

Country of Birth and Wage Differentials: Evidence from Belgium*

David Sonnewald[†]

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Abstract

I compute and investigate wage differentials in Belgium between individuals born in the country and five major groups of non-native workers. I find that foreigners, except for those from EU15 countries, earn on average less than natives, with the size of the wage gap varying significantly across different groups. Applying the Oaxaca-Blinder decomposition to the wage differentials, I find that skills and characteristics only account for a portion of the gaps. Complementarily, a part of the wage differentials remains persistently unexplained, especially for non-European workers. Additional information on industry affiliation and occupation decreases this unexplained part, but it also shows the existence of industrial and especially occupational segregation. Detailed heterogeneity analysis reveals also a prominent role of the time spent in the country in decreasing wage gaps and evidence of glass ceilings rather than sticky floors. The examination of immigrant wage differentials throughout the study period indicates that the average relative wage of nearly all immigrant groups decreased.

Keywords: Wage Differentials, Immigration, Oaxaca-Blinder Decomposition.

JEL Classification: J15, J31, J71.

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[†]Center for Applied Public Economics (CAPE) and Center for Research in Economics (CEREC), UCLouvain. Email: david.sonnewald@uclouvain.be. Personal website: <https://davidsonnewald.com>.

1 Introduction

The number of migrants in the labour force worldwide has tripled in the past decade (*Global Migration Indicators* (2021)). Due to proximity to emigration areas and a policy framework that allows free movement of people among member states, the European Union experienced a significant reshaping of its labour force composition. This touched primarily the EU15 countries,¹ where the study of wage disparities between native-born citizens and immigrants has garnered the attention of both academic research and policy-makers.

Belgium, in particular, underwent among the most sizeable immigration waves, ranking among the top countries by foreign-born population (5th and 10th among EU and OECD countries, respectively). On January 1st, 2022, the share of non-natives was almost 13%, compared to 10.6% in 2012 and 8.2% in 2002. In addition, more than 20% of the population were Belgian with a foreign background. Although the increase in the migrant pay gap in Belgium has been less pronounced than in neighbouring countries,² the International Labour Organization (2020) report shows that, from 2015 to 2020, it has risen from 10% to 13%. Yet, few attempts of exploring the various facets of these earning differentials exist (*e.g.*, Kampelmann and Rycx (2016), Grinza et al. (2020), Fays et al. (2021)).

In this paper, I document the existence of a gap between the wage that individuals born in Belgium earn and the one that is earned by those who were born abroad. In addition, given the wide variety of countries from where immigrants in Belgium come from, I aim to answer three main research questions: first, which group of foreigners suffers or benefits from the largest gap; second, what the wage differentials are due to; and third, whether similar patterns hold within specific categories of the population. To address these questions, I compute wage gaps between individuals born in Belgium and five major groups of foreign-born workers: EU15, EU13,³ Other Europe,⁴ North Africa and Middle East, Sub-Saharan Africa. Then, I decompose the wage differentials using the Oaxaca-Blinder methodology with three specifications (without industry and occupation fixed effects, with only industry fixed effects, and with both). In addition, I replicate the decomposition within genders, levels of education, industries, occupations, and years spent in the country. Finally, I look at the evolution over time of the average wage earned by immigrants compared to that of Belgians.

I find that all foreigners (but those from EU15 countries) earn, on average, significantly less

¹ Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, United Kingdom.

² In Luxembourg and in the Netherlands, foreigners earn 27% and 20% less than nationals, respectively (compared to 15% and 16.5% in 2015).

³ Bulgaria, Croatia, Cyprus, Czechia, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, Slovakia, Slovenia.

⁴ Different from EFTA countries (Iceland, Liechtenstein, Norway, Switzerland).

than natives. The actual size of the average wage gap between the Belgian and non-Belgian born varies importantly according to the geographical area of origin. It is -8%⁵ with EU15 countries, 18% with EU13 countries, 21% with other European countries, 19% with North Africa and the Middle East, and 10% with Sub-Saharan African countries.⁶ A key finding is that skills⁷ and characteristics explain only part of this gap, which is primarily attributable to differences in years of work experience (on average, higher among Belgians) and in the proportion of individuals employed in elementary occupations (on average, larger for immigrants). Complementarily, a substantial part of the wage differentials, particularly pronounced for non-European workers (Africans and Middle-Easterners), is due to differences in the returns to skills and characteristics.⁸ This, in turn, is mainly given by differences in the remuneration of the age, as the wage payoff of an additional year of age is greater for Belgians by roughly 6 percentage points. Further information on industry affiliation and occupation decreases this unexplained part, but it also shows the existence of industrial and occupational segregation. This means that immigrants obtain lower wages because they sort themselves (or are sorted) into low-wage industries (industrial segregation) or low-wage occupations (occupational segregation). I investigate this evidence replicating the decomposition within specific industries and occupations, besides genders, levels of education, and the time spent in the country. In fact, I find that, while sorting into sectors⁹ does not contribute sizeably to the explanation of the wage differentials, the unexplained wage gap shrinks remarkably in occupations with large shares of foreign workers. Likewise, among low-educated individuals (where all groups of foreigners except for those from the EU15 are over represented) and those who have been living in Belgium for more than ten years, the wage differentials are almost fully explained by differences in the characteristics, besides being notably very small. Lastly, I find that, except for immigrants from non-EU European countries, all foreigners' relative wage decreased during the years of my analysis.

This paper speaks to several lines of research. First it contributes to the literature on wage determinants and wage gaps. Since Mincer's seminal paper (Mincer (1974)), a wide literature developed in the attempt of identifying the main determinants of earnings and wages. While there is broad consensus upon the role of a number of explanatory variables in impacting returns

⁵ A negative gap indicates that the average wage for natives is lower than that for foreigners.

⁶ The wage differentials in absolute terms, as well as their calculation, are illustrated in Section 4. Here, they are reported in percentage terms as a fraction of the average wage of Belgian individuals.

⁷ In general, the scope of what constitutes "skills" can be rather extensive. In this study, based on the variables available in my data (Table 5) and following Human Capital theory, I proxy skills using the level of education attained and work experience.

⁸ As illustrated in Section 3, this is referred to as the unexplained part.

⁹ In this paper, the terms "industry" and "sector" are used indistinctly.

on the labour market,¹⁰ persistent gaps remain unexplained even when controlling for these characteristics. The identification and the quantification of such gaps were pioneered by Oaxaca (1973) and Blinder (1973), whose methodology (Oaxaca-Blinder decomposition) stands now as a cornerstone for this kind of analyses. Many other studies using this methodology were carried out worldwide to assess wage differentials between male and female workers. Interestingly, while there is much variance in the country under analysis and in the kind of data employed,¹¹ the vast majority of these articles reveal consistently the existence of persistent unexplained wage differentials between men and women.¹²

A more recent strand of research, to which this paper is more closely related to, uses the Oaxaca-Blinder decomposition to quantify existing wage gaps between native and foreign workers. This approach has generally been applied to countries with long immigration histories, like the US (Chaikwaeng (2017)), Germany (Lehmer and Ludsteck (2011), Aldashev et al. (2012), Brunow and Jost (2019) and Brunow and Jost (2020), Schmid (2022)) and Portugal (Cabral and Duarte (2013)), although some exceptions exist also for those with a more recent one (*e.g.*, Strzelecki (2018) for Poland). Also in this case, findings tend to be similar across countries, *i.e.*, while, on average, Western immigrants earn as much as (occasionally even more than) the natives, other categories of immigrants (*e.g.*, from Latin America in the US or from Turkey in Germany) earn systematically less. In addition, this wage gap is often partially unexplained.

The use of the Oaxaca-Blinder decomposition to analyse wage gaps between native and foreign workers in Belgium is essentially limited to the application of Pineda-Hernández et al. (2022). In particular, they delve into the natives-foreigners wage gap with a focus on inter-generational differences among immigrants from developing countries. In fact, they find that whereas there is no evidence of a wage gap for second-generation immigrants, first-generation immigrants still experience a sizeable wage gap (2.7%). Besides the different type of data, however, this paper complements their study on three main aspects. First, it expands the spectrum of immigrants to include those from developed countries; second, in the heterogeneity analysis, it explores the role of the time spent in the country; and finally, it examines the

¹⁰ These variables range over individual characteristics (*e.g.*, gender, age), demographics (*e.g.*, place of residence, household composition), human capital (*e.g.*, education, experience), family background (*e.g.*, parents' income), industry (*e.g.*, manufacturing, services), and occupation (*e.g.*, manager).

¹¹ Although most of these studies use survey data, there are exceptions opting for census and administrative data.

¹² Examples are numerous both for developed and developing countries. For developed countries see: Rycx and Tojerow (2002) for Belgium, Neuman and Oaxaca (2003) for Israel, Papapetrou (2004) and Papapetrou (2007) for Greece, Vale Mendes (2004) for Portugal, Kluve and Schaffner (2007) for Germany and the US, Miyoshi (2008) for Japan, Piazzalunga (2015) for Italy, and Ganji (2019) for the San Francisco Bay Area. For developing countries see: Temesgen (2006) for Ethiopia, Lin (2010) for Taiwan, Khorpetch and Kulkolkarn (2011) for Thailand, Alvarado (2012) for Ecuador, Habibi and Razavi (2014) for Iran, Valientes (2015) for Philippines, Dah and Fakih (2016) for Lebanon, and Biltagy (2019) for Egypt.

evolution of trends in wage differentials.

As a Western developed economy that has experienced several massive and diverse waves of immigration,¹³ Belgium presents a case study with high external validity. Furthermore, with the employment of an extremely large survey data set, the present study overcomes the usual trade off faced in the related literature. That is, the use of high coverage census or employment register data, with limited access to individual characteristics and labour market outcomes, versus survey data, where these variables are normally available but where the number of observations is much smaller. Besides providing more robust results in the overall decomposition, the heterogeneity of the database used in this paper allows for further decompositions by a number of categories that are rarely investigated in such detail. In particular, I study the role of gender, industry, occupation, education, and the time spent in the country.

The remainder of the paper is organised as follow. In Section 2, I present the data employed in this study, with a number of descriptive statistics characterising my sample. In Section 3, I illustrate the identification strategy of my empirical analysis. The main results provided by the three specifications of the threefold Oaxaca-Blinder decomposition are summarised in Section 4. In Section 5, I investigate the evolution of the immigrant wage differentials over the period of my analysis. Section 6 concludes.

2 Data and Descriptive Statistics

The European Union Labour Force Survey (EU LFS) is a large household sample survey on labour participation of people aged 15 and over and on people outside the labour force.¹⁴ It focuses on individual socio-demographic characteristics and conditions of employment, unemployment, and inactivity. In this paper, I use the Eurostat version of the LFS data for Belgium for the years 2011-2019,¹⁵ restricted to employed wage earners. Overall, the data consists of a merged repeated cross sectional data set counting 257,170 observations.

Foreigners are distinguished from natives on the basis of the country in which they were born (different from Belgium). Therefore, a non-native individual remains labelled as a foreigner in my sample, even if he or she obtained the Belgian citizenship. On the one hand, this definition allows us to capture the impact of the individuals' background (language, culture, etc.) and

¹³ Outlining the history of immigration in Belgium is beyond the scope of this study. However, one major distinction between two categories of incomers is worth to be made: the low skilled, who come mostly from Eastern Europe, North Africa and the Middle East; and the high skilled, who are mainly from Western Europe and are often employed in sectors related to the International Institutions in Brussels.

¹⁴ Persons carrying out obligatory military or community service are not included in the target group of the survey, as is also the case for persons in institutions/collective households. For a detailed description of the data set, see E. C. Eurostat (2020).

¹⁵ Prior to 2011, data on wages are collected differently and not consistently with the subsequent years.

labour market frictions for foreign workers (*e.g.*, higher job searching costs), which linger even after the eventual acquisition of the host country’s citizenship. On the other, this also means that immigrants’ children who were born in Belgium classify as natives, which is however consistent with the fact that they do not face their parents’ hurdles when they enter the labour market (*e.g.*, knowledge of the language or absence of a recognised diploma).

The country of birth variables are pooled into major geographical areas.¹⁶ Only the five most represented areas are considered for this study: EU15, EU13, Other Europe, North Africa and Middle East, Sub-Saharan Africa.¹⁷ The eventual sample results into 252,538 observations. In this section, I present the most relevant descriptive statistics from my sample in relation to the results in Section 4. Additional figures are relegated to Appendix A.

Table 1 shows the observation figures for the different nationalities, as well as the average wage by country of origin.¹⁸ Wages are measured by income deciles (calculated from actual wages, *i.e.*, no other source of income is included), reflecting the format in which the labour income variable is made available in the LFS data.¹⁹

Apart from EU15 countries, which have a larger sample size, the other geographical areas different from Belgium range around similar figures in terms of number of observations. Non-EU European countries, and even more North Africa and the Middle East, present disproportionate shares of male compared to female workers. Interestingly, EU13 countries present the reverse picture. For what concerns the average income decile, Table 1 strongly motivates the research at hand. As reported in Column 4 ($\bar{w}$), there is a remarkable difference between Western (European) countries, including Belgium, and the others. Except for Sub-Sahara Africa (with 5.10), the remaining groups of non-Western foreigners have an average income decile below the 50th percentile. On the contrary, that of workers from EU15 countries towers over all the others’. Belgians fall immediately behind, with an average income decile of almost 5.7.

¹⁶ The original variable from the LFS data set groups countries into continental regions (*e.g.*, East Asia or South America). When applicable, further pooling based on similar cultural background is carried out merely to obtain larger groups (*e.g.*, “10 new Member States of 2004” and “3 new Member States of 2007 and 2013” are grouped together into “EU13”).

¹⁷ The detailed breakdown of these areas is illustrated in Footnotes 1, 3, and 4 in Section 1, as well as in the notes to Table 1.

¹⁸ The terms “country of birth”, “country of origin”, “geographical area”, and “nationality” are used indistinctly in the remainder of the paper.

¹⁹ “Monthly (take home) pay from main job” (E. C. Eurostat (2020)). In the remainder of the article, I refer to “income decile” and “wage” indistinctly.

Table 1: Country of birth, gender, and average income decile

Group	Male	Female	Total	$\bar{w}$
Belgium	51%	49%	215,584	5.68
EU15	51%	49%	16,143	6.13
EU13	39%	61%	4,677	4.65
Europe (Other)	57%	43%	4,398	4.50
North Africa and Middle East	71%	29%	6,365	4.62
Sub-Saharan Africa	51%	49%	5,371	5.10

Notes. Shares are computed using sample weights. $\bar{w}$ is the average income decile (which is a proxy of the average net wage); scale: 1 to 10. EU15: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, UK. EU13: Bulgaria, Croatia, Cyprus, Czechia, Estonia, Hungary, Lithuania, Latvia, Malta, Poland, Romania, Slovakia, Slovenia. Europe (Other): different from EFTA countries (Iceland, Liechtenstein, Norway, Switzerland).

Source. Author's calculations based on the Labour Force Survey (Eurostat) for Belgium, years 2011-2019.

Table 2 depicts the breakdown of my sample according to the country of birth and the level of education. EU15 countries and Belgium display comparable figures: very low shares of individuals with at most primary education and roughly half of the workers who have attained tertiary education (Bachelor or Master). Conversely, large shares of individuals from non-EU countries are still very low educated. However, Sub-Saharan Africa stands out for having also a sizeable share of workers (42%) holding a Bachelor or a Master.

Table 2: Country of birth and education

Group	Primary (or lower)	Secondary	Bachelor	Master	Total
Belgium	4%	51%	28%	17%	215,584
EU15	7%	42%	18%	33%	16,143
EU13	9%	56%	11%	23%	4,677
Europe (Other)	20%	55%	9%	16%	4,398
North Africa and Middle East	21%	53%	12%	14%	6,365
Sub-Saharan Africa	13%	45%	22%	20%	5,371

Notes. Shares are computed using sample weights.

Source. Author's calculations based on the Labour Force Survey (Eurostat) for Belgium, years 2011-2019.

Evidence from previous research²⁰ has revealed that firms operating in specific industries (*e.g.*, the tech industry) tend to be more productive and, in turn, remunerate their workers with higher salaries. This fact is particularly important for this analysis because, together with potential industrial segregation among foreigners, it could explain the wage gap with native workers. Therefore, in Table 3, I look at the top three industries²¹ (in terms of share in total employment) for every geographical area. Two facts are worth noting. First, across most groups, the top industry employs between 13% and 15% of workers. EU13 and Sub-Saharan Africa are exceptions, with 22% and 24% of individuals, respectively, working in the top industry. Second, descriptively, there is no particular evidence of industrial segregation: the top industry for Belgians (Health) is also the top industry for Sub-Saharan Africans and the second-largest for EU workers; and the second-largest industry for Belgians (Manufacturing) is the top industry for three groups of foreigners (EU15, Other Europe, and North Africa and Middle East). In fact, the only sector in which foreigners are partially sorted is that of administration.

Table 3: Country of birth and industry affiliation

Group	Largest Industry	Share 1	Second-largest Industry	Share 2	Third-largest Industry	Share 3
Belgium	Health	15%	Manufacturing	14%	Automotive	13%
EU15	Manufacturing	13%	Health	12%	Automotive	11%
EU13	Administration	22%	Health	13%	Construction	12%
Europe (Other)	Manufacturing	15%	Automotive	13%	Administration	12%
North Africa and Middle East	Manufacturing	15%	Administration	14%	Automotive	12%
Sub-Saharan Africa	Health	24%	Administration	10%	Public Administration	9%

Notes. Shares are computed using sample weights. Health: NACE 1 digit code = Q; Manufacturing: NACE 1 digit code = B and C; Automotive: NACE 1 digit code = G; Administration: NACE 1 digit code = N; Construction: NACE 1 digit code = F; Public Administration: NACE 1 digit code = O.

Source. Author's calculations based on the Labour Force Survey (Eurostat) for Belgium, years 2011-2019.

Even across industries, immigrants segregation can occur at the level of the position held within the firm (occupational segregation). In fact, this is the case in my sample, as illustrated in Table 4. While Belgian and EU15 workers work prominently as professionals (23% and 26% of the total employment, respectively), an average share of 31% across all other groups of

²⁰ See, for example: Dickens and Katz (1987), Krueger and Summers (1988), Katz and Summers (1989), Song et al. (2019).

²¹ Industries are identified using the 1-digit code of the Statistical Classification of Economic Activities in the European Community (NACE).

foreign workers is employed in elementary occupations.²² This occupational sorting is corroborated by the reverse shares. That is, a mere 9% of Belgians work in elementary occupations and only 12% of foreigners (cross-group average) work as professionals.

Table 4: Country of birth and occupation

Group	% of professionals	% in elementary occupations	Total
Belgium	23%	9%	215,584
EU15	26%	11%	16,143
EU13	13%	37%	4,677
Europe (Other)	9%	30%	4,398
North Africa and Middle East	9%	31%	6,365
Sub-Saharan Africa	16%	25%	5,371

Notes. Shares are computed using sample weights. Only the two most represented occupations for natives (together with EU15 immigrants) and for other immigrants, respectively, are reported: professionals and elementary occupations. Professionals: ISCO 1 digit code = 200; elementary occupations: ISCO 1 digit code = 900.

Source. Author’s calculations based on the Labour Force Survey (Eurostat) for Belgium, years 2011-2019.

3 Methodology

The descriptive figures presented in Section 2 reveal marked differences in the skills and characteristics of natives and immigrants. To analyse thoroughly the existing wage gaps between natives and the various groups of foreigners living in Belgium, I decompose the wage differentials using the methodology developed by Oaxaca (1973) and Blinder (1973). More specifically, I employ the threefold Oaxaca-Blinder decomposition.

The first step of the decomposition is the estimation of the wage equation for the two groups $g \in \{B, F\}$, where B is the sample of Belgium-born workers and F is, in turn, one of the five groups of foreigners (*i.e.*, $F \in \{\text{EU15, EU13, Other Europe, North Africa and Middle East, Sub-Saharan Africa}\}$). As the Oaxaca-Blinder decomposition builds on linear models, given $w_{i,g}$ the wage for the individual i belonging to group g , I let the usual Mincerian-type wage equation be given as $w_{i,g} = X'_{i,g}\beta_g + \epsilon_{i,g}$, $\forall i, g$, where $X'_{i,g}$ is a vector of explanatory variables, β_g is the vector of corresponding coefficients, and $\epsilon_{i,g}$ is the error term. Consequently, the estimated equation of the average wage for group g is $\bar{w}_g = \bar{X}'_g\hat{\beta}_g$, $\forall g$. Hence, the difference

²² Occupations are identified using the 1-digit code of the International Standard Classification of Occupations (ISCO), by the International Labour Organization (ILO). “Professionals increase the existing stock of knowledge, apply scientific or artistic concepts and theories, teach about the foregoing in a systematic manner, or engage in any combination of these three activities. Most occupations in this major group require skills at the fourth ISCO skill level” (Source: ILO (2022a)). “Elementary occupations consist of simple and routine tasks which mainly require the use of hand-held tools and often some physical effort. [...] Most occupations in this major group require skills at the first ISCO skill level” (Source: ILO (2022b)).

in the mean wage across the two groups ($g \in \{B, F\}$) that the Oaxaca-Blinder decomposition aims at explaining can be expressed as: $\Delta\bar{w} = \bar{w}_B - \bar{w}_F = \bar{X}'_B\hat{\beta}_B - \bar{X}'_F\hat{\beta}_F$.

From $\Delta\bar{w} = \bar{X}'_B\hat{\beta}_B - \bar{X}'_F\hat{\beta}_F$:

1. $\bar{X}'_B\hat{\beta}_F$, $\bar{X}'_F\hat{\beta}_B$, and $\bar{X}'_F\hat{\beta}_F$ are added and subtracted:

$$\Delta\bar{w} = \bar{X}'_B\hat{\beta}_B - \bar{X}'_F\hat{\beta}_F + \bar{X}'_B\hat{\beta}_F - \bar{X}'_B\hat{\beta}_F + \bar{X}'_F\hat{\beta}_B - \bar{X}'_F\hat{\beta}_B + \bar{X}'_F\hat{\beta}_F - \bar{X}'_F\hat{\beta}_F$$

2. Rearranging the terms of the equation:

$$\Delta\bar{w} = \bar{X}'_B\hat{\beta}_F - \bar{X}'_F\hat{\beta}_F + \bar{X}'_F\hat{\beta}_B - \bar{X}'_B\hat{\beta}_F + \bar{X}'_B\hat{\beta}_B - \bar{X}'_B\hat{\beta}_F - \bar{X}'_F\hat{\beta}_B + \bar{X}'_F\hat{\beta}_F$$

Factoring out the common factors, I obtain that, $\forall F$, the average wage gap between Belgian and foreign workers is given by:

$$\Delta\bar{w} = \underbrace{(\bar{X}_B - \bar{X}_F)'\hat{\beta}_F}_{\text{characteristics (explained)}} + \underbrace{\bar{X}'_F(\hat{\beta}_B - \hat{\beta}_F)}_{\text{coefficients (unexplained)}} + \underbrace{(\bar{X}_B - \bar{X}_F)'(\hat{\beta}_B - \hat{\beta}_F)}_{\text{interaction}} \quad (1)$$

Equation 1 is the threefold decomposition according to the Oaxaca-Blinder methodology.²³ Therefore, the threefold decomposition divides the difference in mean wages into: a portion that is explained by differences in the explanatory variables (characteristics or endowments term); a part that remains unexplained, as it is due to group differences in the coefficients (coefficients term); and a part that accounts for the fact that cross-group differences in the explanatory variables and in the coefficients can occur at the same time (interaction term). In other words, the characteristics effect represents the wage difference that is purely due to differences in characteristics and skills (*e.g.*, higher education, longer work experience). Contrarily, the coefficients effect has to do with how skills are remunerated. That is, different coefficients of the same explanatory variable across natives and foreigners mean that the skills and characteristics have different returns for Belgians and immigrants. In a hypothetical situation, where foreigners' skills and characteristics are remunerated in the same way as those of natives (*i.e.*, $\hat{\beta}_B = \hat{\beta}_F$), the coefficients effects are null and the average wage gap is fully explained by the endowments term. For this reason, this term is labelled as “unexplained wage gap” (Mincer and Polachek (1974)). Finally, the interaction effects measure the wage difference “if endowment differences were remunerated with coefficient differences” (Lehmer and Ludsteck (2011)).

The threefold decomposition, as depicted in Equation 1, is estimated based on Ordinary

²³ This formulation takes foreigners' coefficients as the non-discriminatory structure, following the common convention in the Oaxaca-Blinder literature of using the minority group as the reference (Jann (2008)). Using natives as the reference group is algebraically equivalent. The choice of reference does not affect the total gap nor the interpretation, but only the allocation between the “explained” and “unexplained” components.

Least Squares regressions, with standard errors calculated on 100 bootstrapping replicates.²⁴ More precisely, Equation 1 is estimated with three different specifications, according to the explanatory variables that are included in the X vector, which are summarised (with detailed description of the variables) in Table 5. Notably, the base specification includes only variables related to the endowments (individual characteristics and skills). The first extended specification adds to the base specification control variables for industry affiliation (*i.e.*, the individual’s sector of employment). The second extended specification includes also control variables for the actual position that the individual holds. The choice of this tripartite analysis is to account for potential industrial and occupational segregation. That is, the unexplained wage gap in the base specification includes, besides a fraction due to either “pure” wage discrimination or other omitted variables, the impact of industrial and occupational segregation. By including the controls for industry affiliation and occupation in the extended specifications, I limit the interpretation of the unexplained part of the wage differentials only to unobservables (including potential wage discrimination). In addition, if this shrinks with the insertion of the dummies for the industry and the occupation, I would also find evidence of industrial and occupational segregation, respectively, determining (at least partially) the wage gaps. Whether these are, in turn, the effect of discrimination (immigrants are sorted by employers into certain industries and/or occupations), taste (immigrants sort themselves into certain industries and/or occupations), or other unobservable factors cannot be known, nor investigated in the present study.

²⁴ The estimation is performed using the `oaxaca()` package on R. I refer to Hlavac (2022) for a detailed explanation of the package’s functionalities. Standard errors were also calculated with bootstrapping up to 1000 replicates.

Table 5: Variables employed in the threefold decomposition

Variable	Description
Outcome (w)	
Income Decile	Proxy of monthly net wage from employed work (values 1 to 10)
Explanatory (X)	
Age	Linear and quadratic terms of age, measured in years
Gender	Binary variable for gender
Education	4 binary variables for levels of education, as described in Table 2
Household composition	6 binary variables for different types of household; 1 continuous variable for number of children
Area of residence	Binary variable for urban vs. rural area (See: Table A.1)
Region of residence	3 binary variables; one for each region (See: Table A.2)
Experience	Linear and quadratic terms of experience, measured in months
Hours worked	Hours usually worked per week
Type of contract	Binary variable for full-time vs. part-time contract
Duration of the contract	Binary variable for permanent vs. temporary contract
Work from home	Binary variable for the possibility of working from home
Establishment size	Binary variable for 10 (or more employees) in enterprise vs. less
Industry	17 binary variables for industry affiliation, built on NACE 1 digit code
Occupation	10 binary variables for occupations, built on ISCO 1 digit code
Time effects	9 binary variables for time effects, one for each year

Notes. The variable “Experience” is proxied by number of months worked for the same employer. The base specification includes all the variables but Industry and Occupation. The first extended specification includes all the variables of the base specification plus “Industry”. The second extended specification includes all the variables.

4 Results

4.1 Overall Decomposition

Table 6 contains the wage gaps between the specific group of immigrants and the reference group of Belgians ($\Delta\bar{w}$), as well as the threefold decomposition results for the three specifications, as described in Section 3. More precisely, for every of the three effects (characteristics, coefficients, and interaction), Column (1) reports the results for Base Specification (without Industries and Occupations); Column (2) shows the estimates for the Extended Specification with Industries; Column (3) contains the results for the Extended Specification with Industries and Occupations.²⁵ For each of the three specifications, the three components sum up exactly the value in the second column, $\Delta\bar{w}$. For example, 1.03 mean income decile gap between natives and EU13 workers using the first specification, Column (1), is the sum of 0.63 (characteristics effect), 0.31 (coefficients effect), and 0.09 (interaction effect).

The descriptive figures in Table 3 are confirmed. Namely, the share of the characteristics (coefficients) effects in the explanation of the whole wage gap does not sizeably increase (de-

²⁵ For the sake of simplicity, hereafter it is also referred to as “Specification 3.”

crease) with the introduction of the controls for industry affiliation (from Column 1 to Column 2). Instead, occupational segregation accounts for an important share of the unexplained differential, which shrinks accordingly with the introduction of the dummies for the occupation (from Column 2 to Column 3). For foreigners from EU13 and other non-EU European countries, in the full specification with industries and occupations (Column 3), the wage gap is almost totally explained by differences in the endowment term (91% and 76%, respectively). For the remaining groups of foreigners, however, the unexplained portion of the wage differentials remains remarkable: 38% for EU15 countries, 35% for North Africa and Middle East, 32% for Sub-Saharan Africa. While there is no certain interpretation of these relatively large coefficient terms, different explanations may apply to different geographical areas of origin.

The negative unexplained wage gap between Belgian and EU15 immigrants (*i.e.*, EU15 workers earn higher wages) is probably due to the unobservable bias generated by the European institutions and international organisations in Brussels. According to the most recent figures, 56% of the total employment in the European Commission comes from EU15 countries (EC (2022b)).²⁶ Since such institutions typically pay a higher net average wage (for instance, due to tax exemptions), this likely contributes to a wage gap with peers employed elsewhere. In turn, this gap is unobservable because, while I can control for the occupation, I cannot observe in my data where this occupation is held. For example, the majority of both Belgian and EU15 workers are professionals. However, I cannot distinguish a professional working in the private sector from one working in the EU public sector. Yet, the latter is likely to earn a higher salary. To elaborate this interpretation more thoroughly, I perform an additional decomposition of the wage gap between natives and EU15 immigrants (only of Specification 3, the most detailed one with industries and occupations, see Table 6, Column 3), excluding individuals residing in Brussels from my sample. Results of such robustness check are reported in Table B.1 in Appendix B. In fact, I find that the hypothesis that the international institutions headquartered in Brussels could generate a wage gap between EU15 and Belgian workers is corroborated. That is, when I remove the people living in Brussels from my sample, this wage gap almost vanishes (see Table B.1, Appendix B). This suggests that, for the same characteristics, workers from EU15 countries are treated by the labour demand as substitutes to natives and they are, in turn, similarly remunerated. Therefore, when a wage difference arises (Table 6), this could be the effect of the concentration of EU15 workers into the more remunerative international institutions industry.

Another possible evidence generating unobservable wage differentials between natives and

²⁶ This share was not significantly different during the period of my analysis.

immigrants from EU15 countries concerns the most qualified individuals (which constitute 51% of the total EU15 employment, see Table 2). In fact, to attract foreign high-skilled individuals, many employers often offer a larger remuneration to compensate their relocation to Belgium from their current home country.

These two main channels likely contributing to the negative unexplained wage gap between Belgian and EU15 immigrants, however, cannot explain similarly the positive unexplained wage gap between Belgian and migrants from Africa and the Middle East, for two main reasons. First, positions within EU institutions are mostly reserved to EU citizens.²⁷ Second, non-European immigrants, especially from North Africa and the Middle East are, on average, very low qualified (see Table 2).²⁸ Therefore, the interpretation of the unexplained wage gap between natives and individuals from Africa and the Middle East is more subtle and much less evident. The related literature often treats it as discrimination towards foreigners coming from Arab and African countries.²⁹ Although it could be, at least partially, true, the absence of direct causality gives to other unobservables the possibility to also play a role. For example, I cannot observe language skills, neither if education (if attained) was completed in Belgium or in the country of origin. As shown by Aldashev et al. (2012), this latter is an important component of economic integration of immigrants, and degrees obtained abroad are valued less. In addition, it is very peculiar to non-European immigrants, as within Europe (and particularly the EU) full cross-country recognition of education diplomas was achieved. In fact, besides the still potential discrimination channel, this would also explain why, on the other hand, the unexplained part of the wage gap is so small for workers from European (non-EU15) countries.

²⁷ For example, the share of non-EU workers in the European Commission (in 2022) is only 6%. Source: EC (2022a).

²⁸ I also rigorously verify this in Section 4.3.

²⁹ The interpretation of the gap due to differences in the regression coefficients as a direct measure of discrimination is highly debated in the literature. Statistically, the unexplained wage gap can be due to any non-identifiable unobservable variable or, even more likely, to the combined effect of more than one of them. While controlling for a broad range of characteristics (as in the present study) reduces substantially the set of unobservables, together with discrimination, a number of other potential candidates (*e.g.*, transferability of human capital) remains. According to Lehmer and Ludsteck (2011), “from a theoretical point of view, the influence of unobservable variables is ambiguous. On the one hand, variables that provide information on language skills or the transferability of human capital [...] could be expected to reduce the unexplained gap significantly. On the other hand, immigrants are assumed to be a highly motivated sample of the foreign labor force”. That said, the full attribution of the unexplained wage gap to pure discrimination, neglecting any other possible difference in unobserved characteristics, remains by far the most popular interpretation in the literature.

Table 6: Decomposition of income decile at sample means (comparison group: Belgians)

Group	$\Delta\bar{w}$	Characteristics Effects			Coefficients Effects			Interaction Effects		
		(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
EU15	-0.45	-0.31	-0.36	-0.37	-0.18	-0.20	-0.17	0.04	0.11	0.09
		(0.025)	(0.024)	(0.030)	(0.017)	(0.015)	(0.014)	(0.014)	(0.015)	(0.014)
EU13	1.03	0.63	0.59	0.94	0.31	0.23	-0.08	0.09	0.21	0.17
		(0.071)	(0.072)	(0.079)	(0.031)	(0.030)	(0.026)	(0.061)	(0.061)	(0.067)
Europe (Other)	1.18	0.67	0.62	0.90	0.49	0.47	0.18	0.02	0.09	0.10
		(0.056)	(0.062)	(0.059)	(0.030)	(0.029)	(0.025)	(0.050)	(0.050)	(0.053)
North Africa and Middle East	1.06	0.49	0.55	0.81	0.74	0.68	0.37	-0.17	-0.17	-0.12
		(0.049)	(0.051)	(0.054)	(0.027)	(0.026)	(0.023)	(0.040)	(0.045)	(0.046)
Sub-Saharan Africa	0.59	0.38	0.41	0.53	0.43	0.40	0.19	-0.22	-0.22	-0.13
		(0.043)	(0.039)	(0.043)	(0.029)	(0.027)	(0.026)	(0.026)	(0.030)	(0.029)

Notes. All comparisons relate to the Belgian sample. $\Delta\bar{w}$ is the actual mean income decile difference. Characteristics Effects denote the predicted counterfactual mean income decile difference that would prevail if the coefficients of foreigners were identical to those of Belgian workers. Coefficients Effects represent the predicted counterfactual mean income decile difference that would prevail if the characteristics of foreigners were identical to those of Belgian workers. Interaction Effects account for the fact that cross-group differences in explanatory variables and coefficients can occur at the same time. Standard errors in parentheses. Column (1): Base Specification without Industries and Occupations; Column (2): Extended Specification with Industries; Column (3): Extended Specification with Industries and Occupations. For detailed explanation of the variables included in every specification, see Table 5.

Within the wage gaps between Belgians and each group of foreigners, I investigate the role of the variables in explaining differences in characteristics and identify the key coefficients contributing to the unexplained portion of the wage differentials. I carry out this analysis only for Specification 3, the most detailed one with industries and occupations (see Table 6, Column 3). I relegate to Appendix C the full set of graphs where the detailed decompositions are plotted. Several common trends in the role of some variables and coefficients in accounting for the wage differentials can be identified. First, the explained wage gap (differences in the characteristics) between natives and immigrants (except those from EU15 countries) is mostly driven by differences in years of work experience (higher for Belgians) and the proportion of individuals working in elementary occupations (higher for non-natives). This latter has also a prominent role in the unexplained wage gap (differences in the coefficients) between natives and European workers (EU15 countries being excluded). For African and Middle Eastern individuals, instead, this is highly attributable to differences in the coefficient of age. Precisely, the difference in the age coefficient (representing the wage return to an additional year of age) between these groups and Belgians is roughly 6 percentage points.

In the next five subsections, I exploit the heterogeneity of my sample to replicate and compare the decomposition of the wage differentials within sub-groups of workers: men vs.

women (Section 4.2); low educated vs. high educated (Section 4.3); manufacturing industry vs. administration vs. health industry (Section 4.4); professional occupations vs. elementary occupations (Section 4.5); immigrants residing in the country for less than 5 years vs. between 5 and 10 years vs. more than 10 years (Section 4.6). The main objective of such deeper investigation is to see whether (and where) the coefficients effects decrease, therefore providing hints of possible factors accounting for the unexplained portion of the wage gaps. All replications are performed using Specification 3, the most detailed one with industries and occupations.³⁰ Additional replications (urban area vs. rural area and Flanders vs. Brussels vs. Wallonia) are relegated to Appendix D.

4.2 Gender

In the related literature, a trade-off is often faced when it comes to insert restrictions to the sample: limiting it only to men (*e.g.*, Lehmer and Ludsteck (2011), Schmid (2022)) or including also women (*e.g.*, Cabral and Duarte (2013), Chaikwaeng (2017), Brunow and Jost (2019)). The first option usually guarantees more homogeneity in the sample, as labour market outcomes for foreign women change profoundly depending on the country and culture of origin, and they are often not easily comparable with natives'. On the other hand, the second option, which is the one adopted in the present study, better represents the overall labour force. Table 1 documents differences in labour participation among female workers from different geographical areas. For example, fewer than 30% of the employed workforce from North Africa and the Middle East are women. Thus, I also delve into wage differentials between natives and foreigners breaking down my sample into men and women, as illustrated in Table 7.

A first detectable evidence is that in geographical areas where women are underrepresented, *i.e.*, North Africa and Middle East, and Europe (Other), the overall wage gap is much larger in the women sample than in the one for men.³¹ Therefore, women from North Africa, the Middle East and non-EU European countries work, on average, in less remunerative jobs (regardless of the fact that only a small share does work). At the same time, the unexplained portion is relatively less important, letting the largest part of the gap be explained by differences in the characteristics. This would suggest that the reason why they hold less remunerative positions is that they are less qualified compared to native women, rather than because of unobservable factors.

The unexplained wage gap is notably very low also for Sub-Saharan African women (al-

³⁰ This is, in turn, adapted to the sub-group under analysis. *E.g.*, when I decompose the wage gap between individuals with at most primary education, controls for the education level are clearly removed.

³¹ The reverse is true when the shares are more balanced (or even in favour of women, *e.g.*, in EU13 countries).

though, in this case, the overall gap is smaller than for men). Altogether, this result confirms another finding already documented in the literature.³² That is, Arab and African men experience a significantly larger unexplained wage gap than their female peers.

Table 7: Decomposition of income decile at sample means (comparison group: Belgians): Men and Women

Group	$\Delta\bar{w}$	Characteristics Effects	Coefficients Effects	Interaction Effects
Men				
EU15	-0.58	-0.50 (0.030)	-0.20 (0.022)	0.12 (0.017)
EU13	0.83	0.62 (0.117)	-0.04 (0.046)	0.25 (0.110)
Europe (Other)	1.17	0.88 (0.084)	0.20 (0.037)	0.09 (0.080)
North Africa and Middle East	1.30	1.00 (0.065)	0.45 (0.036)	-0.15 (0.056)
Sub-Saharan Africa	0.61	0.46 (0.061)	0.34 (0.041)	-0.19 (0.043)
Women				
EU15	-0.34	-0.28 (0.034)	-0.13 (0.021)	0.07 (0.017)
EU13	0.79	0.80 (0.104)	-0.06 (0.035)	0.05 (0.098)
Europe (Other)	1.39	1.08 (0.090)	0.20 (0.034)	0.11 (0.073)
North Africa and Middle East	1.52	1.28 (0.073)	0.27 (0.037)	-0.03 (0.070)
Sub-Saharan Africa	0.53	0.58 (0.052)	0.03 (0.032)	-0.08 (0.039)

Notes. All comparisons relate to the Belgian sample. $\Delta\bar{w}$ is the actual mean income decile difference. Characteristics Effects denote the predicted counterfactual mean income decile difference that would prevail if the coefficients of foreigners were identical to those of Belgian workers. Coefficients Effects represent the predicted counterfactual mean income decile difference that would prevail if the characteristics of foreigners were identical to those of Belgian workers. Interaction Effects account for the fact that cross-group differences in explanatory variables and coefficients can occur at the same time. Standard errors in parentheses. Estimations are performed only for the third and most detailed specification: Extended Specification with Industries and Occupations, Column (3), Table 6. The control variable for the gender is notably excluded.

³²Neuman and Oaxaca (2003), for example, find that, when comparing wage gaps among workers with different backgrounds in Israel, the unexplained wage differentials between Western and Eastern men are larger than the corresponding gaps between women.

4.3 Level of Education

In their study of the immigrant wage gap in Germany, Lehmer and Ludsteck (2011) run a quantile decomposition and find the existence of sticky floors, rather than glass ceilings. According to the literature (Arulampalam et al. (2007)), higher unexplained wage differentials at the bottom of the wage distribution provide evidence of sticky floors. Reversely, when the unexplained part of the wage gaps increases with the wage it is referred to as glass ceilings. In other words, sticky floors describe a situation where individuals are “stuck” in lower-paying or lower-skilled jobs, highlighting the persistence of inequality at the lower levels of an organization or industry. On the other hand, glass ceilings are considered to be a set of barriers (*e.g.*, discriminatory practices, stereotypes, or biases) that prevents certain groups of people from advancing to higher positions or leadership roles within an organization or profession. The term implies that, while these individuals may have the qualifications and skills necessary for advancement, they are hindered to progress beyond a certain point.

Given that the used outcome variable is the income decile, I cannot run a quantile decomposition. However, I can replicate the Oaxaca-Blinder decomposition (as specified in Table 6, Column 3) at the lower and upper ends of the education distribution. This is not a particular loss of generality as, according to the human capital theory, education is the best predictor of earnings on the labour market. In addition, as shown in Table 2, foreigners are profoundly clustered according to the education level.

Table 8 presents the result of the Oaxaca-Blinder decomposition for both the lowest (workers with at most primary education) and the highest educated (individuals with a Bachelor or a higher degree). I find opposite results to those of Lehmer and Ludsteck (2011), as my sample seems governed by glass ceilings. In fact, in the sample of the low educated, the coefficient term in the overall wage gap is very small across most of groups of foreigners.³³ On the contrary, it is quite large in the sample of the high educated. Controls for the field of education make sure that this is not the effect of the otherwise unobserved content of the corresponding degree.³⁴ Rather, a large coefficient term in the high-educated sample would indicate that highly educated foreign workers lag behind native workers with the same characteristics, and their qualifications are not equally remunerated.

One interesting exception is the case of EU13 highly educated individuals. In fact, compared to their overall (small) positive wage gap with native workers (*i.e.*, Belgians earn higher

³³ It is worth noting, however, that for some groups (*i.e.*, EU13 and North Africa and Middle East) it is the (usually negligible) interaction term, and not the characteristics, that accounts for the largest part of the wage differentials.

³⁴ A growing body of literature (*e.g.*, Altonji et al. (2012), Lemieux (2014), Anelli and Peri (2017)) has recently documented the prominent role of the field of study as main educational outcome for determining income.

wages), they present a negative coefficient term. That is, the unexplained fraction of the gap is “in favour” of the foreigners. While this does not lead to any straightforward economic interpretation, it is likely that what is said about the unexplained wage gap between EU15 and Belgian workers reported in Table 6 also applies to EU13 high-qualified individuals. Namely, such sub-sample of EU13 immigrants are also likely to work for EU institutions and, when not, they could also receive higher compensations to move to Belgium.

Table 8: Decomposition of income decile at sample means (comparison group: Belgians): Low and High Educated

Group	$\Delta\bar{w}$	Characteristics Effects	Coefficients Effects	Interaction Effects
Low educated				
EU15	0.21	0.18 (0.068)	0.06 (0.054)	-0.03 (0.045)
EU13	0.78	-0.02 (0.501)	0.10 (0.068)	0.70 (0.497)
Europe (Other)	0.09	0.03 (0.124)	0.04 (0.061)	0.02 (0.117)
North Africa and Middle East	0.15	-0.11 (0.102)	0.11 (0.057)	0.15 (0.098)
Sub-Saharan Africa	0.71	0.64 (0.155)	0.11 (0.065)	-0.04 (0.135)
High educated				
EU15	-0.77	-0.69 (0.031)	-0.21 (0.023)	0.13 (0.023)
EU13	0.13	0.06 (0.100)	-0.21 (0.055)	0.28 (0.085)
Europe (Other)	1.08	0.80 (0.122)	0.54 (0.062)	-0.26 (0.090)
North Africa and Middle East	0.81	0.64 (0.111)	0.70 (0.047)	-0.53 (0.093)
Sub-Saharan Africa	0.23	0.15 (0.065)	0.31 (0.038)	-0.23 (0.048)

Notes. All comparisons relate to the Belgian sample. The low educated are workers with at most primary education. The high educated are individuals with a Bachelor or a higher degree. $\Delta\bar{w}$ is the actual mean income decile difference. Characteristics Effects denote the predicted counterfactual mean income decile difference that would prevail if the coefficients of foreigners were identical to those of Belgian workers. Coefficients Effects represent the predicted counterfactual mean income decile difference that would prevail if the characteristics of foreigners were identical to those of Belgian workers. Interaction Effects account for the fact that cross-group differences in explanatory variables and coefficients can occur at the same time. Standard errors in parentheses. Estimations are performed only for the third and most detailed specification: Extended Specification with Industries and Occupations, Column (3), Table 6. Controls for the level of education are notably excluded. In the computation of the wage gap among high-educated individuals, controls for the field of education and a binary variable to distinguish whether an individual holds a Bachelor or a higher degree are included.

4.4 Industry Affiliation

Clustering of foreigners into specific industries or occupations is a phenomenon that has always existed (Toussaint-Comeau (2016), Kerr and Mandorff (2023)). The reasons for this are manifold, including certainly social and human capital (networks and skills), as well as demand and supply factors. Belgium itself presents one of the best example in recent history, with

thousands of Italians and Turks who, after the Second World War, moved to the country to work as miners in the coal extraction industry.

Notwithstanding both the descriptive evidence and the general decomposition results in Table 6 have proven that my sample of foreigners is not particularly affected by industrial segregation, in this subsection I look thoroughly at the wage gaps within specific industries. Specifically, I investigate whether the unexplained fraction of the wage differentials decreases in the top industries (in terms of share) where foreigners work, which are (as summarised in Table 3): manufacturing, administration and health.

Results, presented in Table 9, reveal that the coefficient term decreases sizeably (getting occasionally roughly null) in the administration and health sector, while it maintains a significant relative importance in the manufacturing industry. This latter is the top industry for three groups of foreigners (EU15, Europe (Other), and North Africa and Middle East), but in none of them the relative share is beyond 15%. For Belgians, it is the second-largest industry, with 14% of workers employed. Conversely, 35% and 34% of EU13 and Sub-Saharan African workers work respectively in the administration or health sector, which suggests that these are industries into which the foreign workforce truly sorts itself (or into which it is sorted). A possible explanation for the coefficient term being low (at times null) in these industries could relate to their higher regulation (especially the health industry), with consequent higher care for inclusion and better implementation of policies that promote diversity and contrast discrimination in the workplace.

In conclusion, although industrial segregation does not seem to affect the overall unexplained portion of the wage gap between native and foreign workers, there are still few industries into which some group of immigrants tend to sort themselves. Here, the impact of the coefficient term fades away, suggesting that, within these specific industries, the characteristics of the industry play a role in reducing the unexplained term.

Table 9: Decomposition of income decile at sample means (comparison group: Belgians): Manufacturing, Administration, and Health

Group	$\Delta\bar{w}$	Characteristics Effects	Coefficients Effects	Interaction Effects
Manufacturing				
EU15	-0.60	-0.56 (0.066)	-0.11 (0.043)	0.07 (0.039)
EU13	1.14	0.52 (0.172)	0.46 (0.080)	0.16 (0.170)
Europe (Other)	0.81	0.65 (0.126)	0.27 (0.066)	-0.11 (0.108)
North Africa and Middle East	0.75	0.37 (0.135)	0.36 (0.076)	0.02 (0.127)
Sub-Saharan Africa	0.44	0.33 (0.157)	0.35 (0.095)	-0.24 (0.132)
Administration				
EU15	0.43	0.41 (0.098)	0.04 (0.063)	-0.02 (0.049)
EU13	1.91	1.70 (0.157)	0.35 (0.055)	-0.14 (0.162)
Europe (Other)	1.25	0.87 (0.156)	0.09 (0.073)	0.29 (0.132)
North Africa and Middle East	1.06	0.76 (0.131)	0.09 (0.064)	0.21 (0.127)
Sub-Saharan Africa	1.22	1.08 (0.145)	0.23 (0.077)	-0.09 (0.129)
Health				
EU15	0.09	0.10 (0.066)	0.05 (0.038)	-0.06 (0.034)
EU13	0.99	0.79 (0.217)	0.00 (0.074)	0.20 (0.187)
Europe (Other)	0.98	0.68 (0.195)	0.13 (0.087)	0.17 (0.186)
North Africa and Middle East	0.60	0.41 (0.140)	0.11 (0.070)	0.08 (0.109)
Sub-Saharan Africa	0.00	0.09 (0.097)	-0.03 (0.045)	-0.06 (0.081)

Notes. All comparisons relate to the Belgian sample. Manufacturing, Administration and Health are the top industries (in terms of share of workers) in which foreign individuals work (Health is also the top one industry for Belgians). $\Delta\bar{w}$ is the actual mean income decile difference. Characteristics Effects denote the predicted counterfactual mean income decile difference that would prevail if the coefficients of foreigners were identical to those of Belgian workers. Coefficients Effects represent the predicted counterfactual mean income decile difference that would prevail if the characteristics of foreigners were identical to those of Belgian workers. Interaction Effects account for the fact that cross-group differences in explanatory variables and coefficients can occur at the same time. Standard errors in parentheses. Estimations are performed only for the third and most detailed specification: Extended Specification with Industries and Occupations, Column (3), Table 6. Controls for the industry affiliation are notably excluded.

4.5 Occupation

As I find strong evidence that occupations do explain the natives-foreigners wage gap (*i.e.*, the coefficients term shrinks with the introduction of the dummy variables for the occupation, in Specification 3), in this subsection (see Table 10), I further investigate the role of the unexplained wage gap within occupations with both high (elementary occupations) and low (professional occupations) shares of immigrants (see Table 4).

A first finding is that the overall gap is much lower among individuals employed in elementary occupation. Even more, it turns to the opposite sign (with respect to the general decomposition in Table 6) for four out of five groups of foreigners (the sole exception is EU13 group). In turn, the coefficient term loses most of its importance (it gets even null for North African and Middle Eastern workers).

In contrast, among professionals the unexplained part of the gap remains large, at times prominent compared to the explained one. Nevertheless, even here the overall gap presents the opposite sign (with respect to the general decomposition in Table 6) for EU13, Sub-Saharan Africa and (although roughly null) North Africa and Middle East, clearly due to differences in the characteristics.

Overall, the implications of these findings are noteworthy. On the one hand, immigrants (apart those from EU15 countries) in the Belgian labour market are evidently affected by occupational segregation: whether as a personal choice or because of unobservable mechanisms from the demand side, they find themselves mainly sorted into elementary occupations. On the other hand, within these occupations, they experience no unequal treatment with respect to natives, as the unexplained fraction of the wage gap tends to zero (and, for certain groups, the overall average wage is even higher than the one of Belgians). Given the positive correlation between occupation level and wage, this also corroborates the existence of glass ceilings. A possible explanation to these results is that, as in elementary occupations natives are outnumbered, it is actually the mass of foreign workers that determines the equilibrium wage for the individuals employed in these jobs. Wage levels in these occupations might be shaped by overall supply and demand dynamics within the foreign workforce, rather than by direct competition with native workers.

Table 10: Decomposition of income decile at sample means (comparison group: Belgians): Professional and Elementary Occupations

Group	$\Delta\bar{w}$	Characteristics Effects	Coefficients Effects	Interaction Effects
Elementary Occupations				
EU15	0.24	0.18 (0.042)	0.04 (0.033)	0.02 (0.026)
EU13	0.46	0.32 (0.090)	0.20 (0.040)	-0.06 (0.099)
Europe (Other)	-0.07	-0.12 (0.076)	0.05 (0.040)	0.00 (0.064)
North Africa and Middle East	-0.32	-0.38 (0.065)	0.00 (0.043)	0.06 (0.063)
Sub-Saharan Africa	-0.05	-0.17 (0.069)	0.14 (0.046)	-0.02 (0.066)
Professional Occupations				
EU15	-0.75	-0.59 (0.040)	-0.29 (0.033)	0.13 (0.033)
EU13	-1.47	-1.50 (0.114)	-0.71 (0.070)	0.74 (0.129)
Europe (Other)	0.05	-0.05 (0.193)	0.23 (0.108)	-0.13 (0.183)
North Africa and Middle East	-0.09	-0.18 (0.159)	0.34 (0.076)	-0.25 (0.136)
Sub-Saharan Africa	-0.35	-0.34 (0.104)	0.15 (0.069)	-0.16 (0.080)

Notes. All comparisons relate to the Belgian sample. Only two occupations are reported: professional and elementary occupations. The majority of native and EU15-born individuals work as professionals. On the contrary, in each of the other groups of foreigners, the largest share is employed in elementary occupations. $\Delta\bar{w}$ is the actual mean income decile difference. Characteristics Effects denote the predicted counterfactual mean income decile difference that would prevail if the coefficients of foreigners were identical to those of Belgian workers. Coefficients Effects represent the predicted counterfactual mean income decile difference that would prevail if the characteristics of foreigners were identical to those of Belgian workers. Interaction Effects account for the fact that cross-group differences in explanatory variables and coefficients can occur at the same time. Standard errors in parentheses. Estimations are performed only for the third and most detailed specification: Extended Specification with Industries and Occupations, Column (3), Table 6. Controls for the occupation are notably excluded.

4.6 Time Residing in the Country

Pineda-Hernández et al. (2022) find that, contrary to their first-generation peers, second-generation immigrants do not suffer from any difference in wages with respect to native workers. In the present study, I do not investigate this evidence, as I look only at people who were not born in Belgium. However, I can exploit the information about how long they have been living in the country. In fact, while time does not break all the barriers that first-generation immigrants face, compared to second-generation ones (*e.g.*, place of education attainment), it does so for at least some of them (*e.g.*, language skills). Specifically, in this section, the usual five groups of foreigners are split into three sub-groups according to the time that they have spent in the country: less than 5 years; between 5 and 10 years; more than 10 years.

Table 11 summarises the main results. For what concerns the overall wage gap, a remarkable drop in $\Delta\bar{w}$ is observable in the group of foreigners who have been residing in the country for more than 10 years. While certainly consistent with Pineda-Hernández et al. (2022), such findings provide additional evidence showing that the time itself spent in a country, regardless of the place of birth, does matter in explaining wage differentials.

As for the breakdown of the wage gaps, I find that, except for a few isolated cases, in all three categories (< 5 , $5-10$, and > 10 years) and across all groups of countries, the role of the coefficients effects is marginal, suggesting that (at least a portion of) the unexplained part in the overall decomposition is due to unobserved factors linked to time (*e.g.*, language skills, acquisition of local habits, etc.). Interestingly, however, unlike the overall gap, differences in the coefficients do not decrease considerably with time. Since a small but stable share remains unexplained over the years, there might be a set of unobservable characteristics that cannot be acquired with time, regardless of its duration.

Table 11: Decomposition of income decile at sample means (comparison group: Belgians): <5 years, 5-10 years, and >10 years

Group	$\Delta\bar{w}$	Characteristics Effects	Coefficients Effects	Interaction Effects
< 5 years				
EU15	-0.71	-0.42 (0.082)	-0.42 (0.030)	0.13 (0.055)
EU13	1.45	1.93 (0.483)	-0.12 (0.047)	-0.36 (0.491)
Europe (Other)	1.05	1.01 (0.622)	0.08 (0.086)	-0.04 (0.606)
North Africa and Middle East	1.75	1.59 (0.744)	0.20 (0.066)	-0.04 (0.741)
Sub-Saharan Africa	1.64	1.18 (0.436)	0.15 (0.077)	0.31 (0.419)
5-10 years				
EU15	-0.74	-0.53 (0.078)	-0.34 (0.035)	0.13 (0.048)
EU13	1.08	1.70 (0.413)	0.01 (0.041)	-0.63 (0.404)
Europe (Other)	1.31	0.97 (0.476)	0.05 (0.073)	0.29 (0.471)
North Africa and Middle East	1.72	1.14 (0.364)	0.38 (0.051)	0.20 (0.369)
Sub-Saharan Africa	1.73	1.03 (0.616)	0.30 (0.059)	0.40 (0.600)
> 10 years				
EU15	-0.31	-0.21 (0.032)	-0.06 (0.018)	-0.03 (0.016)
EU13	0.55	0.35 (0.103)	0.19 (0.050)	0.01 (0.080)
Europe (Other)	1.16	0.82 (0.065)	0.30 (0.032)	0.04 (0.056)
North Africa and Middle East	0.71	0.50 (0.053)	0.29 (0.029)	-0.08 (0.046)
Sub-Saharan Africa	0.16	0.13 (0.049)	0.18 (0.034)	-0.15 (0.030)

Notes. All comparisons relate to the Belgian sample. < 5, 5-10, and > 10 are the years for which foreigners have been living in the country. $\Delta\bar{w}$ is the actual mean income decile difference. Characteristics Effects denote the predicted counterfactual mean income decile difference that would prevail if the coefficients of foreigners were identical to those of Belgian workers. Coefficients Effects represent the predicted counterfactual mean income decile difference that would prevail if the characteristics of foreigners were identical to those of Belgian workers. Interaction Effects account for the fact that cross-group differences in explanatory variables and coefficients can occur at the same time. Standard errors in parentheses. Estimations are performed only for the third and most detailed specification: Extended Specification with Industries and Occupations, Column (3), Table 6.

5 Evolution of the Immigrant Wage Gaps Over Time

Table 6 reports and decomposes the mean income decile differences as averages across the entire period of my analysis. To provide a more exhaustive picture, in this section, I also look at how the immigrant wage differentials evolved over time. Precisely, I illustrate the observations of the wage gap between natives and each group of foreigners in every year in Figure 1.

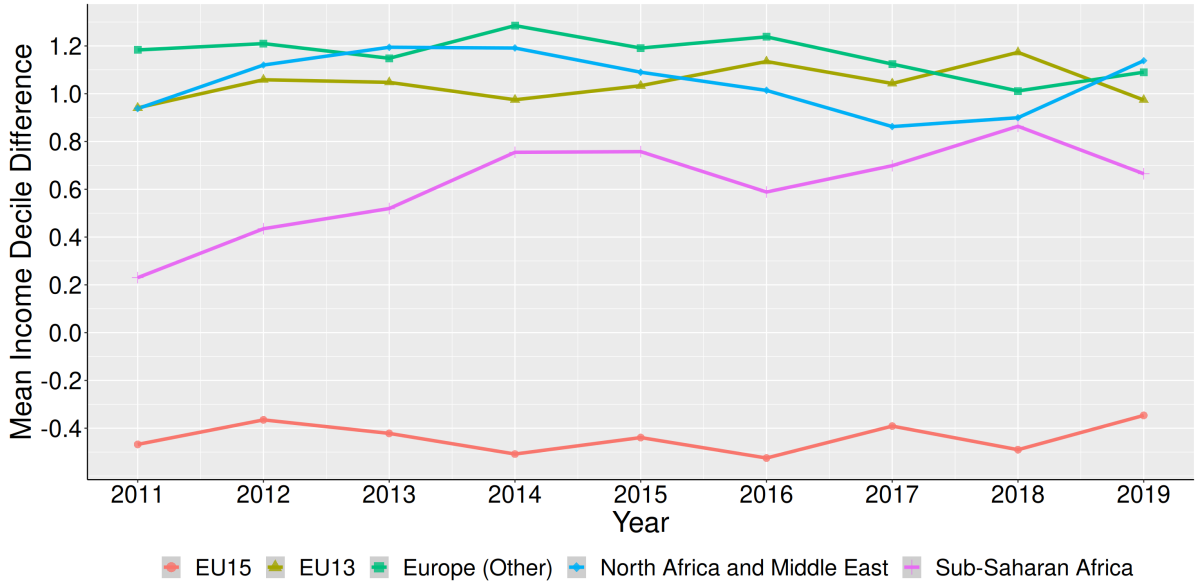
The negative wage differentials between Belgians and immigrants from EU15 countries has been rather fluctuating over the years of the analysis. Yet, these fluctuations are around very small values (between -0.5 and -0.3), suggesting that, in the last decade, EU15 workers have been treated as rather good substitutes of the native labour supply.

Regardless of some occasional and small decreases, individuals from Sub-Saharan Africa have experienced an overall relative exacerbation of their wages, with respect to those of Belgians. In fact, the wage gap with native workers increased from 0.2 to 0.7, with a peak of almost 0.9 in 2018.

The trends in the wage differentials between natives and immigrants from EU13 countries and North Africa and Middle East are worth to be studied jointly. In fact, at the beginning of the period (2011), the two groups have a gap, with respect to Belgians, of about 1 income decile. At the end (2019), this gap increased to roughly 1.1 for North Africans and Middle Easterners, while it is essentially unchanged for EU13 immigrants. However, this overall small change conceals much larger fluctuations and exactly reversed paths. From 2014 to 2018, the wage difference between natives and North Africans and Middle Easterners dropped sharply to below 0.9. Interestingly, this relative improvement disappears completely in 2019, when the decile difference rises to 1.11. Conversely, workers from EU13 countries experienced the opposite trend. That is, their wage gap with natives increased from 2014 to 2018, up to a peak of 1.2, to fade to 1 in 2019. While a direct connection between these two reversely symmetric paths is hard to claim, it is possible that the entrance in the labour market of asylum seekers from the Middle East has worsened the position of EU13 workers.

Finally, notwithstanding the volatile trend across the entire time frame, immigrants from non-EU European countries are the only ones who, at the end of the period, report a lower wage gap (1.1 in 2019, against 1.2 in 2011).

Figure 1: Evolution of the immigrant wage gaps



Notes. All comparisons relate to the Belgian sample. Each line represents the time evolution of the mean income decile difference ($\Delta\bar{w}$) of one specific group of immigrants with respect to the reference group of Belgians.

Source. Author's calculations based on the Labour Force Survey (Eurostat) for Belgium, years 2011-2019.

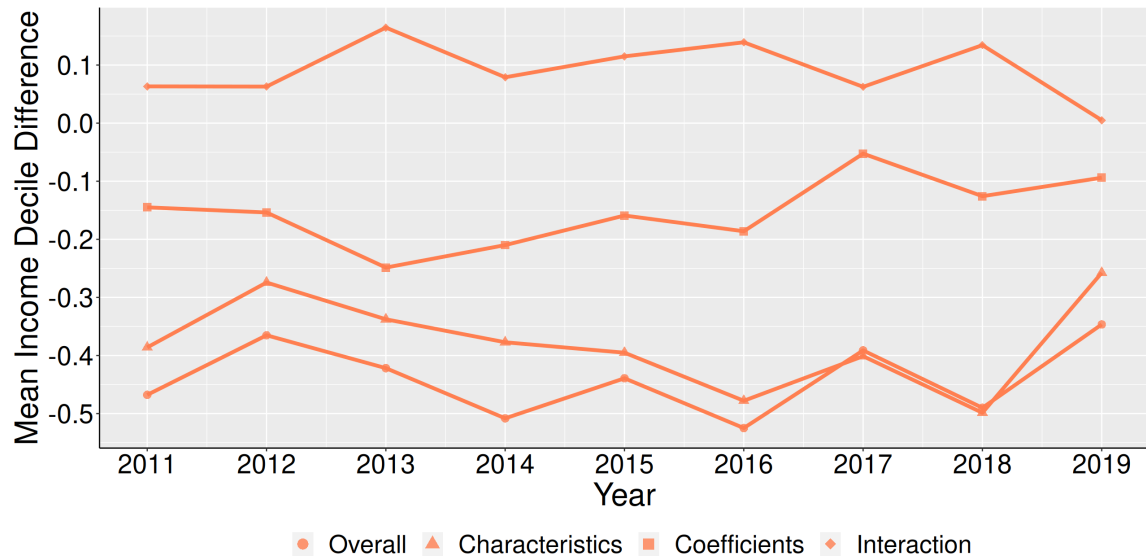
Given that, as shown in Section 4, immigrant wage differentials can be decomposed in different portions, in Figure 2, I breakdown the evolution of the wage gaps by country.³⁵ I find that, at the end of the analysed period, the share of the characteristics component has slightly decreased for all European workers; it is unchanged for North Africans and Middle Easterners; and it has increased for individuals from Sub-Saharan Africa. On the other hand, the portion of the wage gaps due to differences in the coefficients' magnitudes remained roughly the same for all Europeans, while increased for African and Middle Eastern workers (especially for those from Sub-Saharan African). This result is particularly relevant as, for this category of immigrants, the unexplained portion of the gap is often interpreted as evidence of discrimination. That is, should this be the case, I observe an increase in the level of wage discrimination over time towards Arab and African workers in the Belgian labour market.

In general, across all groups of countries, the various components of the wage differentials follow the trend of the overall wage gaps. A notable exception is the period 2015-2017 for North African and Middle Eastern workers. Here, the coefficient term rises remarkably (by almost six times), accompanied by a corresponding sharp plunge in the share explained by differences in the endowments.

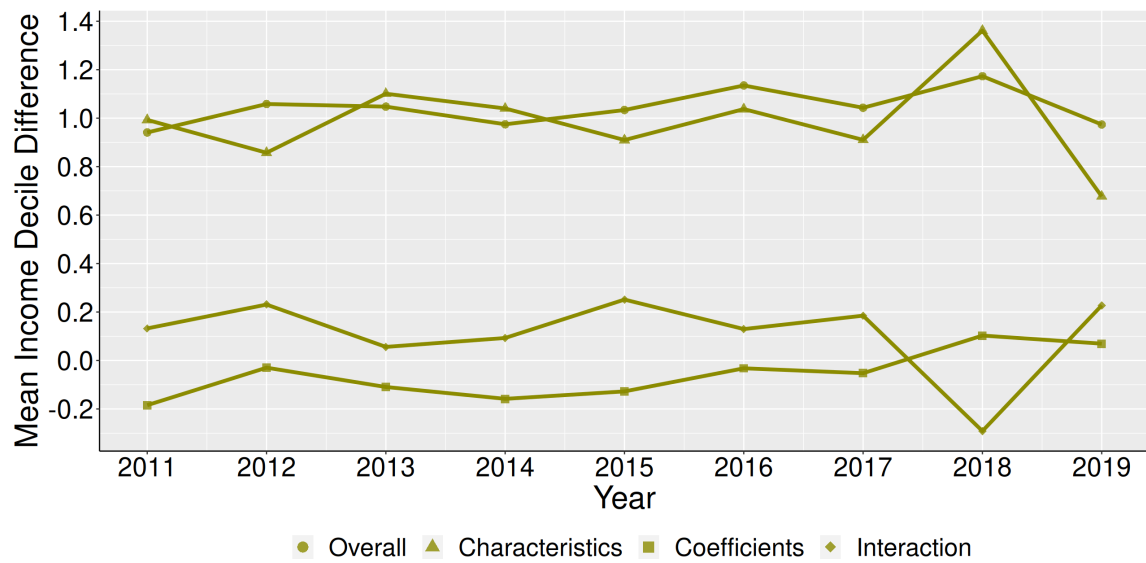
³⁵ This analysis is carried out only for Specification 3, which includes industries and occupations (see Table 6, Column 3).

Figure 2: Evolution of the immigrant wage gaps, by component

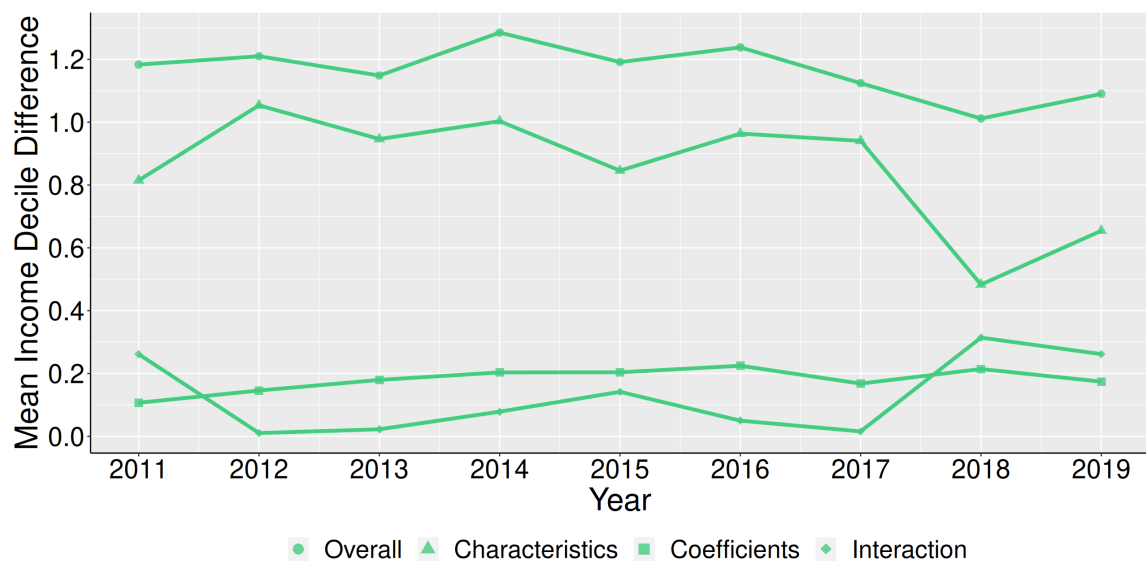
(a) EU15

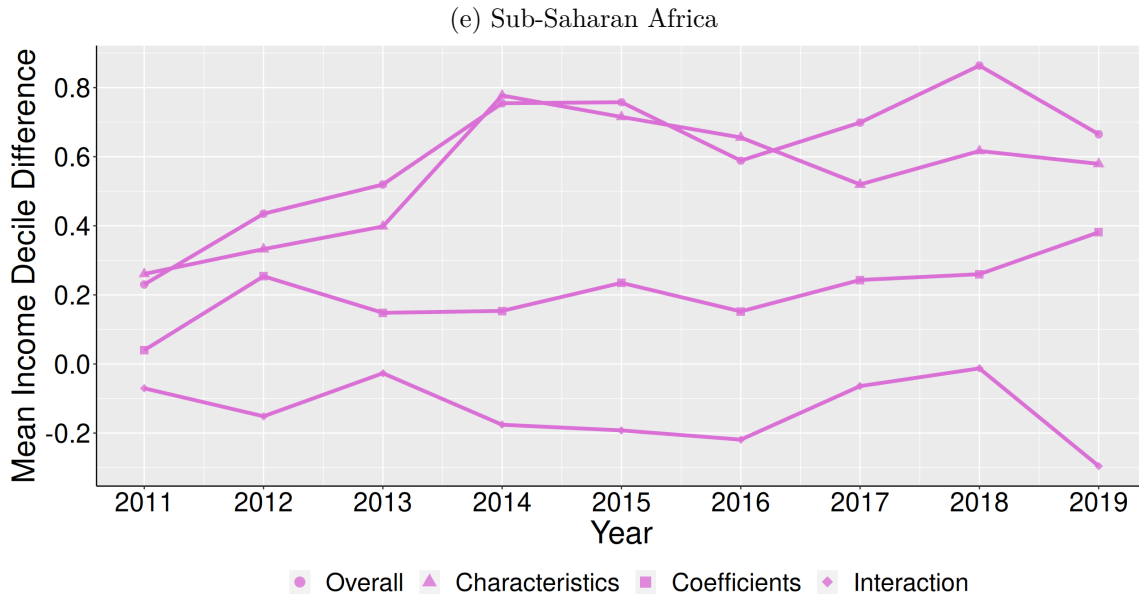
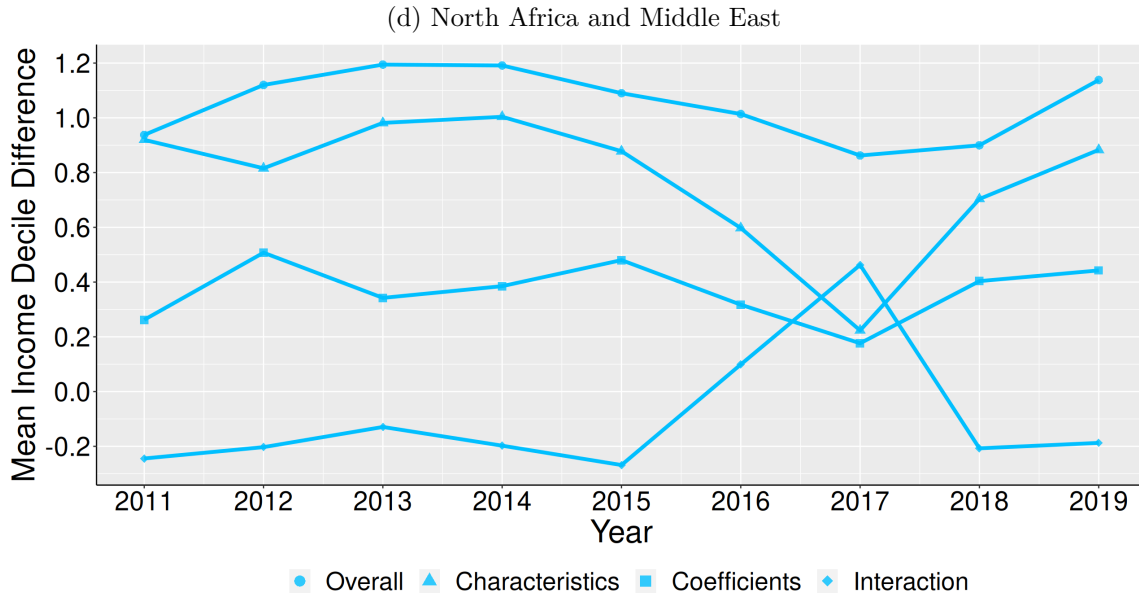


(b) EU13



(c) Europe (Other)





Notes. All comparisons relate to the Belgian sample. Each line represents the time evolution of the corresponding fraction of the mean income decile difference ($\Delta\bar{w}$) of one specific group of immigrants with respect to the reference group of Belgians.

Source. Author's calculations based on the Labour Force Survey (Eurostat) for Belgium, years 2011-2019.

6 Conclusions

Using the Labour Force Survey data, I document the existing wage gaps between individuals born in Belgium and five major groups of non-native workers. Using the Oaxaca-Blinder methodology, I centre around the decomposition of wage differentials, and on the role of variables (skills, characteristics, demographics, and work-related variables) in explaining them.

My main analysis delivers four primary results. My first results is that only workers from EU15 countries present an average income decile (6.13) that is higher than Belgians' (5.7).

On the contrary, the average income decile of the remaining groups of foreigners is lower than natives and, except for Sub-Sahara Africa (with 5.10), below the 50th percentile. My second result concerns the decomposition of the wage differentials between native and foreign workers. Namely, I find a more prominent role of occupations, rather than industries, in explaining the existing wage gaps. That is, I find evidence that occupational segregation among foreigners accounts for an important share of the unexplained differential. My third result is that, for some immigrants, even when I fully account for industry affiliation and occupation, the unexplained portion of wage differentials remains sizeable (38% for EU15 countries, 35% for North Africa and Middle East, 32% for Sub-Saharan Africa). The study of the role of variables and coefficients in the explained and unexplained fractions of the wage differentials, respectively, delivers my fourth main result (Appendix C). Most notably, I find that the wage payoff of an additional year of age is greater for Belgian workers by roughly 6 pp.

The replication of my empirical exercise restricted to sub-groups of workers delivers several additional insights on the role of gender, education, industry, occupation and the time spent in the country. Remarkably, wage gaps with the corresponding native category shrink to a very low level for foreigners who are low educated, those employed in elementary occupations, and immigrants who have been living in the country for more than ten years.

Finally, I explore the evolution of the immigrant wage differentials over the time span of this study. The analysis of such trends reveals that, although their overall wage gap is still relatively high, only immigrants from non-EU European countries experienced an increase in their relative average wage. In addition, the unexplained portion of the gap increased for African and Middle Eastern immigrants.

I give wide room to the interpretation of all my results, and I support it with detailed fact-based evidence and statistics. My findings reflect correlation rather than causal effects, but they highlight important patterns in the context of the immigrant wage gaps in Belgium. With its large share of immigrants from many countries of origin and very different backgrounds, Belgium proves to be an optimal ground for this kind of research. Room for future research building up on the findings of the present study, as well as replicating it to similar contexts, remains wide.

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Appendices

A Additional Descriptives

Some recent works have remarked that accounting for the “tendencies of ethnic clustering in large cities and metropolitan areas” (Schmid (2022)) is of paramount importance in the study of the natives-foreigners wage gap. Albeit this is not the focus of the present research, for the sake of completeness, I do consider also this level of heterogeneity. The related decompositions are summarised in Appendix D. Table A.1 depicts the breakdown of the groups under analysis across rural and urban areas. In fact, foreigners show strong preferences (in terms of shares in the total employed population) for urban areas.

Table A.1: Country of birth and area of residence

Group	Urban Area	Rural Area	Total
Belgium	24%	76%	215,584
EU15	43%	57%	16,143
EU13	58%	42%	4,677
Europe (Other)	54%	46%	4,398
North Africa and Middle East	69%	31%	6,365
Sub-Saharan Africa	56%	44%	5,371

Notes. Shares are computed using sample weights. The classification in urban or rural areas is defined by Eurostat (see: Eurostat (2022)).

Source. Author’s calculations based on the Labour Force Survey (Eurostat) for Belgium, years 2011-2019.

Given the context of the Federal State of Belgium, it is due to consider also the Region of residence (Table A.2).³⁶ Besides the many aspects for which the three regions already differ one another, also the share of natives vs. immigrants changes remarkably. In particular, a mere 6% of the individuals born in Belgium reside in Brussels. Rather conversely, in every group of foreigners, between almost a quarter and 40% live in the Brussels-Capital Region.

³⁶ Belgium is a federal state made up of three Regions. The three Regions are the Flemish Region (or Flanders), the Brussels-Capital Region (or simply Brussels) and the Walloon Region (or Wallonia), which cover the north, the centre and the south of the country, respectively.

Table A.2: Country of birth and region of residence

Group	Brussels	Flanders	Wallonia	Total
Belgium	6%	64%	30%	215,584
EU15	28%	37%	35%	16,143
EU13	36%	52%	12%	4,677
Europe (Other)	21%	61%	18%	4,398
North Africa and Middle East	38%	42%	20%	6,365
Sub-Saharan Africa	29%	39%	32%	5,371

Notes. Shares are computed using sample weights. Flanders, Brussels and Wallonia are the three regions of the Federal State of Belgium.

Source. Author's calculations based on the Labour Force Survey (Eurostat) for Belgium, years 2011-2019.

B Robustness Checks

B.1 Decomposition of the Wage Gap between Natives and Foreigners from EU15 Countries without Individuals Residing in Brussels

Table B.1: Decomposition of income decile at sample means (comparison group: Belgians)

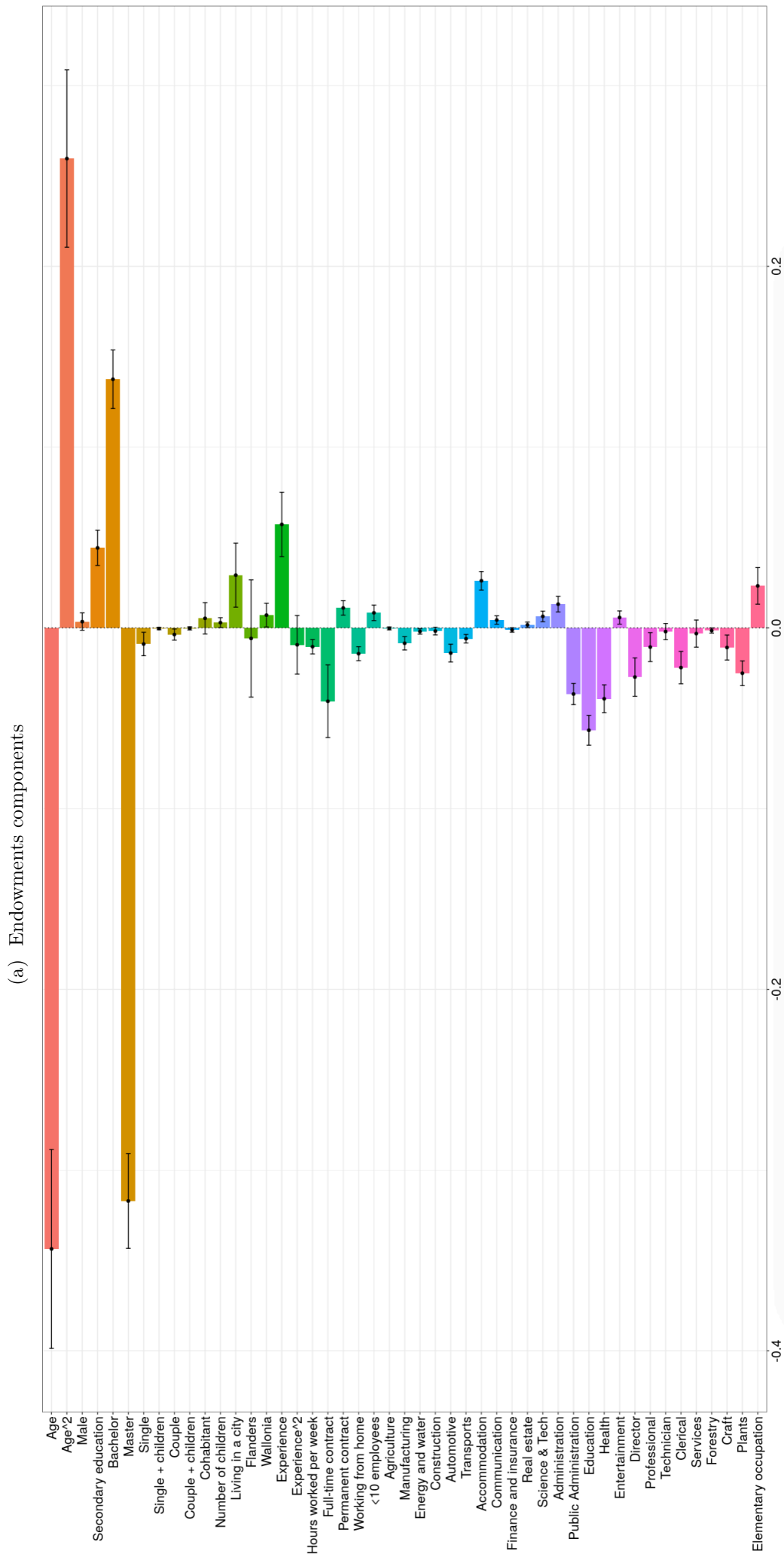
Group	$\Delta\bar{w}$	Characteristics Effects	Coefficients Effects	Interaction Effects
EU15	-0.05	0.04 (0.027)	-0.07 (0.016)	-0.02 (0.012)

Notes. All comparisons relate to the Belgian sample. $\Delta\bar{w}$ is the actual mean income decile difference. Characteristics Effects denote the predicted counterfactual mean income decile difference that would prevail if the coefficients of foreigners were identical to those of Belgian workers. Coefficients Effects represent the predicted counterfactual mean income decile difference that would prevail if the characteristics of foreigners were identical to those of Belgian workers. Interaction Effects account for the fact that cross-group differences in explanatory variables and coefficients can occur at the same time. Standard errors in parentheses are calculated on 100 bootstrapping replicates. Estimations are performed only for the third and most detailed specification: Extended Specification with Industries and Occupations, Column (3), Table 6. Individuals that reside in Brussels are excluded.

C The Endowments and Coefficients Components of the Overall OB Decomposition

For the wage differentials between natives and each group of foreigners, I examine, in the following figures, the endowments (Panel (a)) and coefficients components (Panel (b)) of the threefold decomposition, variable by variable. The error bars indicate 95% confidence intervals.

Figure C.1: Threefold OB decomposition: natives vs. foreigners from EU15 countries



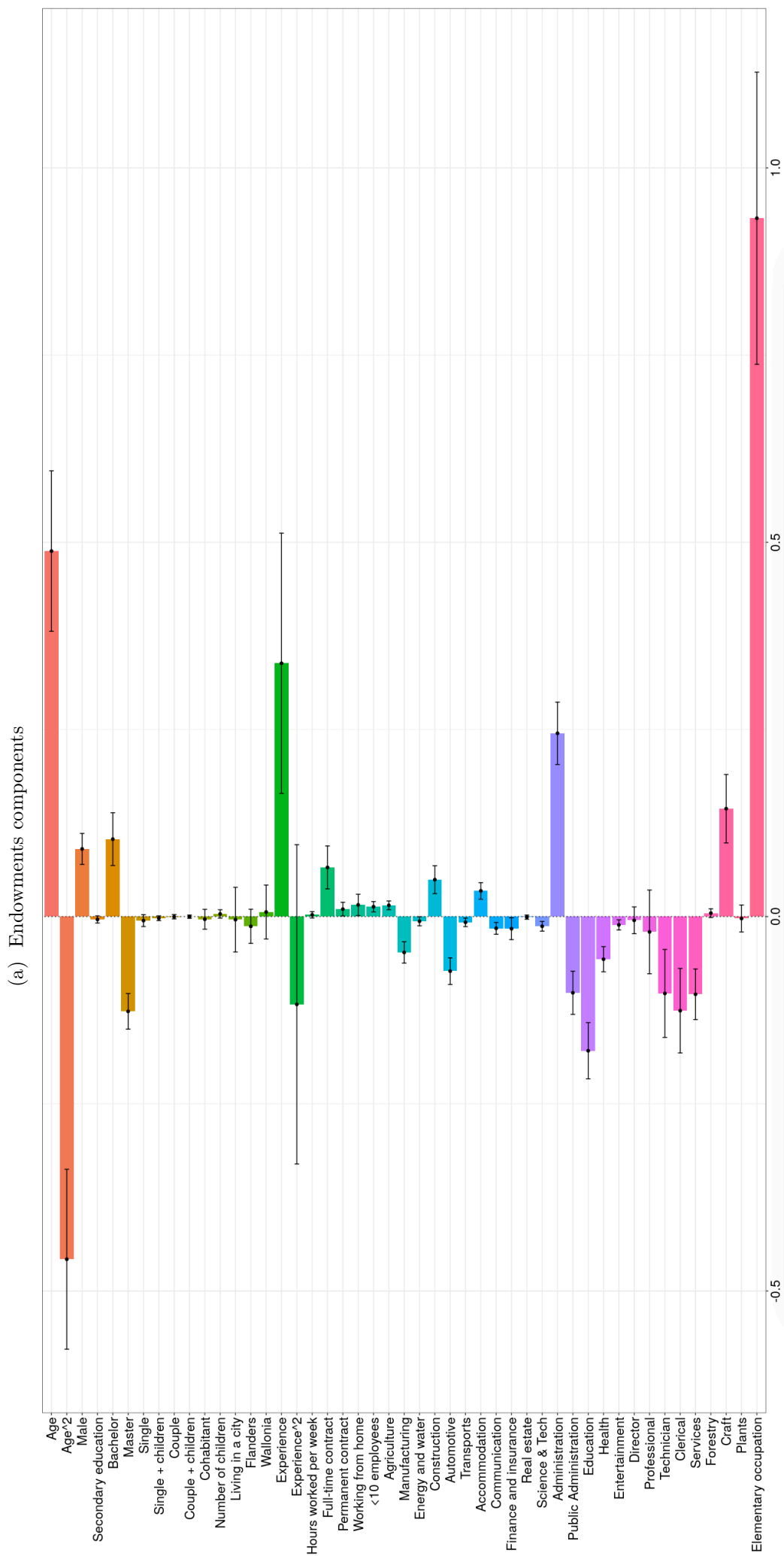
Notes. The error bars indicate 95% confidence intervals. For detailed description of the variables on the y axis, see Table 5. The reference categories are Other (for industries) and Army (for occupations).

(b) Coefficients components



Notes. The error bars indicate 95% confidence intervals. For detailed description of the variables on the *y* axis, see Table 5. The reference categories are Other (for industries) and Army (for occupations).

Figure C.2: Threefold OB decomposition: natives vs. foreigners from EU13 countries



Notes. The error bars indicate 95% confidence intervals. For detailed description of the variables on the y axis, see Table 5. The reference categories are Other (for industries) and Army (for occupations).

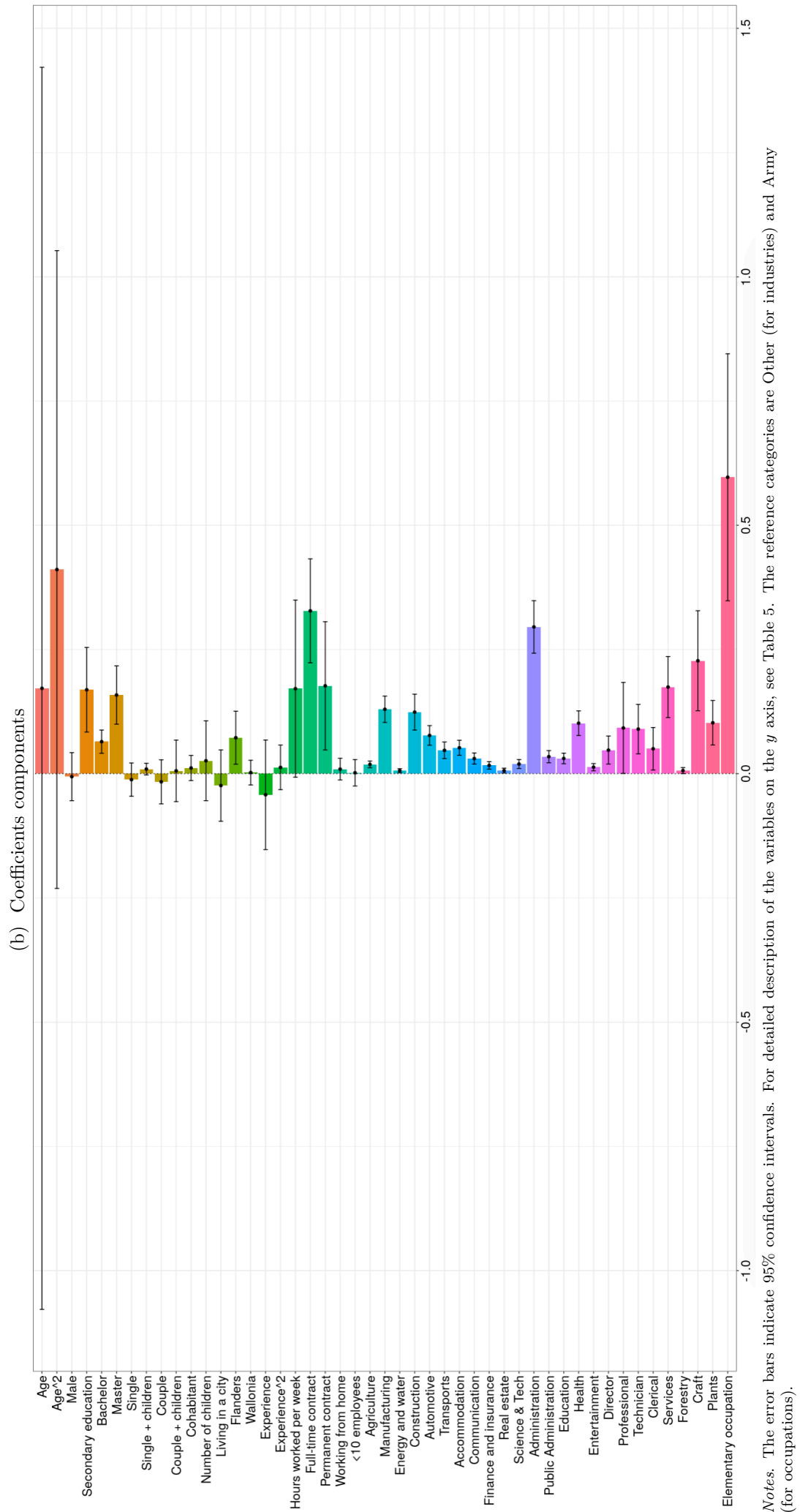
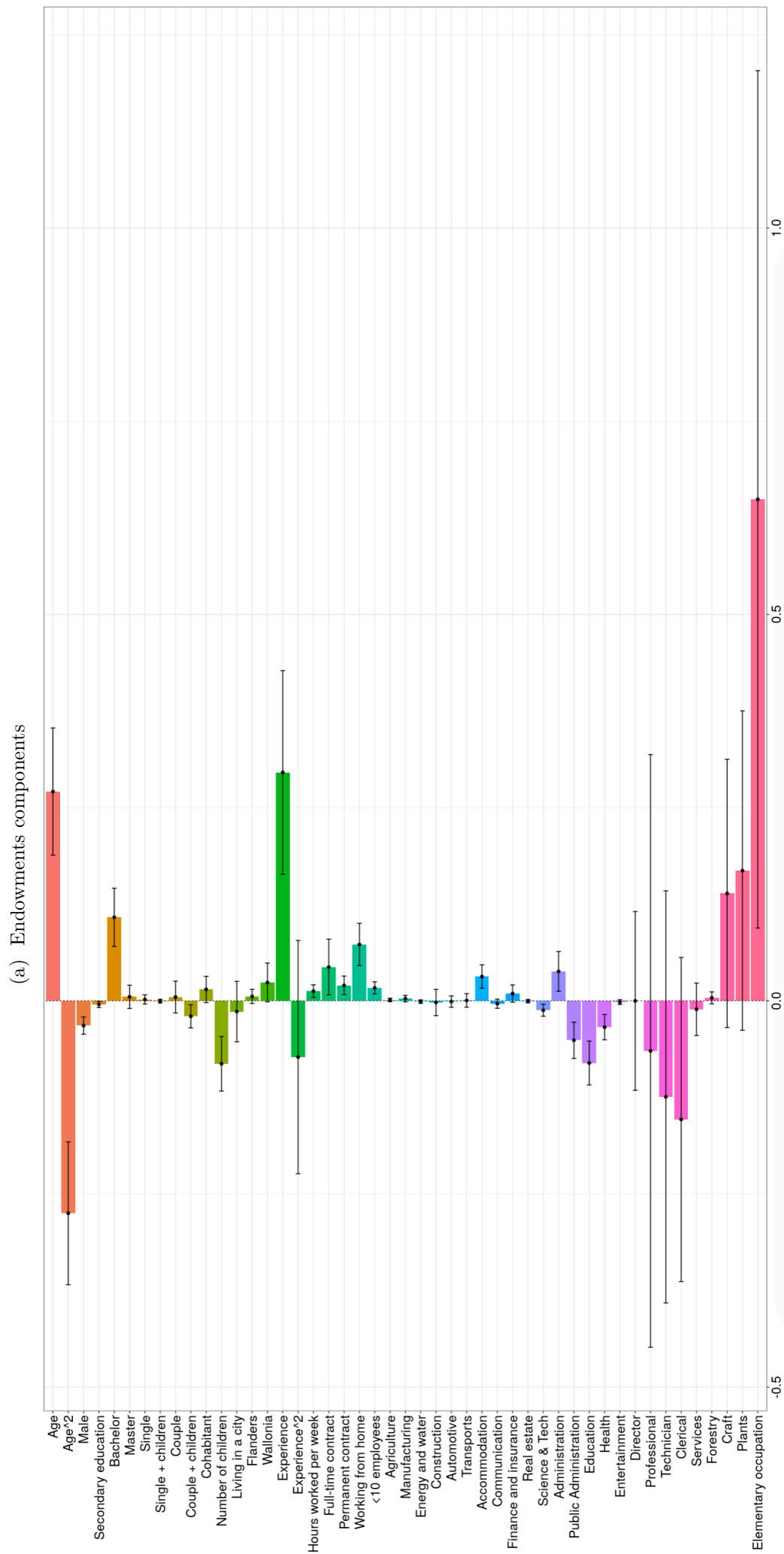
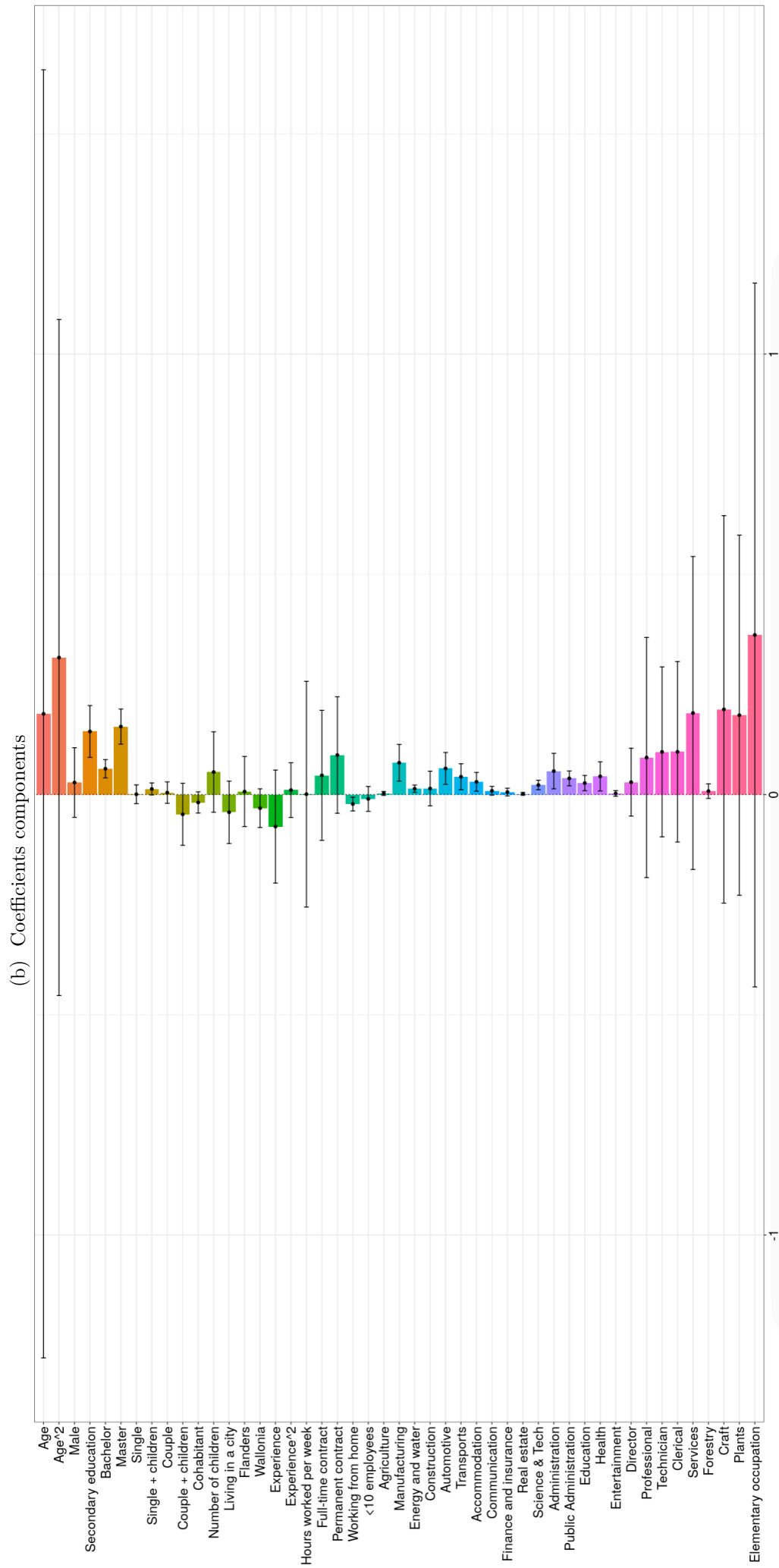


Figure C.3: Threefold OB decomposition: natives vs. foreigners from other European countries

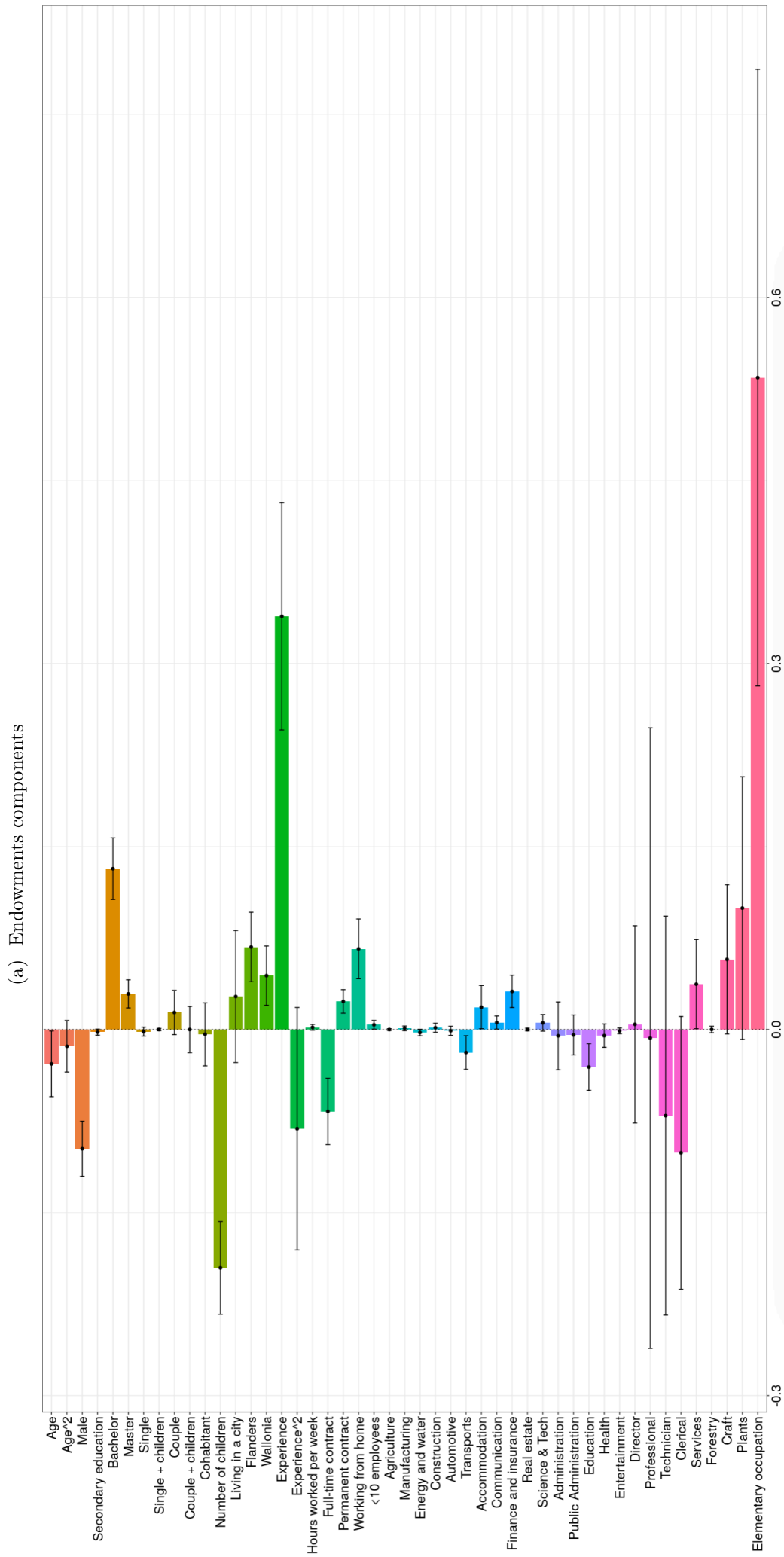


Notes. The error bars indicate 95% confidence intervals. For detailed description of the variables on the y axis, see Table 5. The reference categories are Other (for industries) and Army (for occupations).

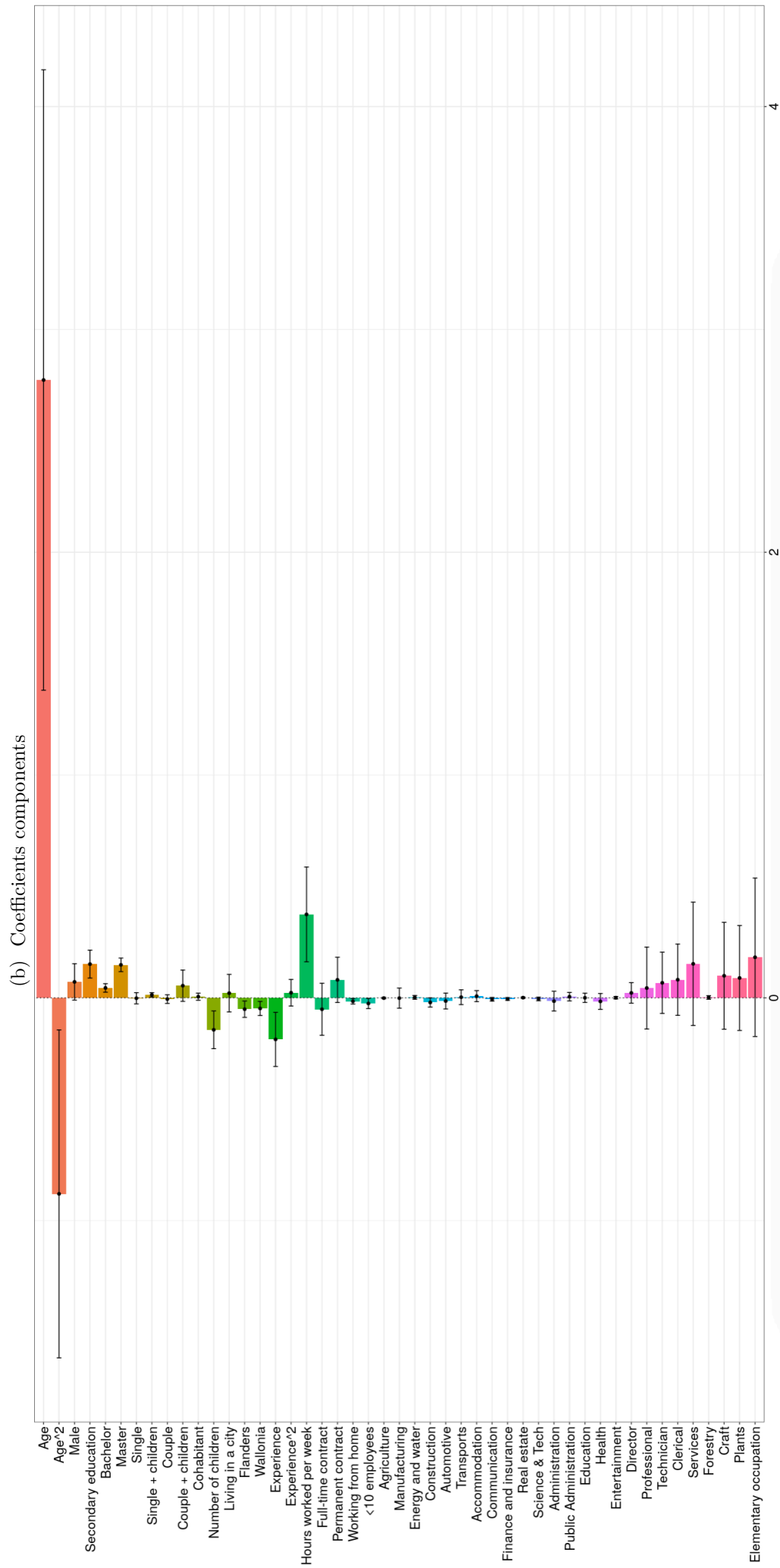


Notes. The error bars indicate 95% confidence intervals. For detailed description of the variables on the y axis, see Table 5. The reference categories are Other (for industries) and Army (for occupations).

Figure C.4: Threefold OB decomposition: natives vs. foreigners from North Africa and Middle East

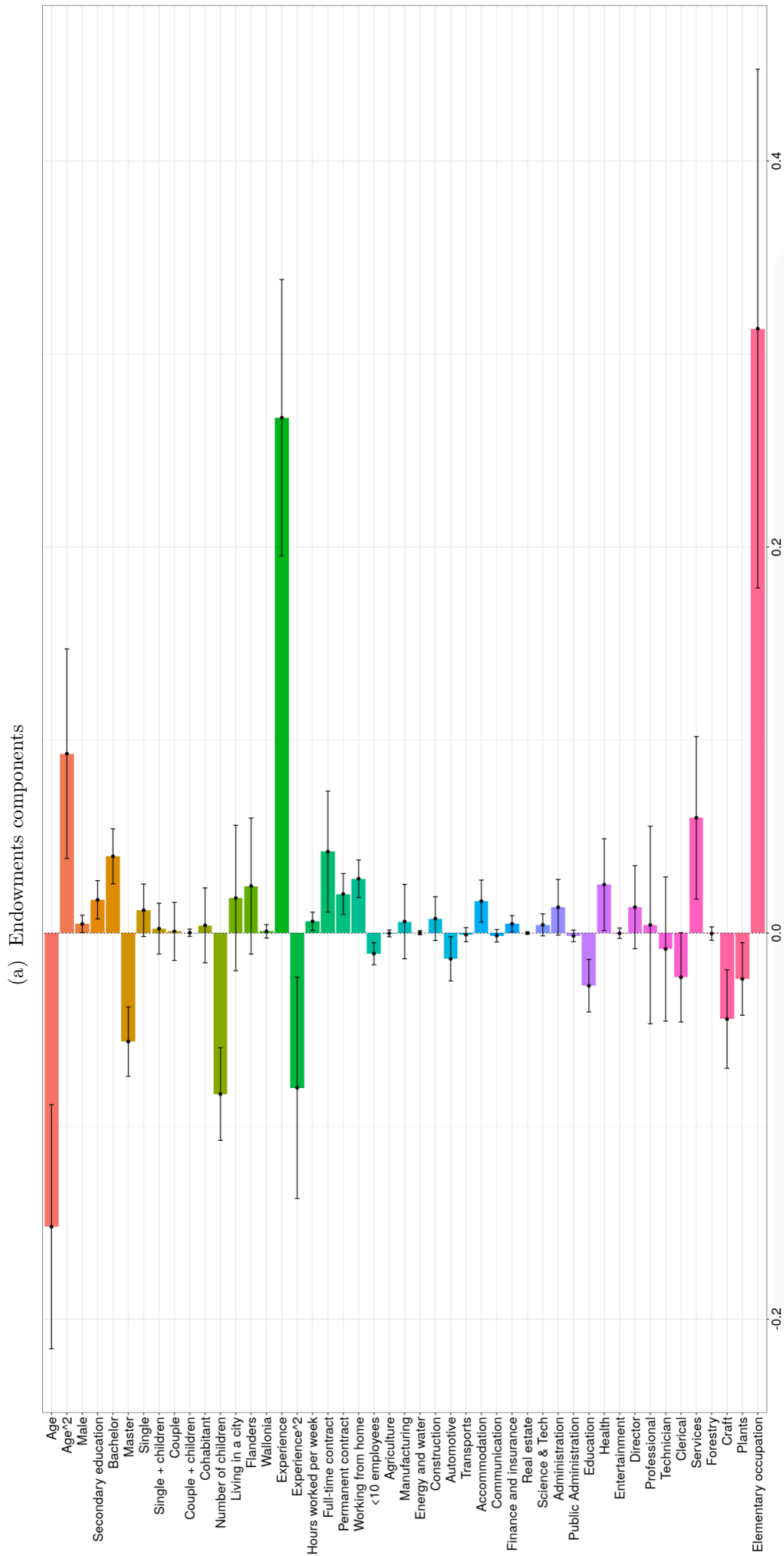


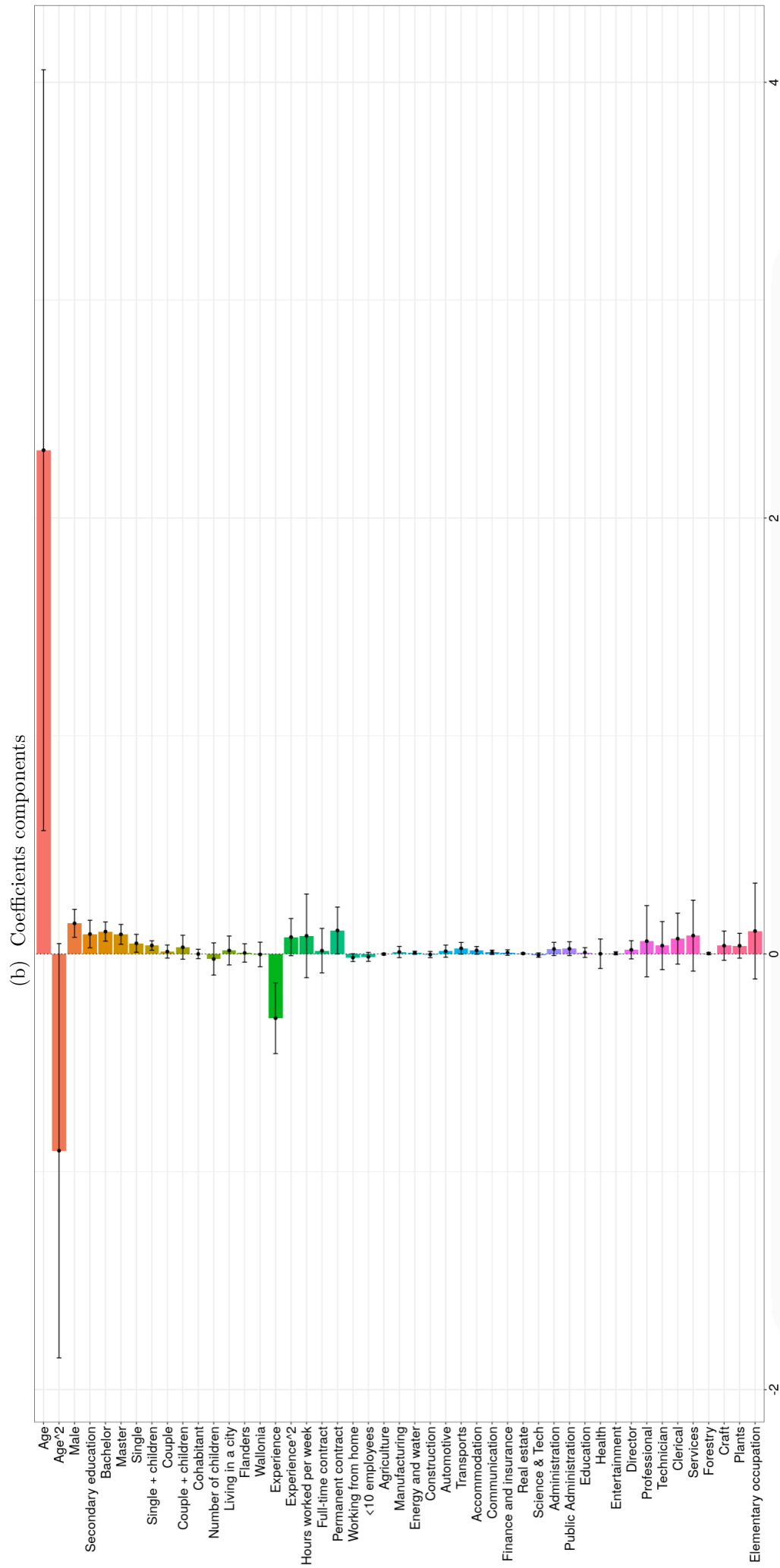
Notes. The error bars indicate 95% confidence intervals. For detailed description of the variables on the y axis, see Table 5. The reference categories are Other (for industries) and Army (for occupations).



Notes. The error bars indicate 95% confidence intervals. For detailed description of the variables on the y axis, see Table 5. The reference categories are Other (for industries) and Army (for occupations).

Figure C.5: Threefold OB decomposition: natives vs. foreigners from Sub-Saharan Africa





Notes. The error bars indicate 95% confidence intervals. For detailed description of the variables on the y axis, see Table 5. The reference categories are Other (for industries) and Army (for occupations).

D OB Decomposition for Additional Sub-groups

D.1 Area of Residence

Table D.1: Decomposition of income decile at sample means (comparison group: Belgians): Urban and Rural areas

Group	$\Delta\bar{w}$	Characteristics Effects	Coefficients Effects	Interaction Effects
Urban				
EU15	-0.89	-0.89 (0.039)	-0.26 (0.027)	0.26 (0.026)
EU13	1.04	0.95 (0.101)	-0.09 (0.033)	0.18 (0.09)
Europe (Other)	1.28	1.01 (0.085)	0.13 (0.041)	0.14 (0.072)
North Africa and Middle East	1.29	1.00 (0.049)	0.31 (0.028)	-0.02 (0.047)
Sub-Saharan Africa	0.93	0.88 (0.062)	0.17 (0.036)	-0.12 (0.042)
Rural				
EU15	-0.08	0.01 (0.032)	-0.06 (0.020)	-0.03 (0.014)
EU13	1.17	0.98 (0.106)	0.18 (0.034)	0.01 (0.090)
Europe (Other)	1.16	0.89 (0.069)	0.23 (0.038)	0.04 (0.058)
North Africa and Middle East	0.76	0.56 (0.090)	0.23 (0.046)	-0.03 (0.068)
Sub-Saharan Africa	0.27	0.19 (0.068)	0.16 (0.038)	-0.08 (0.040)

Notes. All comparisons relate to the Belgian sample. The classification in urban or rural areas is based on the degree of urbanisation, as defined by Eurostat (E. C. Eurostat (2020)). $\Delta\bar{w}$ is the actual mean income decile difference. Characteristics Effects denote the predicted counterfactual mean income decile difference that would prevail if the coefficients of foreigners were identical to those of Belgian workers. Coefficients Effects represent the predicted counterfactual mean income decile difference that would prevail if the characteristics of foreigners were identical to those of Belgian workers. Interaction Effects account for the fact that cross-group differences in explanatory variables and coefficients can occur at the same time. Standard errors in parentheses are calculated on 100 bootstrapping replicates. Estimations are performed only for the third and most detailed specification: Extended Specification with Industries and Occupations, Column (3), Table 6. The control variable for the area of residence is notably excluded.

D.2 Region

Table D.2: Decomposition of income decile at sample means (comparison group: Belgians): Flanders, Brussels, and Wallonia

Group	$\Delta \bar{w}$	Characteristics Effects	Coefficients Effects	Interaction Effects
Flanders				
EU15	-0.14	0.00 (0.040)	-0.12 (0.023)	-0.02 (0.013)
EU13	1.52	1.34 (0.155)	0.22 (0.038)	-0.03 (0.142)
Europe (Other)	1.31	1.12 (0.090)	0.21 (0.045)	-0.02 (0.078)
North Africa and Middle East	1.04	0.74 (0.093)	0.19 (0.051)	0.11 (0.087)
Sub-Saharan Africa	0.80	0.69 (0.072)	0.20 (0.050)	-0.09 (0.045)
Brussels				
EU15	-1.06	-0.75 (0.051)	-0.41 (0.030)	0.10 (0.026)
EU13	1.06	1.50 (0.100)	-0.22 (0.059)	-0.22 (0.090)
Europe (Other)	1.39	1.18 (0.092)	0.11 (0.065)	0.10 (0.069)
North Africa and Middle East	1.59	1.15 (0.065)	0.34 (0.047)	0.10 (0.057)
Sub-Saharan Africa	1.11	1.02 (0.069)	0.23 (0.042)	-0.14 (0.045)
Wallonia				
EU15	-0.03	0.02 (0.031)	-0.02 (0.020)	-0.03 (0.012)
EU13	0.69	0.68 (0.124)	0.06 (0.076)	-0.05 (0.095)
Europe (Other)	0.99	0.80 (0.108)	0.09 (0.067)	0.10 (0.078)
North Africa and Middle East	0.62	0.49 (0.076)	0.19 (0.051)	-0.06 (0.075)
Sub-Saharan Africa	0.17	0.14 (0.083)	0.13 (0.041)	-0.10 (0.042)

Notes. All comparisons relate to the Belgian sample. Flanders, Brussels and Wallonia are the three regions of the Federal State of Belgium. $\Delta \bar{w}$ is the actual mean income decile difference. Characteristics Effects denote the predicted counterfactual mean income decile difference that would prevail if the coefficients of foreigners were identical to those of Belgian workers. Coefficients Effects represent the predicted counterfactual mean income decile difference that would prevail if the characteristics of foreigners were identical to those of Belgian workers. Interaction Effects account for the fact that cross-group differences in explanatory variables and coefficients can occur at the same time. Standard errors in parentheses are calculated on 100 bootstrapping replicates. Estimations are performed only for the third and most detailed specification: Extended Specification with Industries and Occupations, Column (3), Table 6. Control variables for the region of residence are notably excluded.