

DISCUSSION PAPER SERIES

IZA DP No. 13750

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the Netherlands**

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SEPTEMBER 2020

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ISSN: 2365-9793

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ABSTRACT

Ethnic Employment Gaps of Graduates in the Netherlands*

This research documents ethnic employment gaps for labour-market entrants in the Netherlands in the period 2006-2016. We compare short-term and long-term differences in employment of Dutch graduates with graduates from Moroccan, Turkish, Antillean and Surinamese origin and other (non-)western countries. The analyses focus on graduates from secondary vocational education, which is a group of graduates with many people from ethnic minorities. We document ethnic employment gaps by using an Oaxaca-Blinder decomposition. Our findings suggest that there exist persistent ethnic employment gaps. The gaps are largest for female workers. Part of the ethnic employment gaps are explained by observed characteristics, such as the level of secondary vocational education and the field of study or socioeconomic background and household and neighbourhood characteristics. The substantial unexplained part is present among all ethnic groups and does not disappear over time.

JEL Classification: J15, J2, J70

Keywords: employment, labour-market entry, ethnic minorities

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* This research has been subsidised by the Netherlands Initiative for Education Research (NRO) through grant 40.5.18400.003/6890. We thank the editor for useful comments to improve the paper. The online Appendix is available from the authors upon request.

1. Introduction

Ethnic employment gaps have been documented in many countries (e.g. OECD, 2007a; OECD, 2007b; OECD, 2008). The reasons for these gaps are a mix of labour supply and demand features. On the supply side differences in human capital, networks and types of education are important determinants of ethnic employment gaps. On the demand side, discrimination and biases are likely to play a role. Ethnic employment gaps have also been documented in the Netherlands but a careful decomposition of the gaps is lacking, especially for labour-market entrants. In this research we document the ethnic employment gap for the largest group of yearly labour-market entrants in the Netherlands one year after graduation. We analyse and compare employment gaps of two cohorts: those who graduated in 2006/07 and 2007/08 and those who graduated in 2014/15 and 2015/16. For the first cohort, we also analyse long-term employment gaps, that is ten years after graduation. We decompose the ethnic employment gap into several observable factors. The remaining difference is then due to unobservable differences (such as differences in motivation, networks, search behaviour, preferences and unobserved skills) and other characteristics that we have not been able to measure (most likely labour demand factors, such as biases and discrimination at the side of potential employers).

To measure ethnic employment gaps we use administrative data of Statistics Netherlands (CBS). These data contain all graduates who graduated from vocational education in the period 2006-2008 and 2014-2016. We limit the research to graduates from secondary vocational education (MBO) and leave out university graduates (WO) and graduates from higher vocational education (HBO). Secondary vocational education takes up to four years, depending on the level and type of training. Those who complete their training can enter the labour market or go on to another form of education. More than 700 vocational courses are provided in the Netherlands. For many of these courses there are two learning pathways: vocational training (BOL) where practical training takes up between 20 and 60 percent of the course; and block or day release (BBL) where practical training takes up more than 60 percent of the course. Every year more than 70,000 graduates from secondary vocational education enter the labour market. A relatively large share of these graduates are from minority groups.

We use data from the periods 2006-2008 and 2014-2016 to exclude most of the labour-market effects of the great recession from the analysis. This way we are able to compare ethnic employment gaps over time, although the composition of both cohorts is different. For those

who graduated in the period 2006-2008 we are also able to measure ethnic employment gaps ten years after they have entered the labour market.

We measure employment gaps between native (Dutch) graduates and graduates from Moroccan, Turkish, Antillean, Surinamese origin and a remaining group of graduates from other non-western and western countries. We distinguish between male and female graduates, and between graduates from three different levels of secondary vocational education. We decompose the measured employment gaps by making use of an extension of the Oaxaca-Blinder decomposition for logit and probit regression models. The decomposition explains the difference in the mean level of employment between natives and ethnic minorities by decomposing the gap into differences in the mean values of a set of independent variables, such as field and level of study, the educational pathway and measured socioeconomic and neighbourhood factors. Between-group differences determine part of the ethnic employment gap that can be measured and within-group differences are the differentials in employment not explained by differences in observed characteristics. The unexplained part can be attributed to labour-supply variables not included in the analyses, because they are unobserved in the data, and can also be due to labour-demand characteristics, such as biases or discrimination, which we cannot measure in the administrative data used for this research.

Our main findings from the decomposition exercise are the following. There exists a substantial ethnic employment gap for graduates from secondary vocational education in the Netherlands in both cohorts. For non-western migrants of the most recent cohorts the measured employment gap one year after graduation equals about 21 percentage points for female graduates and 19 percentage points for male graduates. For migrants from western countries the gap is substantially smaller (8 and 11 percentage points, respectively). The observed gap is not new nor is it temporary. For the 2006-2008 cohort the employment gap one year after graduation equals around 18 (16) percentage points for female (males) graduates from non-western origin. Ten years after graduation these ethnic employment gaps equal 19 and 11 percentage points respectively. If we analyse the data and compare the two periods for which we have collected data, we observe that similar factors contribute to the gap. Field of study and educational pathway during secondary vocational education are important observed determinants of the gap. Also the home situation upon graduation (especially for female graduates), the socioeconomic status of parents and the quality of the neighbourhood have both short-term and long-term impact on the measured ethnic employment gap. Finally, a

substantial part of the ethnic employment gap remains unexplained by the variables included in our analysis.

The interpretation of this latter result requires a careful approach. It is very clear that the share of the ethnic employment gap that remains unexplained is relatively large, up to half of the difference in participation. There are two explanations for this unexplained part. First, other explanatory variables which explain the gap have not been included in the decomposition analysis, because they are not observed in the administrative data. Differences in search behaviour, preferences for work and the scope of labour-market networks could be examples of those variables. If this would be the case, we expect this effect to diminish over time. Second, the unexplained part of the ethnic employment gap could be interpreted as the amount of the difference in employment due to biases or labour-market discrimination on the demand side or structural differences in motivation, norms and values or soft skills or other differences in human capital on the supply side. The administrative data do not allow to draw conclusions about the size of unobserved demand and supply characteristics.

This research contributes to a number of fields. First, our work is related to analyses on labour-market integration of ethnic minorities. The OECD has published a series of papers concerning the lack of integration and differences in employment among its member states (OECD, 2007a; OECD, 2007b; OECD, 2008). Ethnic employment gaps vary and are heterogeneous among different groups of ethnic minorities. Aeberhardt et al. (2017) show – by making use of French data – that the employment gap is larger for low-employability workers than for high-employability workers. Andriessen et al. (2012) find similar patterns in the Netherlands. Although we study a relatively homogenous group, their finding is consistent with ours: the ethnic employment gaps in our study are larger for graduates who have completed a lower level of secondary vocational education. In a study using Dutch data, Tesser & Dronkers (2007) highlight the disadvantaged position of first-generation migrants compared to natives in the Netherlands. We contribute to this finding by analysing both short-term and long-term employment gaps and by making use of administrative data. Indeed, many studies measuring ethnic employment gaps rely on survey data (e.g., Falcke et al., 2020; Gheasi et al., 2017). These studies are able to make use of more qualitative information to explain the employment gap, which is not observed in registrations. However, a limitation of using survey data is the lack of response (for various reasons) on the side of ethnic minorities.

Second, our research contributes to the field that studies ‘ethnic penalties’ to explain ethnic employment gaps, next to observed characteristics. Many studies focus on the role of discrimination as part of this unexplained difference between employment outcomes of native and minority workers. A number of experimental studies suggest that discrimination is present (e.g., Kaas & Manger, 2011; Andriessen et al., 2012). Studies using different techniques tend to conclude the same (Kee, 1995; Nordin & Rooth, 2009). Lancee (2019) argues that in the Netherlands discrimination seems particularly present with respect to the employment outcomes of graduates with a Moroccan and Turkish background. Another explanation for the gap is the limited transferability of human capital due to language, culture and institutional features. Over time this gap should decline, as ethnic minorities invest in country-specific human capital or by simply gaining work experience (Miranda & Zhu, 2012). Hartog & Zorlu (2009) suggest that gaps are persistent because they find that second generations of migrant workers have not reached parity with native Dutch workers. Anderson & Huang (2015) draw similar conclusions when reporting about employment and wage gaps in a set of OECD-countries. Our research contributes to this field of study by documenting the unexplained part of the differences in employment of the most important groups of minorities in the Netherlands. Our estimates are consistent with the observation that the unexplained part is important and persistent.

Finally, we focus on the ethnic employment gap for young workers. Estimates about the ethnic employment gap in Belgium, reported by Baert et al. (2015) and Baert et al. (2016), suggest a disadvantaged position for youth with a Turkish and Moroccan background. These gaps are larger for female graduates compared to males, which is similar to our findings. Falcke et al. (2020) investigate ethnic employment gaps for second generation migrants in the Netherlands. Their estimates suggest that second generation migrants both have lower employment probabilities one year after graduation and are more likely to be employed in jobs that do not match their education level or field of education. Finally, Gheasi et al. (2017) explore the wage gap between young native and migrant graduates in the Netherlands. Their estimates suggest that country-specific skills and knowledge and language proficiency seem to be insufficient to overcome wage differences between ethnic minorities and native workers. Our estimates about ethnic employment gaps are consistent with these studies because they point into the same direction. Our contribution to these studies is that we report estimates about both the short-term and long-term outcomes for a relatively homogenous group of graduates entering the labour market using administrative data.

The remainder of this paper is organised as follows. Section 2 briefly documents the system of secondary vocational education in the Netherlands. Section 3 presents the data upon which we base our empirical analyses. In section 4 the empirical strategy is described. Section 5 presents the empirical results along with an interpretation of the estimated coefficients. Section 6 concludes.

2. Secondary vocational education in the Netherlands

Secondary vocational education (MBO) takes up to four years, depending on the level and type of education. Those who complete their education are ready to start work or continue studying in for example higher vocational education. More than 700 vocational courses are provided all over the Netherlands. Usually students do not have to travel long distances or move away from home because all levels and types of education are generally offered in all (labour-market) regions of the country.

The share of the labour force that has entered the labour market with a secondary vocational education diploma is the largest, compared to the share with a higher vocational education or a university diploma. Each year around 70,000 graduates enter the labour market. Most graduates who enter the labour market have completed education at level 4 (black part of the bars). Over time, the share of level 4 graduates increases, which suggests an increase in the level of education within secondary vocational education.

Secondary vocational education prepares students for a wide range of occupations, from franchise manager to mechanic or nursing assistant. The courses are provided at four different levels of education, each leading to a specific job qualification. At the first level students have completed a basic training, which allows them to continue studying at the second level. The first level does not qualify for a specific job. At the second level, basic vocational education is acquired, which is sufficient to enter the labour market. Figure 1 shows that in the period 2006-2008 39 percent of all students with a diploma at level 2 entered the labour market, compared to 43 percent of all students in 2014-2016. Most students (between 54 and 57 percent) continue studying at the third level, which qualifies as professional training. The share of students in the two cohorts who enter the labour market after completing the third level of education equals 56 and 62 percent, respectively for 2006-2008 and 2014-2016. More than a third of the population at level 3 continues studying. Finally, middle-management training is provided at level 4. After completion of this level a relatively large share continues education

at the higher vocational level (HBO), but between 50 and 60 percent of all students enter the labour market.

[INSERT FIGURE 1 HERE]

Enrolment into secondary vocational education is usually at ages 15 to 17. Those who have successfully completed the theoretical, combined or middle-management vocational programme at the pre-MBO level (VMBO) are allowed to enrol in professional and middle-management training (levels 3 and 4). Those who have completed a more practical track at the pre-MBO level usually enter at level 2 and sometimes at level 3. A small share of the population enters from general secondary education (HAVO).

Next to the many fields of study in secondary vocational education, there are two pathways. For several types of education there are two learning pathways: vocational training (BOL) where practical training takes up between 20 and 60 percent of the average time in school; and block or day release (BBL) where practical training takes up more than 60 percent of the coursework. The vocational training pathway requires a number of regular internships. The share of students in each pathway differs but the share of vocational training is largest. At level 2 the relative share of those who have chosen a block or day release pathway is about 35 percent, but at level 4 it is only 15 percent.

3. Data and descriptive statistics

In the empirical analysis we make use of the administrative data included in the Social statistical database (SSB) of Statistics Netherlands. The SBB contains detailed individual-level information about completed levels of education, employment status, job characteristics, income sources and other personal and socioeconomic characteristics of all citizens of the Netherlands. Table B.1 in the online Appendix presents a list of all variables and their definitions.

For the present analysis we select graduates from full-time secondary vocational education who graduated in the study years 2014/15 to 2015/16 (in this research referred to as the cohort 2014-2016) and those who graduated in the years 2006/07 to 2007/08 (cohort 2006-2008). This allows us to study two points in time and compare ethnic employment gaps at these points and to investigate the long-term labour-markets outcomes of those who graduated in 2006-2008, i.e. ten years after graduation.

We only select graduates who can be considered qualified labour-market entrants and exclude graduates from secondary vocational education level 1 from the sample. We restrict the sample further to those who are below the age of 27 upon graduation. Older graduates are usually not first-time labour-market entrants. Finally we exclude graduates who immediately pursue further education after graduation from secondary vocational education (light and dark grey bars in Figure 1).

Not all students have been able to complete their studies by the end of the education year (which ends in July, August or September). At the end of an education year, some students still only have to complete a couple of courses or have to complete an internship. These students enter our data as ‘extraneous’ in the year after, which means that they completed their studies without necessarily being present in class. We include this group of students in our analysis because it is a substantial group (between 5 and 15 percent depending on the level of education).

3.1. Measuring ethnic employment gaps

We measure ethnic employment gaps by constructing an employment indicator. First, we make use of a dummy variable in the SBB that indicates if an individual is in the labour force (1) or not (0). We measure this one year (short run) and ten years after graduation (long run). Second, we restrict the sample of participation to those who earn income from labour and/or are self-employed and for whom this is the primary income source. Graduates without any (formal) income or graduates with (social) benefits as primary income source are not considered labour-force participants. We also exclude graduates who after some time after graduation decide to enter education again.

For each ethnic group we measure participation in this way. The ethnic employment gap is measured by taking the difference in participation between natives and specified ethnic groups. We distinguish the following ethnic groups: graduates with a Moroccan, Turkish, Surinamese or Antillean background and a remaining group of graduates with a non-western or western background. The first four groups are the largest ethnic minority groups in the Netherlands.

3.2. Covariates

The analysis includes two types of covariates. First, we include a number of indicators related to the type, pathway and level of secondary vocational education. Second, we make use of indicators that measure differences in the individuals’ backgrounds.

We take into account that the level (2, 3 or 4) and chosen field of study influence labour-market outcomes. We distinguish between up to 36 major different fields of study, which are based on 700 individual tracks. Next, we include the pathway each graduate has followed and their relevant work experience, through a part-time side job or paid internships during their school career in secondary vocational education.

Individual characteristics included in the analysis are gender, age upon graduation and several indicators about household status (such as living with parents, having a child, etc.). Other characteristics of graduates are the number of years spent in secondary vocational education, the highest level of education completed before completing their current studies, the grade-point average in pre-vocational education, an indicator if the graduate already obtained a MBO-diploma earlier on and the month and year in which graduation took place. Socioeconomic variables are parental income, educational attainment and labour-market status. We also include an indicator of neighbourhood liveability and the (labour-market) region of residence.

3.3. Descriptive statistics

Table 1 presents summary statistics of the most important variables for graduates in the two cohorts 2006-2008 and 2014-2016; online Appendix Table B.1 shows all definitions. Note that both periods contain two waves of graduates. We report the statistics separately for men and women and for graduates with a native, western or non-western ethnic background. We also show statistical differences within gender groups and cohorts. There are statistical differences between groups on almost all dimensions shown in Table 1.

There is an almost fifty-fifty division between male and female graduates in both cohorts. We analyse males and females separately because fields of study and pathways differ a lot. We also expect that males and females face different labour-market supply and demand dynamics. The vast majority of graduates are natives. People are defined as non-native if he/she or (at least) one of their parents is not born in the Netherlands.¹ Most countries in Europe, North

¹ The classification population with a foreign background is defined by Statistics Netherlands (Alders, 2001). Classification as western or non-western is done according to country of birth. If people are born in the Netherlands, the classification is based on the mother's country of birth and if she is also born in the Netherlands, the background is determined by the father's country of birth. The category western includes most countries in Europe, North America and Oceania. The category non-western includes most countries in Africa, Asia and Latin-America. Persons with a Japanese and Indonesian background are classified as western on the basis of their social and economic position in Dutch society. Persons with a Turkish background are classified as non-western.

America and Oceania are classified as western, most countries in Africa, Asia and Latin-America as non-western. In the empirical analysis we distinguish between the largest groups of non-western migrants.

The labour-force participation rate differs between men and women, but even more so between natives and non-natives. This ethnic employment gap will be decomposed in section 4 and analysed in section 5. The difference in participation is not only present among graduates but also among their parents. And, when looking at position of households in the income distribution, the numbers suggest that children from native families grow up in substantially higher income households relative to non-natives.

Graduates who enter the labour market most often have obtained a degree at level 4 (see also Figure 2 above). Fields of study differ substantially between male and female graduates. Women more often choose healthcare and welfare studies, whereas men more often choose technical or economic studies. Also the difference between natives and non-natives is striking. Most non-native males graduate from economic studies, whereas natives graduate most often graduate from technical fields of study. Among women the differences between natives and non-natives are smaller. Finally, in terms of the pathways it seems clear that natives more often enter the work-based pathway. The difference is particularly large for male graduates.

In terms of age at graduation, non-natives are a bit older, while the difference in graduates who have children upon graduation is larger. For example, 7 percent of non-western female graduates have given birth to at least one child upon graduation, compared to only 2.3 percent among native female graduates. Among males these differences seem rather similar but the levels are much lower.

Socioeconomic differences are measured by comparing parents' labour-force participation, level of education and income. There are substantial differences between natives and non-natives along this dimension. Finally, liveability of neighbourhoods is included to measure difference in places where people have grown up.

[INSERT TABLE 1 OVER HERE]

4. Empirical strategy

We apply the Oaxaca-Blinder decomposition to decompose the ethnic employment gap between natives and ethnic minorities into a part that can be explained by differences in a set

of observed characteristics and a part that remains unexplained.² The decomposition method was initially developed to study continuous outcome variables (wages) in a linear regression framework. We use the method developed in Yun (2004), who extends the Oaxaca-Blinder decomposition to binary variables and non-linear models.

Formally, let A (native) and B (ethnic minority) be two different groups, Y a dummy variable indicating labour-force participation, X an $N * K$ matrix of independent variables, such as field of study and individual, socioeconomic and neighbourhood factors and β a $K * 1$ vector of coefficients. We assume that the labour-force participation rate Y is a logistic function F of a linear combination of independent variables, so that

$$Y = F(X'\beta),$$

where

$$F = \frac{\exp(X'\beta)}{1 + \exp(X'\beta)}.$$

Now let β_A refer to the coefficients from a separate regression for group A (natives), β_B to the coefficients from a separate regression for group B (ethnic minorities) and β^* refer to the so-called ‘non-discriminatory’ coefficients, i.e. the true coefficients in a situation without any differences between natives and those with an ethnic background. We follow Neumark (1988) and Jann (2008) and use the coefficients from a pooled regression model including both groups as an estimate of ‘non-discriminatory’ coefficients. We also include a group indicator (native or ethnic minority) in the pooled model.

The mean difference in the labour-force participation rate between natives and ethnic minorities can then be decomposed in two parts:

$$\bar{Y}_A - \bar{Y}_B = [\overline{F(X'_A\beta^*)} - \overline{F(X'_B\beta^*)}] + [\overline{F(X'_A(\beta_A - \beta^*))} + \overline{F(X'_B(\beta^* - \beta_B))}].$$

The first part of the decomposition $[\overline{F(X'_A\beta^*)} - \overline{F(X'_B\beta^*)}]$ is referred to as the ‘explained’ part. It is the part of the differences in outcomes that is explained by differences in observed characteristics between natives and ethnic minorities. The second part of the decomposition $[\overline{F(X'_A(\beta_A - \beta^*))} + \overline{F(X'_B(\beta^* - \beta_B))}]$ is referred to as the ‘unexplained’ part. If the unexplained part is unequal to zero, it suggests that individuals from both groups with equal

² This type of decomposition is named after Oaxaca (1973) and Blinder (1973), who were the first to apply a decomposition to study wage differentials between men and women in the United States.

observable characteristics are likely to face different labour-market outcomes. This part could reflect an ‘ethnic penalty’ due to labour demand differences between groups – due to biases or discrimination - or due to labour supply differences – due to differences in endowments or other supply factors not adequately measured or present in the data used for the analysis.

The decomposition is executed at the aggregate level. For a more detailed analysis of the different components of the explained part of the ethnic employment gap, we have to assign weights to the contribution of each variable to the explained part. While straightforward in a linear regression framework, assigning weights is more challenging for non-linear models. We follow Yun (2004), who proposes a linearization method to assign weights to each variable in the decomposition, based on a logistic regression. The detailed composition of the explained part can then be written as:

$$[\overline{F(X_A' \beta^*)} - \overline{F(X_B' \beta^*)}] = \sum_{k=1}^K W_{\Delta X}^k [\overline{F(X_A' \beta^*)} - \overline{F(X_B' \beta^*)}],$$

where $W_{\Delta X}^k$ is the individual contribution of characteristic $k = (k - 1, \dots, K)$ to the explained part and where

$$W_{\Delta X}^k = \frac{(\bar{x}_A^k - \bar{x}_B^k) \beta^{k*}}{(\bar{x}_A - \bar{x}_B) \beta^*}, \text{ and } \sum_{k=1}^K W_{\Delta X}^k = 1.$$

Individual contributions of each variable to the *unexplained* part are less of interest and more difficult to interpret, as detailed composition results of the unexplained part can only be meaningfully interpreted for variables with a so-called natural zero point (Jann, 2008). Following Jones (1983) and Fairlie (2005), we do not compute individual contributions of characteristics to the unexplained part.

5. Results

We continue with documenting and interpreting the results from applying the decomposition framework to explaining the ethnic employment gap in the Netherlands. To do so, we first present the results of the logistic regression analyses, which marginal effects provide insight into the importance and size of the various measured components of the ethnic employment gap. We then split the more-detailed analysis into various parts. First, the ethnic employment gaps one year after graduation are explained for the different time periods (2006-2008 and 2014-2016). Then, we present the decomposition of the long-term ethnic employment gap for the 2006-2008 cohort. Finally, we document heterogenous effects for the most important ethnic groups, both in explaining gaps in the short and long run.

5.1. Logistic regressions

Tables A.1, A.2 and A.3 in the online Appendix show the detailed results from the logistic regression analyses which we apply to determine the ethnic employment gap by a detailed set of covariates. We report marginal effects of a logistic regression in which we estimate the probability to participate in the labour force one year after graduation for the 2006-2008 cohort (A.1), one year after graduation for the 2014-2016 cohort (A.2) and ten years after graduation for the 2006-2008 cohort (A.3).

The variables included in the analysis are many. We include information about grades in pre-secondary vocational education for all graduates entering secondary vocational education after finishing pre-secondary vocational education. The reason for including this information is that it is a likely indicator of ability. Differences in ability are likely to correlate with differences in success in school and labour-market outcomes such as the probability of being employed. We include grades for courses in math, Dutch and English because these are courses all graduates have taken before entering secondary vocational education and because they cover both linguistic and cognitive abilities. We also add a set of dummies which provides information about their highest achieved level of education before graduating.

The level of secondary vocational education and the education pathway are also included, next to a detailed set of up to 36 different fields of study. These covariates are important for explaining employment probabilities, because higher levels of education are likely to correlate with better labour-market outcomes and some fields of study are more likely to lead to a job than others. During the school career many students have temporary part-time jobs and they take part in (obligatory) internships. The administrative data contain information about paid internships only, information about non-paid internships is unavailable. Some types of internships and work experience are likely to enhance the probability of employment. We therefore include a detailed set of covariates about work experience and the nature of internships.

The home situation upon graduation can be measured in some detail. We measure the composition of the family (number of parents present and whether or not graduates are living with a partner and/or have children). Socioeconomic factors are measured by the decile of the parental income in the household income distribution and by the primary source of parental income. We also add parental education levels. Neighbourhood characteristics are added in terms of a liveability score. Neighbourhood liveability is determined by combining a total of

100 indicators containing information about the neighbourhood's housing stock, its residents, the presence and quality of local amenities, safety and surroundings.

Finally, we include a set of dummies about the age at which people graduate, how long they have been studying, whether or not they have switched studies during their secondary vocational education career and the month of graduation and labour-market entrance to control for possible seasonal effects. We complete the regression model by adding a set of dummies about the labour-market region in which the graduates live to control for possible regional labour-market differences in demand and supply.

5.2. Short-term ethnic employment gaps

Table A.4 and A.5 in the online Appendix show the detailed results of the decomposition of the ethnic employment gaps for the 2006-2008 and 2014-2016 cohorts. We discuss the most salient features of the decomposition in the main text and present the short-term results in Figure 2.

The left panel of Figure 2 shows that the ethnic employment gap one year after graduation equals 16.4 percentage points for female non-western migrants and 15.3 percentage points for males for the 2006-2008 cohort. For western migrants these gaps are much smaller (6.3 percentage points for both females and males). Most of the gap remains unexplained by characteristics observed in our data. The chosen pathway and related work experience during the school career and field of study are the most important explanation for the part of the ethnic employment gap that can be explained. Natives more often follow the block or day release pathway (BBL) where practical training takes up more than 60 percent of the course and more often choose the technical field of study in which employment prospects are relatively good. A graduate's background in terms of the socioeconomic status (of parents) and home situation is more important in explaining gaps for females compared to males, whereas the field of study is less important in explaining gaps for females.

The right panel Figure 2 shows a similar picture of ethnic employment gaps a decade later. Around half of the ethnic employment gap one year after graduation cannot be explained by differences in endowments. Again the unexplained part is largest for female graduates with a non-western background (63 percentage points of the gap remains unexplained) and smallest for female graduates with a western background (40 percentage points remains unexplained). For female graduates pathway and related work experience are important contributors to the

explained part of the gap (about two thirds of the explained gap). The same goes for the home situation when compared to natives (about 15 percentage points of the measured gap). This is likely due to the fact that women with a non-western background are more likely to already have children at the point they graduate.

For male graduates about half of the ethnic employment gap remains unexplained. Of the explained part field of study and pathway and related work experience are important characteristics. Non-native males more often follow the vocational training (BOL) where practical training takes up between 20 and 60 percent of the course compared to natives and they more often choose an economic field of study compared to natives, which more often choose a technical field.

[INSERT FIGURE 2 OVER HERE]

A comparison of the two cohorts is interesting but requires a careful view on the results. The composition of the groups is not the same, educational levels have increased on average and the macroeconomic situation is not necessarily equal. Nevertheless, the ethnic employment gaps one year after graduation do not seem to have become smaller when comparing the two cohorts. Over the course of almost a decade the gaps have remained constant or even increased. Also the size of the unexplained and explained part are at least qualitatively similar. Interesting to note is that the participation rates of migrants and natives have fallen over time. For non-western immigrants the participation rate was 72 (75) percent for females (males) in 2006-2008 and only 63 (68) percent in 2014-2016. For natives the fall was less pronounced from 89 to 83 percent for female graduates and from 90 to 87 percent for male graduates. At the same time, the share of non-western migrants among those who graduate from secondary vocational education has risen.

It seems to be the case that the overall labour-market participation rate of graduates from secondary vocational education has fallen. An explanation for the lower participation rate is that the unemployment rate in the Netherlands was higher in 2014-2016 (due to the great recession) when compared to 2006-2008. Graduates are more likely to suffer from cyclical fluctuations than other workers. Another explanation for differences in participation is that we restrict the sample of graduates from the first cohort to those who are still present in the Netherlands ten years later. Migrants are more likely to have left the country, which could bias the comparison between the two cohorts.

5.3. Long-term ethnic employment gaps

Table A.6 documents the detailed estimates of the long-term ethnic employment gaps. For the graduates of 2006-2008 the gaps after ten years in the labour market are computed and decomposed into factors. Figure 3 presents a summary of the most salient differences. The ethnic employment gap for non-western females has slightly increased when compared to the gap one year after graduation. The unexplained part has fallen from 12 to 10 percentage points. The effects of parental income and neighbourhood liveability have become more important in explaining the differences with native females. For males the gap has closed considerably, mainly due to the drop of the unexplained part of the difference. For western migrants the gaps have closed partly too, also because the unexplained part has fallen.

The relative size of the education factors, such as the pathway, field of study and level of study, remain fairly constant over time. This suggests that more favourable education choices in terms of labour-market prospects have an equal weight in explaining short-term and long-term employment gaps.

The overall interpretation of this result consists of a number of components. The ethnic employment gaps seem to be persistent and observed factors play a more prominent role over time, especially socioeconomic status of graduates' parents. The persistence is visible in the fact that the size of the measured gap is only mildly falling in the course of a decade, except for non-western males. For non-western females the fact that they are younger when giving birth to their first child seems to be important as well. The unexplained part becomes less important, which implies that observable features – mostly labour supply factors – are more important in explaining long-term outcomes compared to short-term employment gaps.

The interpretation of the remaining yet diminishing unexplained part can go into a number of directions. First, the quality and depth of networks, search behaviour and preferences for work could hamper employment opportunities in the short run. We do not measure these factors in the administrative data. In the long run these factors should not play a prominent role in explaining the ethnic employment gap because networks often serve as a short-run stepping stone, search efforts have become successful and employment becomes more important to make a living. Acquiring more country-specific skills (language skills for example) and more experience and knowledge about labour-market norms and values foster employment of minorities in the long run as well (Miranda & Zhu, 2012; Hartog & Zorlu, 2012; Anderson,

2015).³ Second, graduates unable to find employment could return to education to acquire more or different forms of human capital. Indeed 12 percent of all migrants compared to 5 percent of all natives returns to education. Third, biases and discrimination can be persistent but the probability of finding a job increases over time. A fall in the unexplained part of the ethnic employment gap would then be expected. Finally, the remaining unexplained part is a mix of demand and supply factors which could interact with each other and with observed factors such as socioeconomic status. If this is the case, the unexplained part remains persistent.

[INSERT FIGURE 3 OVER HERE]

5.4. Differences within minority groups

We continue with analysing the ethnic employment gaps among specific ethnic groups and between education levels. The reason for doing so is that the ethnic employment gaps are large for non-western migrants and that we are able to separate the effects according to the educational level in terms of observations. Also, in all decomposition analyses, the level of education is statistically significant and economically important in explaining the ethnic employment gap.

We document ethnic employment gaps for migrants of Moroccan, Turkish, Antillean and Surinamese origin and distinguish between female and male graduates. These four groups of migrants are the largest groups in the Netherlands. Moroccan and Turkish migrants first entered the country in the 1950s and 1960s and migrants from Antillean and Surinamese origin are from former Dutch colonies and entered mostly from the 1970s onwards. We present the results in a set of figures, the detailed decomposition results are available upon request. Figure 4 shows the ethnic employment gaps one year after graduation for the 2006-2008 cohort in two panels, panel A for female graduates and panel B for male graduates. Figure 5 shows the long-run ethnic employment gaps in a similar way. In online Appendix C we show the figures for the 2014-2016 cohort (Figure C.1).

³ Next to discrimination, ‘assimilation’ offers an explanation for the existence of unexplained differences in labour-market outcomes. That is, the transferability of human capital and the importance of country-specific human capital. Language, culture and institutional features are subject to this transferability. Over time this assimilation gap should diminish, as ethnic minorities invest in country-specific human capital, by simply gaining work experience. Assimilation tends to be more important for first-generation than for second-generation migrants, as language proficiency seems to help narrowing the employment and wage gaps (Miranda & Zhu, 2012).

A number of observations stand out from these analyses. First, there is heterogeneity across ethnic groups in terms of the size of the employment gap in the short run. Among males the ethnic employment gap is on average the largest among graduates with a Moroccan background. Among female graduates the gap is largest among (level 2) graduates from Antillean and Moroccan origin. Second, the short-run ethnic employment gap generally falls with level of secondary vocational education, especially for females. Ethnic minorities with more favourable labour-supply characteristics in terms of level of education seem to face a smaller employment gap one year after graduation. Third, for higher educated non-native graduates (level 3 and level 4) the explained part of the employment gap is relatively less important in the measured gap. Non-native level 2 and level 3 graduates seem to make less favourable education choices in terms of field of study and chosen pathway compared to non-native level 4 graduates. Fourth, for male graduates most of the observed differences in employment compared to natives is due to their field of study and pathway and related work experience. It seems that ethnic minorities – especially from Moroccan origin – have preferences for fields of study that are less successful in terms of employment and that they prefer the vocational training route. For female graduates from Antillean origin the situation at the level of the household is relatively more important. It turns out that non-natives more often have children upon graduation, especially those from Antillean origin. This seems to be detrimental for employment. Also their socioeconomic status seems to be more important compared to male graduates.

[FIGURE 4 OVER HERE]

In the long-run (ten years after graduation) the gaps seem to move into different directions. Among males, the pattern seems to be most consistent: the unexplained part of the ethnic employment gap drops but remains present for almost all groups. For the highest level of secondary vocational education the gaps are mostly gone with the exception of people from Moroccan origin. Overall, differences in supply factors play a more important role. For women the results are more mixed. The employment gap for women from Moroccan and Turkish origin rises because their labour-market participation rates drop relative to native women. The explained part of the larger gap remains relatively constant in absolute terms and the unexplained part increases. This could be due to labour-demand and supply features, but also (unmeasured) preferences that negatively influence labour-market participation could be causes for this observed pattern. For women with a Surinamese and Antillean origin the employment gaps drop, mainly due to a fall in the unexplained part of the gap.

[INSERT FIGURE 5 OVER HERE]

6. Conclusion

This research documents and interprets persistent ethnic employment gaps among young workers in the Netherlands. The size of the gap for the cohorts who entered the labour market in the period 2006-2008 equals 16 (14) percentage points for females (males) with a non-western background and remain similar when measured for the cohorts who entered the market almost a decade later. The long-run gaps for males are lower, but for females even higher. Part of the gap can be explained by supply-side factors. However, a substantial part remains unexplained both in the short run, across cohorts and in the long run.

Our interpretation of the results is that supply-side factors explain part of the ethnic employment gap. Important differences between natives and non-western migrants are the chosen pathway in secondary vocational education, with natives choosing more often the more practical curriculum which involves more internships. In addition, field of study is important, with natives choosing fields with on average better labour-market prospects. Finally, socioeconomic status of parents, neighbourhood quality and the home situation upon graduation (especially for females among which migrants more often already have children) are important factors explaining differences in employment. Unobserved supply factors and demand factors seem to play an important role as well, since half or more of the ethnic employment gap remains unexplained. We cannot rule out that biases and discrimination play a role in explaining the ethnic employment gap but they remain unmeasured in this study.

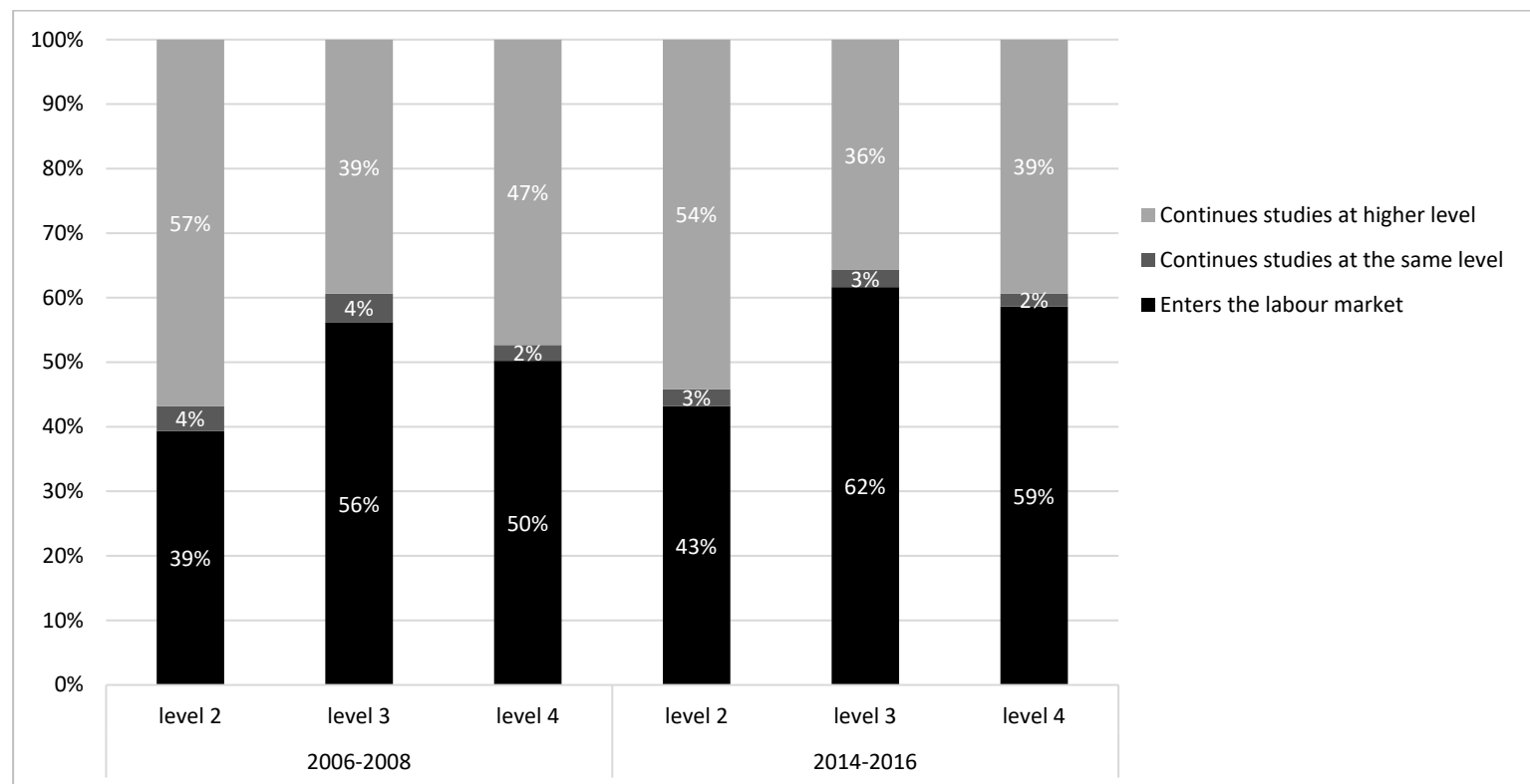
A number of lessons can be drawn from the analysis. First, field and pathway of study differ between natives and migrants. Natives are more likely to choose pathways and curricula with better labour-market prospects. Targeting effort in terms of information provision about labour-market prospects towards migrants (especially males) could help overcome this gap. Second, improving the networks of migrants could help overcome the negative effects of an adverse socioeconomic background and neighbourhood quality. Schools could do more in helping migrants finding suitable internships, which tend to be stepping stones towards work. Third, the unexplained part of the ethnic employment gap is large and more and careful research is necessary to document whether or not demand-side factors of other supply-side factors play a role in the Dutch labour market for graduates from secondary vocational education.

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Figure 1. Share of graduates entering the labour market and continuing studies



Note: Shares by level (2, 3 and 4) and cohort (2006-2008 and 2014-2016). Shares add up to 100 percent by level of secondary vocational education.

Source: Social statistical database, Statistics Netherlands

Table 1. Descriptive statistics

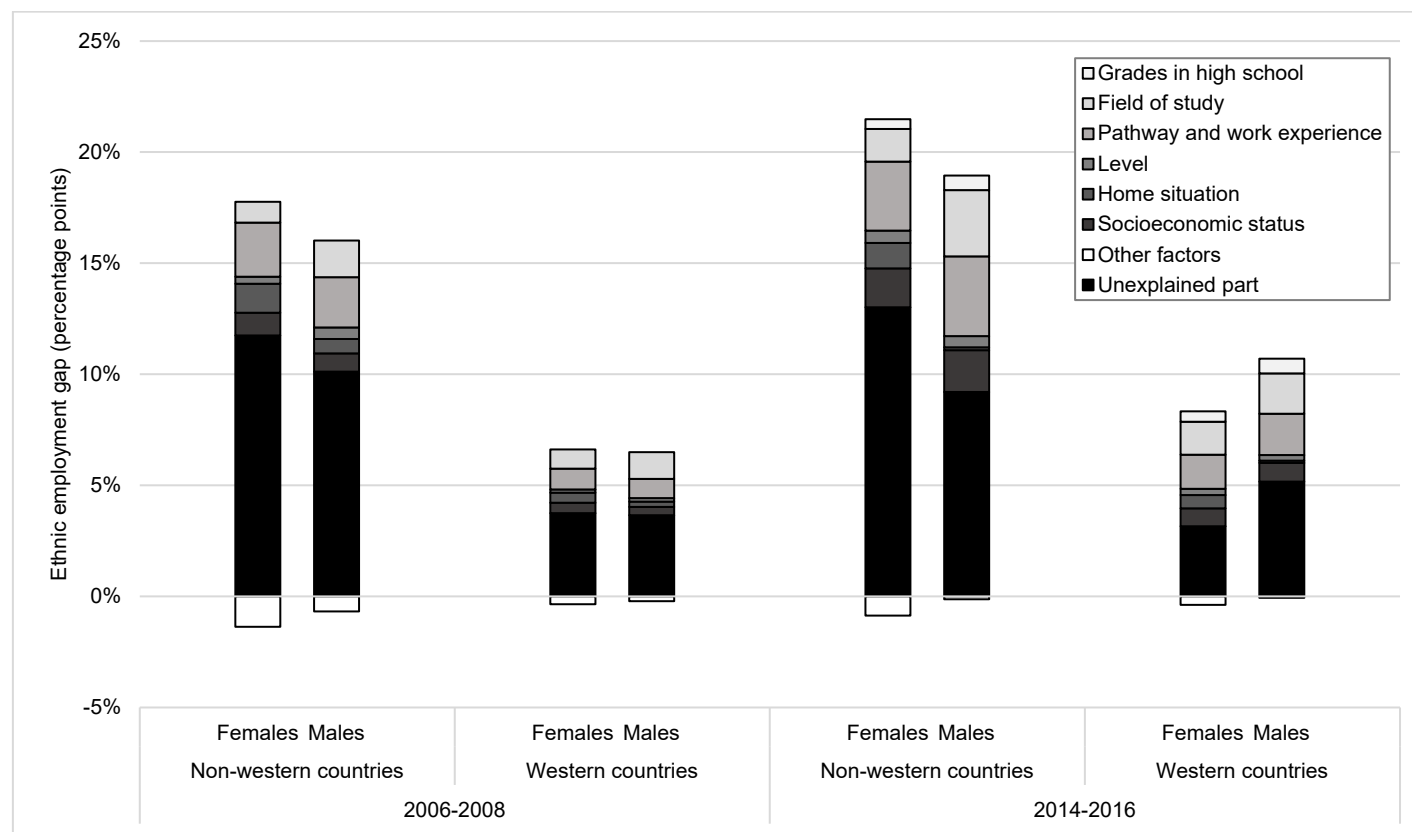
	Graduates in 2006-2008						Graduates in 2014-2016					
	Female			Male			Female			Male		
	Native	Migrant		Native	Migrant		Native	Migrant		Native	Migrant	
		Non-western	Western		Non-western	Western		Non-western	Western		Non-western	Western
<i>N</i>	49,233	6,668	3,219	49,621	5,602	3,085	56,895	11,468	3,907	60,122	10,312	3,872
Participation rate (%)	89	72***	82***	90	75***	84***	83	63***	75***	87	68***	77**
Secondary vocational education level (%)												
Level 2	18	26***	21***	31	46***	35***	14	23***	18***	26	38***	31***
Level 3	34	28***	30***	32	21***	29**	32	29***	28***	32	26***	27***
Level 4	48	47	49	37	33***	36	54	48***	54	42	36***	42
Pathway and work experience (%)												
School-based pathway without work experience	4	9***	6***	3	6***	4**	4	8***	7***	4	9***	8***
School-based pathway with work experience	62	68***	63	42	56***	45**	69	74***	70	51	63***	57***
Work-based pathway	23	11***	19***	39	23***	33***	19	6***	15***	32	13***	22***
Extraneous	11	12***	12***	16	16	18**	8	11***	9***	13	15***	13
Field of study (%)												
Economic studies	31	46***	41***	35	61***	46***	30	39***	40***	36	59***	48***
Agriculture studies	7	1***	5***	7	1***	2***	7	1***	5***	8	1***	3***
Technology studies	6	5	8***	51	31***	44***	10	8***	13***	48	29***	39***
Healthcare and welfare studies	57	48***	46***	7	7*	7	53	52*	42***	9	10***	9
Home situation upon graduation (%)												
Living with parent(s)	74	41***	64***	85	50***	75***	75	66***	67***	85	72***	79***
Living alone or with partner, without children	22	38***	28***	12	34***	20***	20	21	25***	12	19***	16***
Living alone, with children	0	3***	1***				1	4***	2***	0	0	0

Living with partner and children	1	5***	2***	1	3***	1***	2	3***	2*	1	2***	1
Other (e.g. student dorms, living with other family)	3	12***	4***	2	12***	4***	2	6***	4***	2	7***	4***
Socioeconomic status parents and liveability neighbourhood (%)												
Parents' labour force participation	89	52***	76***	91	55***	80***	89	55***	76***	91	56***	77***
Parents' income above average income in the Netherlands	68	72***	57***	74	33***	64***	66	21***	46***	70	24***	51***
Parents with high education	19	9***	20	21	11***	22	23	10***	21*	25	13***	25
Liveability neighbourhood above average liveability in the Netherlands	57	21***	45***	60	23***	48***	60	22***	46***	62	23***	47***
Age upon graduation (years)	20.5	21.4***	21.0***	20.7	21.5***	21.2***	20.7	21.2***	21.1***	20.9	21.3***	21.1***
Grades in high school (range 1-10)												
Average grade Dutch							6.4	6.2***	6.3***	6.2	6.0***	6.2**
Average grade English							6.2	6.4***	6.6***	6.6	6.6***	7.0***
Average grade Mathematics							6.2	5.8***	5.9***	6.7	6.2***	6.5***

Note: Statistical differences are defined as differences within groups of females and males within cohort. ***=0,1% **=1%, *=5%. Fields of study have been aggregated to four main categories. All variables are defined and listed in Table B.1 in the online Appendix.

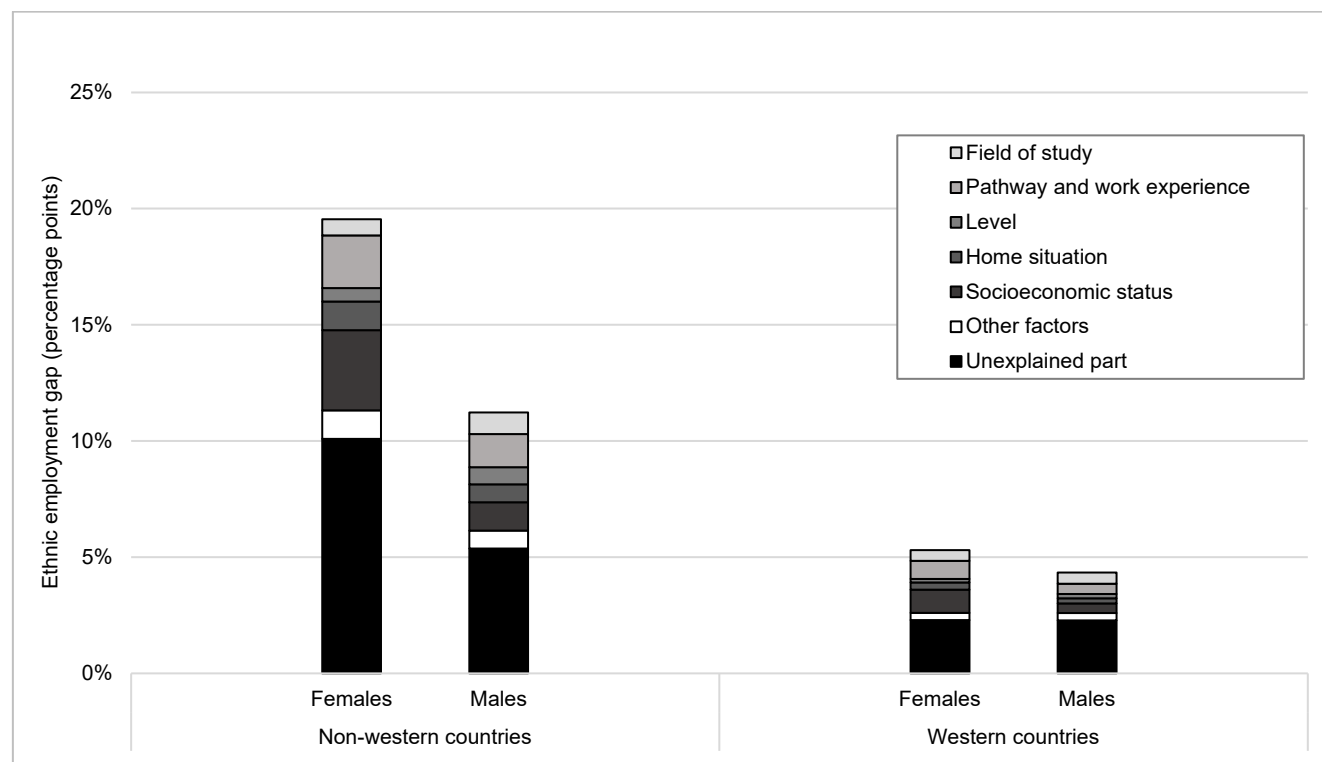
Source: Social statistical database, Statistics Netherlands

Figure 2. Ethnic employment gaps one year after graduation, cohorts 2006-2008 and 2014-2016



Note: Ethnic employment gaps of non-western and western migrants relative to natives by gender for the cohorts 2006-2008 and 2014-2016. Descriptive statistics are provided in Table 1 and the construction of variables is described in online Appendix Table B.2. Grades in high school are only available for the cohorts 2014-2016.
Source: Social statistical database, Statistics Netherlands

Figure 3. Ethnic employment gaps ten years after graduation, cohorts 2006-2008

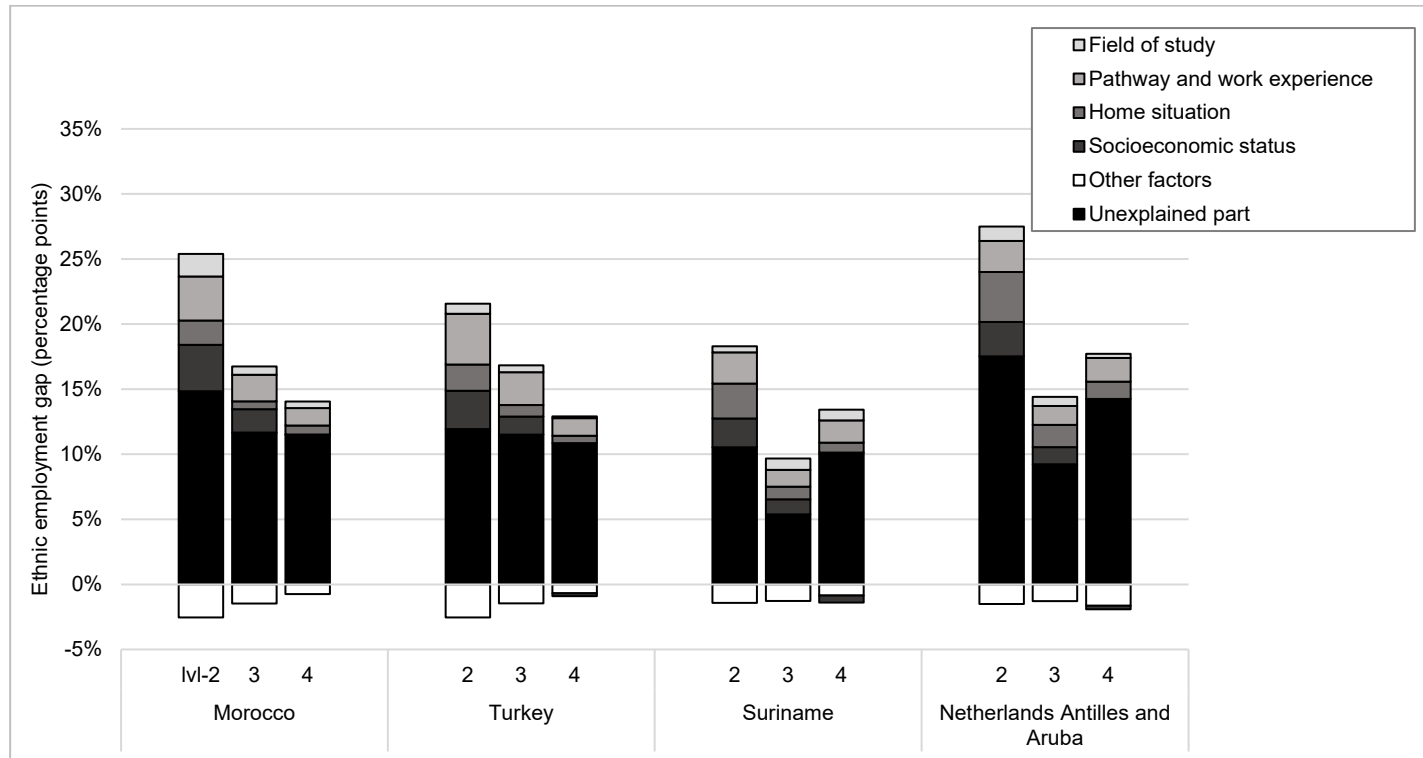


Note: Ethnic employment gaps of non-western and western migrants relative to natives by gender for the cohorts 2006-2008. Descriptive statistics are provided in Table 1 and the construction of variables is described in online Appendix Table B.2.

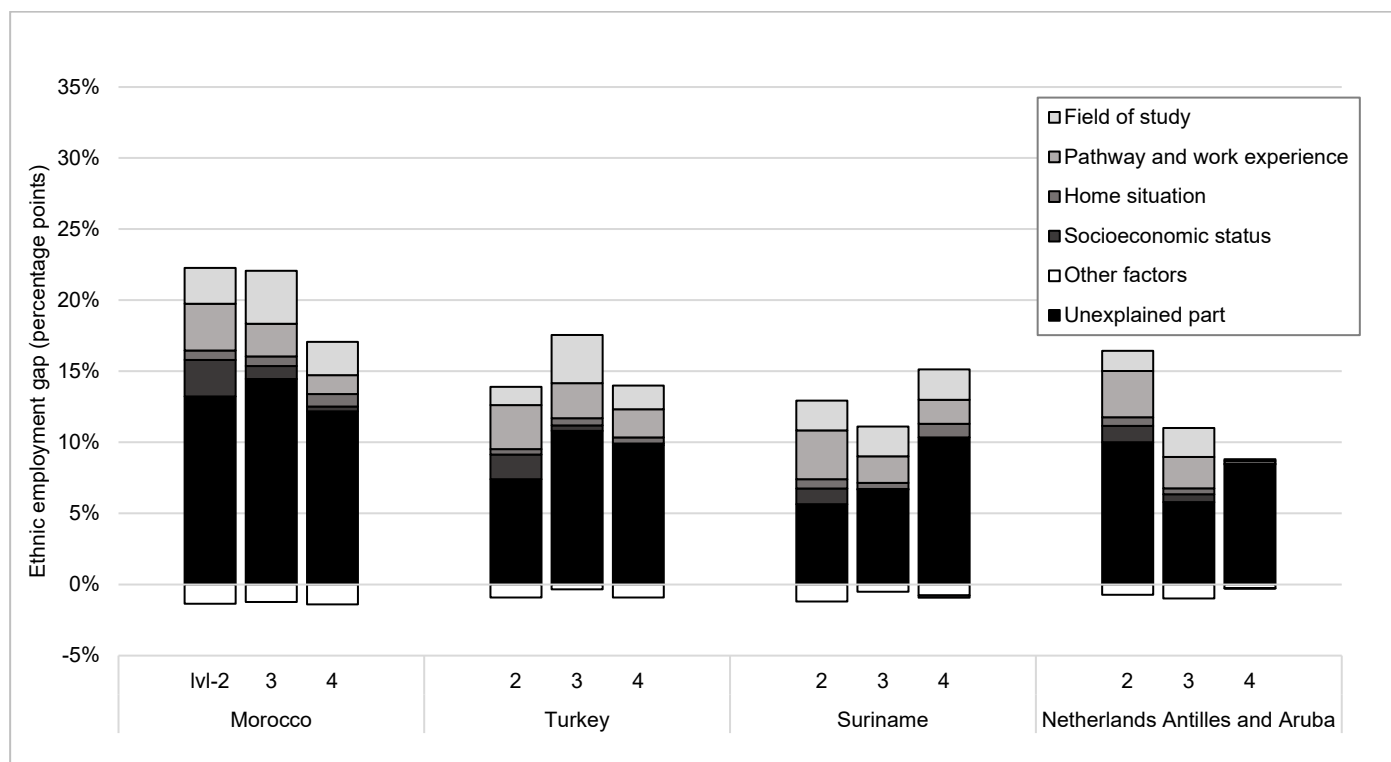
Source: Social statistical database, Statistics Netherlands

Figure 4. Ethnic employment gaps one year after graduation for specific ethnic groups, cohorts 2006-2008

(a) females



(b) males

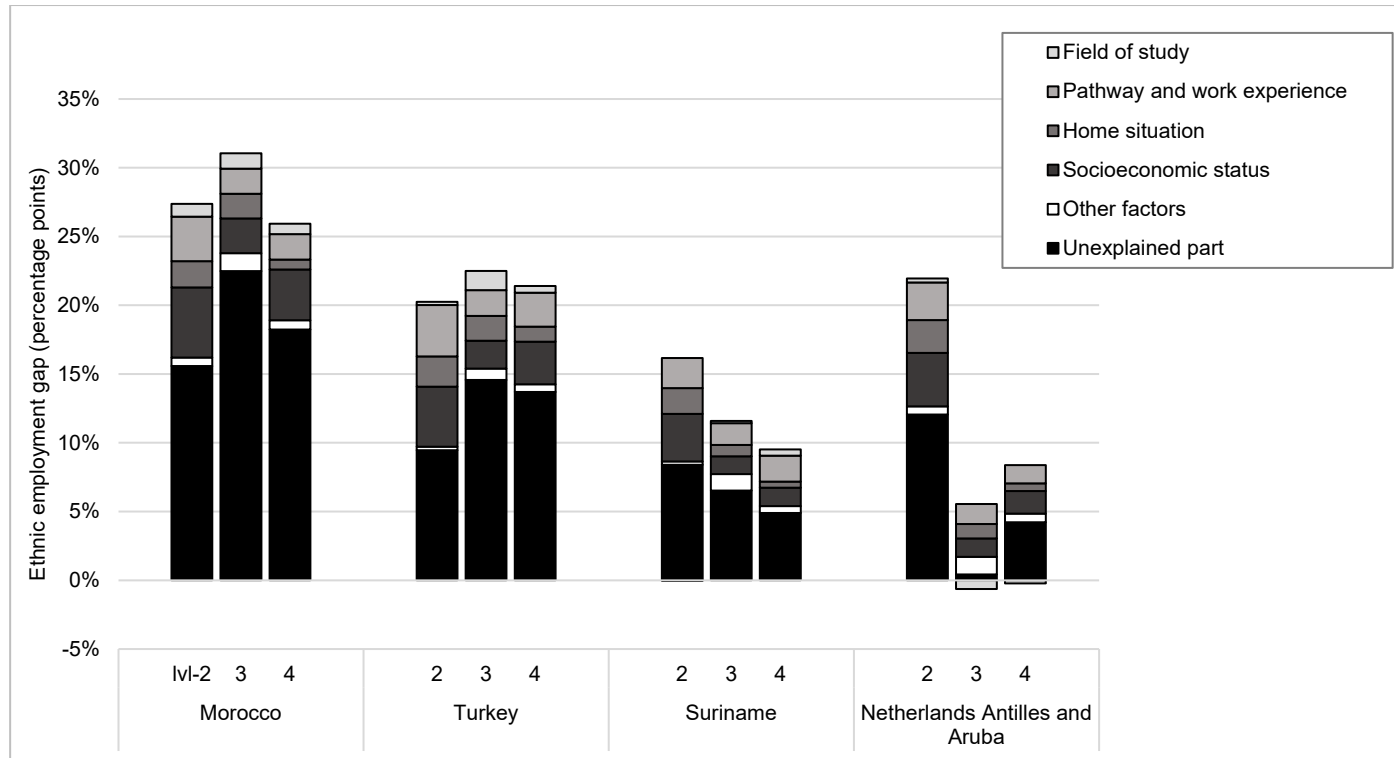


Note: Ethnic employment gaps of non-western and western migrants relative to natives by gender for the cohorts 2006-2008. Panel (a) females and panel (b) males; descriptive statistics are provided in Table 1 and the construction of variables is described in online Appendix Table B.2.

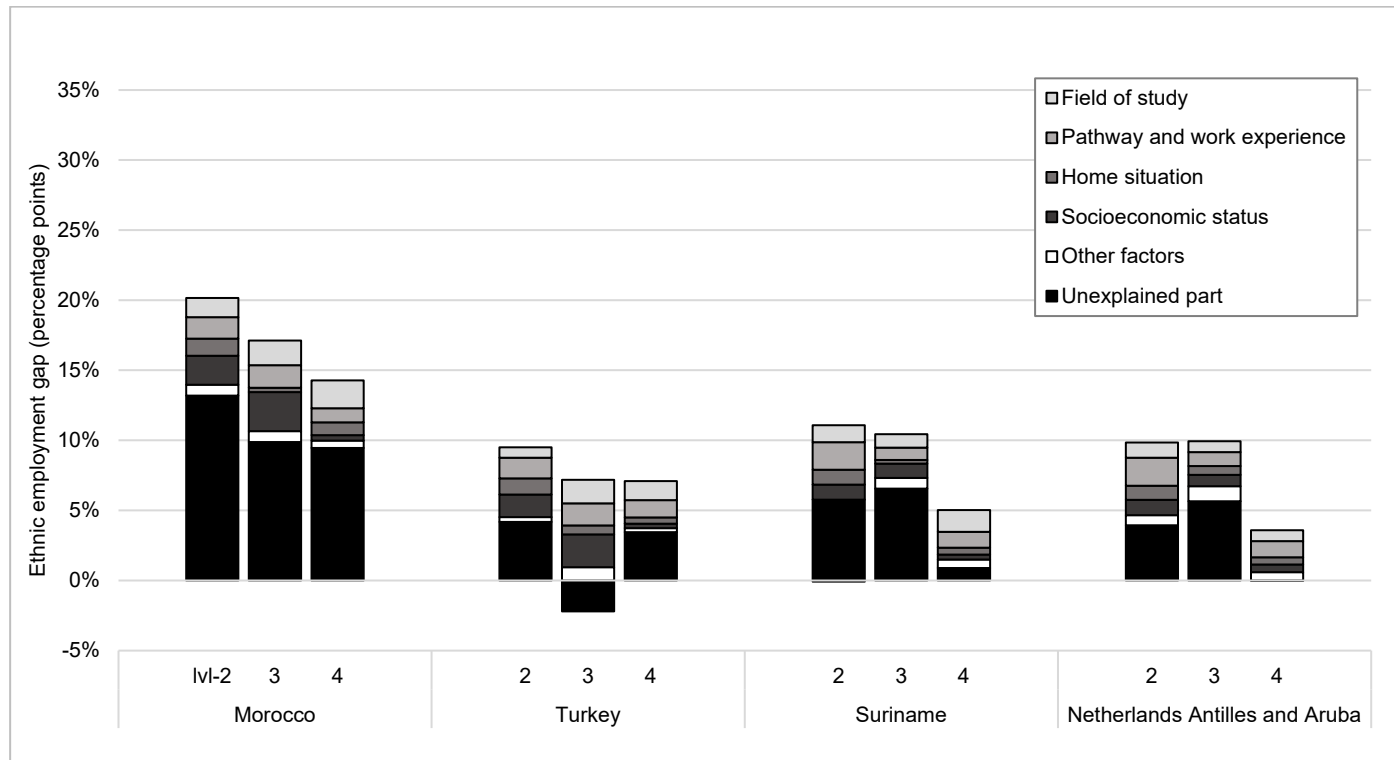
Source: Social statistical database, Statistics Netherlands

Figure 5. Ethnic employment gaps ten years after graduation for specific ethnic groups, cohorts 2006-2008

(a) females



(b) males



Note: Ethnic employment gaps of non-western and western migrants relative to natives by gender for the cohorts 2006-2008. Panel (a) females and panel (b) males; descriptive statistics are provided in Table 1 and the construction of variables is described in online Appendix Table B.2.

Source: Social statistical database, Statistics Netherlands

