Educational Achievements of the Third Generation

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Abstract

An increasing number of grandchildren of post-WWII immigrants have completed their formal education and started participating in the labour market. In many cases, their already-aged grandparents were labour or post-colonial immigrants. They had little education, began at the lower end of the labour market, and made little socioeconomic progress. The second-generation immigrant families have compensated for some of the parental disadvantages but could not reach parity with their native counterparts. To what extent could young grandchildren of immigrants, the third generation, offset the socioeconomic disadvantages of their ancestors? This paper seeks to assess the progress of educational attainment of major migrant groups after three generations from an intergenerational mobility perspective using robust and comprehensive Dutch register data for young adults aged 18 to 30. The analyses confirm the existence of ethnic gaps but suggest that the educational attainment of the third generation from the most disadvantaged groups does not differ significantly from that of migrant groups that began with a more favourable position in the Netherlands.

Introduction

Education is widely recognised as an essential component of human capital investment as well as an effective and sustainable means of advancing migrants' integration into host societies, socially, culturally and economically (Chiswick and Miller 2009; Alba and Nee, 2003; Heath et al. 2008; Drouhot and Nee 2019). Indeed, schooling helps to obtain the knowledge base, social skills and cultural capital required for well-paying service-sector jobs. Since there are significant differences in the education level of migrant communities, intergenerational educational mobility among the offspring of immigrants is necessary for closing socioeconomic gaps.

Many immigrants who arrived in Europe in the late 20th century came as 'guest workers' and often had limited education while facing the challenges of settling in a foreign country. Consequently, their socio-economic position tended to be low, and their social mobility was limited. While inheriting some disadvantages, their children have also benefited from new opportunities, partially offsetting these limitations. However, they have not yet achieved parity with their native counterparts (Heath et al., 2008; Zorlu, 2013; Dustmann et al., 2012; Fleury, 2017; Zuccotti et al., 2017). Nevertheless, this research and studies on the 'third generation' (Zorlu & Van Gent, 2024; Zhao & Drouhot, 2024) suggest that families with a migration background are, on average, closing the 'ethnic gap' in socio-economic status. This generational trend is consistent with classical assimilation theory, which predicts that all immigrant communities will improve their socio-economic position over time (Alba & Nee, 2003). In contrast, the segmented assimilation model contests such an inevitable outcome and anticipates that some migrant communities with characteristics dissonant from the host society may experience a divergent, less favourable trajectory (Portes & Zhou, 1993; Waters et al., 2010).

Migration literature attributes the ethnic gap primarily to several factors: cultural distance from the host country, migration histories, human capital upon arrival, and experiences of discrimination (e.g. Alba and Nee, 2003 Gang and Zimmermann, 2000; Guveli et al. 2016; Van Gent & Zorlu, 2024). Hence, socioeconomic trajectories can vary across groups and domains. Accordingly, grandchildren of immigrants from different countries of origin are expected to have varying socioeconomic outcomes, depending on the pace of intergenerational mobility. This suggests that any observed ethnicity-based disparities are not necessarily 'caused' by ethnicity alone. Nonetheless, cultural traits, migration histories, and discrimination can still play a decisive role in the labour market and educational attainment. To further understand group-specific dynamics in assimilation over generations, this paper focuses on intergenerational mobility in education.

This paper seeks to further our understanding of the trajectories of economic assimilation in Europe by focusing on the educational attainment of the young grandchildren of immigrants, the 'third generation', in the Netherlands in 2018. We use (integral) register data of the 'third generation' aged 20-30, their parents, and a demographically comparable sample of Dutch to gauge ethnic gaps in educational attainment. To understand the potential role of cultural and linguistic differences and associated differential treatment by the receiving society, we look at descendants from the largest migrant groups who often first arrived as low-skilled guest workers or as former colonial subjects: Turks, Moroccans, Surinamese and Indish. This last group was a mix of former colonisers and colonial subjects born in the Dutch East Indies, current-day Indonesia. We also include a seemingly similar migrant group to the Dutch: Germans.

This study estimates ethnic gaps in education by fully accounting for parental education, socioeconomic position, and income. We are particularly interested in the role of parental background for various groups to see how much the 'third generation' can offset any disadvantages their families may have had. Suppose these grandchildren reproduce their parental disadvantages instead of accomplishing strong socioeconomic mobility. In that case, their socioeconomic outcome will lag behind that of their 'native-Dutch' counterparts and grandchildren of immigrant groups without a considerable initial disadvantage. In addition to family background, educational outcomes and the intergenerational transmission of education can vary by gender. The educational attainment of women is rising, and the effects of mothers' and fathers' education differ for boys and girls (Galster et al. 2024; Pastor et al. 2021; Chevalier et al. 2013; Haveman and Wolfe 1995). However, little is known about ethnic gaps in education by gender. Our empirical analyses also account for gender differences in intergenerational mobility and ethnic gaps. As such, we seek to provide new insights into long-term ethnic inequality in European societies for various groups.

This study makes four contributions to the existing literature. First, it is the first (European) study to use unique, high-quality intergenerational register data to estimate the ethnic gap and intergenerational mobility in education across various ethnic groups. We utilize parent–child register data to examine the role of parental education and socioeconomic status in explaining the educational achievement of young adults.

Second, the study investigates gender differences in the ethnic gap in years of education and assesses the differential effects of mothers' and fathers' education by ethnic group, controlling for relevant determinants of educational attainment. Our register data provide direct links between third-generation individuals and each of their parents, enabling us to estimate gender-specific effects and patterns in the ethnic gap.

Third, we decompose the ethnic gap in years of education into explained and unexplained components and identify the separate contributions of parental background and individual characteristics, as well as the size of the gap attributable to unobserved factors, which are often interpreted as (institutional) discrimination. Although our register data contain a rich set of variables measuring individual and parental background, they are by no means exhaustive. Therefore, it is essential to estimate the unexplained component of the ethnic gap due to unobserved factors.

Finally, we additionally evaluate ethnic differences and intergenerational mobility across the four layers of the Dutch education system, taking into account the distinct vocational and academic tracks. This dual-track structure, with limited interchange between tracks, warrants special consideration, as explanatory factors may have non-uniform effects across educational layers. Moreover, our approach provides new empirical insights into the educational mobility of disadvantaged migrant groups in the Netherlands, who predominantly follow the vocational track.

The following literature review will outline the mechanisms of intergenerational transmission of educational attainment in general and for migrant families and groups specifically. After discussing our data, variables, and methods, we will compare intergenerational mobility by origin group and gender using multivariate regression models and decomposition analyses. The conclusion will discuss the findings and reflect on their significance for societal debates and economic assimilation theories.

Economic assimilation and education

Classical assimilation theory suggests that ethnic differences in educational attainment will diminish over time and generations as the effects of the initial disadvantaged position of immigrant communities attenuate due to declining socioeconomic and cultural distance from the host society (Alba & Nee, 2003). This perspective suggests a significant improvement in the educational attainment of the third generation. However, the theory has been challenged for its premise that assimilation is a linear and irreversible process for all communities. Segmented assimilation theory critiques earlier conceptualisations for not fully capturing the complexities of the process, contending that it is not necessarily linear, and there may be variations in outcomes for various migrant communities (Portes & Zhou, 1993; Waters et al., 2010). While some migrant communities may fully integrate into society, others may succeed economically while preserving their original country's culture, customs and values. Vulnerable migrant communities may even move to marginalisation when they lack desirable features and qualifications or when they face resistance or discrimination in their new home country. This perspective suggests that intergenerational mobility of education may vary for migrant communities. Before discussing how migrant families may be different, the following section will outline the general mechanisms of parental transfer in the field of education.

Intergenerational transmission of education

The extensive literature on intergenerational mobility has established that individuals' educational achievements are positively correlated with their parents' education (Bjorklund & Salvanes, 2011; Holmlund et al., 2011; Chevalier et al., 2013; Dickson et al., 2016; Fleury & Gilles, 2018; Pastor et al., 2021). The strength of this correlation varies and seems to be associated with institutional context and the welfare state's scope (Waldfogel et al., 2023). Intergenerational mobility, as measured by the intergenerational correlation in years of education, is low (about 0.46-0.66) in South America, the USA, other developing nations, and Southern European countries, whereas it is high (0.30- 0.36) in Nordic nations (Blanden, 2013; Hertz et al., 2008). These strong correlations between children's and parents' educational attainment indicate the persistence of inequality of opportunities over time (Breen & Muller., 2020; Torche, 2015).

The economic and sociological literature has identified four main transmission channels for parental transfers (Bjorklund & Salvanes, 2011; Holmlund et al., 2011; Torche, 2015): genetic transmission, parental endowments, parental behaviour, and institutional and geographical context. First, a significant portion of children's cognitive abilities is inherited through genetic transmissions, which remain largely unobserved. This unobserved component is either assessed implicitly as a residual after controlling relevant observed confounders or by applying more advanced identification strategies such as instrumental variables estimation and studies of identical twins and/or adoptees (Holmlund et al., 2011; Bjorklund & Salvanes, 2011). Second, the educational choices and achievements of children are also influenced by 'endowments' that shape the material and social conditions of their upbringing into adulthood (Gang & Zimmermann, 2000; Breen & Muller, 2020; Dustmann et al., 2012; Chevalier et al., 2013; Davis-Kean, 2005; Mare, 2011). Parents bestow the conditions under which children grow up and perform at school. These endowments encompass financial and sociocultural resources, such as parental human, social, and cultural capital. Parental

wealth and financial resources can alleviate constraints in the credit market, expand opportunities, and provide more free time for children's education (Haveman & Wolfe, 1995; Guryan et al., 2008). Parental financial resources are the basis for extending consumption opportunities for explorative activities and facilitating a materially easier life for children. In addition, affluent parents can afford comfortable housing and choose a high-quality residential area. Furthermore, parental cultural endowment, which is strongly correlated with parental education, can create a supportive infrastructure for knowledge production, fostering an environment that encourages aspirations, incentives, and motivations to achieve higher educational outcomes (see Lareau 1987; 2011)

Third, educated parents are likely to increase the marginal productivity of children's education through direct interventions (Björklund & Salvanes, 2011). Well-educated parents are well informed about the complex education and school system, helping navigate their children throughout their schooling career. They can monitor and accompany their children in education and help them make productive choices at pivotal moments. Moreover, they can deal with refined signals from educators and school managers, effectively advocate on their children's behalf and pave the way toward higher education with a high expected impact.

Fourth, contextual factors, such as schools and neighbourhoods, may shape transmissions through the quality of public services, social contagion, and exclusion. Highly educated parents tend to be well-informed about the quality of schools and neighbourhoods. Indeed, the choice of schools and neighbourhoods is heavily intertwined as both relate to concerns over how these contexts may affect social reproduction (Boterman, 2022; Boterman et al., 2019; Galster et al., 2024).

Educational transmission in migrant families

The educational mobility literature documents significant ethnic gaps in education between second-generation migrant groups and their native counterparts. Parental educational endowment explains a substantial part of these differences, varying across migrant groups (Fleury, 2017; Schüller, 2015; Van Ours & Veenman, 2003; Heath et al., 2008; Gang and Zimmermann, 2000).[1] Unexplained differences can stem from data deficiencies and group characteristics.

Concerning the four channels outlined above, the intergenerational transmission of education is potentially different for descendants of migrants compared to their native counterparts (Dustmann et al., 2012; Davis-Kean, 2005; Hebsaker et al., 2021; Zuccotti et al., 2017). First, immigrants from developing countries are less educated than their native counterparts. This is generally because of the limited opportunities for education in their countries of origin. This can lead to an overestimation of educational mobility: descendants of seemingly low-educated immigrants will achieve a relatively higher level of education (Lange & Pfeiffer, 2019; Hebsaker et al., 2021). In other words, the unobserved genetic component or unobserved parental academic interests may be more significant for these immigrants, suggesting a potential for upward mobility.

Second, many immigrants come from a lower socioeconomic background, which is associated with fewer resources to invest in their children's education. This limited availability of financial and

[1] To be clear, explaining ethnic gap from low parental education does not necessarily imply an equality of opportunities if low education level of immigrant parents is not fully driven by their cognitive ability and attitudes towards education.

sociocultural resources can hinder parents' ability to contribute to their children's educational mobility (Fleury, 2017; Salvanes, 2023; Haveman and Wolfe, 1995). Third, immigrants typically lack an essential part of their new home-country-specific capital, including local language and information about institutions, norms, and values (Portes and Zhou, 1993; Zorlu & Hartog, 2018). This disadvantage limits parental contributions to children's attainment and can weaken intergenerational correlation accordingly. At the same time, immigrant families may also hold strong values of conformity and achievement (Nauck, 2001). Despite their low socioeconomic position, families may be highly motivated to help their children achieve socioeconomic success (Alba & Foner, 2016). One study indicates that parents' inclination to invest in their children's education does not seem to differ between Muslim and non-Muslim families after controlling for observed individual characteristics (Mitrut & Charles-Wolff, 2014).

Finally, schools and neighbourhoods can amplify or weaken the effects of parental background (Åslund et al., 2011; Kuyvenhoven & Boterman, 2021). These contextual factors may have different effects on the children from migrant families, particularly when they are socially isolated from the majority groups. In case of high levels of ethnic segregation, these children will interact with a pre-selected group of peers, teachers and professionals in schools and neighbourhoods where (children of) migrants and minorities are concentrated. Concentration and isolation can hamper a cultural connection with the mainstream or expose them to deviant behaviour, despair or stressful circumstances that undermine school performance. Conversely, they lack any positive 'neighbourhood effects' of living in a safe and affluent environment (see also Kauppinen, 2007; Owens, 2010).

Our review indicated that upward social mobility between generations seems more likely for migrants, mainly when their (grand)fathers and mothers arrived to work as manual labourers. Potential constraints are primarily related to lingual and cultural unfamiliarity with the new home country, but this will likely decrease over generations. A second constraint is associated with the quality of schools and neighbourhoods. Here, any differences in opportunity can reverberate into adulthood and persist over generations. When descendants of migrants are concentrated in low-quality neighbourhoods and schools, often in cities, the offspring of immigrants are likely to face significant disadvantages. Accordingly, we expect that the educational achievement of children from migrant families with a low socioeconomic status will be lower in neighbourhoods where low-status migrants are concentrated.

Similarly, the country of origin may also be relevant for the offspring of migrants. A strand of literature addresses differences in educational attainment and intergenerational educational mobility between host countries and countries of origin of migrants, comparing similar demographic cohorts in origin and destination countries. A tenor here is that immigrants are predominantly positively self-selected (Ichou, 2014; Zuccotti et al., 2017; Lange & Pfeiffer, 2019; Hebsaker et al., 2021). Griga and Hadjar (2014) report a higher probability of higher education degrees for individuals from a migrant and low social class background in countries with a low-stratified secondary school system. Van de Werfhorst and Heath (2019) show that the ethnic gap in educational attainment is smaller for the second generation from positively self-selected migrant groups.

Data and Variables

Our empirical analysis uses population register data from Statistics Netherlands (CBS) from 2017 and 2018. CBS register data includes relevant variables on demographic, household, and socioeconomic characteristics, as well as detailed educational attainment. We use a custom-made dataset that identifies the country of origin of immigrants and their descendants based on birthplace and migration date.[2] Second-generation individuals are identified based on their parents' country of origin. Children from families with at least one parent belonging to the 'second generation' are characterised as belonging to the third generation from migration[3].

This study focuses on the children of the second generation, i.e., the third generation. Relevant characteristics of their parents and grandparents are considered as background variables. In addition, a 5% sample of third-generation Dutch individuals is used as a reference group. Since we are interested in educational attainment, we restrict our analysis data to a sample of individuals aged 18 to 30. Age restrictions are necessary for our comparative analyses. The age distributions of the third generation vary across origin groups, with the third generation from the Moroccan and Turkish origin groups being relatively young. The number of third-generation children from the Moroccan and Turkish origin groups older than 30 is minimal, making it difficult to perform a meaningful statistical analysis. Therefore, we combine these groups in the descriptive analyses but use separate dummy variables for these groups in the regression analyses.

Migrant (ethnonational) origin

Based on country of origin, birthplace and migration date, our dataset distinguishes six demographic groups: native Dutch (i.e., Netherlands-born grandparents) and five groups of the third generation: German, Indish (ancestor born in colonial-era Indonesia), Surinamese, Turkish and Moroccan (combined in some analyses), and other. To be clear, these young adults are nearly all Netherlands-born Dutch citizens, and just for clarity, our findings refer to them based on their grandparents' countries of origin.

Educational level

Our dataset includes variables measuring educational attainment for children and parents. Educational achievements include 18 categories defined according to ISCED-F 2013, with one being the lowest level and 18 being the highest level. We use this variable in two ways. First, we cluster the 18 original categories into four education levels: low, low-medium, medium and high. This four-category variable is the dependent variable in multinomial regression analyses (see below) and is also used for the 'parental education' variable. Second, we convert 18 original categories into years of education, assuming expected years without time losses (see Table A1 in the appendix). This approach possibly ignores shorter or extended curricula like part-time, parallel or fast-track programmes). Converting these categories into years makes our education variable continuous, which allows us to decompose

[2] The dataset was custom-made as part of a research exchange with Statistics Netherlands and our institution to identify the 'third generation'. It has been used for other studies on other domains of economic assimilation of the third generation (references omitted).

[3] Children with multiple non-Dutch origin were assigned the ethnonational classification of the mother.

and quantify the ethnic gap in terms of education years. Lastly, we use a dummy control variable for those still in education.

Income and Socioeconomic Position (SEP)

The data include measures of household income by percentile rank for the children and the parents. Household income refers to the standardised disposable income of the household. Household income in percentiles reflects the relative position of the household in the income distribution. The socioeconomic position (SEP) variable is based on each individual's primary source of income and activity in a calendar year. It is specified as four categories: employee, self-employed, student, and other. This variable is available for both children and their parents.

Household and spatial variables

Two variables capture household structure: the number of persons in the household and the composition of the household, distinguishing households with and without minor children.

The spatial context is captured by the concentration of the three largest migrant groups in the neighbourhood and the degree of urbanisation. The ethnic concentration is significant, as the third generation often resides in neighbourhoods where disadvantaged migrants are concentrated. The Netherlands rarely has mono-ethnic deprived areas in large cities. Instead, there is a concentration of large migrant groups with a low socioeconomic background. Surinamese, Turkish, and Moroccan migrants are the three largest groups, typically concentrated together in relatively more deprived neighbourhoods of large and medium-sized cities (Zorlu and Mulder, 2008). Lastly, the "urbanisation degree" variable measures the municipality's urbanisation degree and is constructed based on address density. This variable has five levels: urbanised areas with 2,500 or more addresses per km^2; urbanised areas with 1,500 to 2,500 addresses per km^2; moderately urbanised areas with 1,000 to 1,500 addresses per km^2; less urbanised areas with 500 to 1,000 addresses per km^2; and non-urbanised areas with fewer than 500 addresses per km^2.

Table 1. Descriptive statistics of variables by gender

		Men		Women			
		Mean	s.d.	Mean	s.d.	Min	Max
Education	education in years	13.44	2.35	13.96	2.35	2	22
	Low	0.19	*0.39*	0.15	*0.36*	0	1
	Low-Medium	0.37	*0.48*	0.36	*0.48*	0	1
	Medium	0.24	*0.43*	0.22	*0.41*	0	1
	Higher education	0.20	*0.40*	0.27	*0.45*	0	1
	In Education	0.41	0.49	0.42	0.49	0	1
Education father	education in years, father	14.31	3.43	14.29	3.43	2	21
	Unknown	0.53	*0.50*	0.53	*0.50*	0	1
	Low	0.09	*0.28*	0.09	*0.28*	0	1
	Low-Medium	0.15	*0.35*	0.15	*0.35*	0	1
	Medium	0.05	*0.21*	0.05	*0.21*	0	1
	Higher vocational	0.10	*0.31*	0.10	*0.30*	0	1

	University	0.09	*0.28*	0.09	*0.28*	0	1
Education mother	education in years	13.66	3.25	13.63	3.25	2	22
	Unknown	0.47	*0.50*	0.47	*0.50*	0	1
	Low	0.13	*0.34*	0.13	*0.34*	0	1
	Low-Medium	0.18	*0.39*	0.18	*0.39*	0	1
	Medium	0.05	*0.23*	0.05	*0.23*	0	1
	Higher vocational	0.11	*0.31*	0.10	*0.31*	0	1
	University	0.06	*0.24*	0.06	*0.23*	0	1
Country of origin	Dutch	0.29	*0.46*	0.29	*0.46*	0	1
	German	0.17	*0.38*	0.17	*0.38*	0	1
	Indish	0.33	*0.47*	0.33	*0.47*	0	1
	Surinamese	0.02	*0.15*	0.02	*0.15*	0	1
	Moroccan/Turkish	0.01	*0.07*	0.01	*0.07*	0	1
	Others	0.17	*0.38*	0.17	*0.38*	0	1
HH composition	Single person	0.23	*0.42*	0.23	*0.42*	0	1
	Couple without children	0.17	*0.38*	0.22	*0.42*	0	1
	Couple with children	0.44	*0.50*	0.41	*0.49*	0	1
	Lone parent	0.13	*0.33*	0.12	*0.32*	0	1
	Institutional HH	0.03	*0.16*	0.02	*0.15*	0	1
	Age	23.77	*3.74*	23.79	*3.74*	18	30
	Co-residing with parent(s)	0.51	*0.50*	0.39	*0.49*	0	1
	Log distance parent(s)	4.08	*4.72*	5.14	*4.78*	0	13
SEP father	Employed	0.56	*0.50*	0.56	*0.50*	0	1
	Self-employed	0.18	*0.39*	0.18	*0.39*	0	1
	Retired	0.08	*0.27*	0.08	*0.27*	0	1
	Other	0.18	*0.39*	0.18	*0.39*	0	1
SEP mother	Employed	0.58	*0.49*	0.58	*0.49*	0	1
	Self-employed	0.12	*0.33*	0.12	*0.33*	0	1
	Retired	0.04	*0.20*	0.04	*0.21*	0	1
	Other	0.25	*0.43*	0.25	*0.43*	0	1
Parents hh-income	Household income parent	71.03	*24.32*	70.15	*24.66*	1	100
and age	Age dad	56.25	*5.78*	56.29	*5.79*	32	92
	Age mom	53.78	*5.37*	53.79	*5.38*	33	77
Parents hh comp.	Parents together	0.63	*0.48*	0.62	*0.48*	0	1
	Parents separated	0.27	*0.44*	0.27	*0.45*	0	1
	Mother absent	0.02	*0.15*	0.02	*0.15*	0	1
	Father absent	0.07	*0.25*	0.07	*0.26*	0	1
	both absent	0.01	*0.08*	0.01	*0.08*	0	1
Urbanisation	Highly urbanised	0.29	*0.45*	0.31	*0.46*	0	1
	Urbanised	0.33	*0.47*	0.33	*0.47*	0	1
	Moderately urbanised	0.15	*0.35*	0.14	*0.35*	0	1

	Little urbanised	0.17	*0.38*	0.16	*0.37*	0	1
	Not-urbanised	0.06	*0.24*	0.06	*0.23*	0	1
% Immigrants	% Surinamese, Turkish, and Moroccan	6.14	*8.39*	6.42	*8.59*	0	70
N		148,886		142,731			

Methods

Estimation strategy

Since ethnic differentials in education and their underlying explanations are central to our analysis, our estimation strategy is designed to capture the role of intergenerational transmission and ethnic differences while considering the specific features of the Dutch education system, which is primarily organised into occupational and academic tracks. We examine both the years and levels of education, applying appropriate regression techniques.

First, we analyse the intergenerational transmission of education within ethnic groups and estimate the educational outcomes of the third generation using separate subsamples for each group. This approach enables us to assess the specific impact of fathers' and mothers' education for each ethnic group. Second, we estimate ethnic differences in years of education by gender, progressively controlling for parental background and respondents' household status, using pooled samples across ethnic groups. Third, we deepen our understanding of the sources of ethnic differentials in education by decomposing the observed differences to quantify the contributions of measured background variables and the remaining unexplained component. Finally, we examine ethnic differences across the stratified layers of the Dutch education system using an educational choice model.

The following section describes the formal statistical models that facilitate this multifaceted empirical analysis.

İntergenerational mobility within ethnic groups

First, we consider intergenerational educational mobility by ethnic background. The following statistical model estimates the impact of parental education (years) on the academic achievement of the child (years), holding constant gender, age, and ongoing enrolment in education. The education of both parents is separately included with an interaction term to allow differential effects of parental education when both parents are higher educated.

$$Edu_i = \alpha + \beta^F Edu_i^F + \beta^M Edu_i^M + \beta^{FM} Edu_i^F Edu_i^M + \gamma X_i + \varepsilon_i \qquad \text{(eq 1)}$$

Edu_i represents the education of third-generation young adults in years achieved, Edu_i^F and Edu_i^M denote the father's and mother's education in years, X_i is a vector of the control variables, i.e. age, gender and ongoing enrolment. α, β, γ are the associated coefficients to estimate and ε_i is a normally distributed error term, with $\varepsilon \sim N(0, \sigma^2)$.

Ethnic differences in years of education by gender

The next step is an estimation of ethnic differentials in education by gender after controlling for differences in (parental) background. Based on the pooled samples for men and women, we present a

baseline OLS model (similar to equation 1) and extend this model stepwise by adding the control variables to develop a better understanding of the role of parental and own characteristics. This model is given by

$$Edu_i = \alpha + \beta^F Edu_i^F + \beta^M Edu_i^M + \beta^{FM} Edu_i^F * Edu_i^M + \delta M_j + \gamma X_i + \varepsilon_i \quad \text{(eq 2)}$$

The first baseline model includes our variables of interest: ethnic origin, M_j and parental education in years, which is specified for both parents, and an interaction term for the father's, Edu_i^F and mother's education, Edu_i^M and their interaction, $Edu_i^F * Edu_i^M$. This model also includes controls, X_i for a quadratic specification of the age variable as well as a dummy variable for being in education. So, the estimates of this baseline model give an intergenerational correlation of educational attainment and ethnic differences in educational achievement. The second model adds control variables for parental demography (age and household composition) and parental socioeconomic position (SEP and household income). The third model also includes control variables for children's household composition and spatial context, including the concentration of migrants in the neighbourhood.

Decomposing ethnic differences

An alternative approach to understanding sources of ethnic educational gap is a standard Oaxaca-Blinder decomposition analysis, which is an established technique to identify the contribution of each observed characteristic to the gap (Jann, 2008). This technique decomposes the difference in mean years of education between native Dutch and ethnic minority groups into two main components: explained and unexplained. Furthermore, this technique provides information about how these components are related to the variables in the regression models. The contribution of observed characteristics to the explained component is essential, while the unexplained component is mainly driven by unobserved factors potentially affecting educational attainment differently for native Dutch and ethnic minority groups, such as quality of schools, sociopsychological structure of families, discrimination, information gap, etc.

The total difference in the mean education between third-generation Dutch and migrant groups (T) is given by

$$T = \left(\overline{Edu}_D - \overline{Edu}_m\right) \quad \text{(eq 3)}$$

Where $\overline{Edu}_D$ and $\overline{Edu}_m$ denote the mean education for the Dutch origin group and a migrant origin group; subscript D refers to Dutch and, m indexes third generation descending from migrant groups: German, Indish, Surinamese, Moroccan and Turkish. This decomposition analysis uses separate regression models for ethnic origin groups to predict the years of education from observed characteristics of individuals. Linear regression models are employed for ethnic origin groups are given by:

$$Edu_{iD} = \alpha_D + \beta_D x_{iD} + \varepsilon_{iD} \quad \text{(eq 4)}$$

$$Edu_{im} = \alpha_m + \beta_m x_{im} + \varepsilon_{im} \quad \text{(eq 5)}$$

Where x is a vector of characteristics determining the education of children and a constant, β is a vector of parameters to estimate and ε_i is a random error term with zero expectation, $E[\varepsilon] = 0$. These equations include the identical variables listed in the extended model III in Table 3. Using these regression models, the native-migrant gap in the years of education (T) is decomposed into two main components:

$$T = \hat{\beta}_D(\bar{x}_{iD} - \bar{x}_{im}) - \bar{x}_{im}(\hat{\beta}_D - \hat{\beta}_m) \quad \text{(eq 6)}$$

Where $\bar{x}_{iD}$ and $\bar{x}_{im}$ denote the mean values of characteristics, and $\hat{\beta}_D$ and $\hat{\beta}_D$ the estimated parameters. The first term on the right-hand side, $\hat{\beta}_D(\bar{x}_{iD} - \bar{x}_{im})$ represents explained differentials comprised by the contribution of characteristics to the differential in the mean education and, the second term, $\bar{x}_m(\hat{\beta}_D - \hat{\beta}_m)$ gives unexplained differentials.

Ethnic differences across educational layers

Up to this point, we have evaluated ethnic differences in educational attainment and the role of intergenerational mobility based on years of education. This approach is informative about differences around the mean years of education but potentially masks different patterns across various layers of the education system. The main layers of the education system are milestones in educational careers. Therefore, we focused on the likelihood of educational attainment in four categories of education in the Dutch education system: low, low-medium, medium, and high. Although these education categories might seem to be ordered, each education outcome is driven by different factors, i.e. the assumption of parallel regressions for ordered logit estimator would not hold. Therefore, we consider education categories as nominal outcomes and employ the following multinomial logistic regression model, assuming that error terms are identically and independently distributed.

$$ln\left[\frac{Pr(EduL_i=k)}{Pr(EduL_i=1)}\right] = \alpha_k PEdu_i + \alpha_k PEdu_i^2 + \beta_k M_j + \gamma_k PEdu_i * M_j + \delta_k x_i + \varepsilon_i \quad \text{(eq 7)}$$

The probability of each educational outcome k, $Pr(EduL_i = k)$, compared to the base category (low education) is predicted from the same set of variables as in equation 2. This regression model includes quadratic parental education, $PEdu_i$, ethnic background variable M_j, an interaction of parental education and ethnic background $PEdu_i * M_j$, which allows variations in the effect of parental education by ethnic group. This model also includes a vector of control variables, x_i, for individual, parental and contextual characteristics of individuals potentially relevant for educational attainment. Error terms ε_i are assumed to be identically and independently distributed.

Results

Intergenerational educational mobility within ethnic groups

This statistical model in equation 1 is estimated for each ethnic group, and the estimates are displayed in Table 2. We are particularly interested in three estimated β coefficients for separate effects of parental education and their interaction, β^{FM}. For this group-specific analysis, a small sample size for some groups does not allow gender-specific estimations. The first three lines show the effect of parental education. The effect is the largest for Turkish (0.25 for mothers and 0.33 for fathers) and not significant for Moroccan. This effect is around 0.20 for Dutch and Indish parents, 0.176 for German and about 0.15 for Surinamese parents, without a significant difference between fathers and mothers.

Table 2. OLS estimation of education in years by ethnic group

	Dutch	*German*	*Indish*	*Surinam*	*Moroccan*	*Turkish*

Education father	0.206***	0.176***	0.204***	0.144**	-0.052	0.331***
Education mother	0.208***	0.176***	0.204***	0.152**	0.129	0.252**
Interaction education father and education mother	-0.004***	-0.001	-0.004***	-0.002	0.004	-0.015*
Age	0.308***	0.300***	0.320***	0.303***	0.254***	0.321***
Woman	0.504***	0.488***	0.517***	0.351***	0.373	0.381*
In Education (dummy)	0.473***	0.618***	0.512***	0.676***	0.580*	1.014***
Constant	1.025***	1.277***	0.612**	2.010*	4.778***	-0.309
N	23584	15034	31981	2061	219	424
R-squared	0.293	0.292	0.303	0.284	0.261	0.258

* p<.05; ** p<.01; *** p<.001

These separate estimates for migrant groups provide information about the size of the intergenerational transmission of education within the groups. Still, these estimates are not directly comparable across the groups due to a variation in the sample distributions. To investigate ethnic differentials after controlling for differences in observed parental and personal characteristics, we use the pooled samples for men and women.

Ethnic differences by gender

Three OLS models in equation 2 are run by gender (see Table 3). The estimates from the first model show that all ethnic minority groups have significantly lower educational attainment than native Dutch, with the largest gap for Turkish and Surinamese young adults. Children's education is significantly correlated with the education of both parents, almost in a similar magnitude. At the same time, a significant negative interaction coefficient indicates a decreasing effect of parental education with increasing educational attainment of both parents. After controlling for parental age, household, and socioeconomic position in the second model, the ethnic differences become insignificant for Surinamese, Turkish and Moroccan and become smaller for German and Indish. It is worth mentioning that the samples of Turkish and Moroccan third generation are quite small and include a high variation, leading to less precise estimates. When we also control for household composition and spatial context, the ethnic gap becomes significant for Surinamese men and women, but little is changed for other ethnic groups. Interestingly, the pattern of estimates is quite similar for men and women. This basic assessment shows a significant ethnic gap for Indish and German, whilst the ethnic gap for Turkish and Moroccan is attributed mainly to their parental socioeconomic position, and that of Surinamese is associated with their household composition. When the estimates are controlled for parental background in model II, the ethnic gap for Turkish, Moroccan, and Surinamese is no longer statistically significant. If controlled for young adults' own household composition and spatial context, the ethnic gap becomes significant again and larger in magnitude for Surinamese men and women, which signifies their favourable household and spatial position with their relatively high frequency of co-residence with parents and a stronger concentration in more urbanised areas.

Table 3. OLS estimation of education in years by gender

Men	Women

	Model I	Model II	Model III	Model I	Model II	Model III
Education father	0.202***	0.156***	0.160***	0.196***	0.144***	0.130***
Education mother	0.196***	0.157***	0.162***	0.204***	0.156***	0.140***
Interaction education father and education mother	-0.004***	-0.004***	-0.005***	-0.003***	-0.003***	-0.003***
Country of origin (Dutch)						
Germany	-0.167***	-0.121***	-0.106***	-0.229***	-0.114***	-0.120***
Indish	-0.180***	-0.115**	-0.164***	-0.160***	-0.089***	-0.125***
Surinam	-0.350***	-0.076	-0.180**	-0.404***	-0.101	-0.174**
Morocco	-0.128***	0.233	-0.117	-0.244***	0.178	0.125
Turkey	-0.434**	0.016	-0.108	-0.337*	0.101	-0.073
Others	-0.139***	0.020	-0.062**	-0.184***	-0.064*	-0.104***
Quadratic Age and a dummy for attending education	Yes	Yes	Yes	Yes	Yes	Yes
Parents (SEP, Age, Household)		Yes	Yes		Yes	Yes
Own household composition/spatial context			Yes			Yes

"Yes" denotes controls for each model for which coefficients are not presented for the sake of simplicity (available on request). Model I is a baseline model with controls for quadratic age and a dummy for being in education. Model II includes additional control variables for parental background, while Model III also controls for own household composition and spatial context.

Results from the decomposition analysis

For the decomposition analysis, we estimate OLS models for each ethnic group, including the set of regressors as in the third model in Table 3 and gender. The results of the decomposition analysis are displayed in Table 4. The emphasis is on the explained component of the ethnic gap between Dutch and separate ethnic groups, particularly on the contribution of explanatory variables. The contribution of the most influential variables to the explained component is presented. The most significant ethnic gap is found for Turkish and Moroccan, 1.7 and 1.61 years. The gap is less than one year for Surinamese (0.76) and German (0.22). Almost no gap is observed for Indish. The gap for Turkish and Moroccan is entirely explained by their observed characteristics, particularly their young age and the low socioeconomic position of their parents. Indish third-generation individuals appear to have a slightly negative gap, meaning a higher explained component than native Dutch due to their favourable parental socioeconomic position. Still, this advantage is fully offset by a similar unexplained component. Table 4 indicates a small but significant unexplained gap, disfavouring Surinamese, Indish (0.16) and German groups (0.12).

In summary, the decomposition results show that the ethnic gap is most prominent for the most disadvantaged groups (Turkish and Moroccan). However, this gap is fully explained by their observed characteristics, with a prominent role for parental socioeconomic position. On the contrary, Surinamese, Indish and German have a small unexplained gap despite their favourable characteristics.

Table 4. Decomposition of mean years of education

	German		*Indish*		*Suriname*		*Moroccan*		*Turkish*	
	Coef.	*P>|z|*	Coef.	P>|z|	Coef.	*P>|z|*	Coef.	*P>|z|*	Coef.	*P>|z|*
Dutch (A)	13.68	*0.00*	13.68	0.00	13.68	*0.00*	13.68	*0.00*	13.68	*0.00*
Migrant origin (B)	13.46	*0.00*	13.69	0.00	12.92	*0.00*	12.07	*0.00*	11.97	*0.00*
Difference (A-B)	0.22	*0.00*	-0.01	0.05	0.76	*0.00*	1.61	*0.00*	1.70	*0.00*
Explained	0.10	*0.00*	-0.17	0.00	0.60	*0.00*	1.71	*0.00*	1.63	*0.00*
Age	-0.05	*0.00*	0.08	0.00	0.38	*0.00*	0.68	*0.00*	0.67	*0.00*
Log distance parent	-0.01	*0.00*	-0.02	0.00	0.10	*0.00*	0.18	*0.00*	0.23	*0.00*
HH income parent	0.05	*0.00*	-0.01	0.07	0.08	*0.00*	0.22	*0.00*	0.22	*0.00*
Education father	0.03	*0.00*	-0.07	*0.00*	0.00	*0.54*	0.17	*0.00*	0.17	*0.00*
Education mother	0.03	*0.00*	-0.07	0.00	0.02	*0.00*	0.14	*0.00*	0.13	*0.00*
Unexplained	0.12	*0.00*	0.16	0.00	0.16	*0.00*	-0.11	*0.31*	0.07	*0.42*

Ethnic differences across educational layers

We estimate multinomial logistic models in equation 7 for the separate samples of men and women. These estimations provide information about ethnic differences across the educational layers and the contribution of parental education to the likelihood of attainment at a particular level. Table 5 presents the estimation results of the full models. We prefer average marginal effects over multinomial model coefficients or odds ratios because of their interpretability for categorical predictors. The average marginal effects are particularly suitable for categorical predictors and represent differences in outcome probabilities relative to the reference category of a predictor. For instance, when ethnic origin is considered, the marginal effects indicate an overrepresentation of ethnic minority groups in the low education level (positive values) while an underrepresentation in the high education level (mostly negative values), compared to Dutch. More specifically, Surinamese and Turkish men have a 5.6 and 5.7 percentage points lower probability of having a high education than Dutch men. Similarly, this probability is 3.8 and 3.2 lower for Surinamese and Turkish women, respectively, compared to Dutch women. These lower probabilities in the high education level are compensated by higher probabilities in low and low-medium education levels. Ethnic minority men are generally more concentrated in the lowest education level, while ethnic minority women are predominantly in the low-medium education level.

The results show that individuals are more likely to be higher educated when they are older, still in education, co-residing or in a couple household without children and living in highly urbanised areas. Concerning the role of parental background in children's educational outcomes, the third generation from higher-educated and high-income families is more likely to be higher educated. This includes individuals whose parent is an entrepreneur. Having older parents is also associated with a higher education level. On the other hand, the third generation from non-standard families is less likely to be higher educated, especially when their parents are separated. Absence of the father is equally associated with a lower education level of sons and daughters, while absence of the mother is especially harmful for daughters' education level.

Overall, the analysis of educational mobility across different educational tiers reveals that ethnic minority groups are disproportionately represented in the lower education layers, to the detriment of higher education attainment. This pattern of ethnic disparity persists even after controlling for relevant demographic and socioeconomic (parental) characteristics, and it is more pronounced among men than women. The estimated probability of an ethnic gap in access to higher education—despite adjusting for demographic and parental background factors—is striking and may indicate that the third generation has not fully closed the gap in educational outcomes. At the same time, the consistency of the ethnic gap across different migrant groups diminishes the explanatory power of factors such as initial socioeconomic position and cultural distance.

Table 5. Estimates of multinomial logit models for men and women: Marginal effects [a]

		MEN				WOMEN			
		Low	LowM	Med	High	Low	LowM	Med	High
	Education of parents	-0.017	-0.016	0.017	0.015	-0.014	-0.021	0.016	0.019
	Age	-0.035	0.012	·0.001	0.024	-0.034	0.014	-0.013	0.033
	In education (dummy)	-0.099	-0.164	0.227	0.036	-0.084	-0.121	0.186	0.019
	Single person								
	Couple No Kid	-0.047	0.042	-0.026	0.031	-0.008	0.032	-0.045	0.022
	Couple with Kids	0.015	0.107	-0.091	-0.032	0.070	0.101	-0.073	-0.097
	Lone parent	0.006	0.095	-0.077	-0.024	0.094	0.097	·0.059	-0.132
	Institutional HH	0.190	-0.096	-0.065	-0.030	0.165	-0.093	-0.051	-0.020
Origin Group	Dutch (ref)								
	Germany	0.017	0.003	-0.003	-0.017	0.011	0.012	-0.008	-0.014
	Indish	0.014	-0.007	0.021	-0.028	0.006	0.005	0.016	-0.026
	Surinam	0.028	0.028	0.001	-0.056	0.010	0.028	0.000	-0.038
	Morocco	0.035	-0.029	-0.073	0.067	0.010	0.009	0.033	-0.053
	Turkey	0.054	-0.013	0.016	-0.057	0.004	0.061	·0.032	-0.032
	Others	0.013	-0.015	0.016	-0.014	0.015	-0.010	0.008	-0.013
Residential	Co-residing (dummy)	-0.044	-0.140	0.080	0.104	-0.098	-0.095	0.056	0.137
context	Ln(distance parents)	-0.006	-0.014	0.006	0.013	-0.005	-0.010	0.005	0.010
	% SurTurkMor imm	0.001	0.000	-0.001	-0.001	0.001	0.001	-0.001	-0.001
	Highly urbanised	·0.044	-0.109	0.084	0.069	-0.037	-0.109	0.065	0.081
	Urbanised	-0.004	-0.040	0.043	0.001	-0.002	-0.037	0.023	0.016
	Moderately urbanised	0.000	-0.034	0.030	0.004	0.001	-0.020	0.012	0.007
	Little urbanised	0.004	-0.011	0.014	-0.008	0.006	0.001	-0.004	-0.003
	Not-urbanised (ref)								
Parental SEP	Emp father (ref)								
	Entrepr father	-0.002	-0.022	0.016	0.008	-0.016	-0.013	0.021	0.008
	Pension father	0.008	-0.011	0.004	0.000	0.010	-0.005	0.005	-0.010
	Other father	0.025	-0.009	-0.011	-0.005	0.018	-0.005	·0.004	-0.009
	Emp mother (ref)								
	Entrep mother	-0.004	-0.013	0.015	0.002	-0.002	-0.015	0.013	0.004
	Pension mother	-0.001	-0.012	0.016	-0.004	-0.005	-0.013	0.025	-0.006
	Other mother	0.018	-0.003	-0.013	-0.002	0.024	0.009	-0.005	-0.027

	HHincome parents	-0.002	0.000	0.001	0.001	-0.001	-0.001	0.000	0.002
Parental demography	Age father	-0.002	-0.002	0.002	0.001	-0.001	-0.002	0.001	0.002
	Age mother	-0.004	-0.002	0.002	0.004	-0.003	·0.003	0.001	0.005
	Parents separated	0.077	0.019	-0.033	-0.062	0.049	0.035	·0.027	-0.057
	Mother absent	0.129	-0.156	0.018	0.009	0.001	0.007	0.049	-0.057
	Father-absent	0.058	0.005	·0.015	-0.047	0.041	0.020	·0.025	-0.036
	Pseudo R- squared	0.247				0.278			
	Chi-sq	63.809				68.547			
	N	95905				91691			

[a] Marginal effects give intuitive and easily interpretable results. Marginal effects for categorical variables show the difference in probability between the related category and the reference category. In other words, their positive and negative values can be read as overrepresentation or underrepresentation in a particular state with respect to the associated reference category. Marginal effects for continuous variables reflect the effects of a unit change in these variables, evaluated at their mean values.

Intergenerational transmission

Since we are also interested in the relationship between child education and parental education, we present plots in the Appendix showing the impact of parental education on the child's education by ethnic origin. These plots reflect the predictive margins for ethnic groups for four levels of child education derived from the estimates of multinomial logistic models for men and women.

The probability plots in Figure A1 indicate that the effect of parental education is not linear across the levels of education. Intergenerational transmission of education is effective after ten years of parental education (above low education). Children of lower-educated parents are less likely to achieve medium and higher levels of education. The likelihood of higher education increases with parents' education when parental education is more than 10 to 12 years. The deviating correlation pattern is much less reliable for Turkish/Moroccan young adults and, to a lesser extent, for Surinamese due to a small sample size and large standard errors. This result is potentially driven by the young age of young adults from these ethnic groups and a limited number of highly educated parents in their samples. Children of lower-educated parents (up to 10 years) appear to persist in their parental disadvantage. In other words, parental education becomes effective if parents have had more than ten years of schooling. This pattern applies to the likelihood of medium education for all ethnic groups. When considering the likelihood of high education, the correlation with parental education is much weaker for Turkish/Moroccan and Surinamese children. This weak correlation is likely caused by their parents' considerably low education level and a few highly educated parents.

In summary, the analysis of intergenerational transmission of education across educational layers shows a strong correlation between young adults' education and their parents'. However, this correlation is only significant for parents with a medium or higher level of education. Notably, we observe greater upward mobility for the most disadvantaged groups, Turkish/Moroccan and Surinamese, at medium levels of education. This is particularly interesting for women from these groups, who show a strong correlation with their parental education. The estimated weak correlation for these groups at high levels of education is likely driven by the limited number of highly educated parents in these communities, combined with their small sample size. This makes the seemingly weak correlation much less reliable.

Conclusions

To gauge the economic assimilation of migrant groups in a European context, we investigated the educational attainment of the grandchildren of migrants. In doing so, this paper provided the first comprehensive assessment of the ethnic gap in education among the young 'third generation' from an intergenerational perspective. Using a custom-made dataset, we applied several statistical analyses to assess the ethnic gap in education for migrant groups with varying initial skill endowments and cultural distances from the host society. Using detailed educational attainments of parents and their offspring and a set of controls for individual and family background, we examined the ethnic gap in terms of years of education. We decomposed the overall gap into two parts: explained by the observed characteristics and the remaining unexplained part. Alternatively, we estimated the ethnic gap for four layers of education to uncover the role of intergenerational mobility.

The analysis showed that 'new' migrant groups seem to have considerably lower education levels than third-generation Dutch. The ethnic gap is especially present at the highest education level. However, their younger age structure and family characteristics largely drove their lower attainment. The ethnic gap for Turkish, Moroccan, and Surinamese groups could largely be explained by their personal characteristics and parental socioeconomic background. The lower education levels of parents explained a significant part of the lower educational outcomes of their children. Our estimations indicate, somehow surprisingly, a significant ethnic gap for the migrant groups with a more extended migration history and closer cultural distance to the Dutch society, such as German, Indish and Surinamese. These migrant groups do not belong, at first sight, to the most disadvantaged groups partly because of their shared geographical border with the Netherlands (Germany) and shared colonial history with the former colonies in Indonesia and Surinam. Moreover, immigrant grandparents from these origins have likely been exposed to educational institutions and systems similar to those in the Netherlands. On the other hand, the observed sizeable ethnic gap for the disadvantaged groups, Turkish and Moroccan, can be fully explained by their characteristics. These groups immigrated to the Netherlands as guest workers from the 1960s onwards, have a relatively short migration history, and are from distinct cultural and social class backgrounds, predominantly from impoverished rural areas.

Implications of these results are twofold: the most disadvantaged migrant groups appeared to bridge the ethnic gap in educational attainment after three generations, which was in line with earlier findings that ethnic affiliation does not explain disadvantage in income (Zorlu & Van Gent, 2023). Secondly, migrant groups with the most minor initial disadvantages face an unexplained ethnic gap, which was an unexpected result. Our data could not explain the ethnic gap in education for the least disadvantaged migrant groups. Our earlier study on income provided evidence for an unexplained income gap for the Indish third-generation group; the observed income gap for German, Turkish and Surinamese origin groups was fully explained by the observed characteristics (ref omitted).

This study's results support the applicability of classical assimilation theory to the incorporation of migrant communities in European societies. Difficulties in integrating new migrant communities with poor schooling and from distinct cultural and religious backgrounds have inspired some scholars to question the relevance of classical assimilation theory in north-western European countries with rooted traditions and institutions (Heath et al., 2008; Galster et al., 2024).

The grandchildren of low-educated—even illiterate—immigrants appear to perform similarly to those from seemingly less disadvantaged migrant groups. This suggests that initial disadvantages have been largely overcome, and that the grandchildren of immigrants are on a path toward closing the ethnic gap in education by the third generation—mirroring the classic trajectory of European

immigrants in the United States (Alba and Nee, 2003; Alba and Foner, 2014). On the other hand, our results imply that the unexplained gap for the migrant groups with more advantageous starting positions, like German and Indish, is less likely to be driven by cultural differences between these migrant groups and Dutch society. There are likely other mechanisms at work that are unobserved in our data. If we are to speculate, the unexplained gap may be caused by factors such as appreciation of formal education, spatial context, cognitive legacies, and motivational issues within families.

Lastly, our study also has implications for broader debates on migration, social integration and ethnic/racial inequality in Europe. Ethnic gaps exist, yet for the historically most disadvantaged groups, these can be explained by demographic and socioeconomic characteristics and family background. An optimistic interpretation may be that material deprivation among underprivileged groups can be tackled through education and redistribution, as they are not culturally inherent or the result of structural discrimination or exclusion. So far, our results do not point to persistent ethnic gaps for distinct disadvantaged groups, implying a partially successful integration in the European context after two generations, similar to earlier experiences in the United States.

References

Alba, R. and Foner, N. (2014). Comparing Immigrant Integration in North America and Western Europe: How Much Do the Grand Narratives Tell Us? *The International Migration Review* 48.S1: S263–S291.

Alba, R. & Nee, V. (2003). *Remaking the American Mainstream: Assimilation and Contemporary Immigration*. Cambridge, MA: Harvard University Press.

Åslund, O. et al. (2011). Peers, Neighborhoods, and Immigrant Student Achievement: Evidence from a Placement Policy. *American Economic Journal. Applied Economics,* 3,2: 67–95.

Björklund A, Salvanes KG (2011) Chapter 3 - Education and Family Background: Mechanisms and Policies. In: Eric A, Hanushek SM, Ludger W (ed) *Handbook of the Economics of Education*, vol Volume 3, 2011th edition. Elsevier, pp 201–247

Blanden J. (2013). Cross-country rankings in intergenerational mobility: a comparison of approaches from economics and sociology. Journal of Economic Surveys, 27, 38–73.

Boterman, W. R. (2022). School choice and school segregation in the context of gentrifying Amsterdam. *Housing Studies*, *37*(5), 720-741.

Boterman, W., Musterd, S., Pacchi, C., & Ranci, C. (2019). School segregation in contemporary cities: Socio-spatial dynamics, institutional context and urban outcomes. *Urban Studies*, *56*(15), 3055-3073.

Breen R., Müller W. (2020). Education and Intergenerational Social Mobility in Europe and the United States. Palo Alto, CA: Stanford University Press.

Chevalier, A., Harmon, C., O' Sullivan, V. et al. (2013). The impact of parental income and education on the schooling of their children. *IZA J Labor Econ* 2, 8. https://doi.org/10.1186/2193-8997-2-8

Chiswick Barry R., Miller Paul W. (2009). The international transferability of immigrants' human capital. *Economics of Education Review* 28(2):162–69.

Davis-Kean, P. E. 2005. "The Influence of Parent Education and Family Income on Child Achievement: The Indirect Role of Parental Expectations and the Home Environment." *Journal of Family Psychology 19 (2): 294–304. doi:10.1037/0893-3200.19.2.294.*

Dickson, Matt, Paul Gregg, and Harriet Robinson. 2016. Early, late ornever? When does parental education impact child outcomes*? Economic Journal* 126, no. 596: F184–F231.

Drouhot Lucas G., Nee Victor. 2019. Assimilation and the second generation in Europe and America: Blending and segregating social dynamics between immigrants and natives. Annual Review of Sociology 45(1):177–99.

Dustmann, C., Frattini, T., Lanzara, G., & Algan, Y. (2012). Educational achievement of second-generation immigrants: an international comparison. *Economic Policy*, *27*(69), 143–185. http://www.jstor.org/stable/41428848

Fleury, N. (2017). Education Gap between Second-Generation Migrants and Natives and the Role of Intergenerational Transmission of Education: The French Case. *International Journal of Manpower,* 38.2: 288–317.

Fleury, N. & Gilles, F. (2018). The intergenerational transmission of education. A meta-regression analysis. *Education Economics,* 26:6, 557-573, DOI:10.1080/09645292.2018.1517863

Galster, G.C., Magnusson Turner, L. & Santiago, A.M. (2024). Decomposing educational disparities between immigrants and natives in Oslo: how gender, parents, and place matter, Journal of *Ethnic and Migration Studies*, 50:4, 830-853, DOI: 10.1080/1369183X.2022.2096578

Gang IN, Zimmermann KF (2000). Is child like parent? Educational attainment and ethnic origin. *Journal of Human Resources* 35(3):550.

Griga, D., & Hadjar, A. (2014). Migrant Background and Higher Education Participation in Europe: The Effect of the Educational Systems. European Sociological Review, 30, 275-286.

Guryan, Jonathan, Erik Hurst, and Melissa Kearney. 2008. Parental education and parental time with children. *Journal of Economic Perspectives* 22, no. 3:23–46.

Guveli, A., Ganzeboom, H., Platt, L., Nauck, B., Baykara-Krumme, H., Eroglu, S., ... & Eroğlu, Ş. (2016). *Intergenerational consequences of migration: Socio-economic, family and cultural patterns of stability and change in Turkey and Europe*. Palgrave Macmillan.

Haveman, R., and B. Wolfe. 1995. "The Determinants of Children's Attainments: A Review of Methods and Findings." *Journal of Economic Literature* 33 (4): 1829–1878.

Hebsaker, M. Neidhofer, G. and Pfeiffer, F. (2021). Intergenerational mobility and self-selection on unobserved skills: New evidence. *Journal for Labour Market Research*, 55 (1): 1-9. https://doi.org/10.1186/s12651-021-00291-3.

Heath, A., Rothon, C., & Kilpi, E. (2008). The second generation in western Europe: Education, unemployment, and occupational attainment. *Annual Review of Sociology, 34,* 211–235.

Hertz, T., Jayasundera, T., Piraino, P., Selcuk, S., Smith, N. and Verashchagina, A. (2008). The Inheritance of Educational Inequality: International Comparisons and Fifty-Year Trends. *The B.E. Journal of Economic Analysis & Policy*, vol. 7, no. 2. https://doi.org/10.2202/1935-1682.1775

Holmlund, Helena, Mikael Lindahl, and Erik Plug. 2011. The causal effect of parents' schooling on children's schooling: A comparison of estimation methods. Journal of Economic Literature 49, no. 3:615–51.

Ichou, M. (2014). Who they were there: Immigrants' educational selectivity and their children's educational attainment. *European Sociological Review*, 30(6), 750–765.

Kauppinen TM (2007) Neighborhood effects in a European city: Secondary education of young people in Helsinki. *Social Science Research* 36(1): 421–444.

Kuyvenhoven, J. and W.R. Boterman, W.R. (2021). Neighbourhood and School Effects on Educational Inequalities in the Transition from Primary to Secondary Education in Amsterdam. *Urban studies*, 58.13: 2660–2682.

Lange, M., Pfeiffer, F. (2019). The human capital selection of young males seeking asylum in Germany. Journal of Labour Market Research, 53, 8. https://doi.org/10.1186/s12651-019-0259-y

Lareau, A. (1987). Social class differences in family-school relationships: The importance of cultural capital. *Sociology of education*, 73-85.

Lareau, A. (2011). *Unequal childhoods: Class, race, and family life*. Univ of California Press.

Mare R. (2011). A multigenerational view of inequality. *Demography*, 48, 1–23.

Merry, M. S., & Boterman, W. (2020). Educational inequality and state-sponsored elite education: the case of the Dutch gymnasium. *Comparative Education*, 56(4), 522-546.

Mitrut, A., Wolff, FC. (2014). Investing in children's education: are Muslim immigrants different?. *J Popul Econ* 27, 999–1022. https://doi.org/10.1007/s00148-014-0519-7

Nauck, B. (2011) Intercultural Contact and Intergenerational Transmission in Immigrant Families. *Journal of Cross-Cultural Psychology* 32(2): 159-173

Owens, A. (2010). Neighborhoods and schools as competing and reinforcing contexts for educational attainment. *Sociology of Education*, 83(4), 287-311.

Pastor, J.M., Peraita, C. & Soler, A. (2021). Gender differences in the intergenerational transmission of education in Spain: the role of parents' employment status and education, *Applied Economics*, 53:19. DOI: 10.1080/00036846.2020.1859449

Portes, A. and Zhou, M. (1993). The New Second Generation: Segmented Assimilation and its Variants Among Post-1965 Immigrant Youth. *The Annals of the American Academy of Political and Social Sciences*, 530: 74-96

Salvanes, K.G. (2023). What Drives Intergenerational Mobility? The Role of Family, Neighborhood, Education, and Social Class: A Review of Bukodi and Goldthorpe's Social Mobility and Education in Britain. *Journal of Economic Literature,* 61 (4): 1540 – 1578

Schüller, S. (2015). Parental ethnic identity and educational attainment of second-generation immigrants. *Journal of Population Economics,* 28, 4: 965-1004.

Torche F. (2011). Is a college degree still the great equalizer? Intergenerational mobility across levels of schooling in the United States. *American Journal of Sociology*, 117, 763–807.

van Gent, W., Zorlu, A. A generational perspective on owner-occupation rates among migrants and their (grand)children in the Netherlands. *J Hous and the Built Environ* (2024). https://doi.org/10.1007/s10901-024-10125-6

Van de Werfhorst, H.G., Heath, A. (2019). Selectivity of migration and the educational disadvantages of second-generation immigrants in ten host societies. Eur. J. Popul. 35(2), 347–378.

Van Ours, J.C. and J. Veenman (2003). The educational attainment of second-generation immigrants in The Netherlands. *Journal of Population Economics*, 16(4), 739–53.

Waldfogel, J., Kwon, S.J., Wang, Y. et al. (2023). Inequalities in Resources for Preschool-Age Children by Parental Education: Evidence from Six Advanced Industrialized Countries. *Eur J Population* 39, 37. https://doi.org/10.1007/s10680-023-09685-0

Waters MC, Tran VC, Kasinitz P, Mollenkopf JH. (2010). Segmented Assimilation Revisited: Types of Acculturation and Socioeconomic Mobility in Young Adulthood. *Ethn Racial Stud.* 2010;33(7):1168-1193. doi: 10.1080/01419871003624076.

Zhao, L., & Drouhot, L. G. (2024). The Grandchildren of Immigrants in Western Europe: Patterns of Assimilation Among the Emerging Third Generation. *Demography*, *61*(2), 463-491.

Zorlu, A. (2013). Ethnic disparities in higher education. *IZA Journal of Migration*, 2(3). https://doi.org/10.1186/2193-9039-2-3

Zorlu, A. and Hartog, J. (2018). The Impact of Language on Socioeconomic Integration of Immigrants. *IZA Discussion Paper No. 11485*.

Zorlu, A., & Mulder, C. H. (2008). Initial and subsequent location choices of immigrants to the Netherlands. *Regional Studies*, 42(2), 245–264.

Zorlu, A., & van Gent, W. (2024). Economic Assimilation of the "Third Generation": An Intergenerational Mobility Perspective. *International Migration Review*, 58(2), 734-763. https://doi.org/10.1177/01979183231165499

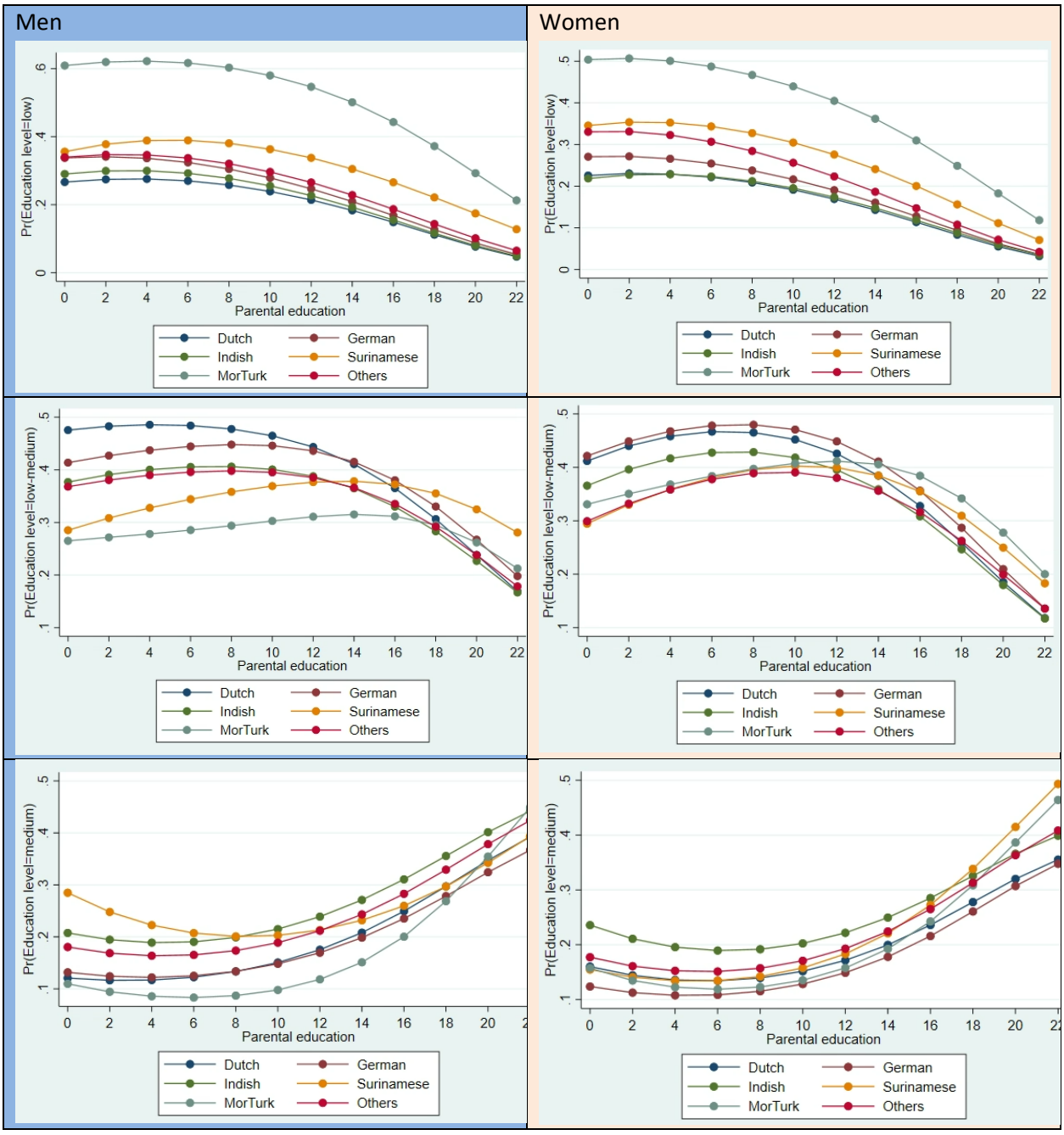
Zuccotti, C.V., Ganzeboom, H.B., Guveli, A. (2017). Has migration been beneficial for migrants and their children? Comparing social mobility of Turks in Western Europe, Turks in Turkey, and Western European Natives. *International Migration Review*, 51(1), 97–126.

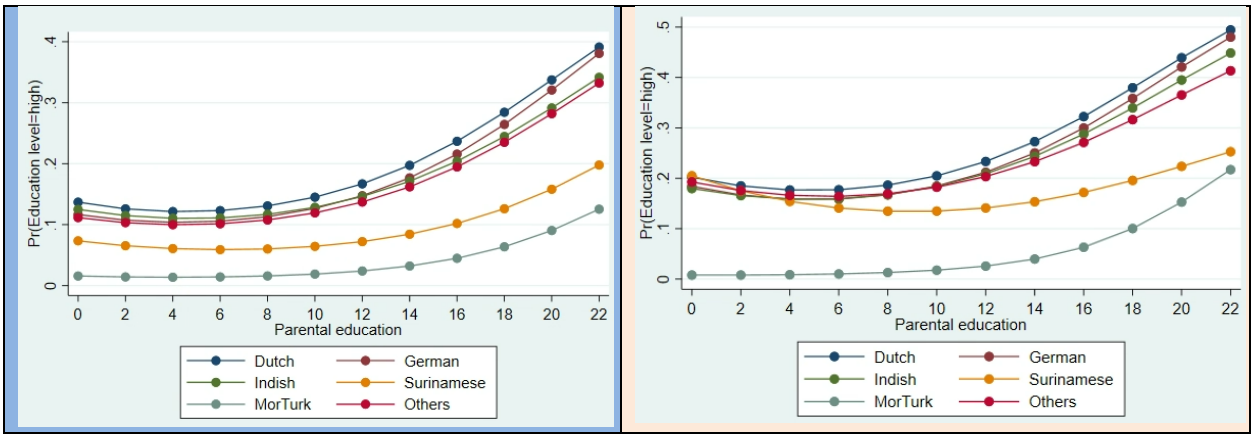
Appendix.

Table A1. Coding education years and levels

Code	Education level	No. of years	Level of education
	Basisonderwijs z.n.d. *(Primary education)*		
1111	Basisonderwijs gr1-2	2	1
1112	Basisonderwijs gr3-8	8	1
	Vmbo-b/k, mbo1 z.n.d. *(Lower-level secondary education and vocational training)*		
1211	Praktijkonderwijs	10	2
1212	Vmbo-b/k	12	2
1213	Mbo1	10	2
	Vmbo-g/t, havo-, vwo-onderbouw *(Medium-level secondary education)*		
1221	Vmbo-g/t	12	3
1222	Havo-, vwo-onderbouw	11	3
	Mbo2 en mbo3 z.n.d. *(Medium-level vocational training)*		
2111	Mbo2	11	3
2112	Mbo3	13	3
2121	Mbo4	14	3
	Havo, vwo z.n.d. *(Higher-level secondary education)*		
2131	Havo-bovenbouw	13	3
2132	Vwo-bovenbouw	14	3
	Hbo, wo-bachelor z.n.d. *(Higher-level education and vocational training)*		
3111	Hbo-associate degree	15	4
3112	Hbo-bachelor	16	4
3113	Wo-bachelor	17	4
3210	Hbo-, wo-master, doctor z.n.d.	18	4
3211	Hbo-master	18	4
3212	Wo-master	19	4
3213	Doctor	22	4

Figure A1. The impact of parental education on children's educational outcome by origin group for men and women. Predicted probabilities of by education categories from the extended multinomial logit regression models for men and women.




Pr(Education level=high)
0
.1
.2
.3
.4
0
2
4
6
8
10
12
14
16
18
20
22
Parental education
Dutch
German
Indish
Surinamese
MorTurk
Others
Pr(Education level=high)
0
.1
.2
.3
.4
.5
0
2
4
6
8
10
12
14
16
18
20
22
Parental education
Dutch
German
Indish
Surinamese
MorTurk
Others