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Unexplained native-immigrant wage gap in Poland in 2015-2016. Insights from the surveys in Warsaw and in Lublin.

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Unexplained native-immigrant wage gap in Poland in 2015-2016. Insights from the surveys in Warsaw and in Lublin.

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Abstract

In the modern history, Poland has never experienced large wave of labour immigration comparable to observed since 2014. Massive immigration provoked a public discussion about the consequences of immigration for the Polish labour market. In this paper we shed some light on that problem by analysing the level of the native-immigrant wage gap in two cities in Poland. We applied two methods of decomposition of the impact of differences between immigrant and native workers in composition of their individual characteristics and their workplaces: Blinder-Oaxaca decomposition and non-parametric decomposition proposed by Ñopo (2008). In order to compare native and immigrant workers we use the Polish Labour Force Survey (PLFS) data and the special survey of immigrants ordered by National Bank of Poland and conducted using respondent driven sampling (RDS) method. The results of the decompositions show that the difference in average wages of immigrant and native workers until 2016 is explained mostly by the differences in the composition of features of persons and workplaces. Unexplained wage gap concerned only hourly wages in Warsaw (and amounted to between 4-15% depending on method of decomposition and weighting of the results). The estimates were not significant in Lublin. Unexplained wage gap was significant in particular in the group of workers in better paid occupations in both cities. In some groups migrants achieved on average higher wages than native workers. Most immigrants lived in Poland for relatively short period of time and in this early stage of immigration process there were also no signs of narrowing the unexplained wage gap for immigrants who stayed longer than others.

JEL Codes: J31, J61, J71
Keywords: wage distribution, wage differentials, immigrants, native workers, wage gap

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1. Introduction

Until 2014 Poland was a country with traditionally negative net migration. Recently the emigration outflow has not decreased substantially but the significant inflow of immigrants is observed due to the conflict and economic crisis in Ukraine. The reliable estimation of the size of immigration is difficult but the numbers from the main data sources about migration in Poland suggest that the number of visas issued to Ukrainians increased from about 200 thousands in 2014 to about 900 thousands in 2017 (Figure 1). The increase of the number of work permits and declarations of the intension to entrust a job to a foreigner is even more dynamic. In a relatively short time the structure of the industries where immigrants work has also changed dramatically – from majority of the emigrants that work in agriculture and construction to majority of emigrants who work in service sector (Figure 2).

Figure 1. The changes of the number of migrants in Poland through the lens of different types or registration data

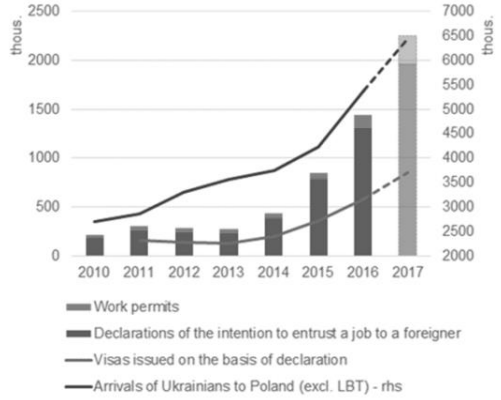
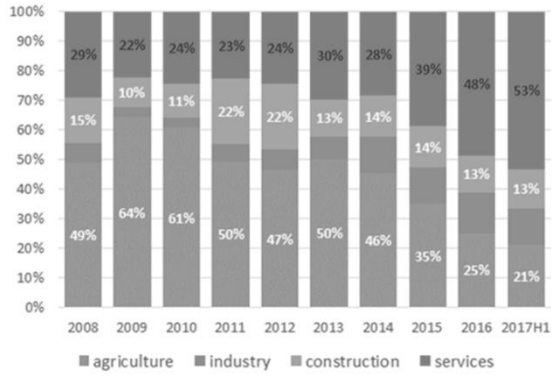


Figure 2. The structure of immigrants by industries where they work (base on declarations and work permits data).



Source: Own elaboration based on statistics published by Ministry of Labour, Central Statistical Office and Ministry of Foreign Affairs.

A large scale migration between European countries is not a new phenomenon. After the enlargement of the European Union (EU) millions of citizens of Central and Eastern European countries (CEEC) moved to Western Europe searching for better paid work and escaping high unemployment. The economic reasons for the recent flow of majority of immigrant workers from Ukraine and Belarus to Poland are similar. However in both cases in the beginning the trigger of higher migration was not directly related to the economy (in the first case, the trigger was accession to the EU, in the second case Russia's aggression towards Ukraine). The similarities of the economic reasons for migration make it possible to apply in this case results of many publications which have been published in the past to describe experiences with the wage discrimination of immigrants in developed countries.

In general, the problem of lower entry wages of immigrants in comparison to native born employees is commonly observed. According to the study of the situation of immigrants in 15 European countries (Adsera and Chiswick 2007) the differences in wages can vary between country of origin and destinations. The lowest negative effects of foreign birth inside EU on wages were observed in Germany and in the United Kingdom (less than 10%) and in Germany and Netherlands if the analysis was limited to non-EU men and women. In general the differences depended on the gender of immigrants and differences between average wages of immigrant and native women workers were usually lower than for men. In particular it was visible among immigrants from outside EU. The paper also showed that with time wages of immigrants catch-up average wages of natives with similar skills. However it takes more than 8 years.

The estimates of the native-immigrants wage gap in Germany (Aldashev, Gernandt, and Thomsen 2008) using Blinder-Oaxaca decomposition to GSOEP data suggests the existence of significant wage gap unexplained by immigrant features both among foreigners (6-15%) and Germans with migration background (about 12-14%). However the estimate of wage gap drops significantly if the sample is limited only to persons educated in Germany. It supports the hypothesis that the reason can be the problem with the international transferability of immigrant's human capital. Earlier studies for Germany (Lehmer and Ludsteck 2011) before the EU enlargement (in the years 1995-2000) showed that the large part of the differences in wages between natives and immigrants was the result of the differences in migrants characteristics and occupations. However even after controlling for these features in Oaxaca-Blinder type of decomposition the unexplained wage gap amounted to 17% for immigrants from Poland, 15% for Ukrainians, 7% for immigrants from Turkey and 4-11% for immigrants from Western European Countries. Analysis carried out for Great Britain (Miranda and Zhu 2012) also show that the composition adjusted wage gap between natives and foreign born amounted possible to about 12% and the main driver which explained this gap was the knowledge of English as additional language. Other study for Great Britain (Manacorda, Manning, and Wadsworth 2006) shows that the relatively small effect of the immigration on wages of the native born comes from the fact that immigrants and natives are not the perfect substitutes on the labour market and the inflow of new immigrants decreases the wages of immigrants that already live in Great Britain. On the other hand (Dybczak and Galuščák 2010) found that in Czech Republic increased immigration contributed to the growth of inequalities in the total pool of employees in the economy but almost all wage gaps could have been explained by the differences in characteristics of persons. According to Mathä,

Porpiglia, and Sierminska (2011) even in the countries with relatively long history of positive net migration like Luxembourg, Germany and Italy the income gap between natives and long-term immigrants still exists but is relatively lower in comparison to wealth gap.

Explanation of the reasons behind immigrant-native wage gap can be found in "over-education" literature. Previous studies on this topic have emphasized the importance of the imperfect international transferability of skills (Chiswick and Miller 2009). In this context the gap between the wages of new immigrants and natives can be explained by the search and matching theory, human capital theory, technological change theory and a screening hypothesis. The search and matching theory suggests that the lack of information that immigrants possess about the labour market in the host country is the main reason for their lower wages. Without knowing how to apply their skills immigrants have to take up jobs which seem to be below their skills when they enter the foreign labour market. The convergence to wages similar to natives with the same skills requires time, because immigrants have to learn how to operate on the labour market and need time to find appropriate vacancies. The human capital theory assumes that there are several forms of human capital and immigrants have to gain some job experience on the host country labour market. According to the technological change theory education acquired in the home country by immigrant can be obsolete due to technological changes and education in the home country can have rather limited value when immigrant comes from less to more developed country. The last, screening hypothesis assumes that the important role of the educational system is the signalling which persons possess unobservable abilities needed in all jobs. Employers may be unclear as to what extent schooling acquired abroad signals the unobservable abilities similar to education system in their own country.

In comparison with the experiences of Western European countries the specificity of recent migration from Ukraine to Poland is that it is taking place in a country that has never experienced massive presence of immigrants on the labour market in its modern history. Immigrants from Ukraine are similar in terms of appearance, culture and language to the inhabitants of Poland. This situation can be advantageous for immigrants because there are no patterns of discrimination of foreign employees on the labour market which have been inherited from the past. On the other hand the early stage of immigration probably leads to more intensive problems with the transferability of skills between Ukraine and Poland. The adjustment of the educational system in Poland to cope with the increasing demand for certification and supplementation of the education obtained abroad by Ukrainian immigrants is still a challenge. However it should be also mentioned that recent migration and wage

bargaining is observed in the situation of the tight labour market and relatively scarce supply of native workers which motivate employers to find ways of quick integration of employees with foreign citizenship.

There are also other differences between recent immigration from Ukraine to Poland and previous post-accession emigration from Poland to Western countries. Emigration after the European Union (EU) enlargements in 2004 and 2007 took place in an institutional environment that reduced formal problems with the legality of even long-term residence and employment. The EU has ensured freedom of travel and (with some restrictions) the freedom to take up employment. In the case of immigrants from Ukraine to Poland, the facilitation of the possibility of legal stay and work is related mainly to short-term stays. It could have resulted in the decisions of employers to set remuneration of migrants with a discount related to the instability of their work. In addition, this dominance of short term migration has other possible consequences. The pattern of short term migration induced by regulations reduces the time needed to search for a job. Thus, immigrants can lower their reservation wages in order to find job quicker. Another factor that can weaken the position of immigrants from Ukraine on the Polish labour market is the fact that at least some of them could make decisions not for economic reasons, but they could have been forced to migration by armed conflict in the Eastern Ukraine.

The aim of this article is to verify the hypotheses about the differences between the wages of immigrants from Ukraine and Polish citizens. It will be done using methods that takes into account differences in the composition of the individual characteristics and workplaces of immigrants and natives. The following four research questions are addressed:

1) First, we test the existence of wage gap between wages of native and immigrant workers. In addition to the literature we do not focus solely on hourly wages in the total sample. We also check the level of wage gap for monthly wages and robustness of the results to change of the benchmark group of natives from the persons who live and work in the city to persons who live in the entire region and can commute to the city.
2) Secondly, we test if wage gaps are different in two different regions with probable two types of immigration strategies. There are many differences between the labour markets in Warsaw and in Lublin. Unemployment rate in Warsaw is lower, with more diversified labour demand in terms of skills. The general wage level is also much higher in Warsaw. According to Polish Central Statistical Office data average wage monthly wage in Warsaw city in 2015 was about 25% higher than average monthly wage in Lublin.

3) The third hypothesis assumes that unexplained difference in wages is narrower if the stay in the host country is more stable. It was reported in Chiswick and Miller (2010) migrants can be disadvantage group because of the small opportunity to utilize their human capital. The shorter is their stay, the less opportunity they have for job search and attaining human capital appropriate for Polish employers.
4) Potential wage discrimination should be higher in well paid jobs. Thus, unexplained wage gap should be higher among more skilled workers (in top occupations) because of the more firm specific human capital required in these occupations, potential glass ceiling preventing from promotions to the best paid positions and compression of the wages of low paid workers due to minimum hourly wages.
5) The last research question concerns the different levels of wage gaps in the groups of persons with different features. The initial hypothesis assumes that the differences should be observed. For example the wage gap among women migrants can be due to specificity of their jobs lower among men migrants (Adsera and Chiswick 2007; Long 1980). Different migration strategies of persons with different gender, age etc. can also lead to differences in bargaining power in wage negotiations. Discrimination (measured by wage gap unexplained by other factors) can also depend on the economic sectors. It should be probably more visible in the sectors selected by migrants more often.

In order to verify these hypotheses we used econometric methods widely applied to the analysis of wage inequalities between groups: parametric Oaxaca-Blinder decomposition and non-parametric decomposition described by Nopo (2008). For the sake of the limited scope of the paper we focused on proportions of the wage gaps explained and not explained by the individual features of persons and their work places. Both analysis are performed first for the total dataset and then in subgroups defined by the research questions.

The conclusions about existence of wage gap often depend on the data and applied methods. The most important problem with data is that survey data can be biased which is typical especially in reporting wages. Collecting data on wages of immigrants is also a challenge. We cope with that problems by selecting the reliable data source for wages of natives (Polish Labour Force Survey) and by application of respondent driven sampling method for survey among immigrants. We have also performed many robustness checks of our results to assess to what extend application of data weights in order to improve representativeness influence the results and to what extend wage gap estimates depend on the statistical method.

Due to the relatively small labour immigration to Poland in the past there is not much research on the difference between wages of immigrant workers and native workers. Recent studies focus mainly on the raw average wages without taking into account significant individual characteristics of immigrants. The aim of this study is to present the results adjusted on the individual differences between natives and immigrants. It is a standard method of analysis in the countries with longer history of the assimilation of immigrants. The added value of this article in comparison to the international literature is the separate analysis of the wage gap not explained by individual features in different regions and by the groups of persons. These features allow to answer the general question: to what extent unexplained wage gap concerns only specific groups of immigrants on the Polish labour market.

The article is constructed as follows: first, we present the methods of decomposition and the justification of their choice. Than we describe the data, in particular the method of collecting the data about immigrants that is crucial for the analysis. The chapter with results presents the numbers that allows the verification of the hypotheses but also their extended robustness checks. The conclusions sum up the findings and their possible explanations.

2. Methods

In order to obtain reliable estimates of the difference between wages of the immigrant and native workers we have used some innovatory techniques of the data collection and analysis. First, the data about wages and important features of immigrants like their wages, socioeconomic status, their experiences on the Polish labour market, occupations etc. are collected using so called Respondent Driven Sampling method (RDS). This method (Heckathorn 1997) allows to carry out the survey in the controlled environment perceived as safe by the members of "hidden" groups in the society and to control the process of the sample selection. The connections between persons in the sample can be taken into account in data analysis and weighting (Volz and Heckathorn 2008).

The differences between wages of immigrant and native workers have been analysed using two methods from the toolbox typically used in the analysis of the wage gap between groups. We used the parametric Oaxaca-Blinder decomposition (Oaxaca and Ransom 1994) and not parametric decomposition (Ñopo 2008).

The Oaxaca-Blinder decomposition for the difference between expected wages of two separate groups base on the results of the wage regressions separate for natives (*nat*) and form immigrants (*mig*):

$$Y_l = X_l'\beta_l + e_l,\ E(e_l) = 0,\ \ l = \{nat, mig\} \quad \text{(Eq. 1)}$$

The decomposition based on these equations is following:

$$Y_{mig} - Y_{nat} = \left[E\left(X_{mig}\right) - E(X_{nat})\right]'\beta_{nat} + E(X_{nat})'\left(\beta_{mig} - \beta_{nat}\right) + \left[E\left(X_{mig}\right) - E(X_{nat})\right]'\left(\beta_{mig} - \beta_{nat}\right) \quad \text{(Eq. 2)}$$

where $Y_{mig} - Y_{nat}$ represents differnece between log average hourly wages of immigrants and native workers. This formula express the decomposition of the difference in average wage into three components. The first one is called the "endowments effect":

$$E = [E\left(X_{mig}\right) - E(X_{nat})]'\beta_{nat} \quad \text{(Eq. 3)}$$

and represnts the diffences due to chracteristics of individuals and their workplaces. This part of the decomposition is also called difference "explained" by the differences in endowments. The second component:

$$E(X_{nat})'\left(\beta_{mig} - \beta_{nat}\right) \quad \text{(Eq. 4)}$$

is called "price effect" and it represens differences due to different wages of immigrants with the same characteristics as natives. The third componet:

$$\left[E\left(X_{mig}\right) - E(X_{nat})\right]'\left(\beta_{mig} - \beta_{nat}\right) \quad \text{(Eq. 5)}$$

is the interaction term accounting for the fact that differences in edowements and coefficients exist simultanously between the two groups. The sum of "price effect" and "interaction effect" is treated in this paper as the difference in wages of imigrants and native workers "unexplained" by the differences in predictors.

The second method used to calculate the wage gap is the non-paramterical Nopo(2008) decomposition. The aim of the decopomposition is the direct comparison of the wages of persons with the same characteristics. Of course in the two datasets there we can usually find chracteristics that are missing in one set but exist in other but this information is

$$\Delta = (\Delta_{mig} + \Delta_X + \Delta_{nat}) + \Delta_0 \quad \text{(Eq. 6)}$$

where the total differnce in wages Δ is decomposed into Δ_{mig} the component that exists because migrants with certain characteristics cannot be matched to any native workers. This component would disappear if there would be no imigrants unmatched by the native workers with the same characteristics. The difference Δ_{nat} has similar interpretation. It reflects the differnece due to wages of native workers whose characteristics is entirely unmatched by the characteristics of immigrant workers. On the other hand Δ_X represents the part of the wage gap that can be explained by differences in the distribution of characteristics of native workers and immigrant workers over common support. The "unexplained" wage gap in this method is Δ_0 which corresponds to combination of the existebnce of discrimination and unobservable characteristcs that explain wages. Even though the Ñopo (2008) decomposition allows for reliable estimation of the wage gaps it has some disadvantages (Goraus, Tyrowicz, and van der Velde 2017). First, there is a trade off between the number of covariates used in comparing immigrants and natives and the fraction of the sampel with the exact match that decides about the validy of the analysis. Second, the creation of the counterfactula distribution of wages needed to compare individuals without exact match can be biased if the wage distribution is skewed.

In the case of both methods: Blinder-Oaxaca decomposition and Nopo-decomposition we have used their implementation in STATA (Atal, Hoyos Suarez, and Ñopo 2013; Jann and others 2008) which allowed to include the information about population weights available both for Labour Force Survey and weights produced by RDS method of collecting data.

3. Data and descriptive statistics

There are many problems in obtaining reliable information about the wages of immigrants. The first is data availability. The immigrants are strongly underrepresented in the large scale surveys among households in Poland (like LFS). The second problem is the representativeness and reliability of the results of the surveys among immigrants. Immigrants use to avoid participation in the surveys and especially questions about their incomes are problematic. That is why there are not many quantitative studies about wage distribution of immigrants in Poland. There are some issues also with the questions about wages in surveys that cover Polish workers but the problems of possible underestimation of wages or very low response rate are not so pronounced as in the surveys among immigrants.

In this study we cope with the problem of the very low response rate in the surveys that cover immigrants by using a special technique of the data collection (Gorny et al. 2014; Chmielewska, Dobroczek, and Panuciak 2018). The surveys were carried on used Respondent Driven Sampling (RDS) for the National Bank of Poland by specialists from the Warsaw University. This method of data collection helped in recruitment to the survey and improve the response rate to the questions in the questionnaire. The questionnaires were filled in the separate places (centres of interviews) where immigrants have the opportunity to fill the questionnaire without the possible interference of other persons (their employers, colleagues etc.). They were paid for the time spent on during interview and for giving contacts to two other persons. In order to increase the precision of the interview the questionnaires were in native language of the immigrants (in most cases it was Ukrainian) and it was possible to ask the Ukrainian speaking staff of the survey centres about the details.

The sample size of the survey in Warsaw carried out in 2015 amounted to 700 persons and the survey in Lublin in 2016 covered 400 persons. However the shares of employed persons who questions about wages were smaller and amounted to 541 and 309 persons respectively (Table 1). The data about the wages of Polish workers come from the Polish Labour Force Survey (PLFS). The samples for comparison were limited only to geographical regions covered by the samples of immigrants. We decided to use the two types of the reference data on wages of polish citizens. First the data restricted only to Warszawa and Lublin (in practice the biggest cities in both voivodeships). As an alternative we have used also the data for entire regions: Mazowieckie Voivodeship and Lubelskie Voivodeship. It can be justified by the fact that labour markets in big cities are relatively easy to access by persons that live around metropolis. It also allowed to increase the sample sizes.

Wages in Poland are strongly regionally diversified. It is the case also in the survey data. The descriptive statistics suggest that there were significant differences between wages and characteristics of the respondents not only in the case of the comparison of migrant and native workers but also between native workers in different parts of Poland. Wages in big cities (for example in Warsaw) are relatively high. This creates opportunity for more mobile Polish citizens from smaller towns and for immigrants. However according to the data there are the immigrants who use opportunity to move to big cities more frequently. Polish citizens less frequently move to other town even if it is possible to earn more. In this context, one may wonder whether it should be appropriate to compare monthly wages or hourly rates Warsaw labour market should be limited only to people living in the agglomeration. Alternatively all who can potentially commute or move to Warsaw from the entire region should be taken into account. The choice of the reference group can have crucial importance for the results. The descriptive statistics from the samples show that indeed the differences between regions are frequently higher than between native workers and immigrant workers inside the same region (Table 1).

Table 1. Descriptive statistics of the samples used in the analysis

Information about the samples	Immigrants		Polish citizens (LFS data)			
	RDS Warsaw 2015	RDS Lublin 2016	Warsaw City	Mazowieckie Voivodeship	Lublin City	Lubelskie Voivodeship
Number of employees (sample size)	541	309	1279	4200	670	2497
average monthly wage	2042	1823	2953	2325	2154	1980
median monthly wage	2000	1750	2500	2000	2000	1800
average hourly wage	11.1	12.6	18.9	14.5	13.5	12.5
median hourly wage	10.0	10.9	15.6	11.9	11.9	10.7
average hours worked	55.3	39.8	40.1	41.1	40.5	40.4
% of females	56.0	48.5	51.3	48.4	53.3	51.2
% of persons aged 18-15 years	26.0	83.2	7.2	9.4	10.0	7.5
% of persons employed by sector*:						
industry and construction	22.2	10.7	18.1	29.6	21.0	29.6
market services	56.9	53.1	46.6	38.1	41.3	36.3
non-market services	6.7	18.1	35.4	30.3	37.6	32.4
% of employed in top occupations**	9.4	31.6	68.0	47.9	61.1	45.6
% of with tertiary education	36.2	46.9	53.0	34.8	49.6	33.3

Source: Own calculations, PLFS, NBP surveys on migration, *the percentage do not sum up to 100% because of not including in the table persons employed in agriculture sector and without declared sector of activity. **top occupations mean the four (out of nine) best occupation groups in the ISCO classification: managers, professionals, technicians plus associate professionals and clerical support workers.

The descriptive statistics show also that there are differences between characteristics of immigrants in different parts of Poland. In Warsaw average monthly wages was relatively

high but due to long average working hours the hourly wage was lower not only from the average and median of the Warsaw citizens but also lower than hourly wage of immigrant in Lublin. The wage distribution of immigrants in Warsaw was condensed between values 1500 and 2000 PLN which was to less extend characteristic also for Polish workers but almost nobody received wages higher than 5000 PLN (Figure 3). The fact that most of immigrants in Warsaw worked on average 55 hours per week influenced the hourly wages which were visibly lower than hourly wages of Polish workers (Figure 4). In Lublin both average and median monthly wages of immigrants were also lower than similar statistics of Polish workers from LFS (Figure 5). However the descriptive statistics calculated for hourly wages were close to the statistics for Polish workers (Table 1). The distribution of the hourly wages of immigrates has much lower variability and is less skewed than the distribution of wages of native workers in Lublin (Figure 6).

The differences in the distributions of wages of immigrants between Warsaw and Lublin reflect not only the intensity of work but also the features of the persons employed and their workplaces. The share of women among immigrant workers in Warsaw was higher but the main difference was the age structure. In Warsaw about 22% were persons up to 25 years (a significantly above the share in the population of native workers). In Lublin the share amounted to 83%, so the majority of the sample were young persons. In both cities over 50% of immigrants worked in market services (like personal services, hotels and restaurants, trade and repairs etc.). Besides in Warsaw more than 20% of immigrant employees worked in industrial and construction sector. Tis percentage was comparable to native workers. In Lublin the percentage of immigrant employees in this sector was much lower than Polish workers. Instead relatively higher was the percentage of persons employed in the non-market services in Lublin (medical services, education) which could reflected the labour shortages of native workers in these sector in the smaller cities in Poland. In the Warsaw sample the share of relatively better paid persons from the top occupational groups like managers, professionals technicians and clerical support workers amounted only to 9% in comparison to 68% of employees in Warsaw LFS sample. In Lublin the proportions were less diversified, respectively 32% compared with 61%. It should be also mentioned than the percentage of immigrants with tertiary education was relatively high in comparison to the entire region but not higher than among citizens of Warsaw. In Lublin the percentage of of immigrants with tertiary education was comparable to the citizens of the city.

Figure 3. Wage distribution of the monthly net wages of native and immigrant workers in Warsaw

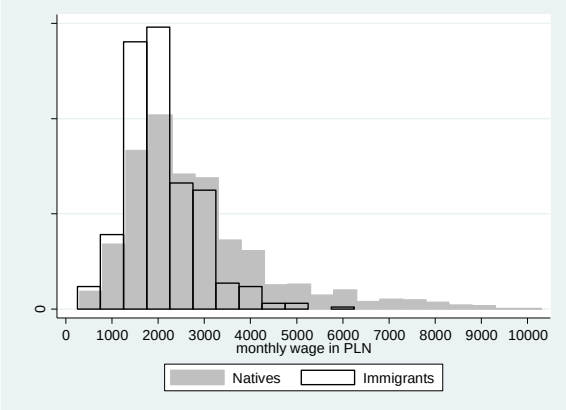


Figure 4. Wage distribution of the <u>hourly wages</u> of native and immigrant workers in Warsaw

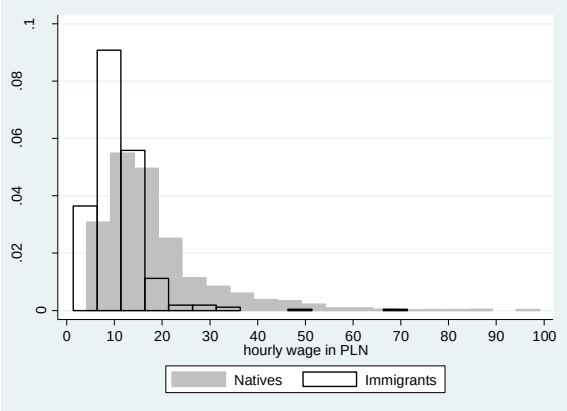


Figure 5. Wage distribution of the monthly net wages of native and immigrant workers in Lublin

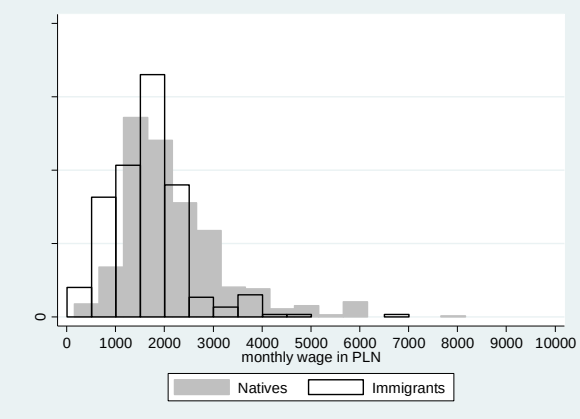
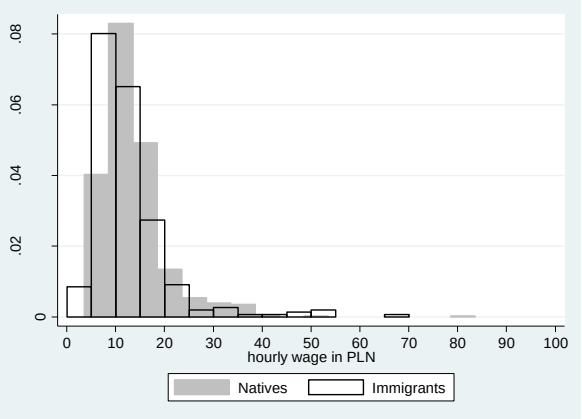


Figure 6. Wage distribution of the <u>hourly wages</u> of native and immigrant workers in Lublin



Source: Own calculations, PLFS, NBP surveys on migration

The analysis of the wage gap requires variables that describe features of natives and immigrants. In this paper the we used following individual features: sex, age, educational level (tertiary, secondary, basic vocational and less than basic vocational) and occupations defined not in nine elementary groups but also in 54 more detailed occupation definitions based on the 2-digit ISCO codes[1]. The descriptive analysis of the wage differences (Table 2) between the groups suggests that the differences in average hourly wages between immigrant women and men are not significant. The best hourly wages were paid to immigrants in non-market services but usually it requires specific transferable skills like medical degrees or university degree in education. There are also significant differences in hourly wages between two distinguished broad groups of occupations. It is characteristic that hourly wages and

[1]ISCO is an international standard of classification of the occupations, see: http://www.ilo.org/public/english/bureau/stat/isco/

average number of hours of immigrants are similar in the top occupations in Warsaw and in Lublin. What creates a difference in the wage distribution is the very high average number of hours worked in low paid jobs in Warsaw.

Table 2. Hourly wages vs number of hours of immigrants in Warsaw (2015) and in Lublin (2016) with different visa types, gender, sector and broad occupation group

	Average hourly wage (PLN)				Average hours worked		Average monthly wage (PLN)	
	Warsaw	95% CI	Lublin	95% CI	Warsaw	Lublin	Warsaw	Lublin
Total sample	11.1	+/- 1.2	12.6	+/- 0.9	55.3	39.8	2042	1823
In groups by sex:								
Men	11.2	+/- 0.7	13.1	+/- 1.2	53.1	42.3	2273	2109
Women	11.0	+/- 2	12.2	+/- 1.4	56.9	37.1	1861	1521
In sector groups:								
Industry and construction	11.9	+/- 0.5	11.8	+/- 1.4	56.8	43.8	2676	1997
Market services	10.9	+/- 2	12.3	+/- 1.4	55.6	40.4	1845	1804
Non-market services	16.1	+/- 4.2	14.8	+/- 2.5	39.8	36.1	2001	1860
Agriculture and other sectors	8.3	+/- 0.6	11.9	+/- 1.7	58.6	39.1	1864	1742
In broad occupation groups:*								
Top four occupation groups	14.4	+/- 2	14.9	+/- 1.7	41.7	39.6	2209	2115
Rest of the occupation groups	10.8	+/- 1.3	11.5	+/- 1.1	56.7	40.0	2023	1694
In groups by visa type:								
Short term visas (Visa 1)	10.0	+/- 1	10.9	+/- 0.9	56.6	46.1	1948	1945
Long term visas (Visa 2)	10.5	+/- 0.5	13.4	+/- 1.3	57.6	40.2	2121	1956
Students, education (Visa 3)	12.3	+/- 4.6	12.0	+/- 2.1	26.8	32.7	1045	1324
Other documents (Visa 4)	18.1	+/- 13.3	11.2	+/- 5.8	51.8	41.2	2303	1642

Source: Own calculations, PLFS, NBP surveys on migration. *top occupations mean the four (out of nine) best occupation groups in the ISCO classification: managers, professionals, technicians plus associate professionals and clerical support workers. The rest groups cover: service and sales workers, skilled agricultural and forestry workers, craft and related trades workers, plant and machine operators and assemblers, elementary occupations.

One of the aims of this paper is the answer to the question if the possible gap between natives and immigrants comes from the fact that short-term immigrants are to large extent not a perfect substitution for native workers. The instability of their employment and relatively short job tenure can reduce the scope of jobs of short term migrants only to low paid seasonal works. The short term stay also hinder signing labour code agreements, so short term immigrants frequently sign so called civil law contracts or are employment illegally. Immigrants can be divided into groups using length of stay or having family in Poland or abroad. However the simplest and the most clear indicator of the instability of their stay and employment seems to be the information about type of visa that entitles immigrants to stay in Poland. The most popular are short term visas that are designed for persons who were invited

to Poland on the basis of the declaration of Polish employer to entrust work to a person with foreign citizenship. In the time of the survey this visa was valid for maximum one year giving the holder the permission to work for about half of the year. This type of documents was originally designed for the purposes of the seasonal works in agriculture. With time the invitations became massive also in other sectors and became the most frequent way of legal immigration in Poland. Visas granted for persons with official work permissions were the second possible way of work in Poland. They allowed for longer work and persons with these visas were usually employed on more stable contracts based on labour code. In this category we also added other long term visas. One of the popular types of visas that allowed work in Poland was student visa which was obtained by young persons who learned or studied in Poland. In the fourth category we gathered all other visas. The most frequent example here is the refugee visa.

In the samples analysed in this paper the most numerous is the group with visas that allow for longer stay. It is not surprising because contact with persons with short term visas is very difficult despite the fact that they were the biggest group in the population. Due to the relatively developed networks and long-term stay in Poland the group with student visas was relatively numerous in the sample. The number of persons with other type of visas were relatively numerous only in Warsaw, so the analysis for this group in Lublin are not very credible. The data regarding wages show that persons with short term visas had relatively lower monthly wages than persons with long term visas in Warsaw, but it was not necessary the case in Lublin. In Lublin it can be explained by the significantly longer working hours of those persons. The lowest average wages had persons with student visas. The surprisingly high wages of persons with other visa types in Warsaw can result from the selection to that group of persons with relatively higher human capital.

4. Results of the decompositions

Literature on wage gap between migrants and native workers suggests that the differences in average wages are to large extend explained by compositional effects. This part of the article contains results of the estimation of the wage gap wage gap between immigrants and native workers. The decomposition methods described in the methodological part allow to control for differences in occupations and individual characteristics of native workers and immigrants. In order to obtain results comparable with the literature the Blinder-Oaxaca decomposition that base on the unweighted results of the surveys is treated as a base method.

However the final results are compared with the results of the non-parametric Nopo's decomposition and the results of the application of analytical weights to assess the reliability of the base estimates.

General results

The samples sizes from the surveys among immigrants are relatively limited. That is why the most reliable estimates are based on the total samples in Warsaw and in Lublin. In the regressions of the Blinder -Oaxaca technique we have used set of the explanatory variables available both for immigrants and for natives: gender, age (and age squared), educational attainment (four levels) and description of occupation using 2-digit ISCO code. Due to the limited space we only focus on the ability of the models to explain the wage gap and not on the detailed parameters of the models. The Blider-Oaxaca decomposition of the monthly wages of immigrant workers and Polish workers leads to the conclusion that both in Warsaw and in Lublin the lower monthly wages of immigrants are fully explained by the compositional effects (Table 3).

Table 3. The results of the Blinder-Oaxaca parametric decomposition of the differences in wages between Polish workers and Immigrants on the Polish labour market

Specification	Total wage gap	Wage gap due to differences in endowments	Unexplained wage gap
Monthly wages			
Warsaw data vs BAEL			
Migrants vs city citizens	-24.3%	-29.8%	**7.9%** **
Migrants vs voivodeship citizens	-7.3%	-19.0%	**14.5%** ***
Lublin data vs BAEL			
Migrants vs city citizens	-20.5%	-20.9%	0.5%
Migrants vs voivodeship citizens	-15.3%	-23.7%	**11.1%** **
Hourly wages			
Warsaw data vs BAEL			
Migrants vs city citizens	-41.3%	-34.1%	**-10.8%** ***
Migrants vs voivodeship citizens	-25.6%	-20.2%	**-6.8%** ***
Lublin data vs BAEL			
Migrants vs city citizens	-13.7%	-20.3%	**8.4%** *
Migrants vs voivodeship citizens	-7.7%	-18.8%	**13.7%** **

Source: Own calculations, stars next to the estimate of unexplained wage gap show significance level at which it is different than zero: * α= 0.1, ** α= 0.05, *** α= 0.01

Even more, immigrant wages are higher than average wages of natives with the same characteristics: by 8% in the city of Warsaw and more than 10% higher when compared to native workers in both voivodships. This result is mainly the effect of the much higher number of reported working hours. If we compare the average pay per hour it appears that

about 30% of the raw wage gap remains unexplained. It means about 15% of the average wage in the city of Warsaw and about 7% when we compare immigrants with the people from the entire voivodeship. In Lublin immigrant workers reported on average less hours and the raw difference in hourly wages was much lower. Unlike in Warsaw the characteristic of individuals and their workplaces suggests that immigrants earn on average more than Polish workers with features which were taken into account.

Alternative approach is a non-parametric decomposition (Ñopo 2008). Its advantage is that it allows to show to what extent the wages of the individuals with characteristics not observed in other dataset influence the result. The relative weakness is that the number of categories of the explanatory variables has to be limited in order to keep significant share of "twins" in both datasets. In line with the literature on the comparison between these two methods the results of this decomposition (Table 4) leads to lower estimates of the absolute unexplained wage gaps.

Table 4. The results of the Nopo(2008) non-parametric decomposition of the differences in wages between Polish workers and Immigrants on the Polish labour market

Specifications	Delta-Total	Delta-Migrants	Delta-0	Delta-X	Delta-Natives	Perc Migrants	Perc Natives	Explained by Individual Characteristics	Unexplained component of the Gap	
Monthly wages										
Warsaw data vs BAEL										
Migrants vs city citizens	-30.9%	-4.1%	-2.8%	-22.2%	-1.7%	48.1%	51.6%	-28.0%	**-2.8%**	**
Migrants vs voivodeship citizens	-12.1%	-1.2%	9.2%	-18.4%	-1.8%	45.7%	71.2%	-21.3%	**9.2%**	***
Lublin data vs BAEL										
Migrants vs city citizens	-15.4%	6.6%	-8.8%	-11.1%	-2.2%	40.1%	32.4%	-6.6%	**-8.8%**	***
Migrants vs voivodeship citizens	-7.9%	8.4%	-1.0%	-10.7%	-4.6%	29.8%	46.9%	-7.0%	-1.0%	
Hourly wages										
Warsaw data vs BAEL										
Migrants vs city citizens	-41.2%	-0.4%	-4.2%	-32.3%	-4.3%	48.1%	51.6%	-37.0%	**-4.2%**	*
Migrants vs voivodeship citizens	-23.5%	0.8%	16.9%	-39.2%	-2.0%	45.7%	71.2%	-40.4%	**16.9%**	***
Lublin data vs BAEL										
Migrants vs city citizens	-6.2%	8.6%	-0.5%	-2.0%	-12.4%	40.1%	32.4%	-5.8%	-0.5%	
Migrants vs voivodeship citizens	1.0%	13.6%	-1.5%	2.3%	-13.4%	29.8%	46.9%	2.5%	-1.5%	

Source: Own calculations, stars next to the estimate of unexplained wage gap show significance level at which it is different than zero: * α= 0.1, ** α= 0.05, *** α= 0.01

The non-parametric decomposition indicates relatively small unexplained gap in Warsaw both in monthly and in hourly wages. In both cases 90% of the initial raw wage gap differences is explained by the differences in composition of native and immigrant workers.

According to the results of this method monthly and hourly wages of immigrants in Warsaw are higher than wages of the similar persons from the entire voivodeship (by 9% monthly and by 17% hourly wages). In Lublin significant unexplained wage gap appeared only in monthly wages in comparison to the citizens of the city, rest of the parameters can be assumed as not significantly different than zero[2].

Robustness of the general results

The internal consistency of the results and descriptive statistics and comparability with the similar results in other papers was the main reason for not using analytical weights in the tables presented above. The results with weights should in theory better reflect the proportions of different categories of persons in the population but there can be analytical problems with the construction of analytical weights consistent between RDS immigrant survey and PLFS data. For the purposes of this article such unified weights have been constructed on the basis of the original frequency weights in RDS procedure and weights for the Polish population from PLFS data. In general weights increase importance of the observations relatively less frequent in the sample than expected frequency in the joint population of immigrant and native persons in the regions. Than we reproduced main results presented above with the applications of the frequency weights and present them in the Table 5 and Table 6. The general conclusion is that using weights does not change the signs and significance of the estimates of the wage gaps in the results of the Blinder-Oaxaca decomposition. The values of the unexplained gaps are lower in monthly wages and a bit higher in absolute terms in the case of hourly wages.

More differences are observed in non-parametric decomposition with weights which means that assumed importance of observations is not equal (Table 7). However also this set of results confirm the robustness of the main general results: the negative wage gap in hourly wages between immigrants and Warsaw citizens and the observation that average wage of immigrants in Warsaw is higher than average wage of similar native persons in the Mazovian Voivodeship. If we use weights similar result is also observed in the case of immigrants in the city of Lublin and the Lublin Voivodeship which is consistent but less strong than the result obtain in Blinder-Oaxaca decomposition.

[2] We have applied standard t-student test based on the estimate of the parameter and its standard deviation reported by the procedure in STATA

Table 5. The results of the Blinder-Oaxaca parametric decomposition of the differences in wages between Polish workers and Immigrants on the Polish labour market – weighted results

Specification	Total wage gap	Wage gap due to differences in endowments	Unexplained wage gap	
Monthly wages				
Warsaw data vs BAEL				
Migrants vs city citizens	-31.2%	-36.7%	**8.7%**	**
Migrants vs voivodeship citizens	-16.8%	-23.4%	**8.5%**	***
Lublin data vs BAEL				
Migrants vs city citizens	-19.0%	-17.6%	-1.7%	
Migrants vs voivodeship citizens	-12.9%	-21.7%	**11.2%**	**
Hourly wages				
Warsaw data vs BAEL				
Migrants vs city citizens	-48.2%	-39.2%	**-14.8%**	***
Migrants vs voivodeship citizens	-35.4%	-24.6%	**-14.3%**	***
Lublin data vs BAEL				
Migrants vs city citizens	-7.3%	-20.8%	**17.0%**	**
Migrants vs voivodeship citizens	-0.1%	-18.2%	**22.1%**	***

Source: Own calculations, stars next to the estimate of unexplained wage gap show significance level at which it is different than zero: * α= 0.1, ** α= 0.05, *** α= 0.01

Table 6. The results of the Nopo(2008) non-parametric decomposition of the differences in wages between Polish workers and Immigrants on the Polish labour market - weighted results

Specifications	Delta-Total	Delta-Migrants	Delta -0	Delta-X	Delta-Natives	% Migrants	% Natives	Explained by Individual Characteristics	Unexplained component of the Gap	
Monthly wages										
Warsaw data vs BAEL										
Migrants vs city citizens	-37.7%	-5.0%	-1.9%	-28.4%	-2.4%	48.0%	49.4%	-35.8%	-1.9%	
Migrants vs voivodeship citizens	-22.4%	-2.2%	8.7%	-28.3%	-0.6%	46.0%	72.0%	-31.1%	**8.7%**	***
Lublin data vs BAEL										
Migrants vs city citizens	-15.7%	5.1%	-4.0%	-11.6%	-5.3%	41.1%	29.5%	-11.7%	-4.0%	
Migrants vs voivodeship citizens	-7.0%	7.7%	3.8%	-14.0%	-4.6%	30.5%	42.6%	-10.8%	**3.8%**	*
Hourly wages										
Warsaw data vs BAEL										
Migrants vs city citizens	-50.0%	-1.2%	-7.9%	-37.2%	-3.7%	48.0%	49.4%	-42.1%	**-7.9%**	***
Migrants vs voivodeship citizens	-36.5%	0.1%	7.9%	-43.9%	-0.5%	46.0%	72.0%	-44.3%	**7.9%**	***
Lublin data vs BAEL										
Migrants vs city citizens	0.6%	6.6%	3.3%	20.8%	-30.1%	41.1%	29.5%	-2.7%	3.3%	
Migrants vs voivodeship citizens	9.5%	12.9%	4.0%	13.2%	-20.7%	30.5%	42.6%	5.5%	**4.0%**	*

Source: Own calculations, stars next to the estimate of unexplained wage gap show significance level at which it is different than zero: * α= 0.1, ** α= 0.05, *** α= 0.01

Wage gaps by visa type

The literature review shows that with the increasing length and stabilisation of stay in the host country the wage gap should shrink. In the analysis below the type of visa is treated as an indicator of the stability of stay in Poland. Long-term visas by definition allow longer stay and more stable employment contract. In addition, obtaining more stable visas requires also some job tenure and efforts that can be also seen as a proxy for duration of stay and attachment to the Polish labour market. Information about documents which allows stay in Poland is extended in the survey questionnaire, but due to the limited sample size (Table 2) only three main type of documents have been chosen to perform separate analysis. The results show (Table 7) that indeed raw hourly wage difference between average wage of immigrants and native workers is larger in both cities if we take into account only short term migrants (short term visas). However taking into account individual characteristics allows to compensate that difference and the unexplained wage gap in Warsaw amounts in both cases to a bit more than 11%. It should be also mentioned that differences in wages between persons in the age 18-25 years (immigrant and Polish students) are fully explained by the composition of their occupations and unexplained wage gap is insignificant both in Warsaw and in Lublin.

Table 7. The results of the Blinder-Oaxaca parametric decomposition of the differences in wages between Polish workers and Immigrants by groups of immigrants defined by visa type

Specification	Total wage gap	Wage gap due to differences in endowments	Unexplained wage gap	
Warsaw				
Short term visa	-43.3%	-36.1%	**-11.3%**	**
Long term visa	-39.7%	-31.8%	**-11.7%**	***
Migrant students vs Polish students	-25.6%	-25.9%	0.5%	
Lublin				
Short term visa	-15.6%	-33.5%	**27.0%**	***
Long term visa	-13.1%	-20.5%	**9.3%**	*
Migrant students vs Polish students	4.3%	-2.8%	7.3%	

Source: Own calculations, stars next to the estimate of unexplained wage gap show significance level at which it is different than zero: * α= 0.1, ** α= 0.05, *** α= 0.01

The significant regional wage differences in wages in Poland and the differences in spatial mobility can explain another phenomenon observed in Lublin. Spatial mobility is the lowest among native workers, higher for long term migrants but probably the highest among short term migrants. The situation of the high demand for labour in the last three years creates huge advantage in negotiations for persons who are able to change localisation of their job quickly. This can explain why controlling for the compositional effects of the individual and work place characteristics change the difference between hourly wages of immigrants and native

workers from negative to positive. The increase is especially visible if we limit our analysis only to short term migrants who are less attached to particular labour market. The analysis suggest that in smaller cities they can have wages higher than similar native workers. This mechanism is much less significant among immigrants with longer visas.

Wage gaps by gender

One can expect that the selection of men and women to particular occupations is much higher among immigrants than among the native workers. If this is the case hourly wage gap in the group of women can be different that in the group of men. This conclusion is supported by the raw data on wages. In both cities: Warsaw and Lublin the difference between wages of native women and immigrant women is bigger than difference between immigrant men and native men (Table 8). However taking into account compositional effects of the individual features change the situation. Only the wage gap in the group of men in Warsaw is significant. Wage gaps in hourly wages in other groups are not significant. This paradox can be explained by the minimum wage which create downward limit for wages. This limit is important for relatively low wages and automatically reduces wage gap between native and immigrant workers. This seems to happen in Lublin (city with relatively low wages) and for women in Warsaw. Wages of native workers in Warsaw are usually much higher than minimum wage and the wage gap between natives and immigrants is more visible there.

Table 8. The results of the Blinder-Oaxaca parametric decomposition of the differences in wages between Polish workers and Immigrants by groups of immigrants defined by gender

Specification	Total wage gap	Wage gap due to differences in endowments	Unexplained wage gap
Warsaw			
Men	-37.6%	-27.3%	**-14.2%** ***
Women	-43.4%	-38.7%	-7.7%
Lublin			
Men	-10.0%	-18.3%	10.2%
Women	-17.6%	-26.8%	12.5%

Source: Own calculations, stars next to the estimate of unexplained wage gap show significance level at which it is different than zero: * α= 0.1, ** α= 0.05, *** α= 0.01

Wage gaps by sector

Immigration to Poland in the past was mainly observed in the seasonal works in specific economic sectors: agriculture and services. In the recent years the situation has changes and immigrants are employed mainly in the service sector. Due to limited sample size in this study

we focused on three sectors only: joint industry and construction, market services and non-market services (which groups mainly health and education services). There are significant differences in the raw measure of wage gaps between immigrants and native workers in these sectors (Table 9). The highest difference has been observed in the market services. In this sector raw wage gap in Warsaw exceeds 45% and 10% in Lublin. Most of these differences is explained by the occupational composition and individual characteristics. After controlling the individual characteristics of persons and their jobs (including occupations) the wage gaps in all sectors in Warsaw are similar (5-6%) but only in the case of industry and construction sector the wage gap can be treated as statistically significant.

In Lublin immigrants received on average 6-10% less than native workers depending on sector. However the unexplained difference was significantly in favour of immigrant workers in industry and construction and in non-market services. On average hourly wages of immigrants with the same characteristics were more than 20% higher than native workers. The only sector without significant difference between immigrants and natives was "market services" but this could have reflected relatively high share of immigrant students employed in the sector.

Table 9. The results of the Blinder-Oaxaca parametric decomposition of the differences in wages between Polish workers and Immigrants by groups of immigrants defined economic sector

Specification	Total wage gap	Wage gap due to differences in endowments	Unexplained wage gap	
Warsaw				
Industry & construction	-21.7%	-16.7%	**-6.0%**	**
Market services	-45.8%	-42.8%	-5.2%	
Non-market services	-20.2%	-15.1%	-6.0%	
Lublin				
Industry & construction	-8.4%	-24.7%	**21.6%**	*
Market services	-10.1%	-17.4%	8.8%	
Non-market services	-6.3%	-25.8%	**26.2%**	**

Source: Own calculations, stars next to the estimate of unexplained wage gap show significance level at which it is different than zero: * α= 0.1, ** α= 0.05, *** α= 0.01

Wage gaps by occupation group

Majority of immigrants work in Poland according to labour code or civil law contracts. At least formally it means that the lowest limit is the minimum wage and its level doesn't depend on the nationality of worker. That is why potential wage differences between immigrants and

natives are limited for low paid workers. The relatively better situation of the less skilled workers on the Polish labour market can also result from relatively limited supply of such skills due to emigration of the Polish less skilled workers to western EU countries. On the other hand, from the perspective of employer it is relatively easy to confirm skills of native workers (certificates of education, firm specific human capital, Polish language skills etc.). Such confirmation is required in top ISCO occupations like managers, specialists, office workers and technicians. Qualifications are less important in bottom ISCO occupations like service and sales workers, craft and industrial workers, machine operators, agriculture workers etc. The hypothesis about the wage gap higher in top level occupations than in low skilled occupations by calculating unexplained wage gap separately in the two groups of occupations. The results confirms that in both cities Warsaw and Lublin there were significant negative unexplained wage gaps (Table 10). Wage gaps disappeared in bottom occupations after controlling for individual and job characteristics.

Table 10. The results of the Blinder-Oaxaca parametric decomposition of the differences in wages between Polish workers and Immigrants by groups of immigrants defined by occupation

Specification	Total wage gap	Wage gap due to differences in endowments	Unexplained wage gap
Warsaw			
Top occupations (ISCO-08 major groups 1-4)	-29.5%	-19.0%	**-13.0%** *
Bottom occupations (ISCO-08 major groups 5-9)	-2.8%	-10.1%	8.2%
Lublin			
Top occupations (ISCO-08 major groups 1-4)	-17.1%	-9.4%	**-8.6%** *
Bottom occupations (ISCO-08 major groups 5-9)	-5.8%	-16.8%	13.2%

Source: Own calculations, stars next to the estimate of unexplained wage gap show significance level at which it is different than zero: * α= 0.1, ** α= 0.05, *** α= 0.01

5. Conclusions

This paper documents the estimates of the wage gap between Polish citizens and Ukrainian immigrants in two important labour markets – in Warsaw and in Lublin. The analysis conducted in this paper confirms that great majority of the raw differences in the average wage level between immigrant workers and native workers in Poland can be explained by the composition of their individual characteristics. An unexplained hourly wage gap (lower wages of immigrants) was significant and robust in Warsaw but was insignificant in Lublin and dubious if we compare immigrant wages to wages of similar native workers outside the big

cities. So, the first hypothesis set in the beginning of the paper can be confirm only for hourly wages in one region.

The second hypothesis that wage gap depends on region is strongly supported by the data. The analysis of the visa types and comparison of potential wages in Warsaw with other cities suggest the probable explanation: relatively higher mobility of immigrants who compare wages between localisations in comparison to native workers who prefer not to change place of living.

Our analysis also does not support the view that wage gap in hourly wages is narrower among persons with more stable permission to stay. Such result can reflect the relatively short history of massive immigration to Poland. The gains from attaining human capital by immigrants with longer visas were still not significantly higher than potential advantage from mobility of circular immigrants are still similar to wages of immigrants. It should be noticed that 75% persons in the sample spent in Poland less than two years before the survey.

The fourth hypothesis about the differences in the size of hourly wage gap by the wage level. It is much higher for persons who works in better occupations which requires probably more country specific human capital. Another explanation is the equalizing effect of minimum wage that reduce unexplained wage gap to insignificant level in worse paid occupations.

In this paper we also indicated that unexplained wage gap depends on immigrants features. The most significant result regarding unexplained wage gap was observed among men in Warsaw employed in the industry and construction sector. One can expect that it is due to strategy of short-term migrants who can prefer very long working hours and thus higher monthly wages than hourly wages comparable to Polish workers in the city.

The common view about the wages of immigrants on the Polish labour market is that they are lower than Polish workers and thus create competition for native workers. The findings presented in this paper suggest that it is a myth. Indeed, the raw difference in average hourly wages in Warsaw can exceed 40%. However most of the difference in raw wages is explained by the compositional effects of individual characteristics of immigrants (age, sex, educational attainment) and most of all occupation of immigrants in Poland. After controlling for these factors significant wage gap remained only in Warsaw and was close to 10% in the Oaxaca-Blider decomposition. Other specifications showed that the result was significant but can vary from 4 to 15% depending on the method of decomposition and weighting. One should keep in mind that this difference can reflect not only wage discrimination but also factors not included fully in the model like differences in required human capital between Polish and Ukrainian

workers. This conclusion is important in the discussion about the influence of the impact of the immigration flow on the Polish labour market. The hourly wages of immigrants are rather comparable to wages of Polish workers. Analysis showed that in the city outside the large agglomeration (like Lublin) where wages are generally lower than in the other parts of Poland the wages new recruited immigrants can be on average higher than natives. In the period of labour market shortages immigrants who are on average more mobile than natives and can easily move to the regions with higher wages can have advantage in wage negotiations.

Findings mentioned above lead to the conclusion that it is the availability of immigrants and not the wages of immigrants that alleviate the pressure for wage growth in this boom episode of business cycle in Poland. Another important policy conclusion is that unexplained wage gap between immigrant and Polish workers can widen as more immigrants start to work in better paid occupation. Analysis in this paper showed that in both regions Warsaw and Lublin wages of immigrants in these occupations were lower by 9-13% than wages of natives.

Due to the massive immigration from Ukraine and high labour demand in Poland the most important current research problems concerning Polish labour market are completely different than analysed five of ten years ago. In just a few years labour the discussion about labour shortages due to negative net migration have been replaced by the discussion about consequences of increasing employment of immigrants. This is in contrast to majority of the developed countries where the consequences of immigration have been analysed for many decades. The results presented in this paper shed some light on the wage differences between immigrant and native workers. The results show that until 2016 wage discrimination of the immigrants on the Polish labour market was rather limited. However further analysis of the changing role of migrants on the Polish labour market are still needed.

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