the current neoclassical paradigm? The answer is: they do not. Rational employers should not discriminate against specific groups, as that would alienate many possibly qualified employees from their hiring pool. Holding a groundless bias against specific groups would not be considered to be rational behaviour and should not exist. One of the most well known and often cited theories that deal with this problem is the theory of statistical discrimination. Popularized by Arrow (1973), it deals with the existence of discrimination against specific groups through employers. As the employers do not possess perfect information on the applicants to the open job positions, they try to extrapolate the missing data from the visible features of the applicants, i.e. group identity. Positive or negative attributes which are usually attributed to those groups, e.g. bad language proficiency for migrants, are then attributed to the individual, without actually knowing if the individual applicant exhibits these attributes [Arrow, 1973].

As Weichselbaumer (2015) and Kaas and Manger (2012) have both shown, even with information on the qualifications of the job applicants, employers are more likely to offer interviews to individuals with typically German or Austrian names. Applicants with foreign names, but the same qualification, are discriminated against, even if they possess exactly the same qualifications as their native counterparts. The rationality of this behaviour is questionable at best.

Another point which should be addressed is the explanatory power of the Oaxaca-Blinder Decompositon. In a world, in which every important variable could be easily identified, measured and included, the results of the OB-Decomposition would be infallible. But this world does not exist. Every variable that is included in the wage regression has several arguments standing for and against it. Including too many variables could lead to an underestimation of discrimination, including too few variables to an overestimation. In neoclassical theory, one is encouraged to include as many relevant variables as possible, in order to reduce the unexplained part of

the regression. But these variables could just as well skew the results and destroy their meaning, as the deeper implications of including or excluding those variables could be lost. An example is the inclusion of variables such as the job position. If one includes this variable, without explaining the differences regarding that variable between the examined groups , it would mask another part of the discrimination migrants face, as they have a harder time rising in their jobs than native Austrians. This applies to numerous variables, as including all relevant variables could probably reduce the wage gap between migrants and natives, or for example men and women, to a minimal level. But the question is, if that is actually wished for. All the hardships marginalized groups face would be ignored, rendering the results more or less useless. If one wishes to properly display the gap between a majority and a minority one must carefully select the included variables and take the challenges different groups face into account.

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Appendices

Figures

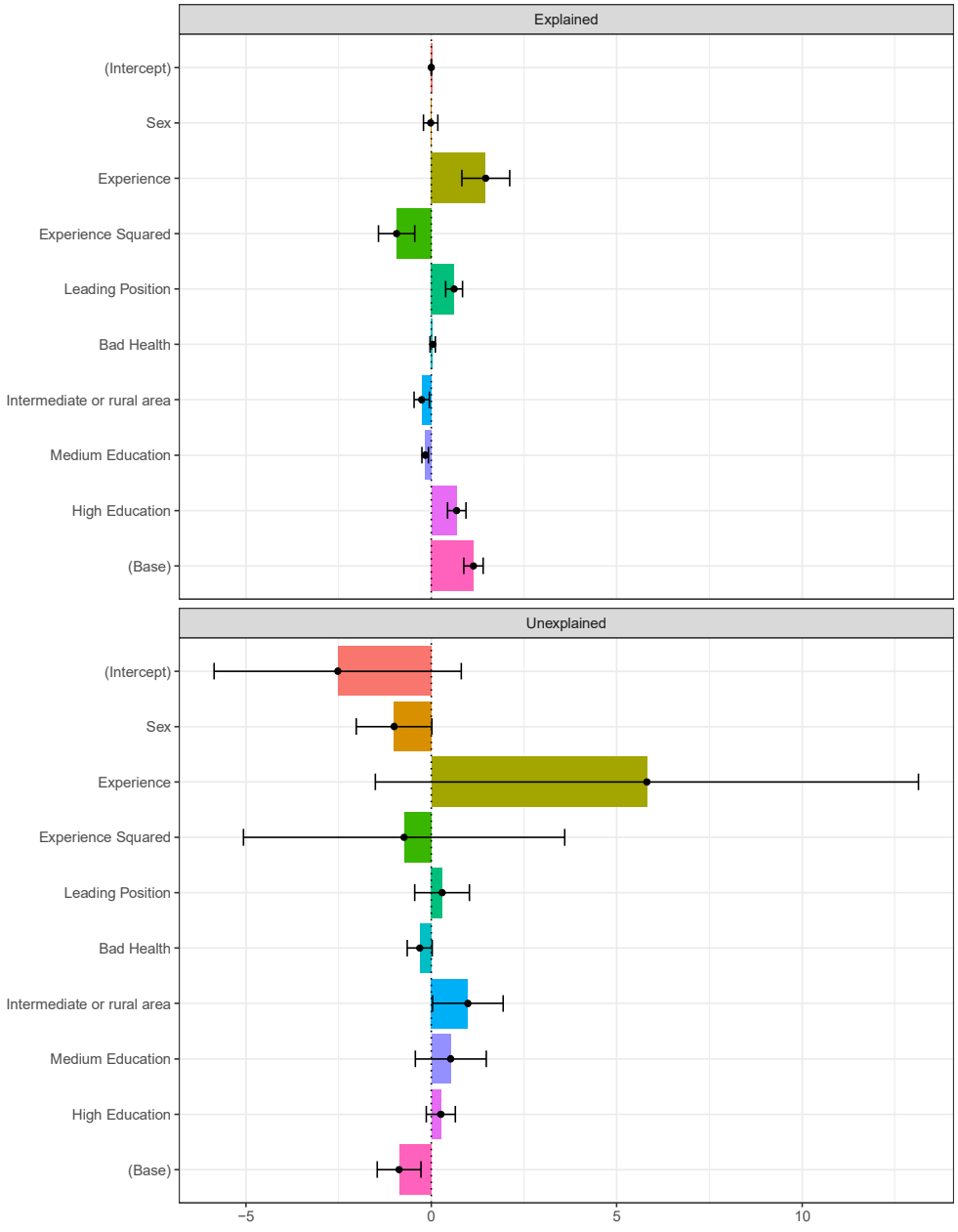

Figure 1: Twofold Decomposition - Full Sample

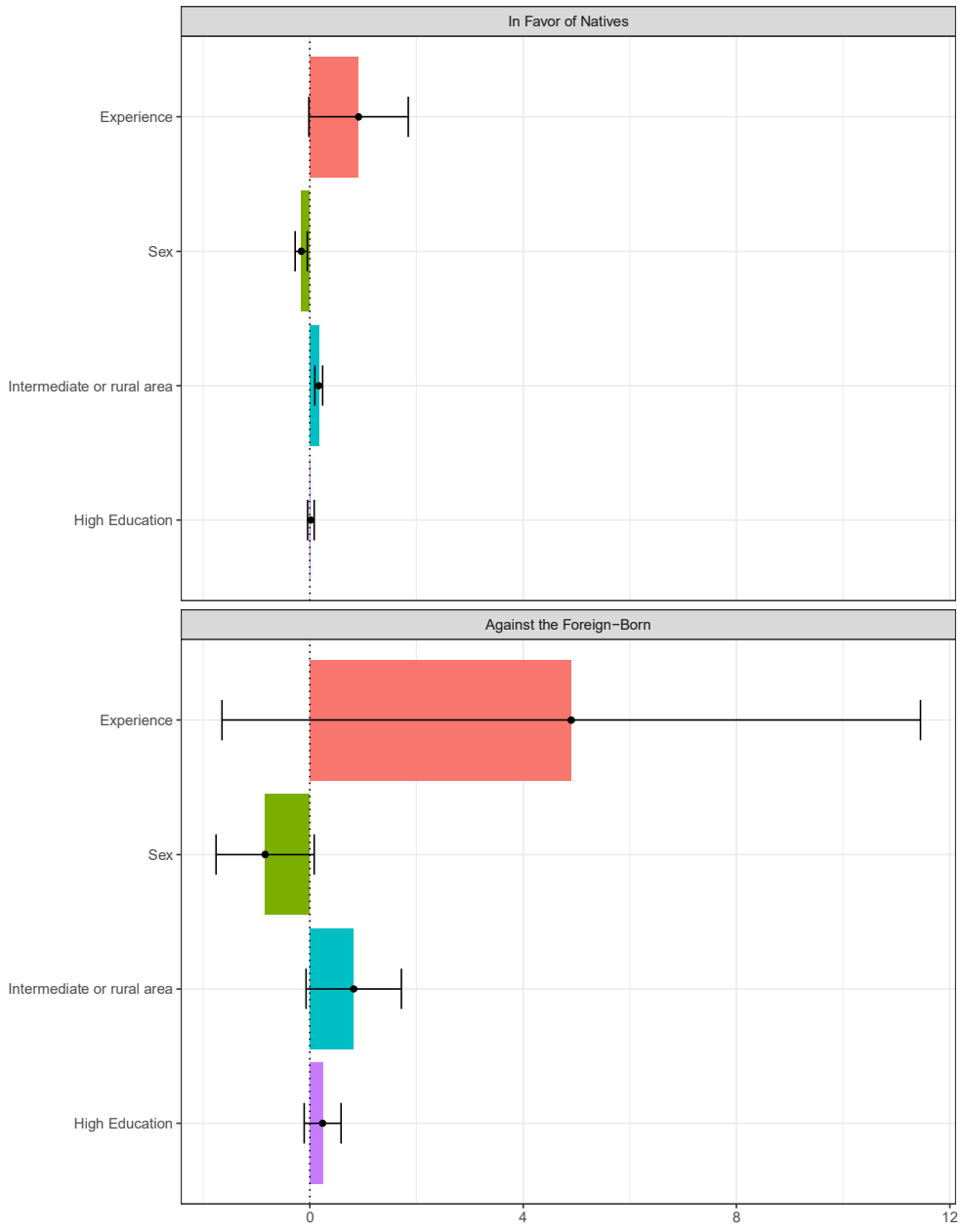

Figure 2: Unexplained Split - Full Sample